41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society

July 23-27 2019

Messe Berlin
Berlin, Germany

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Conference Co-Chairs

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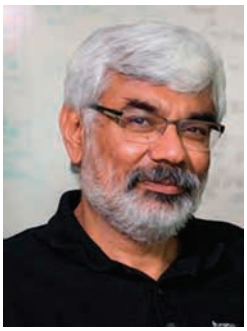
President's Welcome Message



On behalf of IEEE EMBS, I am extremely pleased to welcome all of you to the 41st EMB Conference in Berlin. The theme and location cannot be more contextual or relevant to today. Engineering is playing an ever more important role in shaping wellness and health care and the advent of dramatically new innovations in engineering technologies is revolutionizing the life of humans across the planet. With the new wearable sensor devices that can monitor myriad features of humans dynamically and continuously combined with our ability to process the largesse of data in real time, we can rightly describe the emergence of the "digital human". The 2019 EMB Conference will highlight the latest technologies, innovations and applications to human health and well-being and provide a roadmap for the future.

EMBS has spearheaded technical committees that integrally form the theme of the Conference this year. Innovations in technologies ranging from nano to macro scales, measurements that span molecular components to whole body and models that can cascade across scales are the hallmark of this year's conference presentations. While multiple facets of human physiology are coming within the scope of engineering, the human brain can be considered the ultimate frontier for engineering in biology and medicine. The exquisite detail in which we can now capture the brain circuitry in relationship to its function and the innovations in building the brain connectome have the potential to revolutionize our understanding of a thinking and functioning human! These challenges will ultimately lead not only to understanding normal function of the human brain, but the degeneration in the aging brain, myriad pathologies of the brain including cancer, dementia and scores of diseases and lead the way to improving the ultimate quality of life.

In this age of knowledge explosion and ability to obtain any information in seconds through the World Wide Web, the importance of training in engineering cannot be underemphasized. Especially, the young engineers who will inherit the future, have to be encouraged to spearhead entirely new challenges as well as take leadership roles towards the future in engineering health care. This in combination with the strongest emphasis in fostering the role of women and under-represented minorities in engineering will form an essential theme of this Conference. This will also serve as a major objective for EMBS in the coming years.

The Conference will also provide the community with the ability to determine what policies will impact the society as well as the growth of engineering in health care. The role of ethical guidelines and importance of understanding amongst the public on the strengths and limitations of use of engineering approaches will be emphasized by the speakers aiding policy makers to enact meaningful policies.

I want to welcome you to the historic city of Berlin, which is arguably the most appropriate location for this Conference. Berlin which sits at the nexus of the past and the future has emerged as a vibrant European city that sets the standards for modern living. This international melting pot city will invigorate the discussions on the impact of engineering in healthcare and set the stage for the future of the society. I hope you will enjoy the Conference and the stay in Berlin and help build the future of engineering in medicine and biology.

Shankar Subramaniam
University of Southern California, San Diego
EMBS President, 2019-2020

Welcome Message from the Organizing Committee

Welcome to EMBC 2019! We are glad to see you in Berlin joining the IEEE Engineering in Medicine and Biology Conference this year. Preparations for the conference began four years ago and the work during the last 12 months has been intense, but it also has been a rewarding journey.

We are proud to present outstanding keynote lectures from leaders in the field, many from biomedical engineering companies based in Germany and Europe. The carefully tailored program was achieved with a selection of various plenary, keynote and tutorial speakers. However, this outstanding program would not have been achievable without the large number of contributions submitted by authors from over 60 countries. We would like to warmly thank everyone who participated to make EMBC'19 in Berlin a very successful event. You will find the regular program integrated with workshops, minisymposia, special and invited sessions, in addition to a vibrant poster and exhibition area. Please, make use of the extensive space, rooms and corners of the CityCube for networking and socializing.

Our conference theme, "Biomedical Engineering: Ranging from Wellness to Intensive Care Medicine" highlights Germany as a country with a strong focus on exporting and producing goods of high quality,medical engineering products. Berlin is also a major hub for startups, many of them in the medical, healthcare and wellness fields. Current developments in healthcare concentrate on developing new and exciting technologies related to intensive care monitoring and intensive care interventions. Charité University Hospital is devoted to this kind of high quality care and is proud to be one of the largest university hospitals in Europe who supported our time and efforts in realizing this conference. Because of this, biomedical engineering will see a boost in wellness and health applications related to preventive and supportive healthcare. With all this activity around, we see Berlin as an exciting place for the EMB conference.

Berlin is not only devoted to science but also a cultural center with international shows, theater, music, and entertainment. Our long summer nights will provide opportunity for much fun and joy, hopefully in the local biergarten! Please enjoy the city with its many aspects of culture from the classic to avant garde with international openness for all kind of thoughts, opinions, and lifestyles. After a day of science, enjoy the area and everything it has to offer in the new and changing city of Berlin!

It takes many people to create a conference and we would like to recognize the Program Committee and the EMB Conference Editorial Board who diligently worked to create an interesting and dynamic program for the conference. We would like to thank the EMBS Executive Office, Conventus and Smith-Bucklin for keeping us on schedule. And most importantly, the support of local EMBS members and the biomedical community provided by the National Biomedical Engineering Society, the German DGBMT / VDE and the Austrian Biomedical Engineering Society.

We are happy to have you in Berlin!

Thomas Penzel, Thomas Lenarz, Mohamad Sawan
Conference Chairs

Olaf Dössel, Luca Mainardi, Konstantina S. Nikita, James Weiland
Program Chairs

General Conference Information

Registration

Registration is located on the Main Level of the City Cube Berlin and will be open Monday, July 22 through Saturday, July 27. Staff will be able to assist you during the following time schedule.

- Monday 7/22 15:00 – 17:00
- Tuesday 7/23 08:00 – 17:00
- Wednesday 7/24 07:30 – 19:00
- Thursday 7/25 07:30 – 18:00
- Friday 7/26 07:30 – 18:00
- Saturday 7/27 07:30 – 12:00

Conference Badges

- Badges should be worn by all conference participants while in the conference areas. Badges validate your registration and may be utilized to validate registration for sessions and workshops
- Badges can be printed at any registration area during the published open hours of the conference
- Name as provided for registration will be the name that appears on the badge
- $20 Fee applies for reprint or replacement of a badge

Exhibits

Exhibits will be located in Hall B on Level 2 of the City Cube

Exhibition Hours will run Wednesday, July 24– Friday, July 26

- Wednesday, July 24 08:00 – 21:00
- Thursday, July 25 08:00 – 19:30
- Friday, July 26 08:00 – 19:30

Set-Up

- Tuesday, July 23 08:00 – 20:00

Dismantling

- Friday, July 26 19:30 – 24:00

Welcome Reception

The welcome reception will be held on Wednesday, July 24 at 19:30 in Hall B

The Welcome Reception is included with your registration fee. If you would like to bring a guest, you can purchase them a ticket via the registration site or onsite at the registration desk for $80.00, plus tax.

Mothers' Room

Nursing mothers may visit the registration desk for access to a private nursing room at the City Cube. Please find a member of the EMBC Registration Staff Team and we will be happy to assist you.

Mobile App

For attendees who prefer to use their Smartphones to access the program and papers, the mobile app "EMBC 2019" can be downloaded from the Apple Store or the Google Play Store.

Proceedings

EMBC accepted papers will be available on the cloud platform InfoVaya (https://events.infovaya.com/event?id=37), from July 23, 2019, until October 23, 2019. The manuscripts will be accessible to registered attendees only. We will have WiFi in the meeting space; however, we do recommend that you download/print any papers ahead of time as we will not have a printer available on-site. Attendees will be able to view individual PDF files along with any author-uploaded documents (e.g. posters or slides). A downloadable folder with the entire set of papers will be available 48 hours after the end of EMBC 2019.

Infovaya Login Instructions

First-time users:

1. Visit https://events.infovaya.com/register

Enter the email address that you have provided to the conference.

A link to set your password will be emailed to you.

Existing InfoVaya® users: Simply log into your account.

Poster Sessions

- Wednesday, July 24 18:00 – 19:30
- Thursday, July 25 18:00 – 19:30
- Friday, July 26 18:00 – 19:30

Poster Sessions will take place in Hall B. Please make sure to hang your poster 2 hours prior to your scheduled presentation time. Upon conclusion of your poster session, please remove your poster. If your poster is left behind, it will be discarded. Velcro or Push Pins will be provided to attach your posters to your assigned poster board.

Oral Presentations

A video projector will be available in each room and will be connected to a computer supporting resolution up to 1080p. Please upload your presentation to the centralized system in the speaker ready room which is located on level one in the Cube Club at least 2 hours prior to your talk. It is the responsibility of the presenting author to load the presentation ahead of time and test it to ensure the presentation will be viewed properly.

Author No Show Policy

EMBS enforces a "no show" policy. Any accepted paper included in the final program is expected to have at least one author attend and present the paper at the conference. Authors of the accepted papers included in the final program who do not attend the Conference will be subscribed to a "No Show List", compiled by the Society. The "no-show" papers will be removed from the proceedings and noted as "Author unavailable for presentation" prior to submitting to IEEE for inclusion in Xplore. The "No Show List" will be available to all EMBS conference organizers, who can reject submissions from these authors in the following two years, based on their past negative impact on an EMBS conference.

Student, WIE, and EMB Society Events

Time	July 24, 2019 (Wednesday)	Room
08:00 - 09:30	Regional Chapter Meeting (NA and LA)	M7
13:00 - 14:00	Lunch with Leaders	A4
14:00 -15:00	How to Start Your First Lab	M7
17:00-18:00	Networking I	M7
Time	**July 25, 2019 (Thursday)**	**Room**
08:30 - 09:30	Student Paper Competition I	M7
10:30 - 12:00	Funding Your Graduate Education	M7
13:00 - 14:00	Lunch with Leaders	A4
13:00 - 14:00	EMB Meet the Editors	R13
14:00 - 15:00	Student Paper Competition II	M7
16:00 - 17:00	Student Paper Competition III	M7
17:00 - 18:00	Student Paper Competition Judging	M7
18:00 - 19:00	Women in Engineering Social Event	Cube Cafe
19:30 - 21:00	EMB AE Forum	A5
21:00 - 22:00	EMB AE Reception	A4
Time	**July 26, 2019 (Friday)**	**Room**
08:30 - 10:00	Scientific Writing and Manuscript Preparation	M7
10:30 - 12:00	Tips on Effective Presentation Design	M7
13:00 - 14:00	Women in Engineering Lunch	M2
13:00 - 14:00	Student Panel Discussion	A4
17:00 -18:00	Entrepreneur Session + Business	M7
19:30 - 22:30	Student and Young Professionals Reception	Cube Cafe
Time	**July 27, 2019 (Saturday)**	**Room**
08:30 - 10:00	Member and Student Committee	M7
10:30 - 12:00	Volunteering and Local Activities with EMBS	M7

Technical Committees

Time	July 23, 2019 (Tuesday) Sofitel Hotel Meeting Closed to Public	Room
16:00-18:00	EMBS Technical Committee Chairs' Board Meeting	Concorde
18:00-19:00	Joint Dinner for Technical Committee Chairs and PubCom	Concorde
Time	**July 24, 2019 (Wednesday) Technical Committee Meeting Meeting Closed to Public**	**Room**
13:00-14:00	Committee Meeting Neuroengineering (NE)	R2
13:00-14:00	Committee Meeting Cardio Pulmonary Systems (CPS)	R3
13:00-14:00	Committee Meeting Biomedical and Health Informatics (BHI)	R4
13:00-14:00	Committee Meeting Biomedical Imaging and Image Processing (BIIP)	R5
13:00-14:00	Committee Meeting Translational Engineering & Healthcare Innovations (TEHI)	R8
13:00-14:00	Committee Meeting Therapeutic Systems and Technologies (TST)	R10
13:00-14:00	Committee Meeting Wearable Biomedical Sensors and Systems (WBSS)	R12
13:00-14:00	Committee Meeting Standards	R13
13:00-14:00	Committee Meeting Bio nanotechnology & BioMEMS (BNBM)	M3
13:00-14:00	Committee Meeting Bio Robotics (BR)	M5
13:00-14:00	Committee Meeting Biomedical Signal Processing (BSP)	M7

This year our Technical Committees (TC) will be hosting a booth in the Exhibit Hall for you to stop by, learn about any of the Technical Committees, ask what innovative areas they are involved with, what direction they are taking and how you can be involved. The booth will be open July 24-26 during the 10 am break Wed-Fri, lunchtime 1-2 pm Thurs-Fri and during the evening poster sessions Wed-Fri.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Conference Co-Chairs
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Mohamad Sawan, *Hangzhou, China*

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Program at a Glance

Tuesday, July 23, 2019	
08:00–17:00	Registration Open
08:30–12:30	Workshops (Pre-Registration Required) • Intellectual property strategies for international protection of biomedical products and technologies • Wearable sensor solutions for integrated mobile EEG/EXG, motion capture & eye tracking in the real and virtual worlds • SimpleITK: A tool for biomedical image processing, from cells to anatomical structures • Neuromuscular modeling for evaluating neural prosthesis control and myoelectric decoding • Cardiorespiratory physiology and modeling with clinical applications (FULL DAY) • Advances and challenges in the field of emotion recognition and emotion regulation for designing technology-based interventions for affective disorders • The fast-changing landscape of electroencephalography • Heat-based techniques for cancer removal: A journey through state-of-the-art, research and clinical application
13:30–17:30	Workshops (Pre-Registration Required) • Science at-home: Breaking with the limitation of today's electrophysiological studies • Image-based estimation of cardiovascular tissue motion and elasticity • Interpretable & transparent deep learning • Cardiorespiratory physiology and modeling with clinical applications • Stress reduction methods using biofeedback and virtual reality • Major BCI methodological approaches and design of BCI applications for communication, neurorehabilitation, neurological assessment, deep brain stimulation and functional mapping with EEG and ECoG. • Telemedicine and telemonitoring in AAL home environments • Tutorial on computational modelling of therapeutic devices • The future of sleep health: A data-driven revolution in sleep science and medicine

Wednesday, July 24, 2019	
07:30–19:00	Registration Open
08:30–10:00	Minisymposium, Oral Sessions, Invited Sessions, Special Sessions
10:00–10:30	Coffee Break, Exhibition, Poster Viewing
10:30–12:00	Opening Ceremony & Plenary Session
12:00–13:00	Plenary Keynote
13:00–14:00	Lunch Break on own Lunch with Leaders (pre-registration required) Exhibition, Poster Viewing
14:00–15:30	Minisymposium, Oral Sessions, Invited Sessions, Special Sessions
15:30–16:00	Coffee Break, Exhibition, Poster Viewing
16:00–17:00	Theme Keynotes
17:00–18:00	Ignite Oral Presentation Sessions
18:00–19:30	Poster Session
19:30–21:00	Welcome Reception

Thursday, July 25, 2019	
07:30–18:00	Registration Open
08:30–10:00	Minisymposium, Oral Sessions, Invited Sessions, Special Sessions Student Paper Competition
10:00–10:30	Coffee Break, Exhibition, Poster Viewing
10:30–12:00	Minisymposium, Oral Sessions, Invited Sessions, Special Sessions Student Paper Competition
12:00–13:00	Plenary Keynote
13:00–14:00	Lunch Break on own Lunch with Leaders (pre-registration required) Exhibition, Poster Viewing
14:00–15:30	Minisymposium, Oral Sessions, Invited Sessions, Special Sessions Student Paper Competition
15:30–16:00	Coffee Break, Exhibition, Poster Viewing
16:00–17:00	Theme Keynotes
17:00–18:00	Ignite Oral Presentation Sessions
18:00–19:30	Poster Session
17:30–19:00	Women in Engineering Networking Event

Friday, July 26, 2019	
07:30–18:00	Registration Open
08:30–10:00	Minisymposium, Oral Sessions, Invited Sessions, Special Sessions
10:00–10:30	Coffee Break, Exhibition, Poster Viewing
10:30–12:00	Minisymposium, Oral Sessions, Invited Sessions, Special Sessions
12:00–13:00	Plenary Keynote
13:00–14:00	Lunch Break on own Exhibition, Poster Viewing Student Panel Discussion (pre-registration required) Women in Engineering Luncheon (pre-registration required)
14:30–15:30	Minisymposium, Oral Sessions, Invited Sessions, Special Sessions
15:30–16:00	Coffee Break, Exhibition, Poster Viewing
16:00–17:00	Theme Keynotes
17:00–18:00	Ignite Oral Presentation Sessions
18:00–19:30	Poster Session
19:30–21:00	Student/Young Professional Reception (pre-registration required)

Saturday, July 27, 2019	
07:30–12:00	Registration Open
08:30–10:00	Minisymposium, Oral Sessions, Invited Sessions, Special Sessions
10:00–10:30	Coffee Break
10:30–12:00	Minisymposium, Oral Sessions, Invited Sessions, Special Sessions
12:00–13:00	Lunch Break on own
13:00–14:30	Oral Sessions
14:30–16:00	Oral Sessions

Special Sessions

Wednesday, July 24, 2019, 08:30-10:00, Location: Hall A4 - Level 1

Early-Career Researcher Mentoring: Transitioning from Graduate Studentship to a Professional Career

Organizers: Aishwarya Bandla, Nitish Thakor

This session is specially designed for early-career researchers to make them future-ready and a career springboard to launch as a young PI, scientist in industry or entrepreneur. We target the burning topics which intrigue young scientists and fresh graduates while they transition from studentship to postdoc to a permanent position. The session will be fashioned to hold 4 talks by eminent personalities in Biomedical Engineering and followed by a panel discussion format to answer Q&A from the floor. The workshop will conclude with a networking session. Join us at the IEEE EMBC Conference 2019, for this exciting Early-Career Researcher Series workshop and networking session.

Thursday, July 25, 2019, 10:30-12:00, Location: R3 - Level 3

Ethical, Legal and Regulatory Issues of Machine Learning in Medical Systems

Organizers: Olaf Doessel, Christian Herzog

Machine learning (ML) is currently making a major step in terms of performance and fields of application. Support Vector Machines, Decision Trees and Forests, Neural Networks and Deep Learning can be found in nearly all fields of Biomedical Engineering. Both, biosignal and image analysis currently make significant profit from machine learning. The following aspects will be discussed in this special session in 3 lectures and a panel discussion: Ethical, legal and regulatory issues of machine learning in medical systems

Thursday, July 25, 2019, 14:00-15:30, Location: M2 - Level 3

A Physician, an Engineer and a Patient Walk into a Room: A Team-Based Approach to Developing Brain Cancer Treatments

Organizers: Punit Prakash, Govindarajan Srimathveeravalli, Ze'ev Bomzon

We propose an innovative and interactive special session where we will bring together a team of two physicians (a neurosurgeon and a radiologist), two biomedical engineers who have worked on novel solutions to treat brain cancer, and a patient diagnosed with glioblastoma. Through discussion and interaction, this team representing different stakeholders in the treatment process will arrive upon requirements for and evaluate candidate therapeutic technologies.

Friday, July 26, 2019, 10:30-12:00, Location: Hall A1 - Level 1

Detection of Atrial Fibrillation using Smartwatches and Smartphones

Organizer: Ki Chon

There has been an emergence of novel wearable devices for cardiovascular monitoring over the past several years. While event and Holter monitors can be considered some of the first wearable devices for arrhythmia detection, with the advent of smartwatches, smartphones, smart-patches and accelerometer-based wearables such as Fitbit, long-term and cost-effective arrhythmia monitoring is now potentially realizable. Paroxysmal atrial fibrillation detection is of particular interest as it requires long-term monitoring. This invited session's speakers will detail the latest development of various cost-effective and long-term monitoring devices for arrhythmia detection including atrial fibrillation. In particular, the latest developments on smartwatches (including Apple watch and Samsung Gear), a novel patch and armband devices for arrhythmia detection will be discussed by some of the invited speakers.

Friday, July 26, 2019, 14:00-15:30, Location: R4 - Level 3

The Role of Biomedical Engineering in the Rise of Personal and Precision Health Care

Organizers: Ron Leder, Luis Kun, Alexander James Casson, Joaquin Azpiroz

Genetics, nutrition, toxins (internal and external) and environmental factors are the pillars of health. When something goes wrong the problem can be traced to one or more of these factors. Some expand these to seven components, and we must include the practical technology for data collection and data management and interpretation, commonly called medical informatics.

Conference Editorial Board

EMBC 2019, Berlin, Germany

I would like to sincerely thank all the members of the Conference Editorial Board. There were 3445 submissions overall. Of these, 2278 were full contributed manuscripts that were part of our rigorous peer-review process. These papers were reviewed with a minimum of two reviewers per paper. Theme Editors made initial "accept/reject" decisions and created a draft scientific program for each Theme.

There were 29 Invited Session proposals resulting in 141 1-page papers and 36 Minisymposia proposals, resulting in 177 one-page papers. These were also carefully reviewed by a separate review panel selected by the program committee.

Finally, there were 797 Research Poster submissions this year. These were reviewed by a special team of associate editors, handpicked by the local organizers and the EMB Technical Committees. I thank all these individuals for their time as they rapidly reviewed them.

Each year we maintain the highest quality of papers being selected, each with ratings and feedback given to authors from reviewers. The continued dedication and commitment of Editors, Associate Editors and Reviewers, makes this Annual Conference an active and vibrant community of science. So please let me again warmly thank all the members of the Editorial Board, listed here below. It has been an honour and a privilege to be part of such a fine community of esteemed scientists.

Riccardo Barbieri, Editor in Chief - Conference Editorial Board

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Theme Editors

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Editor: Jim Ji
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Co-Editor: Arrate Munoz Barrutia

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- Kahya, Yasemin P.
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- Pachori, Ram Bilas
- Porta, Alberto
- Signorini, Maria G.
- Song, Dong
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- Valenza, Gaetano
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- Yana, Kazuo

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- Anastasio, Mark
- Beg, Mirza Faisal
- Chan, Kevin C.
- Ding, Lei
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- Duan, Qi
- Fenster, Aaron
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- Lavarello, Roberto
- Lee, Ray
- Liao, Hongen
- Munoz-Barrutia, Arrate
- Qi, Jinyi
- Razansky, Daniel
- Rizzo, Giovanna
- Sidky, Emil
- Sikdar, Siddhartha
- Staib, Lawrence H.
- Suzuki, Kenji
- Toschi, Nicola
- Vinegoni, Claudio

Theme 03. Micro/Nano-Bioengineering; Cellular/Tissue Engineering & Biomaterials
- Almasri, Mahmoud
- Capadona, Jeffrey
- Hamad, Eyad
- Jabbari, Esmaiel
- Lee, Hyunjoo Jenny
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Sisodia, Dr. Dilip
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Subramanian, Sandya
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Sukno, Federico
Sulzer, James
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Taberner, Andrew
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Tafreshi, Reza
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Tahmasebi, Amir M.
Takahashi, Kazutaka
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Tanzi, Maria Cristina
Tarasiuk, Ariel
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Taya, Fumihiko
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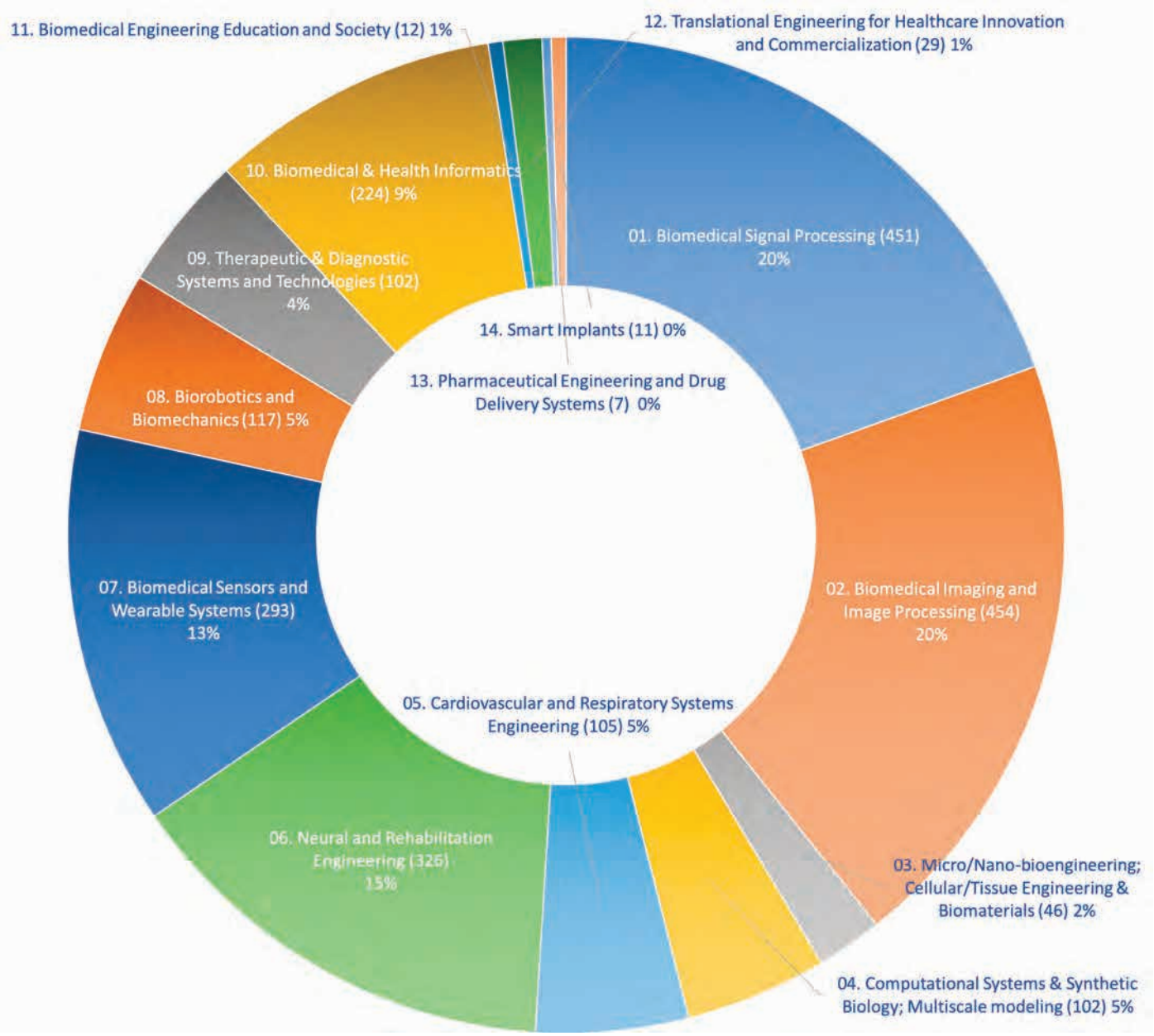
Zhou, Zhihao
Zhu, Fansan
Zhu, Shao Ying
Zhu, Xin
Zhu, Yuemin
Zink, Rob
Zoltowski, Mariusz, Leslaw
Zong, Wei
Zouridakis, George
Zwiggelaar, Reyer

Editor's Notes

The 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society hosted an electronic paper submission. It was the responsibility of the submitting Author to ensure the document was viewable and absent of errors. Said errors or viewing restrictions would prevent the Conference from including the paper in Digital Proceedings.

All conference papers were peer-reviewed by experts chosen by the Conference Editorial Board.

Full papers by theme, presented at EMBC 2019, Berlin, Germany:



Keynote & Plenary Speakers

Ingeborg J. Hochmair
CEO, CTO and co-founder of MED-EL with its global Headquarters in Innsbruck, Austria.

Ingeborg J. Hochmair holds Dipl.Ing. and Dr.tech degrees in Electrical Engineering and a venia legendi in Biomedical Engineering from the Technical University of Vienna, where she, together with Erwin Hochmair, developed the very first microelectronic multichannel cochlear implant, implanted in December 1977 in Vienna. The cochlear implant is the first replacement of a human sense, the sense of hearing. After research work at the Institute for Electronics in Medicine at Stanford University, USA and at the Inst. of Applied Physics at the Univ. of Innsbruck she cofounded the company MED-EL, hired the first employees in 1990 and as the CEO and CTO grew the company into a leading global hearing implant group with 30 daughter companies and offices and a team of more than 2000 people supporting implant centers in 123 countries.

With its innovative neuroprosthetic technologies MED-EL now helps individuals of all ages to overcome hearing loss and to restore other body functions that are a barrier to communication and impair the quality of life. Translational research and biomedical engineering activities are the basis for the innovations.

Ingeborg J. Hochmair has (co-) authored 120 publications and numerous patents.

She received 3 honorary doctorate degrees in medicine from the Technical University of Munich, the Medical University of Innsbruck and the University of Bern.

In 2013 she won the Lasker DeBakey clinical medical Research Award and in 2015 the Russ prize of the US National Academy of Engineering, all for the pioneering work in the area of restoration of the sense of hearing in the deaf.

Michael Kaschke
President and CEO of ZEISS Optical

Michael Kaschke is President and CEO of the ZEISS Group and oversees Strategic Development, Brand & Communications, Legal & Compliance, Human Resources and Digital Innovation. He is also responsible for the Asia Pacific region. Michael Kaschke became Member of the Executive Board of the ZEISS Group in 2000, and was appointed as President and CEO in 2011.

In addition to his offices as Chairman of the Supervisory Board of Carl Zeiss Meditec AG, a company listed on the Frankfurt Stock Exchange (MDax), and of other ZEISS companies, he is a Member of the Supervisory Boards of Henkel AG & Co. KGaA, Deutsche Telekom AG and Robert Bosch GmbH.

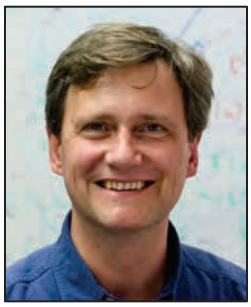
In 2014 Michael Kaschke was appointed to the German Council of Science and Humanities, one of the country's most important scientific-political advisory boards.

In 2009 Kaschke became honorary professor of the Faculty of Electrical Engineering and Information Technology at the Karlsruhe Institute of Technology. He gives regular lectures on optical medical technology and innovation management.

Michael Kaschke is Chairman of the Aalen University Council.

Michael Kaschke was born in Greiz, Germany, on 18 June 1957. In 1983, he graduated with a degree in physics from Friedrich Schiller University in Jena.

He obtained two doctorates, the first in 1986 (Dr. rer. nat.) and the second in 1988 (Dr. sc. nat.). As part of his scientific work, he conducted research into the generation and application of ultra-short laser pulses.



Klaus-Robert Müller
Technische Universität Berlin

Klaus-Robert Müller is a Professor for Machine Learning at the department of Computer Science at Technische Universität Berlin and at the Department of Cognitive Science and Engineering at Korea University, Seoul. For 5 years he was director of the Bernstein Center for Neurotechnology, from 2014 I became Co-director of the Berlin Center for Big Data and from 2018 he simultaneously became director of the Berlin Machine Learning Center. In 2012, Klaus-Robert Müller was elected to be a member of the German National Academy of Sciences – Leopoldina, in 2017 of the Berlin Brandenburg Academy of Sciences and also in 2017 as an external scientific member of the Max-Planck Society (MPII). Among other awards in 2014, he received the Berlin Science prize awarded by the governing Mayor of Berlin; in 2017 the Vodafone Innovation Award. Over all, there are 30 full time researchers under my direct supervision. His research interest is in the field of machine learning, deep learning and data analysis covering a wide range of theory and numerous scientific (Physics, Chemistry, Neuroscience and Biomedical Engineering) and industrial applications

Vasilis Ntziachristos
Technical University of Munich

Vasilis Ntziachristos PhD is a Professor of Medicine and Electrical Engineering, the Director of the Chair for Biological Imaging (CBI) and of the Munich School of Bioengineering (MSB) at the Technical University of Munich and the director of the Institute for Biological and Medical Imaging (IBMI) at the Helmholtz Zentrum München. He received a Diploma in Electrical Engineering and Computer Science from the Aristotle University of Thessaloniki, Greece, and MSc and PhD degrees in Bioengineering from the University of Pennsylvania in Philadelphia PA and served as faculty at Harvard University and the Director of the Laboratory for Bio-optics and Molecular imaging at the Massachusetts General Hospital. Professor Ntziachristos regularly serves as chair in international meetings and councils and on the editorial boards of several scientific journals and has received numerous awards and distinctions, including the Gold Medal from the Society for Molecular Imaging (2015), the Gottfried Wilhelm Leibniz prize (2013), and the Erwin Schrödinger Award (2012) and was named one of the world's top innovators by the Massachusetts Institute of Technology (MIT) Technology Review in 2004.

Robert Riener
ETH Zurich

Robert Riener studied Mechanical Engineering at TU München, Germany, and University of Maryland, USA. He received a Dr.-Ing. degree in Engineering from the TU München in 1997. After postdoctoral work at Politecnico di Milano and TU München, he became assistant professor at ETH Zurich and University Hospital Balgrist in 2003. In 2010 he has been promoted to full professor for Sensory-Motor Systems, ETH Zurich. Since 2012, Riener is member of the Department of Health Sciences and Technology, which he was chairing 2016 – 2018. Riener has published more than 400 peer-reviewed journal and conference articles, 20 books and book chapters and filed 23 patents. He has received 19 personal distinctions and awards. Riener's research focuses on the investigation of the sensory-motor interactions between humans and machines. This includes the development of user-cooperative robotic devices and virtual reality technologies applied to neurorehabilitation. Riener is the initiator and organizer of the Cybathlon, which was honored with the European Excellence Award and the Yahoo Sports Technology Award.

Tobias Schaeffter
Physikalisch-Technische Bundesanstalt (PTB)

Tobias Schaeffter studied electrical engineering at TU-Berlin until 1993 and obtained his PhD degree in magnetic resonance (MR) spectroscopic imaging at University Bremen (Prof. Leibfritz) in 1996. From 1996-2006, he worked as a Principal Scientist at the Philips Research Laboratories in Hamburg (Germany). He was responsible for the development of new MR-acquisition and reconstruction techniques as well as investigation of MR-compatible devices. He managed the clinical evaluation and product integration of research results.

In April 2006, Professor Schaeffter took up the post as the Philip Harris Professor of Imaging Sciences at King's College London. A major aim of his research is the investigation of fast and quantitative imaging techniques for cardiovascular applications with a strong focus on translation of biomedical engineering into clinical practice. From 2012 to 2015, he was department head of biomedical engineering and the deputy head of the division in imaging sciences. He taught in the BSc and MSc programmes of Biomedical Engineering. As director of the EPSRC doctorial training centre in medical imaging he was responsible for the PhD training programme between King's and Imperial College London. Since beginning of 2015 Prof. Schaeffter heads the division of medical physics and metrological information technology at Physikalisch-Technische Bundesanstalt (PTB) in Berlin. Prof. Schaeffter has attracted over €10M in grants during the last 5 years and has published over 180 peer-reviewed papers, 10 book chapters, 400 conference abstracts and 30 international patents.

Peter Schardt
Siemens Healthcare GmbH

He has been loyal to Siemens and the medical field, both in-vivo and in-vitro diagnostics, throughout his professional career. Peter obtained his Ph.D. in Physics at the Technical University in Darmstadt, Germany, in 1995 and joined Siemens as an R&D project manager for innovation projects for X-Ray tubes.

He developed high performance X-Ray tubes for Computed Tomography and continued as department head for Innovation Management and Business Development, before he became General Manager of the large Development and Manufacturing site in Kemnath for mechatronic systems and components in 2009.

In 2011 he joined the Siemens Laboratory Diagnostics Business Area as the VP for Program Management in Tarrytown, NY, in order to develop, manufacture, release and market the Atellica Solution product family, an innovative high throughput Immunoassay and Clinical Chemistry Analyzer to run more than 200 assays.

In January 2018, Peter returned to the Diagnostic Imaging Business Area and was assigned as head the X-Ray Products Business Line.

Katja Schenke-Layland
Eberhard Karls University Tübingen (UKT)

Prof. Dr. Katja Schenke-Layland currently holds a dual appointment as Professor of Biomedical Technologies and Regenerative Medicine at the University Women's Hospital at the Eberhard Karls University Tübingen (UKT), and the Director of the Natural and Medical Sciences Institute (NMI) Reutlingen, Germany. Katja is also an Adjunct Associate Professor in the Department of Cardiology at UCLA, Los Angeles, USA, is the Co-Editor-in-Chief of Tissue Engineering, Part B, Reviews, and an Executive Editor for Advanced Drug Delivery Reviews, which is, one of the top journals in the field of advanced drug delivery. Katja is the Study Dean for Medical Technology at the UKT and sits on the board of multiple journals and biomedical associations. Katja is a biologist with a main interest in stem cell, developmental and extracellular matrix biology. Her work focuses on the translation of developmental processes into clinically relevant biomaterials and regenerative therapy strategies, and the development of diagnostic tools to discover and validate therapeutic candidates and diagnose diseases

Jessica Burgner-Kahrs
University of Toronto

Jessica Burgner-Kahrs is Associate Professor and Director of the Continuum Robotics Laboratory at University of Toronto, Canada. From 2013 to 2019 she was with Leibniz University Hannover, Germany and from 2010 to 2012 with Vanderbilt University, USA. She received her Diploma and Ph.D. in Computer Science from Karlsruhe Institute of Technology (KIT), Germany in 2006 and 2010 respectively.

Her research focus lies on continuum robotics and in particular on their design, modeling, planning and control, as well as human-robot interaction. Her fundamental robotics research is driven by applications in minimally-invasive surgery and maintenance, repair, and operations. In 2015 her research was recognized with the Heinz Maier-Leibnitz Prize, the Lower Saxony Science Award in the category Young Researcher, and she was entitled Young Researcher of the Year 2015 in Germany. The Berlin-Brandenburg Academy of Sciences awarded her the Engineering Science Prize in 2016. She was elected as one of the Top 40 under 40 in the category Science and Society in 2015, 2016, and 2017 by the business magazine Capital. In 2019, she was selected as a Young Global Leader of the World Economic Forum.

Gregoire Courtine
EPFL, Switzerland

Gregoire Courtine was trained in Mathematics, Physics, and Neurosciences. He received his PhD degree from the French institute of health (INSERM) and University of Pavia in Italy in 2003. After obtaining the Chancellor Award during his post-doctoral training at the University of California Los Angeles (UCLA), he established his own laboratory at the University of Zurich in 2008. He became Associate Professor in the Center for Neuroprosthetics at the Swiss Federal Institute of Technology, Lausanne (EPFL) in 2012. The results of his research in spinal cord repair have been published in various high-profile publications such as Science and Nature, and discussed extensively in national and international media. In 2014, he launched a startup, GTX Medical, which aims to translate the medical and technological breakthroughs gained over the past 15 years into clinical treatments.

Dario Farina
Imperial College London, London, UK

Dario Farina (IEEE Fellow) is currently Full Professor and the Chair in Neurorehabilitation Engineering at the Department of Bioengineering of Imperial College London, UK. He has previously been Full Professor at Aalborg University, Aalborg, Denmark, (until 2010) and at the University Medical Center Göttingen, Georg-August University, Germany, where he founded and directed the Department of Neurorehabilitation Systems (2010-2016). His research focuses on biomedical signal processing, neurorehabilitation technology, and neural control of movement. Within these areas, he has (co)-authored ~450 papers in peer-reviewed Journals, and over 500 among conference papers/abstracts, book chapters, and encyclopedia contributions. Professor Farina has been the President of the International Society of Electrophysiology and Kinesiology (ISEK) (2012-2014) and is currently the Editor-in-Chief of the official Journal of this Society, the Journal of Electromyography and Kinesiology. He is also currently an Editor for Science Advances, IEEE Transactions on Biomedical Engineering and the Journal of Physiology. He is a Fellow IEEE, AIMBE, EAMBES, and ISEK.

Dieter Haemmerich
Medical University of South Carolina

Dieter Haemmerich is Professor of Pediatrics at the Medical University of South Carolina (Charleston, SC, USA), with adjunct appointment in the Department of Bioengineering at Clemson University (Clemson, SC, USA). He received his Ph.D. degree in Biomedical Engineering from the Univ. Wisconsin-Madison (Madison, WI, USA), and his M.S. degree in Electrical and Computer Engineering from the Vienna University of Technology (Vienna, Austria). Dr. Haemmerich is past President (2012-13) of the Society for Thermal Medicine (STM), Fellow of the Heart Rhythm Society (HRS), and Co-Organizer of the IEEE EMBS International Summer School on Computer Modeling in Medicine (2017, 2019).

His current research interests include image-guided drug delivery and image-guided therapies, with specific focus on integrating computational modeling with experimental studies to guide the engineering of better of drug delivery systems. He has co-authored over 100 peer-reviewed journal and conference papers, 6 book chapters, and holds 8 patents. Two of the patents have been licensed by Medtronic, with a commercial device available and clinically used since 2004. Dr. Haemmerich has served as journal reviewer for over 80 scientific journals, is on the Editorial Board of 9 journals, and is Section Editor for the International Journal of Hyperthermia and Thermal Therapies. He is co-founder and past President of the start-up company Medical Engineering Innovations Inc., which commercializes surgical devices for cancer treatment.

Karsten Hiltawsky
Drägerwerk AG & Co. KGaA

Dr. Karsten Hiltawsky joined Dräger in 2012 and is currently responsible for the global technology development and for Dräger´s intellectual property. In his current role he is introducing new technologies into Dräger's product lines in critical care (anesthesia, intensive care and perinatal care) and safety (e.g., fire fighter and industrial respiratory protection, hazardous gas detection) as well as protecting Dräger´s intellectual property globally through patents and trademarks.

Prior to that he worked for Siemens Healthcare and General Electric in different positions with focus on imaging technologies and in-vitro-diagnostics. Dr. Hiltawsky worked as a M.D. in internal medicine and received a Ph.D. in electrical engineering from Ruhr-University, Germany. He is a member of the German National Merit Foundation and received a grant to study at Purdue University, IN.

Pablo Laguna
University of Zaragoza

Pablo Laguna is Full Professor of Signal Processing and Communications in the Department of Electrical Engineering at the Engineering School, where he has being vice-dean for international relation (1999-2002), and a researcher at the Aragón Institute for Engineering Research (I3A), both at University of Zaragoza, Spain, where he has being responsible of the Biomedical Engineering division of the I3A (2000-2011) and of the master in Biomedical Engineering (2003-2010). He is also member, and has served as scientific director (2011-2015), of the Spanish Center for Biomedical Engineering, Biomaterial and Nano-medicine Research CIBER-BBN.

His professional research interests are in Signal Processing, in particular applied to Biomedical applications. He has co-authored more than 150 research papers on this topic, over 300 international conference papers, and has advise 15 Ph.D Thesis.

He has lead a broad number of projects on biomedical signal interpretation specially in the cardiovascular domain, most of them with international collaborations at clinical and engineering sites. He is having some international scientific responsibilities, as serving as past-president of the board of directors of Computing in Cardiology conference, editor of the digital signal processing journal (Eurasip), and of the Medical and Biological Engineering and Computing (springer), organizer of different scientific conferences, etc. He is also responsible of the Ph.D. program in Biomedical Engineering at Zaragoza University. He is Fellow of the IEEE. He is, together with L. Sörnmo, the author of Bioelectrical Signal Processing in Cardiac and Neurological Applications, book (Elsevier, 2005)

Nigel Lovell
UNSW Sydney

Nigel Lovell received the B.E. (Hons) and Ph.D. degrees from UNSW Sydney, Australia. He is currently at the Graduate School of Biomedical Engineering UNSW Sydney where he holds a position of Scientia Professor and Head of School. He has authored 250+ journal papers and been awarded over $80 million in R&D and infrastructure funding. Over his career he has mentored 70 PhD students and delivered more than a hundred keynote presentations. He is a Fellow of seven learned academies throughout the world including the IEEE and AIMBE.

His research work has covered areas of expertise ranging from cardiac and retinal modeling, medical informatics and data analytics especially related to telehealth technologies, biological signal processing, and visual prosthesis design. Through a spin-out company from UNSW, TeleMedCare Pty. Ltd. that he co-founded, he has commercialised a range of telehealth technologies for managing chronic disease and falls in the older population. He is also one of the key researchers leading an R&D program to develop in Australia a retinal neuroprosthesis or 'bionic eye'. For 2017 and 2018 he is the President of the world's largest biomedical engineering society – the IEEE Engineering in Medicine and Biology Society.

Gernot Plank
Medizinische Universität Graz

Gernot Plank is Professor of Computational Cardiology at the Medical University of Graz, Austria. He received an M.Sc. Degree in Electrical Engineering in 1996 and a Ph.D. degree in Biomedical Engineering in 2000, both from the Technical University of Graz, Austria. He has been a Postdoctoral Fellow at Technical University of Valencia, Spain (2000–2002), at the University of Calgary, Canada (2003) and, as a Marie Curie Fellow, he held a Visiting Faculty position at the Johns Hopkins University, USA (2006–2008). In 2008 he became Academic Fellow at the Oxford e-Research Centre and the Oxford Computing Laboratory at the University of Oxford, U.K before being appointed as Associate Professor in 2011 at the Medical University of Graz. Since 2018 he is Professor of Computational Cardiology and head of the Computational Cardiology Laboratory.

His research has been supported by grants from the Austrian Science Fund, NIH, Wellcome Trust, European FP7 and H2020 awards as well as by industry and resulted in more than 120 peer-reviewed journal publications. His basic research interests are focused on the development of computational methods for modeling total cardiac function and their application to the development of anatomically accurate and biophysically detailed *in silico* models for gaining mechanistic insights into the pathological electrophysiological, electromechanical and mechano-fluidic behavior of the heart. Jointly with Dr. Vigmond he is the key developer of the cardiac modeling software CARPentry which is used by many of the leading cardiac modeling centers around the world. His work has a strong translational component centered on improving diagnosis and treatment of cardiovascular diseases with the main focus on pacing therapies to treat arrhythmias and pump dysfunction. In this regard parameter identification and data assimilation strategies for personalizing models to a specific patient have become a major avenue of research in his lab. As a Co-founder of NumeriCor he is actively involved in the commercialization of simulation and modeling technologies as medical device development tools.

Dinggang Shen
UNC-CH School of Medicine

Dinggang Shen is Jeffrey Houpt Distinguished Investigator, and a Professor of Radiology, Biomedical Research Imaging Center (BRIC), Computer Science, and Biomedical Engineering in the University of North Carolina at Chapel Hill (UNC-CH). He is currently directing the Center for Image Analysis and Informatics, the Image Display, Enhancement, and Analysis (IDEA) Lab in the Department of Radiology, and also the medical image analysis core in the BRIC. He was a tenure-track assistant professor in the University of Pennsylvanian (UPenn), and a faculty member in the Johns Hopkins University. Dr. Shen's research interests include medical image analysis, computer vision, and pattern recognition. He has published more than 900 papers in the international journals and conference proceedings, with H-index 84. He serves as an editorial board member for eight international journals. He has also served in the Board of Directors, The Medical Image Computing and Computer Assisted Intervention (MICCAI) Society, in 2012-2015, and will be General Chair for MICCAI 2019. He is Fellow of IEEE, Fellow of The American Institute for Medical and Biological Engineering (AIMBE), and also Fellow of The International Association for Pattern Recognition (IAPR).

Sabine Van Huffel
KU Leuven

Sabine Van Huffel is Full Professor of Biomedical Engineering at the Department of Electrical Engineering (ESAT) of the KU Leuven since 2002 and Programme Director of the Master of Science in Biomedical Engineering KU Leuven. She received a Master degree in Computer Science Engineering, a postgraduate in Biomedical Engineering and a Ph.D. degree in Electrical Engineering from the KU Leuven, in 1981, 1985 and 1987, respectively. She was a guest professor at Stanford University (USA) in 2000 and at Uppsala University (Sweden) in 2002. She is IEEE, SIAM and EAMBES founding fellow and member of the Royal Flemish Academy of Belgium for Sciences and the Arts. In April 2013 she received an honorary doctorate from Eindhoven University of Technology (NL), together with an appointment as a Distinguished professor since 2014.

She is leading a large biomedical data processing research group (25 people), renowned for the development of numerical matrix/tensor-based algorithms, and their applications in biomedical multimodal- and multichannel processing for improving medical diagnostics. Her expertise techniques comprise EEG-fMRI, multiparametric MRI, ECG and EEG with focus on epilepsy and neonatal monitoring.

She has been supervisor of more than 60 PhD students, mostly all interdisciplinary, in cosupervision with medical colleagues. She is author of more than 400 peer reviewed international journal papers and more than 400 conference papers. She is holder of an ERC Advanced Grant 339804 BIOTENSORS: "Biomedical Data Fusion using Tensor based Blind Source Separation"(01-04-2014 till 31-03-2019)

Heike Walles
OvGU Magdeburg

I studied biology at the JLU-Giessen. Immediately after the diploma thesis at the MPI for Biochemistry in Martinsried/Munich I started the PhD thesis in the area of applied biomedical research at the LMU Munich and the MPI. Thereafter I moved for my first PostDoc position as group leader to the newly founded Leibniz Institute for Artificial Organs (LEBAO) at the MH Hannover. Since then, my scientific focus is Tissue Engineering. Under the guidance of Prof. Haverich I started a junior professorship at the LEBAO with the focus on the development of pre-vascularized scaffolds (BioVaSc) for biomedical application. To ensure the translation of tissue-engineered products, I moved from Hannover to the Fraunhofer Institute IGB, headed by Prof. Dr. Brunner a specialist in Biotechnology and process development.

Here we developed relevant technologies for standardized, semi-automated (GMP) production of complex human tissue models and autologous implants based on the BioVaSc-TERM®- platform technology. Based on these new methods and technical products, I received a grant from the Bavarian state to build up the Translational Center "Regenerative Therapies in oncology and musculoskeletal diseases" (TLC-RT) in Wuerzburg combined with a W3 position for Tissue Engineering (TERM), at the LMU Wuerzburg.

We established interdisciplinary teams at TLC-RT and TERM. The teams reflects all necessary disciplines as biologists, pharmacists, engineers, and clinical staff, and is successfully funded by internal and external grants, acquired on a competitive basis. The core competence of the team is based on human cell biology and the

cultivation of these cells on a vascularized scaffold (BioVaSc-TERM®) in specific bioreactors. The TLC-RT has been evaluated in January 2019 as an excellent interdisciplinary team, focusing on applied research. Based on this excellent evaluation the TLC-RT will at consolidating as a Fraunhofer Unit and improving current technologies in the field of regenerative medicine under the guidance of PD Dr. Marco Metzger.

Since 2019 I´m a professor at the university OvGU Magdeburg to establish with colleagues a center for medical engineering.

Bruce Wheeler
University of California, San Diego

Bruce Wheeler moved to the University of California at San Diego in 2015 as an Adjunct Professor of Bioengineering with duties principally aimed at supporting the new Systems Bioengineering major at UCSD. He served 7 years at the University of Florida and 28 years at the University of Illinois at Urbana-Champaign. At Illinois he wrote the successful proposal for the BS, MS, PHD and Department of Bioengineering and served as Director and then Founding and Interim Head (2003-8). He was also a Professor of Electrical and Computer Engineering and of the Beckman Institute; he served as Chair of the Neuroscience Program and as Associate Head for Undergraduate Affairs of the Electrical and Computer Engineering Department. He served as Acting Chair of the J. Crayton Pruitt Family Department of Biomedical Engineering (2009-12) where he co-authored the proposal for the BS BME degree.

He served as President of the IEEE Engineering in Medicine and Biology Society, strongly advocating for Biomedical and Health Informatics as the fastest growing component of biomedical engineering. Previously (2007-12) he was Editor in Chief of the IEEE Transactions on Biomedical Engineering. He has just been elected to become VP Finance for EMBS.

Prof. Wheeler's research interests lie in the application of electrical engineering methodologies to neuroscience. His work influenced the development of neural spike sorting technologies, demonstrated that microelectrode array recording from brain slices was possible and productive, and has been a leader in the development of lithography to control cells, especially neurons, in culture. This work aims at basic science understanding of the behavior of small populations of neurons, in hopes of creating better insight into the functioning of the brain.

He is a Fellow of AAAS, IEEE, BMES, AIME, and IAMBE. He is likely the only person to start two undergraduate BME degree programs, as well as to participate in the implementation of a third. He is Emeritus Professor at Illinois and Florida.

ACADEMIC CAREER ACHIEVEMENT AWARD

Nicholas A. Peppas
University of Texas at Austin, USA

EARLY CAREER ACHIEVEMENT AWARD

Catherine Chang
Vanderbilt University, USA

DISTINGUISHED SERVICE AWARD

Jean-Christophe Olivo-Marin
Institute Carnot Pasteur Microbes et Santé, France

WILLIAM J. MORLOCK AWARD

Bin He
Carnegie Mellon University, USA

TECHNICAL ACHIEVEMENT AWARD

Elisa Konofagou | Columbia University, USA
Tony Jun Huang | Duke University, USA

PROFESSIONAL ACHIEVEMENT AWARD

Richard Boudreault
Polar Knowledge, Canada

2019 Best EMBS Chapter Award

IEEE-EMBS Malaysia Chapter

EMBS Best Student Chapter/Club Award

Pontificia Universidad Católica del Perú IEEE EMBS Student Chapter

2019 OUTSTANDING EMBS REGIONAL CHAPTER AWARD WINNERS

2019 OUTSTANDING EMBS REGIONAL STUDENT CHAPTER OR CLUB AWARD WINNERS

Asia Pacific	• IEEE-EMBS St. Joseph's Student Branch
Latin America	• PUC Peru IEEE Student Branch
Middle East and Africa	• EMBS Hashemite University Student Branch
North America	• Carleton University EMB Student Club
Europe	• IEEE NTUA EMB Chapter

2019 EMBC Student Paper Competition
Geographic Finalists

North America — **Dan Wu** | Massachusetts Institute of Technology
"An integrated and automated electronic system for point-of-care protein testing"

Europe — **Camille Krewcun** | Institut Pascal
"Fast Simulation of Stent Deployment with Plastic Beam Elements"

Asia -Pacific — **Chen-Ying Hung** | National Tsing Hua University
"Predicting Gastrointestinal Bleeding Events from Multimodal In-Hospital Electronic Health Records Using Deep Fusion Networks"

Middle East-Africa — **Asem Alaa** | Cairo University
"Protein Subcellular Localization Prediction Based on Internal Micro-Similarities of Markov Chains"

South America — **Guilherme Silva Umemura** | University of São Paulo
"Assessment of Postural Control after Sleep Deprivation with a Low-Cost Force Plate"

2019 EMBC Student Paper Competition

Open Finalists

Ali Fahim Khan
University of Oklahoma
"Dynamic Activation Patterns of the Motor Brain Revealed by Diffuse Optical Tomography"

Jiayao Yuan
Columbia University
"Modeling of Transport Mechanisms in the Respiratory System: Validation via Congestive Heart Failure Patients"

Kaan Sel
Texas A&M University
"Measurement of Chest Physiological Signals using Wirelessly Coupled Bio-Impedance Patches"

Laura Morchi
The BioRobotics Institute
"A Pilot Study for a Quantitative Evaluation of Acoustic Coupling in US-Guided Focused Ultrasound Surgery"

James A. Beauchamp
Northwestern University
"Experimentally Modifiable Parameters and Their Relation to the Tonic Vibration Reflex in Chronic Hemiparetic Stroke"

Aji Resindra Widya
Tokyo Institute of Technology
"3D Reconstruction of Whole Stomach from Endoscope Video Using Structure-From-Motion"

Parya Jafari
Western University
"Incorporating Pathology-Induced Heterogeneities in a Patient-Specific Biomechanical Model of the Lung for Accurate Tumor Motion Estimation"

Hiroki Sato
University of Electro-Communications
"Multi-Frequency Integration Algorithm of Contrast Source Inversion Method for Microwave Breast Tumor Detection"

Luke Hong Lu Zhao
The University of Sydney
"Preliminary Validation of Electroporation-Electrolysis (E2) for Cardiac Ablation Using a Parameterisable In-Vivo Model"

Micol Colella
University of Rome
"Ultra-Focal Magnetic Stimulation Using a μTMS Coil: A Computational Study"

The IEEE Engineering in Medicine and Biology Society advances the application of engineering sciences and technology to medicine and biology, promotes the profession, and provides global leadership for the benefit of its members and humanity by disseminating knowledge, setting standards, fostering professional development, and recognizing excellence.

The field of interest of the IEEE Engineering in Medicine and Biology Society is the application of the concepts and methods of the physical and engineering sciences in biology and medicine. This covers a very broad spectrum ranging from formalized mathematical theory through experimental science and technological development to practical clinical applications. It includes support of scientific, technological and educational activities.

PUBLICATIONS

IEEE PULSE:A Magazine of the IEEE Engineering in Medicine and Biology Society
Transactions on Biomedical Engineering
Transactions on Neural Systems and Rehabilitation Engineering
Transactions on Medical Imaging
Transactions on NanoBioscience
Transactions on Biomedical Circuits and Systems
Transactions on Computational Imaging
Transactions on Radiation and Plasma Medical Sciences
Transactions on Medical Robotics
Reviews on Biomedical Engineering
Journal on Translational Engineering in Health & Medicine
Journal of Biomedical and Health Informatics
Journal on Electromagnetic; RF & Microwaves in Medicine and Biology

ELECTRONIC PRODUCTS

EMBS Electronic Resource (over 120,000 documents)

CONFERENCES

Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)
IEEE EMBS Special Topic Conference on Neural Engineering (NER)
International Symposium on Biomedical Imaging (ISBI)
International Conference on Biomedical Robotics and Biomechatronics (BIOROB)
International Conference on Rehabilitation Robotics (ICORR)
IEEE Healthcare Innovation Point of Care Technologies Conference (HI-POCT)
EMBS Micro and Nanotechnology in Medicine (MNM)
IEEE EMBS International Conference on Body Sensor Networks (BSN)
IEEE EMBS International Conference on Biomedical and Health Informatics (BHI)
IEEE EMBS Student Conferences: For Students, By Students
IEEE Life Sciences Conference

SUMMER SCHOOLS Sponsored by EMBS

International Summer School on Biomedical Imaging
ppInternational Summer School on Biomedical Signal Processing
International Summer School on Biocomplexity, Biodesign and Bioinnova
International Summer School on Information Technology in Biomedicine
International Summer School on Neural Engineering
International Summer School on Computer Modeling in Medicine
International Summer School on Medical Devices and Biosensors

IEEE | EMB

Going Gold!

IEEE Engineering in Medicine & Biology Society, the world's largest, international biomedical society is pleased to announce the launch of its new gold fully open access journal: **IEEE Open Journal of Engineering in Medicine and Biology (OJ-EMB)**

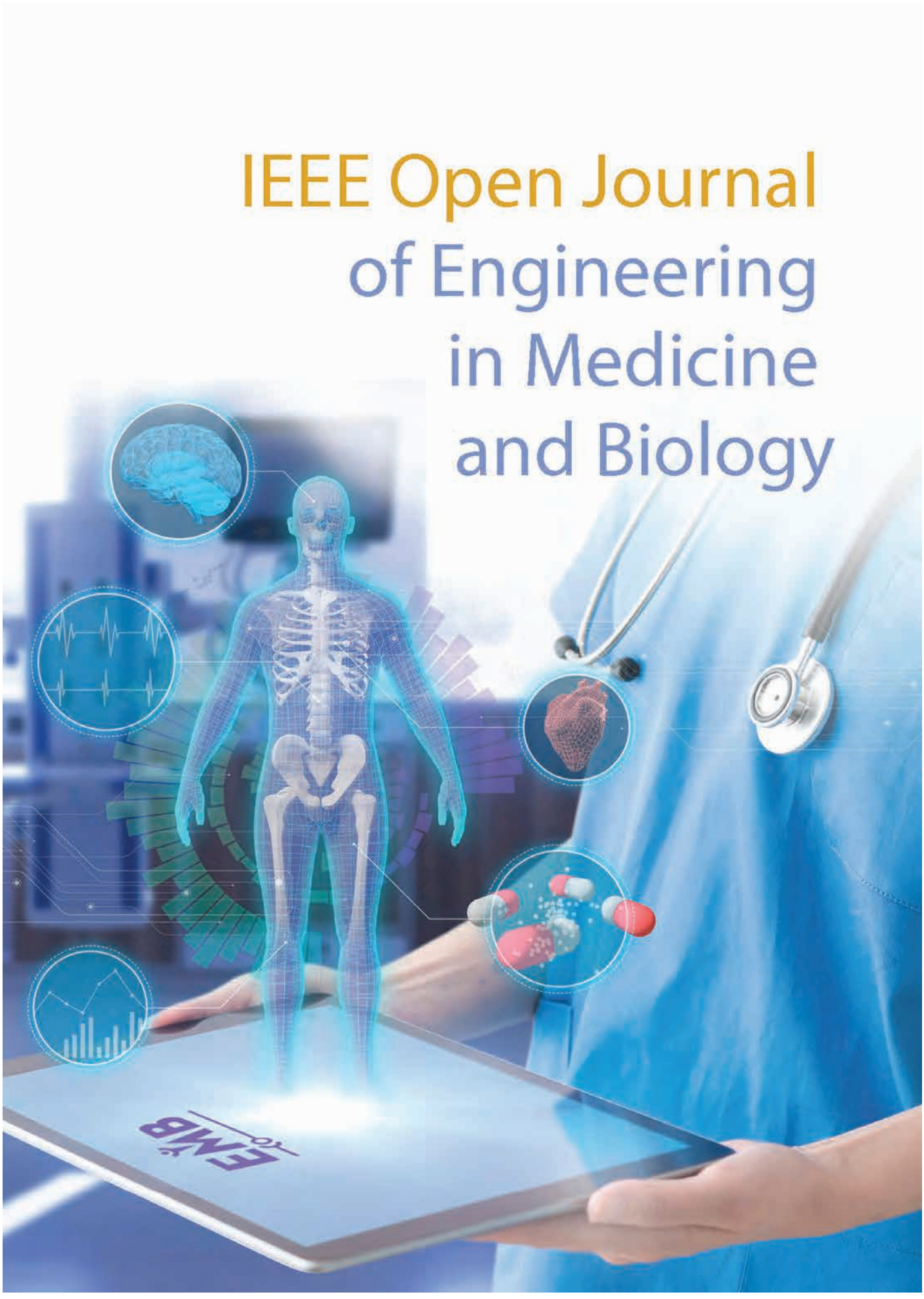
IEEE EMBS, established in 1952, continues to provide more options and choices to support the work and needs of all authors and researchers -- those who prefer to publish in traditional subscription journals or those who prefer or need to publish in open access.

IEEE EMBS will publish high-quality articles including cutting-edge studies and breakthroughs in technology innovation and will follow IEEE's established high standard of peer review, drawing on expert technical communities to continue to publish the most highly cited content.

OJ-EMB will be hosted on the IEEE Xplore® platform, visited by over five million unique users per month.

The new Journal will begin accepting submissions in the fall of 2019 and publish its first articles in early 2020.

www.oj-emb.embs.org


IEEE Open Journal
of Engineering
in Medicine
and Biology

EMBS Career Center

Connecting top talent to the best biomedical engineering jobs around the world.

No matter where you are in your career journey, whether you're trying to land your very first job, or if you've got years of experience under your belt, be sure to include EMBS' extensive network in your search.

The EMBS Career Center is the place to start!

We designed our Career Center with you in mind.
We connect our members with top employers around the world.

Jobseekers

View Jobs: Access the newest and freshest jobs available to professionals seeking employment.

Post an anonymous resume: Post your resume online today! Whether you're actively or passively seeking work, your online resume is your ticket to great job offers.

Personal Job Alerts: Create Job Alerts and never let a matching job opportunity pass you by! New jobs that match your search criteria will be emailed directly to you.

Create Job Seeker Account: Log into your account to begin managing your job search. Create and manage job alerts and view job offers from employers.

Employers

Post a Job: Reach the most qualified candidates by posting your job opening on our online Career Center.

View the Resumes: Check out resumes today! We connect you directly with the most talented professionals in biomedical engineering.

Products and Pricing: Regardless of your staffing needs or budget, we have a recruitment product that will fit your business.

Access Your Account: Log in to begin managing your online recruiting account. Post jobs to our site and browse candidates interested in your positions.

Connecting Academia with Industry

Be sure to check out EMBS' regional career development opportunities, online resources, and special events. We're working hard to connect our members in academia with employers in biotech, medical device and pharmaceutical companies around the world.

Questions? Let us hear from you! Send an email to emb-exec@ieee.org.

Visit http://embs-jobs.careerwebsite.com/ to get started!

Find us on:

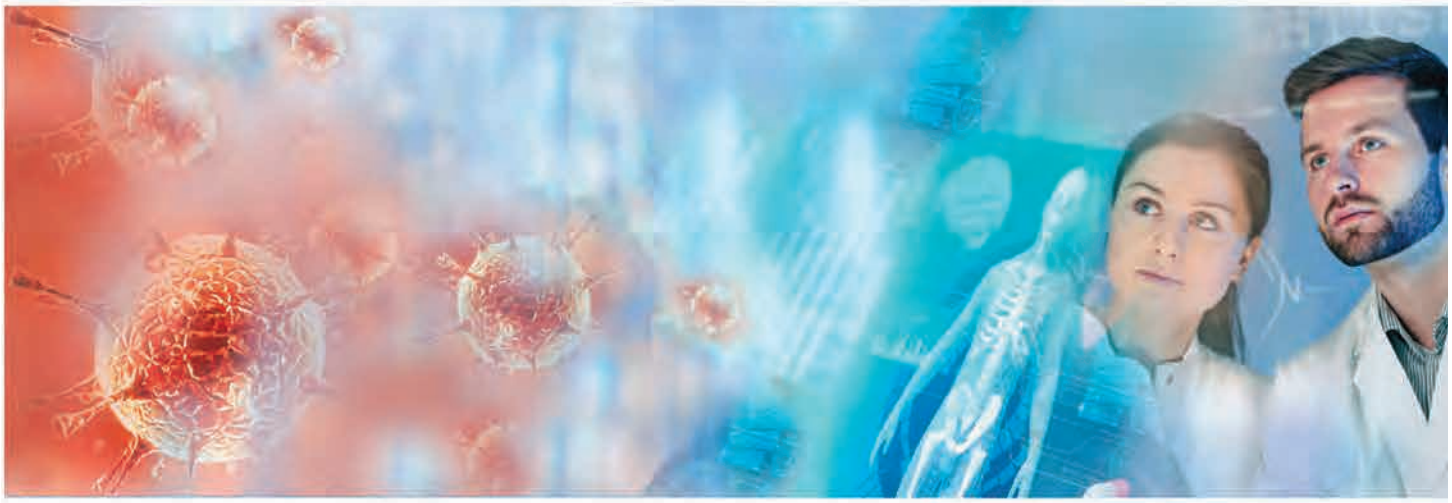
IEEE | NIH National Institutes of Health | IEEE Healthcare Innovation Point-Of-Care Technologies Conference | EMB

Special Topics Conference on Healthcare Innovations and Point of Care Technologies

November 20-22, 2019

NIH Natcher Conference Center, 9000 Rockville Pike, Bethesda, MD 20892

Call For Papers



The NIH-IEEE Special Topics Conference on Healthcare Innovations and Point of Care Technologies (HI-POCT) will focus on technologies for personalized health, disease detection and real-time patient monitoring to address pressing unmet medical needs. This conference will provide a scientific forum for collaboration among biomedical researchers, engineering and computer scientists, students and industry to explore potential technology solutions for research and clinical needs.

Panel discussions and open forum sessions along with research presentations will focus on the development, testing and implementation of POCT and healthcare innovations in medical (hospital, emergency, acute, chronic and primary care) and non-clinical settings. The overall goal of the strategic conference is to provide opportunities for stakeholders to explore collaborations, define needs across fields and identify synergies to HI-POCT development, validation, dissemination and implementation.

This year's conference will include keynote presentations, panel discussions, breakout sessions with leaders in the field, and diverse stakeholders addressing clinical needs, enabling technologies, regulatory protocols, funding opportunities, and business models. Additionally, we invite oral and poster presentation abstracts to be submitted for potential inclusion in the final program.

Important Submission Dates

Four-page paper Submission Deadline
July 17, 2019
Notification Deadline
August 16, 2019
Final Submission of Accepted Four-page Papers
September 5, 2019

One Page-paper Abstract Submission Deadline
August 8, 2019
Notification Deadline
August 29, 2019
Final Submission of Accepted Abstracts
September 12, 2019

Please see our conference website for full details on submissions and other updates.

https://hipt.embs.org/2019/

IEEE | NIH National Institutes of Health | IEEE Healthcare Innovation Point-Of-Care Technologies Conference | EMB

Special Topics Conference on Healthcare Innovations and Point of Care Technologies

November 20-22, 2019

NIH Natcher Conference Center, 9000 Rockville Pike, Bethesda, MD 20892

Call For Papers

There are two (2) paths to presenting your work at HI-POCT:

1. Full papers (4 pages) can be submitted for an acceptance review and will be considered for either an oral or poster presentation as well as a demo presentation. Full papers accepted to the conference will be published in the conference proceedings and in IEEE Xplore.

For publication in a special issue of IEEE Journal of Translational Engineering in Health and Medicine ***(http://health.embs.org/)*** please see the conference website for details

2. Research abstracts (one page papers) can be submitted for an acceptance review and will be considered for either an oral or poster presentation as well as a demo presentation. One-page papers accepted to the conference will be visible in the conference proceedings but not in IEEE Xplore.

[A trans-disciplinary technical committee will review all contributions. Submissions must contain original material that has neither been previously published nor is currently under review by another conference or journal.]

Detailed instructions for submissions of papers and abstracts are available at our conference website: https://hipt.embs.org/2019/

Conference Themes for Paper Submissions

- Health and wellness across the lifespan (including pain management, disease prevention, immunosenescence, frailty, fatigue, sarcopenia)
- Tools for real-time patient monitoring for chronic disease or health conditions (e.g., re-emergence of disease or infection, measuring responses to treatment)
- Earlier diagnosis of infection and rapid drug susceptibility testing to enable effective initiation of treatment, reduce transmission, and reduce the development of anti-microbial resistance
- Earlier detection/prediction of disease or toxicity to facilitate earlier intervention

Papers Focused on the following technologies that address the conference themes are encouraged

- Wearable/implantable technology
- Microphysiological systems, Tissue- or Organ-on-chip platforms
- Nanotechnology
- Omics technologies - identify needs for moving these capabilities to point of care level
- RNA/DNA detection (stem-loop probes, CRISPR/Cas, synthetic biology)
- Biosensors – physiological, chemical, molecular, non-blood biospecimens (sweat/skin, hair, urine, oral fluid, interstitial fluid), exosomes
- Environmental sensors
- Imaging - whole body PET, retinal imaging
- Deployable tools for in-home or remote monitoring
- Data integration, predictive analytics, EHR interoperability and aggregators
- Artificial Intelligence, machine learning applications
- Paper-based diagnostics
- Multiplexing – consideration of rationale (i.e. what makes sense to test together)
- Systems engineering

https://hipt.embs.org/2019/

IEEE ISBI 2020

International Symposium on Biomedical Imaging

Coralville Marriott Hotel & Conference Center | Iowa City, Iowa, USA | 4-8 April 2020

CALL FOR PAPERS

IMPORTANT DATES

Proposal Submission

May 28, 2019-Oct 15, 2019
Tutorials

May 15, 2019-Oct 1, 2019
Challenge Proposal

Oct 16, 2019
Challenge Accept/Reject Notification

Nov 15, 2019
Challenges open for registration

May 15, 2019-July 15, 2019
Workshops

Four-Page Papers

Aug 1, 2019
Submission Opens

Oct 15, 2019
Submission Deadline

Dec 18, 2019
Accept/Reject Notification

Jan 15, 2020
Final Submission

Workshop & One-Page Papers

Nov 19, 2019
Submission Opens

Jan 15, 2020
Submission Deadline

Jan 29, 2020
Accept/Reject Notification

Feb 12, 2020
Final Submission Deadline

IEEE
Advancing Technology for Humanity

The IEEE International Symposium on Biomedical Imaging (ISBI) is a scientific conference dedicated to mathematical, algorithmic, and computational aspects of biological and biomedical imaging, across all scales of observation. It fosters knowledge transfer among different imaging communities and contributes to an integrative approach to biomedical imaging. ISBI is a joint initiative from the IEEE Signal Processing Society (SPS) and the IEEE Engineering in Medicine and Biology Society (EMBS). The 2020 meeting will be held in Iowa City, Iowa, USA and will include tutorials, challenges and a scientific program composed of plenary talks, workshops, as well as oral and poster presentations of peer-reviewed papers. High-quality papers are requested containing original contributions to the topics of interest including image formation and reconstruction, image processing and analysis, dynamic imaging, visualization, image quality assessment, machine learning for big image data, and physical, biological, and statistical modeling. Accepted 4-page regular papers will be published in the symposium proceedings published by IEEE and included in IEEE Xplore. To encourage attendance by a broader audience of imaging scientists and clinical professionals and to offer additional presentation opportunities, ISBI 2020 will include workshops with specific clinical focus and it will continue to have a second track featuring posters selected from 1-page abstract submissions.

ORGANIZERS

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Workshop Chairs
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Please visit: **biomedicalimaging.org/2020**

The 42nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society
July 20 - 24

EMBC 2020 Montreal

"Enabling Innovative Technologies for Global Healthcare"

IEEE EMB

Palais des congres de Montreal

–SAVE THE DATE–

CMBES/SCGB

The IEEE Engineering in Medicine and Biology Society is pleased to announce the 42nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, to be held in Montreal, Quebec, Canada, July 20th - 24th, 2020. The theme of the meeting is "Enabling Innovative Technologies for Global Healthcare". As the worlds largest international biomedical engineering meeting. A broad array of scientific tracks will cover diverse topics of cutting-edge research and innovation in biomedical engineering, healthcare technology R&D, translational clinical research, technology transfer and entrepreneurship, and biomedical engineering education.

In addition to the high-profile keynotes, the conference program will feature mini symposia, workshops, special sessions, oral and poster sessions, sessions for students and young professions, sessions for clinicians and entrepreneurs, and exhibits from vendors and universities. Themes include:

Biomedical Signal Processing
Biomedical Imaging and Image Processing
Micro/Nano-bioengineering
Cellular/Tissue Engineering & Biomaterials
Computational Systems & Synthetic Biology
Multiscale modeling
Cardiovascular and Respiratory Systems Engineering
Neural and Rehabilitation Engineering
Biomedical Sensors and Wearable Systems
Biorobotics and Biomechanics
Therapeutic & Diagnostic Systems and Technologies
Clinical Engineering
Biomedical & Health Informatics
Biomedical Engineering Education and Society
Translational Engineering for Healthcare Innovation and Commercialization

Important Dates

Sessions Proposals, Mini-Symposia, Workshops, & Special Sessions

Submission deadline	Nov 22, 2019
Accept/reject notification	Dec 19, 2019
Final submission deadline	Jan 16, 2020

Full papers

Submission deadline	Jan 23, 2020
Accept/reject Notification	April 10, 2020
Final Submission Deadline	April 30,2020

1-page papers (Research Poster Papers)

Submission deadline	April 17, 2020
Accept/reject notification	April 28, 2020
Final submission deadline	May 3, 2020

http://embc.embs.org/2020/

Organizing Committee

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Westlake University

Conference Chair – Carolyn McGregor
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EMBC FUTURE LOCATIONS
MONTREAL, CANADA
20 - 24 JULY '20
GUADALAJARA, MEXICO
SUMMER 2021
26 - 30 JULY '21
GLASGOW, SCOTLAND
SUMMER 2022
11 - 15 JULY '22
SYDNEY, AUSTRALIA
SUMMER 2023
24-28 JULY '23
IEEE
EMB

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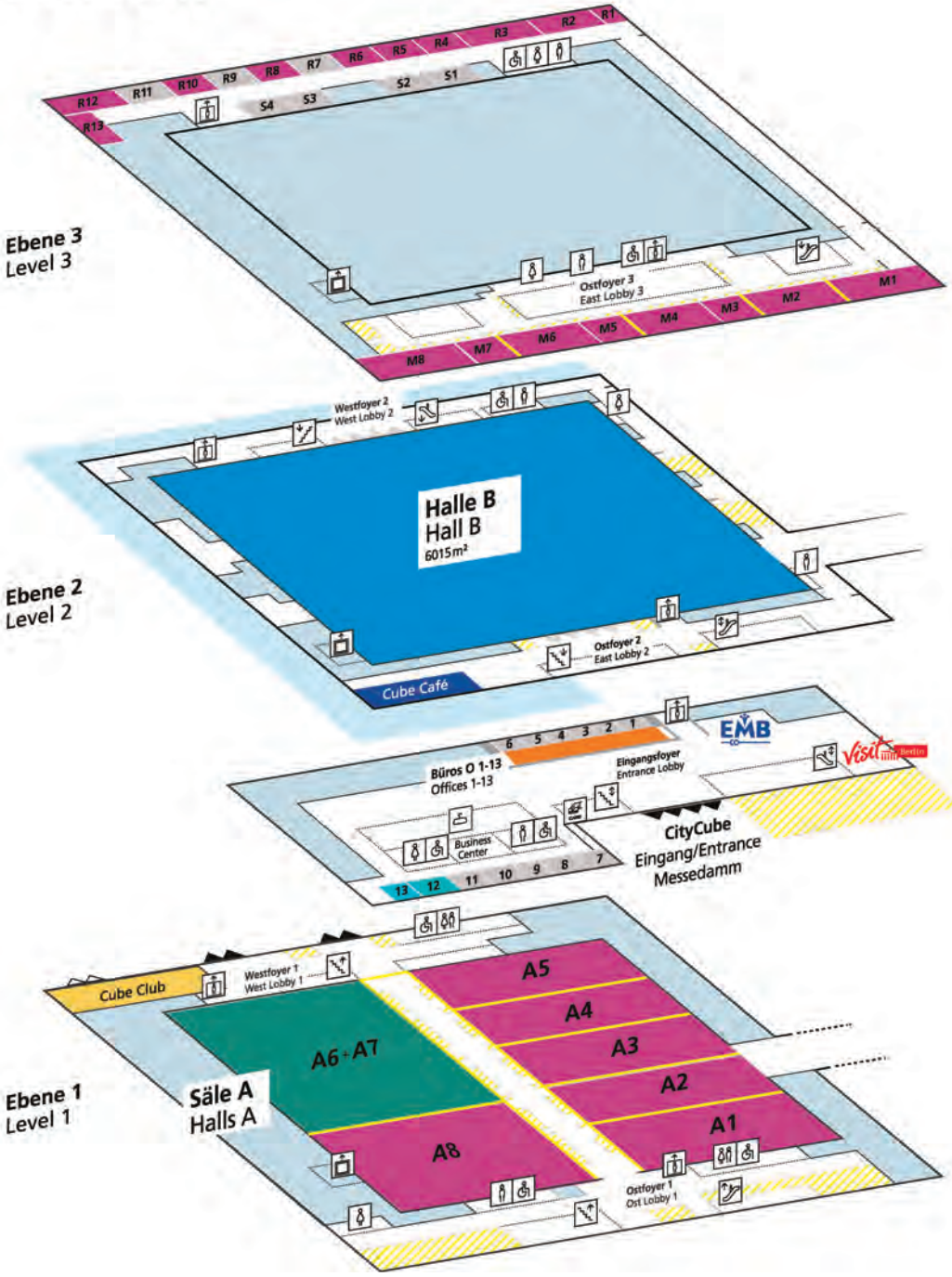


Registration

Speakers' Lounge

Plenary Hall

Session Rooms

Industry | Posters

Cube Café

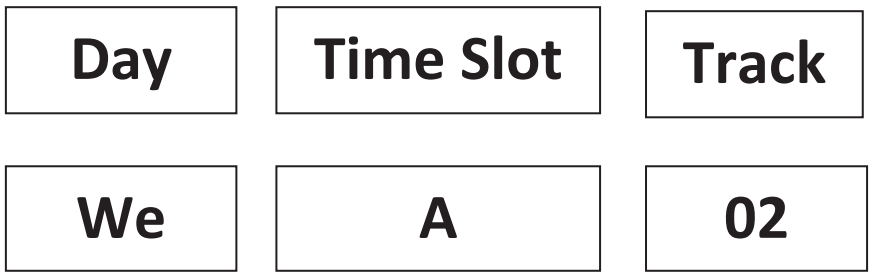
Prayer Room

Mothers' Room

Understanding the Program Coding

The conference program is scheduled for a specific day, time slot, and track.

A session code in the program will therefore have the following format:



- WeA02 **This is a schedule code with a designating 'A' time slot on Wednesday (8:30-10:00) for track '2'.**

Program in Chronological Order

* – Corresponding Author
Note: Minisymposia (MS) session talk times are only indicative and talks will be scheduled in such a way as to occupy the 90 minute time slot at the discretion of the MS organizer

Wednesday, 24 July 2019

WeA02: 08:30-10:00 Hall A8 – Level 1
Adaptive and Kalman Filtering (Oral Session)
Chair: Aramendi, Elisabete *(University of the Basque Country)*
Co-Chair: Sassi, Roberto *(Università degli Studi di Milano)*

08:30-08:45 WeA02.1
Comparison of Single and Multi-Reference QRD-RLS Adaptive Filter for Non-Invasive Fetal Electrocardiography
Sulas, Eleonora* *(University of Cagliari)*; Urru, Monica *(Division of Paediatric Cardiology, S.Michele Hospital, Cagliari,)*; Tumbarello, Roberto *(Division of Paediatric Cardiology, S.Michele Hospital, Cagliari,)*; Raffo, Luigi *(University of Cagliari)*; Pani, Danilo *(University of Cagliari)*

08:45-09:00 WeA02.2
Physical Activity Estimation from Accelerometry
Garnotel, Maël *(CRNH)*; Simon, Chantal *(CRNH Rhône-Alpes/CENS, Centre Hospitalier Lyon Sud – 165 chemin)*; Bonnet, Stéphane* *(CEA Léti MINATEC)*

09:00-09:15 WeA02.3
A Cortisol-Based Energy Decoder for Investigation of Fatigue in Hypercortisolism
Wickramasuriya, Dilranjan *(University of Houston)*; Faghih, Rose T.* *(University of Houston)*

09:15-09:30 WeA02.4
Extraction of the Fetal Pulse Curve for Transabdominal Pulse Oximetry using Adaptive and Comb Filters
Böttrich, Marcel* *(Technische Universität Ilmenau)*; Husar, Peter *(Ilmenau University of Technology)*

09:30-09:45 WeA02.5
Impedance based Automatic Detection of Ventilations during Mechanical Cardiopulmonary Resuscitation
Jaureguibeitia, Xabier *(University of the Basque Country (UPV/EHU))*; Irusta, Unai* *(UPV/EHU)*; Aramendi, Elisabete *(University of the Basque Country)*; Alonso, Erik *(University of the Basque Country)*; Owens, Pamel *(University of Texas Southwestern Medical Center, Dallas, Texas,)*; Wang, Henry *(University of Texas Health Science Center, Houston)*; Idris, Ahamed *(University of Texas Southwestern Medical Center)*

09:45-10:00 WeA02.6
Refined Ventricular Activity Cancellation in Electrograms during Atrial Fibrillation by Combining Average Beat Subtraction and Interpolation
Rivolta, Massimo Walter *(Università degli Studi di Milano)*; Sassi, Roberto *(Università degli Studi di Milano)*; Vila, Muhamed* *(Università degli Studi di Milano)*

WeA03: 08:30-10:00 Hall A3 – Level 1
Image Processing – Machine learning / Deep Learning Approaches (Oral Session)
Chair: Anand, Ajay *(University of Rochester)*
Co-Chair: Cardoso, Jaime S. *(INESC TEC and University of Porto)*

08:30-08:45 WeA03.1
Automated Ultrasound Doppler Angle Estimation using Deep Learning
Patil, Nilesh *(University of Rochester)*; Anand, Ajay* *(University of Rochester)*

08:45-09:00 WeA03.2
Brain Metabolic Connectome Classify Mild Cognitive Impairment into Alzheimer's Dementia
Wang, Min *(Shanghai University)*; Yan, Zhuangzhi* *(Shanghai University)*; Jiang, Jiehui *(Shanghai University)*

09:00-09:15 WeA03.3
Retinal Vessel Segmentation using Round-Wise Features Aggregation on Bracket-Shaped Convolutional Neural Networks
Hua, Cam-Hao* *(Kyung Hee University)*; Huynh-The, Thien *(Kumoh National Institute of Technology)*; Lee, Sungyoung *(Kyung Hee University)*

09:15-09:30 WeA03.4
Automatic Classification for the Type of Multiple Synapse based on Deep Learning
Luo, Jie *(Hubei University)*; Hong, Bei *(Institute of Automation, Chinese Academy of Sciences)*; Jiang, Yi *(Institute of Automation, Chinese Academy of Sciences)*; Li, Linlin *(Institute of Automation Chinese Academy of Sciences)*; Xie, Qiwei *(Institute of Automation, Chinese Academy of Sciences)*; Han, Hua* *(Institute of Automation, Chinese Academy of Sciences)*

09:30-09:45 WeA03.5
Averse Deep Semantic Segmentation
Cruz, Ricardo* *(INESC TEC & University of Porto)*; Pinto Costa, Joaquim F. *(Faculty of Sciences, University of Porto)*; Cardoso, Jaime S. *(INESC TEC & University of Porto)*

09:45-10:00 WeA03.6
Classification and Quantification of Retinal Cysts in OCT B-Scans: Efficacy of Machine Learning Methods
Racha, Vamshi Teja *(Indian Institute of Technology Hyderabad)*; Manne, Shanmukh Reddy* *(Indian Institute of Technology Hyderabad)*; Marupally, Abhilash Goud *(L V Prasad Eye Institute)*; Mohammed, Abdul Rasheed *(Smt. Kanuri Santhamma Centre for Vitreo-Retinal Diseases, LV Pra)*; Dansingani, Kunal *(Univ. of Pittsburgh Medical Center)*; Chhablani, Jay *(L.V. Prasad Eye Institute Hyderabad)*; Vupparaboina, Kiran Kumar *(Indian Institute of Technology Hyderabad)*; Jana, Soumya *(Indian Institute of Technology Hyderabad)*

WeA04: 08:30-10:00 Hall A1 – Level 1
Acoustic and Optical Sensors (Oral Session)
Co-Chair: Farrell, Francesca *(University of Strathclyde)*

08:30-08:45 WeA04.1
AcCorps: A Low-Cost 3D Printed Stethoscope for Fetal Phonocardiography
Charlier, Pierre* *(University of Lille (France))*; De Jonckheere, Julien *(CHRU de Lille)*; Logier, Regis *(CHRU de Lille)*

08:45-09:00 WeA04.2
Integrated In-Ear Device for Auditory Health Assessment
Paul, Akshay* *(Univ. of California San Diego)*; Akinin, Abraham *(UCSD)*; Deiss, Steve *(Univ. of California San Diego)*; Cauwenberghs, Gert *(Univ. of California San Diego)*

09:00-09:15 WeA04.3
Wearable, Fiber-Less, Multi-Channel System for Continuous Wave Functional Near Infrared Spectroscopy based on Silicon Photomultipliers Detectors and Lock-In Amplification
Chiarelli, Antonio* *(Università "Gabriele d'Annunzio", Chieti-Pescara, Italy)*; Perpetuini, David *(University G. D'Annunzio of Chieti-Pescara)*; Greco, Giuseppe *(University of Palermo)*; Mistretta, Leonardo *(Dept. of Energy, Information Engineering & Mathematical m)*; Rizzo, Raimondo *(University of Palermo)*; Vinciguerra, Vincenzo *(STMicroelectronics)*; Romeo, Mario Francesco *(STMicroelectronics)*; Merla, Arcangelo *(ITAB-Foundation Univ. G.d'Annunzio)*; Fallica, Piero Giorgio *(STMicroelectronics)*; Giaconia, Costantino *(Università degli Studi di Palermo)*

09:15-09:30 WeA04.4
A Wearable Phototherapy Device Utilizing Micro-LEDs
Farrell, Francesca* *(University of Strathclyde)*; Xie, Enyuan *(University of Strathclyde)*; Guilhabert, Benoit *(Institute of Photonics, University of Strathclyde)*; Haughey, Anne-Marie *(University of Strathclyde)*; Connolly, Patricia *(University of Strathclyde)*; Dawson, Martin D *(Institute of Photonics, University of Strathclyde)*; Laurand, Nicolas *(Institute of Photonics, University of Strathclyde)*

09:30-09:45 WeA04.5
Potential of Laser Doppler Flowmetry in the Medical Needle Insertion Procedures
Kravtcova, Anastasiia* *(Aalto Univ.)*; Zhou, Quan *(Aalto Univ.)*

09:45-10:00 WeA04.6
Estimating the Dependence of Differential Pathlength Factor on Blood Volume and Oxygen Saturation using Monte Carlo Method
Chatterjee, Subhasri* *(City, University of London)*; Kyriacou, Panayiotis *(City University London)*

WeA05: 08:30-10:00 Hall A2 – Level 1
Signal Processing and Classification of Cardiac Signals (Oral Session)
Co-Chair: Baselli, Giuseppe *(Politecnico di Milano)*

08:30-08:45 WeA05.1
A Novel Detection Method of Bundle Branch Block from Multi-Lead ECG
Hu, Jing* *(Guangzhou Shiyuan Electronic Technology Co., Ltd.)*; Zhao, Wei *(Guangzhou Shiyuan Electronics Co., Ltd)*; Jia, Dongya *(CVTE, Guangdong Province, China)*; Yan, Cong *(Guangzhou Shiyuan Electronics Co., Ltd)*; Wang, Hongmei *(Guangzhou Shiyuan Electronics Co., Ltd)*; Li, Zhenqi *(Guangzhou Shiyuan Electronics Co., Ltd)*; You, Tianyuan *(Guangzhou Shiyuan Electronics Co., Ltd.)*

08:45-09:00 WeA05.2
Beat-to-Beat Analysis of Vectorcardiogram by Inhomogeneous Template Adaptation
Karisik, Filip* *(University of Adelaide, School of Electrical & Electronic Engi)*; Baumert, Mathias *(The University of Adelaide)*; Schmidt, Martin *(TU Dresden)*

09:00-09:15 WeA05.3
Distance and Similarity Measurements of P Waves before and after Pulmonary Vein Isolation in Patients with Atrial Fibrillation
Ortigosa, Nuria* *(I.U. Matemática Pura y Aplicada, Universitat Politècnica de Valè)*; Cano, Óscar *(Hospital Universitari i Politècnic La Fe, Servicio de Cardiologí)*; Mainardi, Luca *(Politecnico di Milano)*

09:15-09:30 WeA05.4
Data-Driven Separation and Estimation of Atrial Dynamics in Very High-Dimensional Electrocardiograms from Epilepsy Patients
Stamoulis, Catherine* *(Harvard Medical School)*; Connolly, Jack *(Boston Children's Hospital)*; Duffy, Frank *(Harvard Medical School)*

09:30-09:45 WeA05.5
Dofetilide-Induced Microvolt T-Wave Alternans
Marcantoni, Ilaria *(Università Politecnica delle Marche)*; Laratta, Rosita *(Università Politecnica delle Marche)*; Mascia, Guido *(Università Politecnica delle Marche)*; Ricciardi, Leonardo *(Università Politecnica delle Marche)*; Sbrollini, Agnese *(Università Politecnica delle Marche)*; Nasim, Amnah *(Università Politecnica delle Marche)*; Morettini, Micaela *(Università Politecnica delle Marche)*; Burattini, Laura* *(Università Politecnica delle Marche)*

09:45-10:00 WeA05.6
A Real-Time ECG Feature Extraction Algorithm for Detecting Meditation Levels within a General Measurement Setup
Alawieh, Hussein* *(American University of Beirut)*; Dawy, Zaher *(American University of Beirut)*; Yaacoub, Elias *(American University of Beirut)*; Abbas, Nabil *(NeuroPro AG)*; El-Imad, Jamil *(Imperial College London)*

WeA06: 08:30-10:00 Hall A5 – Level 1
Pediatric Rehabilitation: Novel Devices and Interventions (Minisymposium)
Chair: Bulea, Thomas C. *(National Institutes of Health)*
Co-Chair: Fu, Michael J. *(Case Western Reserve University)*

08:30-08:45 WeA06.1
Pediatric Rehabilitation Engineering and Devices
Cruz, Theresa* *(Northwestern University)*

08:45-09:00 WeA06.2
Neural Interfaces for Mobility and Pain in Cerebral Palsy
McEwan, Alistair* *(The University of Sydney)*; Dusseldorp, Joe *(University of Sydney)*; Gschwind, Claudia *(Royal North Shore Hospital, Sydney)*; Scott, Timothy *(Royal North Shore Hospital, Sydney)*; Andersen, Tomas *(The University of Sydney)*; Suaning, Gregg *(The University of Sydney)*

09:00-09:15 WeA06.3
Electrical Stimulation-Assisted Video Games for Hand Therapy in Children with Hemiplegia
Fu, Michael J* *(Case Western Reserve University)*

09:15-09:30 WeA06.4
Design of a Modular Pediatric Exoskeleton (P-LEGS) for Assist-as-Needed Overground Walking
Eguren, David *(Univ. of Houston)*; Cestari, Manuel *(Univ. of Houston)*; Luu, Trieu Phat *(Univ. of Houston)*; Kilicarslan, Atilla *(Univ. of Houston)*; Steele, Alexander G. *(Univ. of Houston)*; Contreras-Vidal, José* *(Univ. of Houston)*

09:30-09:45 WeA06.5
Novel Control Approaches for Deployment of Wearable Exoskeletons as Pediatric Rehabilitation Devices
Bulea, Thomas C.* *(National Institutes of Health)*; Fu, Michael J *(Case Western Reserve University)*

09:45-10:00 WeA06.6
CPWalker: Robotic-Assisted Gait Training Rehabilitation Strategies for Pediatric Population with Cerebral Palsy
Rocon, Eduardo* *(CSIC)*

WeA08: 08:30-10:00 M8 – Level 3
Rehabilitation (Oral Session)
Co-Chair: Carrozza, Maria Chiara *(Scuola Superiore Sant'Anna)*

08:30-08:45 WeA08.1
Clinical and Functional Imaging Changes Induced from Vision Therapy in Patients with Convergence Insufficiency
Alvarez, Tara* *(New Jersey Institute of Technology)*; Scheiman, Mitchell *(Philadelphia College of Optometry, Salus Univ.)*; Santos, Elio *(Biomedical Engineering, New Jersey Institute of Technology)*; Morales, Cristian *(Biomedical Engineering, New Jersey Institute of Technology)*; Yaramothu, Chang *(New Jersey Institute of Technology)*; d'Antonio-Bertagnolli, John Vito *(Biomedical Engineering, New Jersey Institute of Technology)*; Gohel, Suril *(Univ. of Medicine & Dentistry of New Jersey)*; Biswal, Bharat *(Univ. of Medicine & Dentistry of New Jersey)*; Li, Xiaobo *(Biomedical Engineering, New Jersey Institute of Technology)*

08:45-09:00 WeA08.2
Electrocortical Activity Changes in Response to Unpredictable Trip Perturbations Induced by a Split-Belt Treadmill
An, Junmo* *(University of Houston)*; Yoo, Dongyual *(University of Houston)*; Lee, Beom-Chan *(University of Houston)*

09:00-09:15 WeA08.3
The Therapeutic Effects of Low-Amplitude, High-Frequency Perturbations on Neuromuscular Abnormalities Associated with Spasticity in Children with Cerebral Palsy
Noroozi, Shamim *(Islamic Azad University of Science & Research Branch, Tehran,I)*; Lotfian, Mahboube *(Tehran University of Medical Sciences)*; Nowshiravan Rahatabad, Fereidoun *(Dept. of Biomedical Engineering, Science & Research Branc)*; Shahrokhi, Amin *(Noorafshar Hospital, Tehran, Iran)*; Irani, Ashkan *(Dept. of Occupational Therapy, Faculty of Rehabilitation, S)*; Mirbagheri, Mehdi* *(Northwestern University/TUMS)*

09:15-09:30 WeA08.4
Improvement of Sense of Agency during Upper-Limb Movement for Motor Rehabilitation using Virtual Reality
Aoyagi, Kei* *(The University of Tokyo)*; Wen, Wen *(The University of Tokyo)*; An, Qi *(The University of Tokyo)*; Hamasaki, Shunsuke *(The University of Tokyo)*; Yamakawa, Hiroshi *(The University of Tokyo)*; Tamura, Yusuke *(The University of Tokyo)*; Yamashita, Atsushi *(The University of Tokyo)*; Asama, Hajime *(The University of Tokyo)*

09:30-09:45 WeA08.5
Improving Stability in Upper Limb Rehabilitation using Variable Stiffness
Jujjavarapu, Sri Sadhan *(University at Buffalo)*; Esfahani, Ehsan* *(University at Buffalo, SUNY)*

09:45-10:00 WeA08.6
Impact of Anti-Gravity Locomotion (AlterG) Training on Structure and Function of Corticospinal Tract and Gait in Children with Cerebral Palsy
Azizi, Shahla *(Dept. of Medical Physics & Biomedical Engineering,)*; Moradi Birgani, Parmida *(Tehran University of Medical Sciences)*; Irani, Ashkan *(Dept. of Occupational Therapy, Faculty of Rehabilitation, S)*; Shahrokhi, Amin *(Noorafshar Hospital, Tehran, Iran)*; Molavi, Mohammad *(Dey Hospital & Pejvak Radiology Center, Tehran, Iran)*; Mirbagheri, Mehdi* *(Northwestern University/TUMS)*

WeA09**:** 08:30-10:00 M1 – Level 3
Data-Driven Model Construction (Oral Session)
Chair: De Angelis, Annalisa *(ICEmB at DIET Univ. of Rome Sapienza)*

08:30-08:45 WeA09.1
An Improved Object Detection Method for Mitosis Detection
Lei, Haijun *(Shenzhen Univ.)*; Liu, Shaomin *(Shenzhen Univ.)*; Xie, Hai *(Shenzhen Univ.)*; Lei, Baiying* *(Shenzhen Univ.)*

08:45-09:00 WeA09.2
Microdosimetric Realistic Model of Cells with Endoplasmic Reticulum
De Angelis, Annalisa* *(ICEmB at DIET University of Rome Sapienza)*; Denzi, Agnese *(Istituto Italiano di Tecnologia (IIT@Sapienza))*; Merla, Caterina *(ENEA)*; Andre, Franck *(Vectorology & Anticancer Therapies, Univ. Paris)*; García-Sánchez, Tomás *(Universitat Politècnica de Catalunya)*; Mir, Lluis *(Vectorology & Anticancer Therapies, Univ. Paris)*; Apollonio, Francesca *(ICEmB@La Sapienza Univ. Rome)*; Liberti, Micaela *(ICEmB at Sapienza University of Rome)*

09:00-09:15 WeA09.3
Cell-to-Cell Variability in Protein Expression during Viral Infection: Monte-Carlo Simulation and Validation based on Confocal Imaging
Saxena, Abha* *(Indian Institute of Technology Hyderabad,)*; Upadhyay, Vikas *(Indian Institute of Technology, Hyderabad)*; Dhyani, Vaibhav *(Indian Institute of Technology Hyderabad,)*; Jana, Soumya *(Indian Institute of Technology Hyderabad)*; Giri, Lopamudra *(Indian Institute of Technology Hyderabad)*

09:15-09:30 WeA09.4
Slow-Fast Duffing Neural Mass Model
Jafarian, Amirhossein* *(Univ. Collage London)*; Freestone, Dean Robert *(The Univ. of Melbourne)*; Nesic, Dragan *(The Univ. of Melbourne)*; Grayden, David B. *(The Univ. of Melbourne)*

09:30-09:45 WeA09.5
On Early Brain Folding Patterns using Biomechanical Growth Modeling
Wang, Xiaoyu* *(IMT Atlantique, Brest, France)*; Bohi, Amine *(Aix Marseille Univ, CNRS, INT, Inst Neurosci Timone, Marseille)*; Al Harrach, Mariam *(UTC)*; Dinomais, Mickael *(Laboratoire Angevin de Recherche en Ingénierie des Systèmes (LAR)*; Lefevre, Julien *(Institut de Neurosciences de la Timone)*; Rousseau, François *(Telecom Bretagne)*

09:45-10:00 WeA09.6
A Critical Comparison of Pipelines for Structural Brain Network Analysis
Franke, Robert* *(Interdisciplinary Competence Center Biomedical Data Science, Ins)*; Ivanova, Galina *(Interdisciplinary Competence Center Biomedical Data Science, Ins)*

WeA10**:** 08:30-10:00 M2 – Level 3
Ablation Systems and Technologies (Oral Session)
Chair: Panescu, Dorin *(Zidan Medical, Inc.)*
Co-Chair: Linte, Cristian A. *(Rochester Institute of Technology)*

08:30-08:45 WeA10.1
Experimental Validation of the Multiphysics Modelling of Radiofrequency Ablation using Physical Phantom
Thipayawat, Tawanwart* *(University of Sydney)*; Minh, Duc Nguyen *(The University of Sydney)*; Prinable, Joseph Barry Yoo Sik *(University of Sydney)*; McEwan, Alistair *(The University of Sydney)*; Barry, M.A. *(Westmead Hospital, Sydney)*

08:45-09:00 WeA10.2
Towards OCT-Navigated Tissue Ablation with a Picosecond Infrared Laser (PIRL) and Mass-Spectrometric Analysis
Schlüter, Matthias* *(Hamburg Univ. of Technology)*; Fuh, Manka M. *(Univ. Medical Center Hamburg-Eppendorf)*; Maier, Stephanie *(Max Planck Institute for the Structure & Dynamics of Matter)*; Otte, Christoph *(Hamburg Univ. of Technology)*; Kiani, Parnian *(Univ. Medical Center Hamburg-Eppendorf)*; Hansen, Nils-Owe *(Max Planck Institute for the Structure & Dynamics of Matter)*; Miller, R. J. Dwayne *(Max Planck Institute for the Structure & Dynamics of Matter)*; Schlüter, Hartmut *(Univ. Medical Center Hamburg-Eppendorf)*; Schlaefer, Alexander *(Hamburg Univ. of Technology)*

09:00-09:15 WeA10.3
Laser Ablation in Biliary Tree: Analysis of the Intraductal and Superficial Thermal Effects during the Treatment
Saccomandi, Paola* *(Politecnico di Milano)*; Quero, Giuseppe *(IHU-strasbourg)*; Gassino, Riccardo *(Dept. of Electronics & Telecommunications, Politecnico di)*; Lapergola, Alfonso *(Dept. of Surgery, Unit of Surgical Oncology, "G. D'Annunzio)*; Barberio, Manuel *(IHU Institute of Image-Guided Surgery, Strasbourg)*; Schena, Emiliano *(Univ. of Rome Campus Bio-Medico)*; Perrone, Guido *(Dept. of Electronics & Telecommunications, Politecnico di)*; Vallan, Alberto *(Dept. of Electronics & Telecommunications, Politecnico di)*; Costamagna, Guido *(Unit of Digestive Endoscopy, Università Cattolica del Sacro Cuor)*; Marescaux, Jacques *(IRCAD)*; Di Matteo, Francesco Maria *(Univ. Campus Bio-Medico of Rome)*

09:15-09:30 WeA10.4
Stabilization of Electrosurgical Cutting Performance based on Electrode Speed
Bluvshtein, Vlad* *(Minnetronix)*; Lucke, Lori *(Minnetronix, Inc.)*; Widule, Matthew *(Minnetronix)*

09:30-09:45 WeA10.5
Feasibility of High-Resolution Electrical Mapping for Characterizing Conduction Blocks Created by Gastric Ablation
Aghababaie, Zahra* *(University of Auckland)*; Chan, Chih-Hsiang Alexander *(University of Auckland)*; Paskaranandavadivel, Niranchan *(The University of Auckland)*; Beyder, Arthur *(Mayo Clinic)*; Farrugia, Gianrico *(Mayo Clinic College of Medicine)*; Asirvatham, Samuel *(Mayo Clinic)*; O'Grady, Greg *(The University of Auckland)*; Cheng, Leo K *(The University of Auckland)*; Angeli, Timothy Robert *(Auckland Bioengineering Institute, University of Auckland)*

09:45-10:00 WeA10.6
Early Preclinical Experience with a Novel Endobronchial Radiofrequency Ablation System for Lung Cancer Treatment
Yoneda, Ken *(Univ. of California, Davis)*; Li, Shiyue *(Guangzhou Institute of Respiratory Disease)*; Herth, Felix *(Univ. of Heidelberg, Germany)*; Spangler, Taylor *(VDx Veterinary Diagnostics)*; Gelfand, Mark *(Coridea, Inc.)*; Raina, Shashank *(Zidan Medical)*; Panescu, Dorin* *(Zidan Medical, Inc.)*

WeA11: 08:30-10:00 M4 – Level 3
Challenges and Opportunities of Cardiac Imaging and Advanced Data Analysis in Cardiovascular Disease (Minisymposium)
Co-Chair: Zhong, Liang *(National Heart Centre Singapore, Duke-NUS Medical School, National University of Singapore)*

08:30-08:45 WeA11.1
Cardiac Atlases and Machine Learning for Heart Shape and Function Assessment
Young, Alistair* *(University of Auckland)*; Suinesiaputra, Avan *(University of Auckland)*; Gilbert, Kathleen *(University of Auckland)*; Mauger, Charlène Alice *(University of Auckland)*; Omens, Jeffrey *(UCSD)*; Nash, Martyn *(University of Auckland)*; McCulloch, Andrew *(University of California, San Diego)*

08:45-09:00 WeA11.2
Physiology Guided Percutaneous Coronary Intervention: Basics, Evolution and Clinical Application
Chin, Chee Yang* *(National Heart Centre Singapore)*

09:00-09:15 WeA11.3
Evaluation of Clinical Performance of Vessel-Length based CT-FFR
Lee, Kyung Eun *(Kangwon National Univ.)*; Kwon, Soon-Sung *(SiliconSapiens Corp.)*; Shim, Eun Bo* *(Kangwon National Univ.)*

09:15-09:30 WeA11.4
Coronary Plaque Morphology with Reduced Order CFD based Fractional Flow Reserve for Lesion-Specific Ischemia Assessment
Zhong, Liang* *(Duke-Duke Medical School, National University of Singapore)*; Zhang, Jun-Mei *(National Heart Center)*; Lim, Soo Teik *(National Heart Centre Singapore)*; Tan, Ru-San *(National Heart Centre Singapore)*

09:30-09:45 WeA11.5
Cardiac Diffusion Tensor MRI: Application in Heart Failure
Moulin, Kévin *(Dept. of Radiology, Stanford University, Stanford, CA)*; Perotti, Luigi E. *(University of Central Florida)*; Verzhbinsky, Ilya *(Stanford University)*; Loecher, Michael *(Dept. of Radiology, Stanford University, Stanford, CA)*; Ennis, Daniel* *(Stanford University, Stanford, CA)*

09:45-10:00 WeA11.6
The Role of CMR in Heart Failure
Tan, Ru-San* *(National Heart Centre Singapore)*; Leng, Shuang *(National Heart Centre Singapore)*; Zhao, Xiaodan *(National Heart Centre Singapore)*; Zhong, Liang *(Duke-Duke Medical School, National University of Singapore)*

WeA12: 08:30-10:00 M6 – Level 3
Brain Imaging and Image Analysis (I) (Oral Session)
Chair: Toschi, Nicola *(University of Rome)*

08:30-08:45 WeA12.1
Modeling of the BOLD Signal using Event-Related Simultaneous EEG-fMRI and Convolutional Sparse Coding Analysis
Prokopiou, Prokopis *(McGill University)*; Mitsis, Georgios D.* *(McGill University)*

08:45-09:00 WeA12.2
Low Rank Self-Calibrated Brain Network Estimation and Auto-Weighted Centralized Multi-Task Learning for Early Mild Cognitive Impairment Diagnosis
Cheng, Nina *(Shenzhen Univ.)*; Elazab, Ahmed *(Shenzhen Univ.)*; Yang, Peng *(Shenzheng Univ.)*; Liu, Dongdong *(Shenzhen Univ.)*; Yu, Shuangzhi *(Shenzhen Univ.)*; Wang, Tianfu *(Shenzhen Univ.)*; Lei, Baiying* *(Shenzhen Univ.)*

09:00-09:15 WeA12.3
Simultaneous EEG-fMRI Study Reveals Separate Bias Mechanisms Modulated by Stimulus Evidence during Rapid Face Processing
Tu, Tao* *(Columbia Univ.)*; Sajda, Paul *(Columbia Univ.)*

09:15-09:30 WeA12.4
Hybridizing EMD with cICA for fMRI Analysis of Patient Groups
Wein, Simon *(University of Regensburg)*; Tome, Ana Maria* *(Universidade de Aveiro)*; Goldhacker, Markus *(University of Regensburg)*; Greenlee, Mark *(University of Regensburg)*; Lang, Elmar W. *(University of Regensburg)*

09:30-09:45 WeA12.5
Post-Traumatic Cerebral Microhemorrhages and their Effects Upon White Matter Connectivity in the Aging Human Brain
Fan, Di *(Univ. of Southern California)*; Chaudhari, Nikhil *(Univ. of Southern California)*; Rostowsky, Kenneth A. *(Univ. of Southern California)*; Calvillo, Maria *(Univ. of Southern California)*; Lee, Sean *(Univ. of Southern California)*; Chowdhury, Nahian F. *(Univ. of Southern California)*; Zhang, Fan *(Harvard Medical School)*; O'Donnell, Lauren *(BWH)*; Irimia, Andrei* *(Univ. of Southern California)*

09:45-10:00 WeA12.6
Whole Brain in-Vivo Axonal Diameter Mapping in Multiple Sclerosis
De Santis, Silvia *(Univ. Miguel Hernandez de Elche)*; Herranz, Elena *(Athinoula A. Martinos Center for Biomedical Imaging, Boston, MA)*; Treaba, Constantina *(Dept. of Radiology, Athinoula A. Martinos Center for Biomed)*; Barletta, Valeria *(Martinos Center for Biomedical Imaging (MGH) & Harvard Medical)*; Mehndiratta, Ambica *(Martinos Center for Biomedical Imaging (MGH) & Harvard Medical)*; Mainero, Caterina *(Dept. of Radiology, Athinoula A. Martinos Center for Biomed)*; Toschi, Nicola* *(Univ. of Rome "Tor Vergata", Faculty of Medicine)*

WeA13: 08:30-10:00 R2 – Level 3
Recent Advances on Cuff-Less Blood Pressure Measurement Technology (I) (Minisymposium)
Chair: Mukkamala, Ramakrishna *(Michigan State University)*

08:30-08:45 WeA13.1
An iPhone Application for Cuff-Less and Calibration-Free Measurement of Blood Pressure
Chandrasekhar, Anand *(Indian Institute of Technology Madras)*; Natarajan, Keerthana *(Michigan State University)*; Yavarimanesh, Mohammad *(Michigan State University)*; Mukkamala, Ramakrishna* *(Michigan State University)*

08:45-09:00 WeA13.2
Aktiia Bracelet: Monitoring of Blood Pressure using Off-the-Shelf Optical Sensors
Sola, Josep* *(Aktiia SA)*; Vybornova, Anna *(Aktiia SA)*; Fallet, Sibylle *(Aktiia SA)*; Grossenbacher, Olivier *(Aktiia SA)*; De Marco, Bastien *(Aktiia SA)*; Olivero, Elisa *(aktiia S.A.)*; Siutryk, Nadège *(Aktiia SA)*; Chapuis, Valentin *(Aktiia SA)*; Bertschi, Mattia *(aktiia)*

09:00-09:15 WeA13.3
Cuffless Blood Pressure Monitoring on Smartphone: Blood Pressure Estimation based on Pulse Wave Analysis
Yoon, Seung Keun* *(Samsung Advanced Institute of Technology)*; Kwon, Uikun *(Samsung Electronics)*; Park, Chang Soon *(Samsung Advanced Institute of Technology)*; Jang, Dae-Geun *(Samsung Advanced Institute of Technology)*; Noh, Seungwoo *(Interdisciplinary Program, Bioengineering, Graduate School, Seoul)*; Choi, Jin Woo *(Seoul National Univ.)*; Choi, Changmok *(Samsung Electronics Co., Ltd.)*; Lee, Jongwook *(Samsung Electronics)*; Kim, Youngsoo *(Samsung Electronics)*; Hwang, Jeong-Eun *(Samsung Advanced Institute of Technology)*; Ko, Byung-Hoon *(Samsung Advanced Institute of Technology)*; Park, Sangyun *(Samsung Advanced Institute of Technology)*; Kwon, Yongjoo *(Samsung Advanced Institute of Technology)*; Kang, Jaemin *(Samsung)*; Kim, Youn Ho *(Samsung Advanced Institute of Technology)*; Lee, Hong Ji *(Seoul National Univ.)*; Cho, Sung-Hwan *(Samsung);* Jung, Sunok *(Samsung Electronics)*; Sung, Jidong *(Center for Health Promotion, Samsung Medical Center, Sungkyunkwa)*; Park, Seung Woo *(Division of Cardiology, Samsung Medical Center)*

09:15-09:30 WeA13.4
Image-Free Ultrasound Technique for Calibration-Free Cuffless Blood Pressure Measurement
Joseph, Jayaraj *(HTIC, Indian Institute of Technology Madras)*; V, Raj Kiran* *(IIT Madras)*; P M, Nabeel *(Indian Institute of Technology Madras)*; Sivaprakasam, Mohanasankar *(Indian Institute of Technology Madras)*

09:30-09:45 WeA13.5
Effect of Medication on Cuff-Less Blood Pressure and Pulse Wave Velocity
Ma, Botong *(Massachusetts Institute of Technology)*; Ouyang, Victoria *(Massachusetts Institute of Technology)*; Sengupta, Shantanu *(Sengupta Hospital & Research Institute)*; Mungulmare, Kunda *(Sengupta Hospital & Research Institute)*; Sengupta, Partho *(True Vision)*; Fletcher, Richard Ribon* *(Massachusetts Institute of Technology)*

WeA14: 08:30-10:00 R3 – Level 3
Signal Processing and Classification of Acoustic and Auditory Signals (Oral Session)
Chair: Ambrosini, Emilia *(Politecnico di Milano)*
Co-Chair: Celler, Branko George *(University of New South Wales)*

08:30-08:45 WeA14.1
Blood Pressure Estimation using Time Domain Features of Auscultatory Waveforms and GMM-HMM Classification Approach
Celler, Branko George* *(Univ. of New South Wales)*; Le, Phu N. *(Univ. of New South Wales)*; Argha, Ahmadreza *(Univ. of New South Wales)*; Ambikairajah, E *(Univ. of New South Wales)*

08:45-09:00 WeA14.2
Automatic Speech Analysis to Early Detect Functional Cognitive Decline in Elderly Population
Ambrosini, Emilia* *(Politecnico di Milano)*; Caielli, Matteo *(Politecnico di Milano)*; Milis, Marios *(Signal GeneriX Ltd)*; Loizou, Christos *(Signal GeneriX Ltd)*; Azzolino, Domenico *(Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico)*; Damanti, Sarah *(Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico)*; Bertagnoli, Laura *(Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico)*; Cesari, Matteo *(Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico)*; Moccia, Sara *(Unviersità Politecnica delle Marche)*; Cid, Manuel *(Consejería de Sanidad y Políticas Sociales, Junta de Extremadura)*; Galán de Isla, Carmen *(Consejería de Sanidad y Políticas Sociales, Junta de Extremadura)*; Salamanca, Paula *(Consejería de Sanidad y Políticas Sociales, Junta de Extremadura)*; Borghese, Nunzio Alberto *(University of Milan)*; Ferrante, Simona *(Politecnico di Milano)*

09:00-09:15 WeA14.3
Automatic Identification of Cough Events from Acoustic Signals
Pramono, Renard Xaviero Adhi* *(Imperial College London)*; Imtiaz, Syed Anas *(Imperial College London)*; Rodriguez-Villegas, Esther *(Imperial College London)*

09:15-09:30 WeA14.4
Regression between EEG and Speech Signals for Spoken Vowels
Sikdar, Debdeep *(IIT Kharagpur)*; Roy, Rinku *(IIT Kharagpur)*; Mahadevappa, Manjunatha* *(Indian Institute of Technology Kharagpur)*

09:30-09:45 WeA14.5
Automated Verbal and Non-Verbal Speech Analysis of Interviews of Individuals with Schizophrenia and Depression
Xu, Shihao* *(Nanyang Technological University, School of Electrical & Elect)*; Yang, Zixu *(Institute of Mental Health)*; Chakraborty, Debsubhra *(Institute for Media Innovation, Nanyang Technological University)*; Yi Han Chua, Victoria *(Nanyang Technological University, School of Electrical & Elect)*; Dauwels, Justin *(NTU)*; Thalmann, Daniel *(Ecole Polytechnique Fédérale de Lausanne (EPFL))*; Magnenat Thalmann, Nadia *(Institute for Media Innovation, Nanyang Technological University)*; Tan, Bhing-Leet *(Health & Social Sciences, Singapore Institute of Technology)*; Lee, Jimmy *(Institute of Mental Health)*

09:45-10:00 WeA14.6
Combining Electrodermal Activity and Speech Analysis Towards a more Accurate Emotion Recognition System
Greco, Alberto* *(Univ. of Pisa)*; Marzi, Claudia *(National Research Council of Italy)*; Lanata', Antonio *(Univ. of Pisa)*; Scilingo, Enzo Pasquale *(Univ. of Pisa)*; Vanello, Nicola *(Univ. of Pisa)*

WeA15: 08:30-10:00 M3 – Level 3
Bioinformatics – Bioinformatics for Health Monitoring (Oral Session)
Co-Chair: Smith, Michael *(University of Calgary)*

08:30-08:45 WeA15.1
Evaluating the Accuracy of Consensus Nanopore Squiggles Generated by Dynamic Time Warp Barycentre Averaging (DBA)
Smith, Michael* *(University of Calgary)*; Chan, Rachel S. L. *(Electrical & Computer Engineering, University of Calgary)*; Gordon, Paul *(Bioinformatics, Alberta Children's Hospital Research Institute)*

08:45-09:00 WeA15.2
Patient-Specific Debye Parameters for Human Blood
Santorelli, Adam* *(National University of Ireland Galway)*; O'Halloran, Martin *(National University of Ireland, Galway)*

09:00-09:15 WeA15.3
MOTA: Multi-Omic Integrative Analysis for Biomarker Discovery
Fan, Ziling *(Georgetown University)*; Zhou, Yuan *(Georgetown University)*; Ressom, Habtom* *(Georgetown University)*

09:15-09:30 WeA15.4
Simulation of a Cellular Automaton with Markov Chains: Applications in Self-Organized Dynamical Systems
Lambrou, George I. *(National & Kapodistrian Univ. of Athens)*; Ioannidou, Pinelopi *(Dept. of Biomedical Research, Institute of Molecular Biolog)*; Bizopoulos, Paschalis* *(National Technical Univ. of Athens)*; Toumpaniaris, Petros *(National Technical Univ. of Athens)*; Kepentzis, Stavros *(National Technical Univ. of Athens)*; Koutsouris, Dimitrios *(Biomedical Engineering Laboratory, School of Electrical & Comp)*

09:30-09:45 WeA15.5
A Cross-Platform Comparison of Affymetrix, Agilent, and Illumina Microarray Reveals Functional Genomics in Colorectal Cancer Progression
Lim, Hendrick Gao-Min* *(Taipei Medical University)*; Lee, Yuan-Chii Gladys *(Taipei Medical University)*

09:45-10:00 WeA15.6
A Queryable Graph Representation of Vascular Connectivity in the Whole Mouse Brain
Nowak, Michael* *(Texas A&M University)*; Lee, Junseok *(Texas A&M University, Dept. of Computer Science & Enginee)*; Choe, Yoonsuck *(Texas A&M University)*

WeA16: 08:30-10:00 M5 – Level 3
Data-Driven Translational Biomedicine (Oral Session)
Chair: Molteni, Erika *(King's College London)*

08:30-08:45 WeA16.1
A Full-Body Model of Burn Pathophysiology and Treatment using the BioGears Engine
McDaniel, Matthew* *(Applied Research Associates)*; Baird, Austin *(Applied Research Associates)*

08:45-09:00 WeA16.2
A Minimal Model Approach for the Description of Postprandial Glucose Responses from Glucose Sensor Data in Diabetes Mellitus
Eichenlaub, Manuel M.* *(Univ. of Warwick)*; Hattersley, John Glenn *(Univ. Hospitals Coventry & Warwickshire/Univ. of War)*; Khovanova, Natasha *(Univ. of Warwick)*

09:00-09:15 WeA16.3
Comparison of Multi-Class Machine Learning Methods for the Identification of Factors Most Predictive of Prognosis in Neurobehavioral Assessment of Pediatric Severe Disorder of Consciousness through LOCFAS Scale
Molteni, Erika* *(King's College London)*; Colombo, Katia *(Scientific Institute, IRCCS E. Medea)*; Beretta, Elena *(IRCCS "E.Medea", Associazione La Nostra Famiglia, Bosisio Parini)*; Galbiati, Susanna *(IRCCS Eugenio Medea Scientific Institute)*; Dos Santos Canas, Liane *(King's College London)*; Modat, Marc *(King's College London)*; Strazzer, Sandra *(IRCCS)*

09:15-09:30 WeA16.4
Modeling of Combination Chemotherapy and Immunotherapy for Lung Cancer
Curtis, Louis *(University of Louisville)*; Frieboes, Hermann* *(University of Louisville)*

09:30-09:45 WeA16.5
STAR-Liège Clinical Trial Interim Results: Safe and Effective Glycemic Control for All
Uyttendaele, Vincent* *(University of Canterbury)*; Knopp, Jennifer L. *(University of Canterbury)*; Pirotte, Marc *(University of Liege)*; Morimont, Philippe *(University Hospital of Liège)*; Lambermont, Bernard *(University of Liege)*; Shaw, Geoffrey M *(Christchurch Hospital)*; Desaive, Thomas *(University of Liege)*; Chase, J. Geoffrey *(University of Canterbury)*

09:45-10:00 WeA16.6
Joint and Long Short Term Memory Regression of Clinical Scores for Alzheimer's Disease using Longitudinal Data
Yang, Mengya *(Shenzhen University)*; Elazab, Ahmed *(Shenzhen University)*; Yang, Peng *(Shenzheng University)*; Xia, Zaimin *(Shenzhen University)*; Wang, Tianfu *(Shenzhen University)*; Lei, Baiying* *(Shenzhen University)*

WeA17: 08:30-10:00 R12 – Level 3
Atrial Fibrillation and Cardiac Electrophysiology (Oral Session)
Co-Chair: Chon, Ki *(University of Connecticut)*

08:30-08:45 WeA17.1
Local Activation Time Estimation in Fractionated Electrograms of Cardiac Mappings
Abdi, Bahareh* *(TU Delft)*; Alle-Jan, van der Veen *(TU Delft)*; de Groot, Natasja *(Erasmus MC, Rotterdam)*; Hendriks, Richard *(TU Delft)*

08:45-09:00 WeA17.2
Preliminary Validation of Electroporation-Electrolysis (E2) for Cardiac Ablation using a Parameterisable in-Vivo Model
Zhao, Luke Hong Lu* *(The Univ. of Sydney)*; Rasko, Adam Emery *(The Univ. of Sydney)*; Drescher, Christian *(Micropace Pty Ltd)*; Maleki, Sanaz *(The Univ. of Sydney)*; Cejnar, Michael *(Micropace Pty Ltd)*; McEwan, Alistair *(The Univ. of Sydney)*

09:00-09:15 WeA17.3
Structural Analysis of Complex Atrial Intramural Microstructure from a Multi-Layer Model based on Siamese Network
Li, Jianning *(Tsinghua University)*; Chen, Riqing *(The Institute of Biomedical Engineering, Graduate School at Shen)*; Wu, Jian* *(Tsinghua University)*

09:15-09:30 WeA17.4
Atrial Fibrillation Detection in ICU Patients: A Pilot Study on MIMIC III Data
Bashar, Syed Khairul* *(University of Connecticut)*; Ding, Eric *(University of Massachusetts Medical School)*; Albuquerque, Daniella *(University of Massachusetts Medical School)*; Winter, Michael *(Boston University)*; Binici, Sophia *(University of Massachusetts Medical School)*; Walkey, Allan *(Boston University)*; McManus, David *(University of Massachusetts Medical Center)*; Chon, Ki *(University of Connecticut)*

09:30-09:45 WeA17.5
Effectiveness of CRT-D versus ICD on Prevention of Electrical Storm: Big Data from the USA
Shakibfar, Saeed* *(Univ. of Copenhagen)*; Yazdchi, Mohammadreza *(Isfahan Univ.)*; Aliakbaryhosseinabadi, Susan *(the Center for Sensory-Motor Intraction, Dept. of Health Sc)*

09:45-10:00 WeA17.6
The Role of the Size of Infracted Area on Two Kinds of Vulnerable Window in Two Dimension Ventricular Tissue
Liang, Cuiping* *(Harbin Institute of Technology)*; Wang, Kuanquan *(Harbin Institute of Technology)*; Li, Qince *(Harbin Institute of Technology)*; Zhang, Henggui *(Harbin Institute of Technology, School of Computer Science & T)*

WeA18: 08:30-10:00 R13 – Level 3
Human Performance (I) (Oral Session)
Chair: Jones, Richard D. *(New Zealand Brain Research Institute)*
Co-Chair: Petroff, Neil *(Tarleton State University)*

08:30-08:45 WeA18.1
A Mobile Solution for Rhythmic Auditory Stimulation Gait Training
Aholt, Katharina* *(Friedrich-Alexander-Univ. Erlangen-Nürnberg)*; Martindale, Christine *(Friedrich-Alexander-Univ. Erlangen-Nürnberg)*; Küderle, Arne *(Friedrich-Alexander-Univ. Erlangen-Nürnberg)*; Gaßner, Heiko *(Univ.sklinikum Erlangen, Dept. of Molecular Neurology)*; Gladow, Till *(Medical Valley Digital Health Application Center GmbH, Bamberg)*; Rojo, Javier *(Technical Univ. of Madrid)*; Villanueva-Mascato, Samanta *(Universidad Politecnica de Madrid)*; Klucken, Jochen *(Univ. Hospital Erlangen)*; Arredondo Waldmeyer, María Teresa *(Universidad Politécnica de Madrid)*; Eskofier, Bjoern M *(Friedrich-Alexander-Univ. Erlangen-Nürnberg)*

08:45-09:00 WeA18.2
An Eye-Tracking based Evaluation on the Effect of Far-Infrared Therapy for Relieving Visual Fatigue
Feng, Yong *(Southern University of Science & Technology)*; Wang, Lei *(Southern University of Science & Technology)*; Chen, Fei* *(Southern University of Science & Technology)*

09:00-09:15 WeA18.3
An Instrumented Measurement Scheme for the Assessment of Upper Limb Function in Individuals with Friedreich Ataxia
Nguyen, Khoa D.* *(Deakin University)*; Corben, Louise Anne *(Murdoch Children's Research Institute)*; Pathirana, Pubudu N. *(Deakin University)*; Horne, Malcolm *(Florey Institute of Neuroscience & Mental Health)*; Delatycki, Martin *(Murdoch Children's Research Institute)*; Szmulewicz, David *(Victorian Eye & Ear Hospital)*

09:15-09:30 WeA18.4
Foot Care to Improve Physical Function and Prevent Falling of Frail Elderly Adults with and without Dementia
Yamashita, Tomoko* *(Takase Clinic)*; Yamashita, Kazuhiko *(Ryotokuji University)*; Yoshimasa, Takase *(Takase Clinic)*

09:30-09:45 WeA18.5
Specific Neuronal Oscillatory Coupling over Frontal and Occipito-Temporal Regions during Face Perception
Yin, Zhongliang *(Xidian Univ.)*; Wang, Yue *(Xidian Univ.)*; Yin, Kuiying *(Nanjing Institute of Electronic Technology)*; Dong, Minghao *(Xidian Univ.)*; Liang, Jimin* *(Xidian Univ.)*

09:45-10:00 WeA18.6
High-Definition Transcranial Direct Current Stimulation (HD-tDCS) Enhances Working Memory Training
Wang, Ningci* *(Tianjin Univ.)*; Ke, Yufeng *(Tianjin Univ.)*; Du, Jiale *(Tianjin Univ.)*; Liu, Wentao *(Tianjin Univ.)*; Kong, Linghan *(Tianjin Univ.)*; Zhao, Xin *(Tianjin Univ.)*; Liu, Shuang *(Tianjin Univ.)*; Xu, Minpeng *(Tianjin Univ.)*; An, Xingwei *(Tianjin Univ.)*; Ming, Dong *(Tianjin Univ.)*

WeA19: 08:30-10:00 R4 – Level 3
General and Theoretical Informatics – Data Intelligence (Oral Session)
Co-Chair: Dickhaus, Hartmut *(University of Heidelberg)*

08:30-08:45 WeA19.1
Cortical Functional Connectivity during Praxis in Autism Spectrum Disorder
Harvy, Jonathan *(Singapore Institute for Neurotechnology)*; Ewen, Joshua *(Kennedy Krieger Institute)*; Thakor, Nitish *(National Univ. of Singapore)*; Bezerianos, Anastasios *(National Univ. of Singapore)*; Li, Junhua* *(National Univ. of Singapore)*

08:45-09:00 WeA19.2
Automatic Clinical Procedure Detection for Emergency Services
Heard, Jamison* *(Vanderbilt Univ.)*; Paris, Richard *(Vanderbilt Univ.)*; Scully, Deirdre *(Vanderbilt Univ.)*; McNaughton, Candace *(Vanderbilt Univ. Medical Center)*; Ehrenfeld, Jesse M. *(Vanderbilt Univ. Medical Center)*; Coco, Joseph *(Vanderbilt Univ. Medical Center)*; Fabbri, Daniel *(Vanderbilt Univ. Medical Center)*; Bodenheimer, Robert *(Vanderbilt Univ.)*; Adams, Julie A. *(Oregon State Univ.)*

09:00-09:15 WeA19.3
Clustering Cardiovascular Risk Trajectories of Patients with Type 2 Diabetes using Process Mining
Pebesma, Joyce *(University of Twente)*; Martinez-Millana, Antonio* *(Universitat Politècnica de València)*; Sacchi, Lucia *(University of Pavia)*; Fernandez-Llatas, Carlos *(Universidad Politecnica de Valencia)*; De Cata, Pasquale *(Fondazione Salvatore Maugeri)*; Chiovato, Luca *(Fondazione Salvatore Maugeri)*; Bellazzi, Riccardo *(University of Pavia)*; Traver, Vicente *(ITACA – Universitat Politècnica de València)*

09:15-09:30 WeA19.4
Patient-Care Team Contact Patterns Impact Treatment Length of Stay in the Emergency Dept.
Poigai Arunachalam, Shivaram *(Mayo Clinic)*; Asan, Onur *(Stevens Institute of Technology)*; Nestler, David *(Mayo Clinic)*; Heaton, Heather *(Mayo Clinic)*; Hellmich, Thomas *(Mayo Clinic)*; Wutthisirisart, Phichet *(Mayo Clinic)*; Marisamy, Gomathi *(Mayo Clinic)*; Pasupathy, Kalyan* *(Mayo Clinic)*; Sir, Mustafa *(Mayo Clinic)*

09:30-09:45 WeA19.5
An Unsupervised Feature Learning Approach to Reduce False Alarm Rate in ICUs
Ghazanfari, Behzad* *(Northern Arizona University)*; Afghah, Fatemeh *(Northern Arizona University)*; Najarian, Kayvan *(University of Michigan – Ann Arbor)*; Mousavi, Sajad *(Northern Arizona University)*; Gryak, Jonathan *(University of Michigan)*; Todd, James *(Northern Arizona University)*

09:45-10:00 WeA19.6
Mining Disease Courses across Organizations: A Methodology based on Process Mining of Diagnosis Events Datasets
de Toledo, Paula* *(Universidad Carlos III de Madrid)*; Joppien, Carolin *(Leuphana University Lueneburg)*; Sesmero Lorente, M. Paz *(Universidad Carlos III de Madrid)*; Drews, Paul *(Leuphana University of Lüneburg)*

WeA20: 08:30-10:00 R5 – Level 3
Novel Sensing Methods (Oral Session)

08:30-08:45 WeA20.1
Design Optimization of Contactless Generator for Implantable Energy Harvesting System Utilizing Electrically
Mochida, Takumi* *(Tokyo Institute of Technology)*; Hijikata, Wataru *(Tokyo Institute of Technology)*

08:45-09:00 WeA20.2
Self-Image-Guided Ultrasonic Wireless Power Transmission to Millimeter-Sized Biomedical Implants
Meng, Miao *(The Pennsylvania State University)*; Kiani, Mehdi* *(Pennsylvania State University)*

09:00-09:15 WeA20.3
Novel Capacitive MEMS Sensor for Monitoring In-Stent Restenosis
Iqbal, Muhammad Mubasher *(New York University Abu Dhabi)*; Sultan, Saad* *(New York University Abu Dhabi)*; Qasaimeh, Mohammad Ameen *(New York University Abu Dhabi)*

09:15-09:30 WeA20.4
Effect of Yoga on Pulse Rate Variability Measured from a Venous Pressure Waveform
Hernando, David* *(Univ. of Zaragoza (Spain))*; Nardelli, Mimma *(Univ. of Pisa)*; Hocking, Kyle *(VoluMetrix, Nashville TN, USA)*; Lázaro, Jesús *(Univ. of Zaragoza)*; Alvis, Bret *(Dept. of Anesthesiology, Vanderbilt Univ. Medical Cent)*; Gil, Eduardo *(Zaragoza Univ. & CIBER-BBN)*; Scilingo, Enzo Pasquale *(Univ. of Pisa)*; Brophy, Daniel R *(VoluMetrix, Nashville TN, USA)*; Valenza, Gaetano *(Univ. of Pisa)*; Laguna, Pablo *(Zaragoza Univ. & CIBER-BBN)*; Brophy, Colleen *(VoluMetrix, Nashville TN, USA)*; Bailon, Raquel *(Univ. of Zaragoza)*

09:30-09:45 WeA20.5
Measurement of Chest Physiological Signals using Wirelessly Coupled Bio-Impedance Patches
Sel, Kaan* *(Texas A&M University)*; Zhao, Jialu *(Texas A&M University)*; Ibrahim, Bassem *(Texas A&M University)*; Jafari, Roozbeh *(Texas A&M University)*

09:45-10:00 WeA20.6
Comparison between Different Optical Systems for Optogenetics based Head Mounted Device for Retina Pigmentosa
Soltan, Ahmed* *(Newcastle Univ., School of Engineering)*; Liu, Yu *(Newcastle Univ., School of Engineering)*; Armstrong, Niall *(C4 Sightcare Ltd, Northumberland House, Newcastle upon Tyne, NE1)*; Akhter, Mahbub *(Tyndall National Institute, Cork, Ireland)*; Corbett, Brian *(Tyndall National Institute, Cork, Ireland)*; Degenaar, Patrick *(Newcastle Univ.)*

WeA21: 08:30-10:00 R8 – level 3
Image Feature Extraction (Oral Session)

08:30-08:45 WeA21.1
Mapping of Color Information from Camera Images to 3D Models for the Manufacturing of Aesthetic Dentures
Pitz, Katrin* *(Technische Universität Darmstadt)*; Anderl, Reiner *(Technische Universität Darmstadt)*

08:45-09:00 WeA21.2
Sway Risk Analysis based on Age Group Classification
Ismail, Hafsa* *(Univ. of Canberra)*; Radwan, Ibrahim *(Australian National Univ.)*; Suominen, Hanna *(Data61/CSIRO, Australian National Univ.)*; Waddington, Gordon *(Univ. of Canberra)*; Goecke, Roland *(Univ. of Canberra)*

09:00-09:15 WeA21.3
Automatic Extraction of Dermatological Parameters from Nevi using an Inexpensive Smartphone Microscope: A Proof of Concept
Meiburger, Kristen M.* *(Politecnico di Torino)*; Veronese, Federica *(University of Eastern Piedmont)*; Tarantino, Vanessa *(University of Eastern Piedmont)*; Salvi, Massimo *(Politecnico di Torino)*; Fadda, Matteo *(Politecnico di Torino)*; Seoni, Silvia *(Politecnico di Torino)*; Zavattaro, Elisa *(University of Eastern Piedmont)*; De Santi, Bruno *(Politecnico di Torino)*; Michielli, Nicola *(Politecnico di Torino)*; Savoia, Paola *(University of Eastern Piedmont)*; Molinari, Filippo *(Politecnico di Torino)*

09:15-09:30 WeA21.4
Selection of Radiomics Features based on their Reproducibility
Ligero Hernández, Marta *(Vall d'Hebron Institute of Oncology. Barcelona)*; Torres, Guillermo* *(Computer Vision Center, Univ. Autónoma de Barcelona.)*; Sanchez, Carles *(Computer Vision Center & Univ. Autònoma de Barcelona)*; Diaz-Chito, Katerine *(Univ. Autònoma de Barcelona – UAB Barcelona)*; Perez, Raquel *(Vall d'Hebron Institute of Oncology. Barcelona)*; Gil, Debora *(Computer Vision Center)*

09:30-09:45 WeA21.5
The Method for Visualization and Analysis of Eye-Blinking Patterns using Dynamic Vision
Lee, Woon-Hee* *(Seoul National University)*; Woo, Jong-Hyuk *(Seoul National University, Samsung Electronics)*; Seo, Jong Mo *(Seoul National University, School of Engineering)*

09:45-10:00 WeA21.6
Assessment of the Effect of Intensity Standardization on the Reliability of T1-Weighted MRI Radiomic Features: Experiment on a Virtual Phantom
Bologna, Marco* *(Politecnico di Milano)*; Corino, Valentina *(Politecnico di Milano)*; Mainardi, Luca *(Politecnico di Milano)*

WeA22: 08:30-10:00 R10 – Level 3
Veterinary Medicine Engineering (Invited Session)
Chair: Bressan, Nadja *(University of Prince Edward Island)*
Co-Chair: Creighton, Catherine *(University of Prince Edward Island)*

08:30-08:45 WeA22.1
Veterinary Medicine Engineering in Practice
Creighton, Catherine* *(University of Prince Edward Island)*; Bressan, Nadja *(University of Prince Edward Island)*

08:45-09:00 WeA22.2
3D Printing of Drug-Eluting Bio-Absorbable Scaffolds for Animal Healthcare
Ahmadi, Ali* *(University of Prince Edward Island)*

09:00-09:15 WeA22.3
Simulation of Aquatic Animal's Electroreceptive Sense
Cibis, Tobias* *(Friedrich-Alexander Universität Erlangen-Nürnberg)*; McEwan, Alistair *(The University of Sydney)*

09:15-09:30 WeA22.4
The Sustainable Design of Veterinary Medicine Engineering
Bressan, Nadja* *(University of Prince Edward Island)*; Creighton, Catherine *(University of Prince Edward Island)*

WeC01: 14:00-15:30 Hall A6+A7 – Level 1
Rehabilitation Helped by Technology (Oral Session)
Chair: Petroff, Neil *(Tarleton State University)*

14:00-14:15 WeC01.1
The Effects of Different Tracking Tasks on Muscle Synergy through Visual Feedback
Huang, Yao *(University of Technology Sydney)*; Song, Rong* *(Sun Yat-Sen University)*; Chen, Wenhui *(University of Technology Sydney)*; Yu, Hairong *(University of Technology, Sydney)*; Argha, Ahmadreza *(University of New South Wales)*; Celler, Branko George *(University of New South Wales)*; Su, Steven Weidong *(University of Technology, Sydney)*

14:15-14:30 WeC01.2
Modulation of Cortical Activity by Selective Steady-State Somatosensory Stimulation
Zarei, Asghar* *(Center for Neuroplasticity & Pain (CNAP), Aalborg Univ.)*; Lontis, Eugen Romulus *(Aalborg Univ.)*; Jensen, Winnie *(Center for Sensory-Motor Interaction)*

14:30-14:45 WeC01.3
Does Repetitive Transcranial Magnetic Stimulation (rTMS) Have Therapeutic Effects on Dynamic Balance of Children with Cerebral Palsy?
Dadashi, Farnoosh *(Tehran University of Medical Sciences)*; Lotfian, Mahboube *(Tehran University of Medical Sciences)*; Shahrokhi, Amin *(Noorafshar Hospital, Tehran, Iran)*; Nourian, Ruhollah *(Sports Medicine Research Center, Tehran University of Medical Sc)*; Irani, Ashkan *(Dept. of Occupational Therapy, Faculty of Rehabilitation, S)*; Mirbagheri, Alireza *(Tehran University of Medical Sciences (TUMS))*; Mirbagheri, Mehdi* *(Northwestern University/TUMS)*

14:45-15:00 WeC01.4
Effects of an Exoskeleton-Assisted Gait Motor Imagery Training in Functional Brain Connectivity
Gaxiola Tirado, Jorge Antonio *(Center for Research & Advanced Studies (Cinvestav), Monterrey's)*; Ianez, Eduardo *(Univ. Miguel Hernandez de Elche)*; Ortiz, Mario *(Univ. Miguel Hernández)*; Gutierrez, David *(Cinvestav Monterrey)*; Azorin, Jose M.* *(Univ. Miguel Hernandez de Elche)*

15:00-15:15 WeC01.5
Physiological Reactions in Single-Player and Competitive Arm Rehabilitation Games
Catalán Orts, José María* *(Univ. Miguel Hernandez de Elche)*; Blanco Ivorra, Andrea *(Univ. Miguel Hernandez de Elche)*; Díez Pomares, Jorge *(Univ. Miguel Hernández de Elche)*; García Perez, José Vicente *(Univ. Miguel Hernandez de Elche)*; Garcia-Aracil, Nicolas *(Univ. Miguel Hernandez)*

15:15-15:30 WeC01.6
Position based Impedance Control Strategy for a Lower Limb Rehabilitation Robot
Liang, Xu *(Institute of Automation, Chinese Academy of Sciences)*; Wang, Weiqun* *(Chinese Academy of Sciences)*; Hou, Zeng-Guang *(Institute of Automation, Chinese Academy of Sciences)*; Ren, Shixin *(Chinese Academy of Science)*; Wang, Jiaxing *(Institute of Automation, Chinese Academy of Sciences)*; Shi, Weiguo *(Chinese Academy of Sciences)*; Peng, Liang *(Institute of Automation, Chinese Academy of Sciences)*; Su, Tingting *(North China University of Technology)*

WeC02: 14:00-15:30 Hall A8 – Level 1
Imaging Human Brain Networks with Different Neuroimaging Modalities: From the Laboratory to the Patients (Minisymposium)
Chair: Ding, Lei *(University of Oklahoma)*
Co-Chair: Yuan, Han *(University of Oklahoma)*

14:00-14:15 WeC02.1
Non-Invasive Multimodal Neuromonitoring and Brain Injury in Patients with ECMO
Cho, Sung-Min* *(Johns Hopkins University School of Medicine)*

14:15-14:30 WeC02.2
Tracking Resting State Connectivity Dynamics in the Diseased Human Brain
Yuan, Han* *(University of Oklahoma)*

14:30-14:45 WeC02.3
Tripolar EEG and fNIRS Multimodal Brain Signal Acquisition
Besio, W. G.* *(University of Rhode Island)*

14:45-15:00 WeC02.4
The Dynamics of MEG Hubs in Large Scale Networks
Della Penna, Stefania* *(Univ. G. D'Annunzio of Chieti-Pescara)*; Corbetta, Maurizio *(Univ. of Padua)*; Spadone, Sara *(Univ. G. D'Annunzio of Chieti-Pescara)*; Betti, Viviana *(Univ. La Sapienza, Rome)*; Wens, Vincent *(Universite´ libre de Bruxelles(ULB))*; de Pasquale, Francesco *(Univ. of Teramo)*

15:00-15:15 WeC02.5
Reconstructing Resting State Networks from EEG
Ding, Lei* *(University of Oklahoma)*

WeC03: 14:00-15:30 Hall A3 – Level 1
Magnetic Resonance Elastography: Quantification of Viscoelastic Parameters from Specimens to In-Vivo Organs (Minisymposium)
Chair: Klatt, Dieter *(The University of Illinois at Chicago)*
Co-Chair: Bertalan, Gergely *(Charité – Univ. Berlin, Germany)*

14:00-14:15 WeC03.1
Review of MR Elastography Methodology and Future Directions for Data Acquisition and Processing
Klatt, Dieter *(The University of Illinois at Chicago)*; Reiter, Rolf* *(University of Illinois at Chicago)*

14:15-14:30 WeC03.2
Transformation Elastography: Reconstruction by Spatial Distortion to Convert Anisotropy and Inhomogeneity into Isotropy and Homogeneity
Guidetti, Martina* *(University of Illinois at Chicago)*; Palnitkar, Harish *(University of Illinois at Chicago)*; Klatt, Dieter *(The University of Illinois at Chicago)*; Royston, Thomas *(University of Illinois at Chicago)*

14:30-14:45 WeC03.3
MR Elastography: Current and Future Clinical Applications
Eisenmenger, Laura* *(University of Wisconsin – Madison)*

14:45-15:00 WeC03.4
Prostate Cancer Assessment using Ex Vivo MR Elastography at 9.4 Tesla
Reiter, Rolf* *(University of Illinois at Chicago)*; Majumdar, Shreyan *(University of Illinois at Chicago)*; Kearny, Steven *(University of Illinois at Chicago)*; Kajdacsy-Balla, Andre *(University of Illinois at Chicago)*; Macias, Virgilia *(University of Illinois at Chicago)*; Mar, Winnie *(University of Illinois at Chicago)*; Caldwell, Brandon *(University of Illinois at Chicago)*; Abern, Michael *(University of Illinois at Chicago)*; Klatt, Dieter *(The University of Illinois at Chicago)*

15:00-15:15 WeC03.5
High-Resolution Multifrequency MRE at High Field Strengths
Bertalan, Gergely* *(Charité – Universitätsmedizin Berlin, Germany)*; Guo, Jing *(Charité – Universitätsmedizin Berlin, Germany)*; Sack, Ingolf *(Charité-Universitatsmedizin)*; Braun, Jurgen *(Charité-Universitatsmedizin)*

15:15-15:30 WeC03.6
Harmonic Displacement Measurement in Biphasic Materials by Inversion-Recovery MR Elastography
Lilaj, Ledia* *(Dept. of Radiology, Charité – Univ., Berlin,)*; Hirsch, Sebastian *(Berlin Center for Advanced Neuroimaging, Bernstein Center for Co)*; Braun, Jurgen *(Charité-Univ.)*; Sack, Ingolf *(Charité-Univ.)*

WeC04: 14:00-15:30 Hall A1 – Level 1
Human Centric Sensing and Computing: Data Interpretation at the Edge (Minisymposium)
Chair: Michel, Bruno *(IBM Research – Zurich)*
Co-Chair: Magno, Michele *(ETH Zurich)*

14:00-14:15 WeC04.1
FANNCortexM: An Open Source Toolkit for Multi-Layer Neural Networks on Wearable Device based on ARM Cortex-M. Performance Analysis with Stress Detection
Magno, Michele* *(ETH Zurich)*; Cavigelli, Lukas *(ETH Zurich)*; Mayer, Philipp *(ETH Zurich)*; von Hagen, Ferdinand *(ETH Zurich)*; Benini, Luca *(University of Bologna)*

14:15-14:30 WeC04.2
Internet of the Body: Edge Enhanced Wearable Monitoring and Coaching
Michel, Bruno* *(IBM Research – Zurich)*

14:30-14:45 WeC04.3
A Cognitive IoT Monitoring and Support System for Elderly Care
Hu, Rui* *(IBM Research Zurich)*; Brunschwiler, Thomas *(IBM Research – Zurich)*; Russo, Dario *(National Research Council of Italy)*; Mora, Niccolo' *(Univ. of Parma)*; Montanari, Enrico *(Azienda Unita' Sanitaria Locale Di Parma)*; Michel, Bruno *(IBM Research – Zurich)*; Matrella, Guido *(Università di Parma)*; Ciampolini, Paolo *(Univ. of Parma)*; Spada, Maria Rita *(WindTre)*; Ceresini, Rocco *(Auroradomus)*; Nunziata, Stefano *(Lepida)*

14:45-15:00 WeC04.4
Automated Point-of-Care Processing and Interpretation of Pulse Oximetry for Global Health Applications
Karlen, Walter* *(ETH Zurich)*

WeC05: 14:00-15:30 Hall A2 – Level 1
Biomedical Data Fusion using Tensor Methods (Invited Session)
Chair: Van Huffel, Sabine *(KU Leuven)*
Co-Chair: Hunyadi, Borbala *(KU Leuven)*

14:00-14:15 WeC05.1
The Power of Tensor-Based Approaches for ECG Signal Processing
Goovaerts, Griet *(KU Leuven)*; Padhy, Sibasankar *(VIT Vellore)*; Boussé, Martijn *(KU Leuven)*; De Lathauwer, Lieven *(KU Leuven)*; Van Huffel, Sabine* *(KU Leuven)*

14:15-14:30 WeC05.2
Biomarker Discovery through Structure-Revealing Fusion of Multi-Modal Neuroimaging Data
Acar, Evrim* *(Simula Metropolitan Center for Digital Engineering)*; Schenker, Carla *(Simula Metropolitan Center for Digital Engineering)*; Levin-Schwartz, Yuri *(Icahn School of Medicine at Mount Sinai)*; Calhoun, Vince *(The Mind Research Network/University of New Mexico)*; Adali, Tulay *(University of Maryland Baltimore County)*

14:30-14:45 WeC05.3
Complementary Tri-View (CTV) Data Fusion: Uniting Functional (EEG), Phenotypic, and Structural (MRI) Perspectives of Pediatric Data via Tensor Analysis
Kinney-Lang, Eli *(University of Edinburgh)*; Dron, Noramon *(University of Edinburgh)*; Chin, Richard *(The University of Edinburgh)*; Escudero, Javier* *(University of Edinburgh)*

14:45-15:00 WeC05.4
Stability Analysis of Tensor Decomposition based on Tensor Spectral Clustering with Applications in Neural Signal Processing
Hu, Guoqiang* *(Dalian University of Technology)*; Hao, Yuxing *(Dalian University of Technology)*; Zhao, Wei *(Dalian University of Technology)*; Zhang, Chi *(Dalian University of Technology)*; Cong, Fengyu *(Dalian University of Technology)*

15:00-15:15 WeC05.5
Flexible Double Coupled Factorization for EEG and fMRI Fusion
Chatzichristos, Christos* *(Kapodistrian Univ. of Athens)*; Van Eyndhoven, Simon *(KU Leuven, Univ. of Leuven)*; Kofidis, Eleftherios *(Univ. of Piraeus)*; De Lathauwer, Lieven *(KU Leuven)*; Van Huffel, Sabine *(KU Leuven)*; Theodoridis, Sergios *(National & Kapodistrian Univ. of Athens)*

15:15-15:30 WeC05.6
Robust Joint Low-Rank Canonical Polyadic Approximation of a Set of Tensors for Brain Source Localization
Taheri, Nasrin* *(LTSI INSERM U1099)*; Kachenoura, Amar *(Université de Rennes1 & INSERM)*; Karfoul, Ahmad *(Université de Rennes1)*; Han, Xu *(University of Rennes 1)*; Ansari-Asl, Karim *(Shahid Chamran University of Ahvaz)*; Senhadji, Lotfi *(Université de Rennes 1 & INSERM)*; Merlet, Isabelle *(INSERM – Universite de Rennes 1)*; Albera, Laurent *(Université de Rennes 1 & INSERM)*

WeC06: 14:00-15:30 Hall A5 – Level 1
Understanding the Link between Brain Dynamics and Behavior (Invited Session)
Chair: Faghih, Rose T. *(University of Houston)*
Co-Chair: Santaniello, Sabato *(University of Connecticut)*

14:00-14:15 WeC06.1
Temporal Evolution and Diagnostic Utility of High Frequency Oscillations in the Brain under Epilepsy
Sumsky, Stefan *(University of Connecticut)*; Santaniello, Sabato* *(University of Connecticut)*

14:15-14:30 WeC06.2
The Influence of Internal States on Movement Variability
Breault, Macauley S. *(Johns Hopkins University)*; Sarma, Sridevi V.* *(Johns Hopkins University)*

14:30-14:45 WeC06.3
Wearable-Machine Interface Architectures for Mental Stress
Amin, Md. Rafiul *(Univ. of Houston)*; Wickramasuriya, Dilranjan *(Univ. of Houston)*; Faghih, Rose T.* *(Univ. of Houston)*

14:45-15:00 WeC06.4
Divisive Normalization of Affect in the Primary Motor Cortex of a Non-Human Primate
Hessburg, John *(SUNY Downstate)*; Zhao, Yao *(SUNY Downstate Medical Center)*; Francis, Joseph Thachil* *(University of Houston)*

15:00-15:15 WeC06.5
Right-Left Brain Push-Pull System Encodes Risk-Taking Bias in Human Decision-Making
Sacré, Pierre* *(University of Liège)*; Gonzalez-Martinez, Jorge *(Cleveland Clinic)*; Gale, John *(Cleveland Clinic)*; Sarma, Sridevi V. *(Johns Hopkins University)*

15:15-15:30 WeC06.6
'The Museum as a Laboratory': Understanding Brain Responses 'in Action and in Context' using Mobile Brain-Body Imaging
Contreras-Vidal, José* *(Univ. of Houston)*; Jesus, Cruz-Garza *(Univ. of Houston)*; Robleto, Dario *(Univ. of Houston)*; Valls, Rebecca *(Univ. of Houston)*; Witt, Woodrow *(Univ. of Houston)*

WeC08: 14:00-15:30 M8 – Level 3
Effect of Rehabilitation Robotics on Recovery and Related Mechanisms (Invited Session)
Co-Chair: Forrest, Gail F. *(Kessler Foundation)*

14:00-14:15 WeC08.1
Gait Training with Multi Joint Lower Extremity Exoskeleton
Karunakaran, Kiran* *(NJIT, Kessler Foundation)*; Nolan, Karen J. *(Kessler Foundation)*

14:15-14:30 WeC08.2
Corticospinal Connectivity during Walking with Robot Assistance
Saleh, Soha* *(Kessler Foundation)*; Nolan, Karen J. *(Kessler Foundation)*; Forrest, Gail F *(Kessler Foundation)*

14:30-14:45 WeC08.3
Mobility and Cognitive Changes after Robotic Exoskeleton Gait Training in Persons with MS
Androwis, Ghaith* *(Kessler Foundation, & New Jersey Institute of Technology)*; Fakhoury, Farris N *(Kessler Institute for Rehab.)*; Kwasnica, Marek *(Kessler Foundation)*; Niewrzol, Peter *(Montclair State Univ.)*; Popok, Paula *(Montclair State Univ.)*; McKenna, Ashley L. *(Kessler Institute for Rehab.)*; Williams, Todd E. *(Kessler Institute for Rehab.)*; Nori, Phalgun *(Kessler Institute for Rehab.)*; Kong, Yekyung *(Kessler Institute for Rehab.)*; Sandroff, Brian *(Univ. of Alabama)*; Forrest, Gail F *(Kessler Foundation)*; Chiaravalloti, Nancy *(Kessler Foundation)*; Yue, Guang *(Kessler Foundation)*; DeLuca, John *(Kessler Foundation)*

14:45-15:00 WeC08.4
Spinal Stimulation during Powered Exoskeleton Training
Forrest, Gail F* *(Kessler Foundation)*; Momeni, Kamyar *(Kessler Foundation)*; Ravi, Manikandan *(Kessler Foundation)*; Ramanujam, Arvind *(Kessler Foundation)*; Augustine, Jonathan *(Kessler Foundation)*; Garbarini, Erica *(Kessler Foundation)*

15:00-15:15 WeC08.5
Rehabilitation Robotics for Post Stroke Functional Recovery
Nolan, Karen J.* *(Kessler Foundation)*; Ames, Gregory R. *(Kessler Foundation)*; Bapineedu, Radhika *(Kessler Institute for Rehabilitation)*; Kong, Yekyung *(Kessler Institute for Rehabilitation)*; Jasey, Neil *(Kessler Institute for Rehabilitation)*

WeC09: 14:00-15:30 M1 – Level 3
Computational Cardiac Modeling at the Interface of Engineering and Clinics (Invited Session)
Chair: Loewe, Axel *(Karlsruhe Institute of Technology (KIT))*
Co-Chair: Vandersickel, Nele *(Gent University)*

14:00-14:15 WeC09.1
Patient-Specific Electro-Mechano-Fluidic Models of the Human Heart to Study the Impact of Aortic Valve Disease Upon Ventricular Load
Augustin, Christoph M* *(Medical University of Graz)*; Gsell, Matthias *(Medical University of Graz)*; Karabelas, Elias *(Medical University of Graz)*; Marx, Laura *(Medical University of Graz)*; Plank, Gernot *(Medical University of Graz)*

14:15-14:30 WeC09.2
A Patient-Specific Computational Fluid Dynamics Model for Thrombogenic Risk Assessment in Atrial Fibrillation
Masci, Alessandro *(DEI, Univ. of Bologna)*; Barone, Lorenzo *(DEI, Univ. of Bologna)*; Colonnelli, Michela *(DEI, Univ. of Bologna)*; Tomasi, Corrado *(Santa Maria delle Croci Hospital, Ravenna,, AUSL della Romagna)*; Corsi, Cristiana* *(Univ. of Bologna)*

14:30-14:45 WeC09.3
Combined Experimental and Computational Research into Cardiac-Neural Interactions and Arrhythmias
Pueyo, Esther* *(University of Zaragoza)*

14:45-15:00 WeC09.4
Importance of 3D Models for Reliable Assessment of AF Mechanism
Ali, Gharaviri* *(Center for Computational Medicine in Cardiology)*

15:00-15:15 WeC09.5
Effect of the Far-Field on the Electrical Mapping
Martinez-Mateu, Laura* *(Univ. Politècnica de València (UPV))*; Berenfeld, Omer *(Univ. of Michigan)*; Saiz, Javier *(UPV)*

15:15-15:30 WeC09.6
Network Theory as a Novel Tool to Analyze Cardiac Arrhythmias: An Application to Atrial Tachycardia to Demonstrate How the Tool Outperforms the Latest Mapping Technology
Van Nieuwenhuyse, Enid* *(Ghent University)*; Strisciuglio, Teresa *(AZ Sint-Jan, Cardiology Dept., Bruges, Belgium)*; Lorenzo, Giuseppe *(AZ Sint-Jan, Cardiology Dept., Bruges, Belgium)*; El Haddad, Milad *(AZ Sint-Jan, Cardiology Dept., Bruges, Belgium)*; Goedgebeur, Jan *(Ghent University)*; Van Cleemput, Nico *(Ghent University)*; De Pooter, Jan *(Ghent University Hospital Heart Center, Ghent University, Ghent,)*; Tavernier, Rene *(AZ Sint-Jan, Cardiology Dept., Bruges, Belgium)*; Vandekerckhove, Yves *(AZ Sint-Jan, Cardiology Dept., Bruges, Belgium)*; Panfilov, Alexander V *(Ghent University)*; Knecht, Sebastien *(Hopital Haut Leveque)*; Duytschaever, Mattias *(AZ Sint-Jan, Cardiology Dept., Bruges, Belgium)*; Vandersickel, Nele *(Gent University)*

WeC10: 14:00-15:30 M2 – Level 3
Computational Head Models for Transcranial Stimulation (Invited Session)
Chair: Dokos, Socrates *(University of New South Wales)*
Co-Chair: Bai, Siwei *(Technical University of Munich)*

14:00-14:15 WeC10.1
Computer Model of Electroconvulsive Therapy with Tractography
Bai, Siwei* *(Technical Univ. of Munich)*; Riel, Stefanie *(Technical Univ. of Munich)*; Bashiri, Mohammad *(Technical Univ. of Munich)*; Hemmert, Werner *(Technical Univ. of Munich)*

14:15-14:30 WeC10.2
Targeting Optimization and Validation of TES Montages
Bicalho Saturnino, Guilherme *(Technical Univ. of Denmark)*; Göksu, Cihan *(Middle East Technical Univ., Electrical & Electronics Eng)*; Madsen, Kristoffer H. *(Copenhagen Univ. Hospital Hvidovre, Denmark & Dept. of Appl)*; Hanson, Lars G. *(Danish Research Center for Magnetic Resonance & Technical Univ.)*; Thielscher, Axel* *(Copenhagen Univ. Hospital Hvidovre, Denmark & Biomedical En)*

14:30-14:45 WeC10.3
Adapting Water-Content based Electrical Properties Tomography for the Creation of Computational Head Models of Brain Tumor Patients
Wenger, Cornelia* *(Novocure GmbH)*; Hershkovich, Hadas Sara *(Novocure Ltd., Haifa, Israel)*; Tempel-Brami, Catherine *(Novocure Ltd., Haifa, Israel)*; Giladi, Moshe *(Novocure)*; Bomzon, Ze'ev *(Novocure)*

14:45-15:00 WeC10.4
A Method for High-Throughput Creation of Patient Specific Head Models
Bomzon, Ze'ev* *(Novocure)*; Urman, Noa *(Novocure)*

15:00-15:15 WeC10.5
Boundary Element Fast Multipole Method for TES Modeling
Makarov, Sergey* *(Electrical & Computer Engineering, Worcester Polytechnic Institute)*; Pham, Dung *(Worcester Polytechnic Institute)*; Noetscher, Gregory *(Worcester Polytechnic Institute)*; Nummenmaa, Aapo *(Massachusetts General Hospital)*; Deng, Zhi-De *(National Institute of Mental Health)*

15:15-15:30 WeC10.6
Brain E-Field Distributions in Electroconvulsive Therapy: Simulations in a Patient Cohort
Ahmad Bakir, Azam *(The University of New South Wales)*; Bai, Siwei *(Technical University of Munich)*; Lovell, Nigel H. *(University of New South Wales)*; Martin, Donel *(School of Psychiatry, University of New South Wales)*; Loo, Colleen *(School of Psychiatry, University of New South Wales)*; Dokos, Socrates* *(University of New South Wales)*

WeC11: 14:00-15:30 M4 – Level 3
Engineering and Medicine in Extreme Environments (Minisymposium)
Chair: Cibis, Tobias *(Friedrich-Alexander Univ. Erlangen-Nürnberg)*
Co-Chair: McGregor, Carolyn *(Univ. of Ontario Inst of Technology)*

14:00-14:15 WeC11.1
Biomedical Underwater Engineering-Motivation and Approaches
Cibis, Tobias* *(Digital Sport Group, Friedrich-Alexander Univ. Erlangen-Nü)*; McEwan, Alistair *(The Univ. of Sydney)*; Eskofier, Bjoern M *(Friedrich-Alexander-Univ. Erlangen-Nürnberg)*

14:15-14:30 WeC11.2
Autonomous Health Monitoring for Long Range Space Missions
McGregor, Carolyn* *(Univ. of Ontario Inst of Technology)*

14:30-14:45 WeC11.3
Tactical Operations as an Extreme Environment
Bonnis, Brendan* *(IFTech Inventing Future Technologies Inc)*; McGregor, Carolyn *(Univ. of Ontario Inst of Technology)*

14:45-15:00 WeC11.4
Stress Monitoring of Soldiers in Extreme Environments
Friedl, Karl* *(University of California at San Francisco)*; Telfer, Brian *(MIT Lincoln Laboratory)*; Palmer, Jeffrey *(MIT Lincoln Laboratory)*; Rabat, Arnaud *(IRBA)*; Balkin, Thomas *(Walter Reed Army Institute of Research)*; Hoyt, Reed *(US Army Research Institute of Environmental Medicine)*

15:00-15:15 WeC11.5
Monitoring Health Status of Firefighters in Extreme Conditions
Weiss, Jonas* *(IBM Research – Zurich)*; Gerke, Sebastian *(IBM Research – Zurich)*; Sridhar, Arvind *(IBM Research – Zurich)*; Pluntke, Ulrike *(IBM Deutschland GmbH)*; Michel, Bruno *(IBM Research – Zurich)*

15:15-15:30 WeC11.6
Biologically Inspired Physiological Monitoring
McEwan, Alistair* *(The University of Sydney)*; Cibis, Tobias *(Friedrich-Alexander Universität Erlangen-Nürnberg)*

15:15-15:30 WeC11.7
Physiological Monitoring in Extreme Environments
Telfer, Brian* *(MIT Lincoln Laboratory)*; Palmer, Jeffrey *(MIT Lincoln Laboratory)*

WeC12: 14:00-15:30 M6 – Level 3
Brain Imaging and Image Analysis (II) (Oral Session)
Co-Chair: Chan, Kevin C. *(New York University)*

14:00-14:15 WeC12.1
Global Perturbation of Initial Geometry in a Biomechanical Model of Cortical Morphogenesis
Bohi, Amine* *(Aix Marseille Univ, CNRS, INT, Inst Neurosci Timone, Marseille)*; Wang, Xiaoyu *(IMT Atlantique, Brest, France)*; Al Harrach, Mariam *(UTC)*; Dinomais, Mickael *(Laboratoire Angevin de Recherche en Ingénierie des Systèmes (LAR)*; Rousseau, François *(Telecom Bretagne)*; Lefevre, Julien *(Institut de Neurosciences de la Timone)*

14:15-14:30 WeC12.2
Posterior Corpus Callosal Integrity based on Automated Fiber Quantification Predicts Age-Related Decline of Cognitive Performance
Xue, Ke *(Shanghai Jiao Tong University)*; Wang, Danni *(Shanghai Jiao Tong University)*; Wang, Tianyao *(The Fifth People's Hospital of Shanghai, Fudan University)*; Li, Yao* *(Shanghai Jiao Tong University)*

14:30-14:45 WeC12.3
Extending Supervoxel-Based Abnormal Brain Asymmetry Detection to the Native Image Space
Martins, Samuel* *(University of Campinas)*; C. Telea, Alexandru *(Dep. of Mathematics & Computing Science, University of Groning)*; Falcao, Alexandre Xavier *(University of Campinas)*

14:45-15:00 WeC12.4
Classification of Alzheimer's Disease in MRI based on Dictionary Learning and Heavy Tailed Modelling
Mayo, Perla* *(University of Bristol)*; Holmes, Robin *(University of Bristol)*; Achim, Alin *(University of Bristol)*

15:00-15:15 WeC12.5
Graph Spectral Characterization of Brain Cortical Morphology
Maghsadhagh, Sevil *(Independent researcher)*; Eklund, Anders *(Linköping University)*; Behjat, Hamid* *(Lund University)*

15:15-15:30 WeC12.6
An Automatic Framework for Segmentation of Brain Tumours at Follow-Up Scans after Radiation Therapy
Karami, Elham *(Sunnybrook Research Institute, Univ. of Toronto)*; Jalalifar, Ali *(York Univ.)*; Ruschin, Mark *(Sunnybrook Health Sciences Centre, Univ. of Toronto)*; Soliman, Hany *(Univ. of Toronto, Sunnybrook Health Sciences Centre)*; Sahgal, Arjun *(Sunnybrook Health Sciences Centre, Univ. of Toronto)*; Stanisz, Greg *(Sunnybrook Research Institute, Univ. of Toronto)*; Sadeghi-Naini, Ali* *(York Univ.)*

WeC13: 14:00-15:30 R2 – Level 3
Recent Advances on Cuff-Less Blood Pressure Measurement Technology (II) (Minisymposium)

14:00-14:15 WeC13.1
Unobtrusive Detection of Changes in Systolic Blood Pressure using RJ-Interval of Healthy Adults with Potential Application in Orthostatic Hypotension and Supine Hypertension
Chang, Isaac Sungjae* *(University of Toronto)*; Armanfard, Narges *(University of Toronto)*; Javaid, Abdul Qadir *(University of Toronto)*; Boger, Jennifer *(University of Waterloo)*; Mihailidis, Alex *(University of Toronto)*

14:15-14:30 WeC13.2
Effects of Passive and Active Modulation of Arterial Stiffness on Cuffless Measurement of Blood Pressure
Avolio, Alberto P* *(Macquarie Univ.)*; Shirbani, Fatemeh *(Macquarie Univ., Faculty of Medicine & Health Sciences)*; Tan, Isabella *(Macquarie Univ.)*; Butlin, Mark *(Macquarie Univ.)*

14:30-14:45 WeC13.3
Effects of Short Term Variability on the PTT-SBP Link
Di Rienzo, Marco* *(IRCCS Fondazione Don Carlo Gnocchi)*; Isilay, Zeynep Melike *(IRCCS Fondazione Don Carlo Gnocchi)*

14:45-15:00 WeC13.4
Continuous and Passive Blood Pressure Monitoring using Wearable Devices by Day and by Night
Holz, Christian* *(Microsoft Research)*; Carek, Andrew *(Georgia Institute of Technology)*

15:00-15:15 WeC13.5
Wearable and Unobtrusive Cuffless Blood Pressure Measurement Technologies based on Cardiogenic Body Vibrations: SeismoWatch and Weighing Scale Systems
Carek, Andrew *(Georgia Institute of Technology)*; Inan, Omer* *(Georgia Institute of Technology)*

WeC14: 14:00-15:30 R3 – Level 3
Signal Processing and Classification for Spectroscopy and Oximetry (Oral Session)
Co-Chair: Mitsis, Georgios D. *(McGill University)*

14:00-14:15 WeC14.1
Non-Invasive Analysis of Actinic Keratosis using a Cold Stimulation and Near-Infrared Spectroscopy
Seoni, Silvia* *(Politecnico di Torino)*; Veronese, Federica *(Univ. of Eastern Piedmont)*; Tarantino, Vanessa *(Univ. of Eastern Piedmont)*; Zavattaro, Elisa *(Univ. of Eastern Piedmont)*; Salvi, Massimo *(Politecnico di Torino)*; Michielli, Nicola *(Politecnico di Torino)*; De Santi, Bruno *(Politecnico di Torino)*; Molinari, Filippo *(Politecnico di Torino)*; Savoia, Paola *(Univ. of Eastern Piedmont)*; Meiburger, Kristen M. *(Politecnico di Torino)*

14:15-14:30 WeC14.2
Reduced Featured K-NN Classifier Model Optimal for Classification of Dengue Fever from Salivary Raman Spectra
Othman, N. H. *(Univ. Teknologi MARA)*; Mohd Radzol, Afaf Rozan *(Univ. Teknologi MARA)*; Lee, Yoot* *(Univ. Teknologi MARA)*; Mansor, Wahidah *(Univ. Teknologi MARA)*

14:30-14:45 WeC14.3
Determination of Physiological Lactate and pH by Raman Spectroscopy
Olaetxea, Ion* *(CIC nanoGUNE)*; Lopez, Eneko *(CIC nanoGUNE)*; Valero, Ana *(CIC nanoGUNE)*; Seifert, Andreas *(CIC nanoGUNE)*

14:45-15:00 WeC14.4
Machine Learning based SpO2 Computation using Reflectance Pulse Oximetry
Venkat, Swaathi* *(Healthcare Technology Innovation Centre)*; Tanveejul, Mohamed *(Healthcare Technology Innovation Centre)*; Alex, Anna Mol *(HTIC IIT Madras)*; SP, Preejith *(Healthcare Technology Innovation Center – IITMadras)*; Thangakunam, Balamugesh *(Christian Medical College)*; DJ, Christopher *(Christian Medical College)*; Joseph, Jayaraj *(HTIC, Indian Institute of Technology Madras)*; Sivaprakasam, Mohanasankar *(Indian Institute of Technology Madras)*

15:00-15:15 WeC14.5
Cancellation of Superficial Blood Flow in Brain Function Measurements using Near-Infrared Spectroscopy
Fukuda, Keiko* *(Tokyo Metropolitan College of Industrial Technology)*; Motoyoshi, Daisuke *(Tokyo Metropolitan College of Industrial Technology)*; Sato, Daisuke *(Tokyo Metropolitan College of Industrial Technology)*

15:15-15:30 WeC14.6
Detection of Music Preferences using Cerebral Blood Flow Signals
Yamada, Yoshiyuki* *(Meiji Univ.)*; Ono, Yumie *(Meiji Univ.)*

WeC15: 14:00-15:30 M3 – Level 3
Image Segmentation for Radiotherapy Application (Minisymposium)
Chair: Gu, Xuejun *(Univ. of Texas Southwestern Medical Center)*

14:00-14:15 WeC15.1
Computed Tomography based OARs Auto-Contouring for H&N Cancer Radiotherapy
Chen, Haibin* *(Sun Yat-Sen Univ.)*; Lu, Yao *(Sun Yat-Sen Univ.)*

14:15-14:30 WeC15.2
Gross Tumor Volume (GTV) Delineation on Multi-MRI Sequences for Nasopharyngeal Carcinoma Radiotherapy
Chen, Haibin* *(Sun Yat-Sen Univ.)*; Lu, Yao *(Sun Yat-Sen Univ.)*

14:30-14:45 WeC15.3
Prostate Segmentation Techniques for Radiotherapy Treatments
Zhang, You *(Univ. of Texas, Southwestern Medical Center)*; Zhao, Bo* *(Univ. of Texas, Southwestern Medical Center)*; Gu, Xuejun *(Univ. of Texas Southwestern Medical Center)*

14:45-15:00 WeC15.4
Automatic Image Segmentation Techniques in Radiotherapy
Gu, Xuejun* *(University of Texas Southwestern Medical Center)*

15:00-15:15 WeC15.5
Automatic Segmentation Software in Radiotherapy
Chen, Mingli *(Univ. of Texas Southwestern Medical Center)*; Gu, Xuejun *(Univ. of Texas Southwestern Medical Center)*; Lu, Weiguo* *(Univ. of Texas Southwestern Medical Center)*

15:15-15:30 WeC15.6
Radiotherapy Disease-Site Specific Organs and Target Segmentation Guidance
Zhao, Bo* *(University of Texas, Southwestern Medical Center)*; Gu, Xuejun *(University of Texas Southwestern Medical Center)*

WeC16: 14:00-15:30 M5 – Level 3
Fractional Models of Biomedical Systems (Invited Session)
Chair: Laleg, Taous-Meriem *(King Abdullah University of Science and Technology (KAUST))*

14:00-14:15 WeC16.1
Fractional-Order Lumped Parameter Models of Arterial Hemodynamic
Bahloul, Mohamed A. *(KAUST)*; Laleg, Taous-Meriem* *(King Abdullah University of Science & Technology (KAUST))*

14:15-14:30 WeC16.2
Towards a Complete Regulatory System for Optimal Control of General Anesthesia
Dana, Copot* *(Ghent University)*

14:30-14:45 WeC16.3
Fractional Dynamic Model for the Cerebral Blood Flow Response to Neural Activation
Alhazmi, Fahd *(King Abdullah University of Science & Technology (KAUST))*; Belkhatir, Zehor *(KAUST)*; Laleg, Taous-Meriem* *(King Abdullah University of Science & Technology (KAUST))*

14:45-15:00 WeC16.4
Fractional-Order Model of Blood Glucose Dynamics for Type 1 Diabetes Patients
Ndoye, Ibrahima* *(King Abdullah University of Science & Technology (KAUST))*; Voos, Holger *(HS Ravensburg-Weingarten)*; Laleg, Taous-Meriem *(King Abdullah University of Science & Technology (KAUST))*

WeC17: 14:00-15:30 R12 – Level 3
Blood Pressure and Cardiovascular Hemodynamics (Oral Session)
Chair: Avolio, Alberto P. *(Macquarie University)*
Co-Chair: Heldt, Thomas *(Massachusetts Institute of Technology)*

14:00-14:15 WeC17.1
Clustering Blood Pressure Trajectories in Septic Shock in the Emergency Dept.
Prasad, Varesh* *(Massachusetts Institute of Technology)*; Lynch, James *(Massachusetts Institute of Technology)*; Filbin, Michael *(Massachusetts General Hospital)*; Reisner, Andrew *(Massachusetts General Hospital)*; Heldt, Thomas *(Massachusetts Institute of Technology)*

14:15-14:30 WeC17.2
Forecasting Hypotension during Vasopressor Infusion via Time Series Analysis
Shin, Sungtae *(University of Maryland)*; Reisner, Andrew* *(Massachusetts General Hospital)*; Yapps, Bryce *(Stanley Black & Decker)*; Bighamian, Ramin *(George Mason University)*; Rubin, J. Tyler *(Massachusetts General Hospital)*; Goldstein, Joshua *(Massachusetts General Hospital)*; Rosenthal, Eric *(MGH)*; Peterson, Jeffrey *(Massachusetts General Hospital)*; Hahn, Jin-Oh *(University of Maryland)*

14:30-14:45 WeC17.3
Polar Coordinate Description of Blood Pressure Measurements and Implications for Sex-Specific and Personalized Analysis
Kerkhof, Peter LM* *(VU University Medical Center)*; Konradi, Alexandra O. *(Almazov National Medical Research Centre, Saint-Petersburg)*; Shlyakhto, Evgeny V. *(Almazov National Medical Research Centre, Saint-Petersburg)*; Handly, Neal *(Dept. Emergency Medicine, Drexel University College of Medicine,)*; Li, John K-J. *(Rutgers University)*

14:45-15:00 WeC17.4
Novel Geometric Representation for One-Dimensional Model of Arterial Blood Pulse Wave Propagation
Ramakrishna, Prashanth *(New York University)*; P M, Nabeel* *(Indian Institute of Technology Madras)*; Sivaprakasam, Mohanasankar *(Indian Institute of Technology Madras)*

15:00-15:15 WeC17.5
Characterizing Fluid Response and Sepsis Progression in Emergency Dept. Patients
Gu, Qiao *(Hong Kong University of Science & Technology)*; Prasad, Varesh *(Massachusetts Institute of Technology)*; Heldt, Thomas* *(Massachusetts Institute of Technology)*

15:15-15:30 WeC17.6
Characterization of Microvascular Post Occlusive Hyperemia using Laser Doppler Flowmetry Technique in Subjects with Cardiometabolic Disorders
Fabregate Fuente, Martín *(Endothelial & Cardiometabolic Medicine Unit, Ramón y Cajal Uni)*; Arbeitman, Claudia *(CONICET Consejo Nacional de Investigaciones Cientificas y Tecnic)*; Cymberknop, Leandro Javier* *(Univ. Tecnológica Nacional)*; Bara Ledesma, Nuria *(Endothelial & Cardiometabolic Medicine Unit, Ramón y Cajal Uni)*; Arriazu Galindo, Mario *(Endothelial & Cardiometabolic Medicine Unit, Ramón y Cajal Uni)*; Martín Fernández, Leticia *(Endothelial & Cardiometabolic Medicine Unit, Ramón y Cajal Uni)*; Armentano, Ricardo Luis *(Republic Univ.)*; Sabán Ruiz, José *(Endothelial & Cardiometabolic Medicine Unit, Ramón y Cajal Univ.)*

WeC18: 14:00-15:30 R13 – Level 3
Human Performance (II) (Oral Session)

14:00-14:15 WeC18.1
An Investigation of Computer-Based Brain Training on the Cognitive and EEG Performance of Employees
Miller, Steve* *(PlatypusNeuro)*; Chelian, Suhas *(PlatypusNeuro)*; McBurnett, Will *(PlatypusNeuro)*; Tsou, Winnie *(Fujitsu Laboratories of America)*; Kruse, Amy *(Platypus Institute)*

14:15-14:30 WeC18.2
Detection and Prediction of Microsleeps from EEG using Spatio-Temporal Patterns
Shoorangiz, Reza* *(Univ. of Canterbury)*; Buriro, Abdul Baseer *(Univ. of Canterbury)*; Weddell, Stephen J. *(Univ. of Canterbury)*; Jones, Richard D. *(New Zealand Brain Research Institute)*

14:30-14:45 WeC18.3
Looking through Blue Glasses: Bioelectrical Measures to Assess the Awakening after a Calm Situation
Bilucaglia, Marco* *(Behavior & Brain Lab – Univ. IULM)*; Laureanti, Rita *(Politecnico di Milano)*; Zito, Margherita *(Univ. IULM)*; Circi, Riccardo *(Behavior & Brain Lab – Univ. IULM)*; Fici, Alessandro *(Behavior & Brain Lab – Univ. IULM)*; Rivetti, Fiamma *(Behavior & Brain Lab – Univ. IULM)*; Valesi, Riccardo *(Behavior & Brain Lab – Univ. IULM)*; Wahl, Siegfried *(Univ. Tuebingen)*; Russo, Vincenzo *(IULM Univ. of Milan)*

14:45-15:00 WeC18.4
Combining ICA Clustering and Power Spectral Density for Feature Extraction of Mental Fatigue of Spinal Cord Injury Patients
Chai, Rifai* *(Swinburne Univ. of Technology)*; Tran, Yvonne *(Macquarie Univ.)*; Ling, Sai Ho, Steve *(Univ. of Technology Sydney)*; Craig, Ashley *(The Univ. of Sydney)*; Nguyen, Hung T. *(Swinburne Univ. of Technology)*

15:00-15:15 WeC18.5
Neural Correlates of Internal States that Capture Movement Variability
Breault, Macauley S.* *(Johns Hopkins Univ.)*; Gonzalez-Martinez, Jorge *(Cleveland Clinic)*; Gale, John *(Cleveland Clinic)*; Sarma, Sridevi V. *(Johns Hopkins Univ.)*

15:15-15:30 WeC18.6
Toward Clinically-Relavent Joint Moment Estimation during Sit to Stand: A Feasibility Study
Hwang, Seoyoon* *(DGIST (Daegu Gyeongbuk Institude of Science & Technology))*; Choi, Seoyoung *(Daegu Gyeonbuk Institute of Science & Technology)*; Kim, Jonghyun *(DGIST)*

WeC19: 14:00-15:30 R4 – Level 3
General and Theoretical Informatics – Data Mining (Oral Session)
Co-Chair: Seidl, Karsten *(University of Duisburg-Essen)*

14:00-14:15 WeC19.1
Abnormal Gait Recognition using 3D Joint Information of Multiple Kinects System and RNN-LSTM
Lee, Deok-Won *(Gwangju Institute of Science & Technology)*; Jun, Kooksung *(Gwangju Institute of Science & Technology)*; Lee, Sanghyub *(Gwangju Institute of Science & Technology)*; Ko, Joong-Kwang *(GIST)*; Kim, Mun Sang* *(Gwangju Institute of Science & Technology)*

14:15-14:30 WeC19.2
Relationship between Dynamics of Physiological Signals and Subjective Quality of Life and Its Lifestyle Dependency
Amano, Ryota* *(Tohoku University)*; Karashima, Akihiro *(Tohoku University)*; Motoike, Ikuko *(Tohoku University)*; Katayama, Norihiro *(Tohoku Univ)*; Kinoshita, Kengo *(Tohoku University)*; Nakao, Mitsuyuki *(Tohoku University)*

14:30-14:45 WeC19.3
Outlier Detection in Health Record Free-Text using Deep Learning
Wallace, Duncan* *(University College Dublin)*; Kechadi, Tahar *(Insight Centre for Data Analytics, University College Dublin)*

14:45-15:00 WeC19.4
Towards a Flexible Deep Learning Method for Automatic Detection of Clinically Relevant Multi-Modal Events in the Polysomnogram
Olesen, Alexander Neergaard* *(Technical Univ. of Denmark)*; Chambon, Stanislas *(LTCI Telecom ParisTech, Univ. Paris-Saclay)*; Thorey, Valentin *(Dreem, Paris)*; Jennum, Poul *(Univ. of Copenhagen, Denmark)*; Mignot, Emmanuel *(Stanford Univ.)*; Sorensen, Helge B D *(Technical Univ. of Denmark)*

15:00-15:15 WeC19.5
Deep Q-Learning for Predicting Asthma Attack with Considering Personalized Environmental Triggers' Risk Scores
Do, Quan* *(New Mexico State Univ.)*; Doig, Alexa *(New Mexico State Univ.)*; Tran, Son *(New Mexico State Univ.)*

15:15-15:30 WeC19.6
Prediction of Patient-Specific Acute Hypotensive Episodes in ICU using Deep Models
Chan, Brandon* *(Queen's University)*; Sedghi, Alireza *(Queen's University)*; Laird, Philip *(Queen's University)*; Maslove, David M *(Queen's University)*; Mousavi, Parvin *(Queen's University)*

WeC20: 14:00-15:30 R5 – Level 3
Sensor Enabled Biomechanical Analysis (Oral Session)
Co-Chair: Rocon, Eduardo *(CSIC)*

14:00-14:15 WeC20.1
IMU-Based Knee Angle Estimation using an Extended Kalman Filter
Hidalgo, Andrés Francisco *(Centre for Automation (CAR) – CSIC)*; Lora, Julio *(CSIC)*; Rocon, Eduardo* *(CSIC)*

14:15-14:30 WeC20.2
Rehabilitation Exercise Segmentation for Autonomous Biofeedback Systems with ConvFSM
Bevilacqua, Antonio* *(University College of Dublin)*; Brennan, Louise *(University College Dublin)*; Argent, Rob *(University College Dublin)*; Caulfield, Brian *(UCD)*; Kechadi, Tahar *(Insight Centre for Data Analytics, University College Dublin)*

14:30-14:45 WeC20.3
Analysis of Biomedical Longitudinal Multi-Sensory Data: Extracting Interpretable Features by Context
Schreiber, Max *(Interdisciplinary Competence Center Biomedical Data Science, Ins)*; Handel, Till *(Institute for Applied Informatics (InfAI))*; Ivanova, Galina* *(Interdisciplinary Competence Center Biomedical Data Science, Ins)*

14:45-15:00 WeC20.4
Evaluation of Parkinson's Disease at Home: Predicting Tremor from Wearable Sensors
Heijmans, Margot* *(Maastricht University)*; Habets, Jeroen *(Maastricht University)*; Kuijf, Mark *(Maastricht University Medical Center)*; Kubben, Pieter Leonard *(Maastricht University Medical Center)*; Herff, Christian *(Maastricht University)*

15:00-15:15 WeC20.5
Machine Learning based Human Gait Segmentation with Wearable Sensor Platform
Potluri, Sasanka* *(Otto-von-Guericke University Magdeburg, Institute for Automation)*; Chandran, Arvind *(OVGU Magdeburg)*; Diedrich, Christian *(Otto-von-Guericke University Magdeburg, Institute for Automation)*; Schega, Lutz *(Otto-von-Guericke University Magdeburg, Institute for Sport Scie)*

15:15-15:30 WeC20.6
Automatic Measurements of Neck Angles Toward the Bedside Treatment for the Dysphagia Patients at the Community-Based Health Care
Kuramoto, Naomi* *(Univ. of Tsukuba)*; Ichimura, Kazuhiro *(Ichimura Dental Clinic)*; Jayatilake, Dushyantha *(PLIMES Inc)*; Hidaka, Kikue *(Univ. of Tsukuba)*; Suzuki, Kenji *(Univ. of Tsukuba)*

WeC21: 14:00-15:30 R8 – level 3
Emerging Technologies and Innovations in Biomedical Engineering Accelerate Global Standards Development (Minisymposium)
Chair: Carey, Carole C. *(C3-Carey Consultants, LLC)*
Co-Chair: Pino, Esteban J. *(Universidad de Concepcion)*

14:00-14:15 WeC21.1
3D Simulation and 3D Printing Standard for Medical Education and Clinical Application
Moon, Young Lae* *(Chosun University Hospital)*

14:15-14:30 WeC21.2
Body Sensing for Health
Lo, Benny* *(Imperial College London)*

14:30-14:45 WeC21.3
Brain-Computer Interfaces: Sharing a Model to Share Methods and Tools
Bianchi, Luigi* *(Tor Vergata University of Rome)*

14:45-15:00 WeC21.4
Modern Trends in Biomedical Engineering Technology and Standards Development at IEEE
Carey, Carole C.* *(C3-Carey Consultants, LLC)*; Balachandran, Pradeep *(IEEE EMBC Standards)*

15:00-15:15 WeC21.5
Reporting Standards for Neural Interface Research (RSNIR) to Accelerate Interoperability, Clinical Integration, and Commercialization of NeuroTechnologies
McKinney, Zach* *(Scuola Superiore Sant'Anna)*

WePOS-01: 18:00-19:30 Hall B
Adaptive and Kalman Filtering – Poster (Poster Session)

18:00-19:30 WePOS-01.1
A Novel Filter for Tracking Real-World Cognitive Stress using Multi-Time-Scale Point Process Observations
Wickramasuriya, Dilranjan *(University of Houston)*; Faghih, Rose T.* *(University of Houston)*

18:00-19:30 WePOS-01.2
A Characteristic Filtering Method for Pulse Wave Signal Quality Assessment
Lin, Wan-Hua *(Shenzhen Institutes of Advanced Tech.)*; Ji, Ning *(Shenzhen Institutes of Advanced Tech.)*; Wang, Lin *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Li, Guanglin* *(Shenzhen Institutes of Advanced Tech.)*

18:00-19:30 WePOS-01.3
Design Guidelines for Feedforward Cancellation of the Occlusion-Effect in Hearing Aids
Coelho Borges, Renata* *(Federal University of Technology – Paraná)*; Delcio Parreira, Wemerson *(Universidade do Vale do Itajaí)*; Holsbach Costa, Márcio *(UFSC)*

18:00-19:30 WePOS-01.4
A Regularized and Smoothed General Linear Kalman Filter for more Accurate Estimation of Time-Varying Directed Connectivity
Pagnotta, Mattia Federico* *(University of Fribourg)*; Plomp, Gijs *(University of Fribourg)*; Pascucci, David *(University of Fribourg)*

18:00-19:30 WePOS-01.5
SVD Square-Root Iterated Extended Kalman Filter for Modeling of Epileptic Seizure Count Time Series with External Inputs
Moontaha, Sidratul* *(Christian-Albrechts-Universität of Kiel , Universitätsklinikum S)*; Galka, Andreas *(Christian-Albrechts-Univ. of Kiel)*; Siniatchkin, Michael *(Univ. of Kiel)*; Scharlach, Sascha *(DRK-Norddeutsches Epilepsiezentrum fur Kinder und Jugendliche)*; von Spiczak, Sarah *(Dept. of Neuropediatrics, Univ. of Kiel, 24098 Kiel, G)*; Stephani, Ulrich *(Christian-Albrechts-Univ. of Kiel)*; May, Theodor *(Univ. of Bielefeld)*; Meurer, Thomas *(Faculty of Engineering, Univ. of Kiel)*

18:00-19:30 WePOS-01.6
Towards a Unified Framework for De-Noising Neural Signals
Kilicarslan, Atilla* *(University of Houston)*; Contreras-Vidal, José *(University of Houston)*

WePOS-02: 18:00-19:30 Hall B
Connectivity and Causality – Poster (Poster Session)

18:00-19:30 WePOS-02.1
The Optimal Setting for Multilayer Modularity Optimization in Multilayer Brain Networks
Puxeddu, Maria Grazia* *(Sapienza, University of Rome)*; Petti, Manuela *(Univ. of Rome "Sapienza", Neuroelectrical Imaging & BCI Lab IR)*; Mattia, Donatella *(Fondazione Santa Lucia IRCCS)*; Astolfi, Laura *(University of Rome Sapienza)*

18:00-19:30 WePOS-02.2
Evolution of Graph Theory in Dynamic Functional Connectivity for Lateralization of Temporal Lobe Epilepsy
Fallahi, Alireza *(Biomedical Engineering Dept., Hamedan Univ. of Technol)*; Baniasad, Fatemeh *(Tehran Univ. of Medical Sciences)*; Lotfi, Nastaran *(Univ. of Zanjan, Zanjan)*; Mohammadi-Mobarakeh, Neda *(Research Center for Molecularand Cellular Imaging (RCMCI), Tehra)*; Tapak, Leili *(Biostatistics School of Health, Hamadan Univ. of Medical Sc)*; Mirbagheri, Mehdi *(Northwestern Univ./RIC)*; Hashemi Fesharaki, Seyed Sohrab *(Dept. of Epilepsy,Pars Hospital,Tehran)*; Pooyan, Mohammad *(head of engineering faculty, Shahed Univ.)*; Mehvari Habibabadi, Jafar *(Isfahan Neuroscience Research Center, Isfahan Univ. of Medic)*; Nazem-Zadeh, Mohammad-Reza* *(Tehran Univ. of Medical Sciences)*

18:00-19:30 WePOS-02.3
Selection of Efficient Clustering Index to Estimate the Number of Dynamic Brain States from Functional Network Connectivity
Vergara, Victor Manuel* *(The Mind Research Network)*; Abrol, Anees *(Georgia State University, The Mind Research Network)*; Espinoza, Flor *(The Mind Research Network)*; Calhoun, Vince *(The Mind Research Network/University of New Mexico)*

18:00-19:30 WePOS-02.4
Estimation of Brain Connectivity through Artificial Neural Networks
Antonacci, Yuri* *(University of Rome Sapienza)*; Toppi, Jlenia *(University of Rome "Sapienza")*; Mattia, Donatella *(Fondazione Santa Lucia IRCCS)*; Pietrabissa, Antonio *(University of Rome Sapienza)*; Astolfi, Laura *(University of Rome Sapienza)*

18:00-19:30 WePOS-02.5
A New Mutual Information Measure to Estimate Functional Connectivity: Preliminary Study
El Sayed Hussein Jomaa, Mohamad* *(Univ. Angers – LARIS)*; Colominas, Marcelo Alejandro *(Univ. Angers – LARIS)*; Jrad, Nisrine *(LTSI – Univ. of Rennes 1)*; Van Bogaert, Patrick *(Centre Hospitalier Univ. d'Angers)*; Humeau-Heurtier, Anne *(Univ. of Angers)*

18:00-19:30 WePOS-02.6
A Phase Lag Index Hardware Calculation for Real-Time Electroencephalography Studies
Gutierrez Nuno, Rafael Angel* *(University of Southampton)*; Maharatna, Koushik *(University of Southampton)*

18:00-19:30 WePOS-02.7
Sex Difference in EEG Functional Connectivity during Sleep Stages and Resting Wake State based on Weighted Phase Lag Index
Liao, Yuanyuan *(Sun Yat-Sen University, Guangzhou City, Guangdong Prov, China)*; Zhou, Guolin *(Sun Yat-Sen University)*; Luo, Yu-Xi* *(Sun Yat-Sen University)*

WePOS-03: 18:00-19:30 Hall B
Independent and Principal Component Analysis – Poster (Poster Session)

18:00-19:30 WePOS-03.1
PCA-Based Channel Selection in High-Density EMG for Improving Force Estimation
Hajian, Gelareh* *(Queen's University)*; Morin, Evelyn *(Queen's University)*; Etemad, S. Ali *(Queen's University)*

18:00-19:30 WePOS-03.2
Subspace Averaging of Auditory Evoked Potentials
Wang, David X. *(Southern Methodist University)*; Davila, Carlos* *(Southern Methodist University)*

18:00-19:30 WePOS-03.3
Monitoring Brain Hemodynamics Coupling in Neonates using Updated Tensor Decompositions
Caicedo, Alexander *(Univ. del Rosario)*; De Wel, Ofelie *(KU Leuven)*; Vandecappelle, Michiel *(KU Leuven)*; Thewissen, Liesbeth *(UZ Leuven)*; Smits, Anne *(UZ Leuven)*; Allegaert, Karel *(KU Leuven)*; De Lathauwer, Lieven *(KU Leuven)*; Naulaers, Gunnar *(Univ. Hospitals Leuven)*; Van Huffel, Sabine* *(KU Leuven)*

18:00-19:30 WePOS-03.4
A SOC Design of ORICA-Based Highly Effective Real-Time Multi-Channel EEG System
Ho, Yun-Lung *(National Chiao Tung Univ.)*; Huang, Yu Da *(National Chiao Tung Univ.)*; Wang, Kai Yen *(National Chiao Tung Univ.)*; Fang, Wai-Chi* *(National Chiao Tung Univ.)*

18:00-19:30 WePOS-03.5
A Morphological Way to Remove Baseline and Spike Separation in EEG
Mahapatra, Arindam Gajendra* *(Graduate School of Medicine, Yamaguchi University, Ube)*; Singh, Balbir *(National Institute of Physiological Sciences)*

WePOS-04: 18:00-19:30 Hall B
Neural Networks and Support Vector Machines for Biosignal Processing – Poster (Poster Session)

18:00-19:30 WePOS-04.1
Estimation of 8-Electrode Configuration for Recognition of Uterine Contraction with Electrohysterogram
Hao, Dongmei* *(Beijing University of Technology)*

18:00-19:30 WePOS-04.2
Prediction of Response Time and Vigilance Score in a Sustained Attention Task from Pre-Trial Phase Synchrony using Deep Neural Networks
Torkamani-Azar, Mastaneh* *(Sabanci Univ.)*; Kanik, Sümeyra Demir *(Sabanci Univ., Istanbul, Turkey)*; Ahmed, Sara Atito Ali *(Sabanci Univ.)*; Aydin, Serap *(HACETTEPE Univ.)*; Cetin, Mujdat *(Univ. of Rochester)*

18:00-19:30 WePOS-04.3
CANet: A Channel Attention Network to Determine Informative Multi-Channel for Image Classification from Brain Signals
Kim, Yangwoo* *(Gwangju Institute of Science & Technology)*; Jang, Sehyeon *(Gwangju Institute of Science & Technology)*; Won, Kyungho *(Gwangju Institute of Science & Technology)*; Jun, Sung Chan *(Gwangju Institute of Science & Technology)*

18:00-19:30 WePOS-04.4
EEG-Based Emotion Recognition with Prototype-Based Data Representation
Wang, Yixin *(Institute of Automation, Chinese Academy of Science)*; Qiu, Shuang *(Institute of Automation, Chinese Academy of Science)*; Zhao, Chen *(Renmin University of China)*; Yang, Weijie *(Beijing Technology & Business University)*; Li, Jinpeng *(Research Center for Brain-inspired Intelligence, Institute of Au)*; Ma, Xuelin *(Institute of Automation, Chinese Academy of Sciences)*; He, Huiguang* *(Institute of Automation, Chinese Academy of Sciences)*

18:00-19:30 WePOS-04.5
Monte-Carlo Analysis for Quality Estimation of Gradient Correction Algorithms in Simultaneous Surface EMG-MRI Measurements using Signal Synthesis and Class Probability
Schwartz, Martin* *(Univ. of Tübingen)*; Reuter, Milan *(Institute of Signal Processing & System Theory, Univ. of)*; Yang, Bin *(Institute of Signal Processing & System Theory, Univ. of)*; Schick, Fritz *(Dept. of Diagnostic & Interventional Radiology, Univ.)*

18:00-19:30 WePOS-04.6
EEG-Based Emotion Detection using Unsupervised Transfer Learning
Gonzalez Diaz, Hector Andres* *(Technische Univ. Dresden)*; Yoo, Jerald *(National University of Singapore)*; Elfadel, Ibrahim (Abe) *(Masdar Institute of Science & Technology)*

18:00-19:30 WePOS-04.7
An Investigation of Dimensionality Reduction Techniques for EMG-Based Force Estimation
Hajian, Gelareh* *(Queen's University)*; Etemad, S. Ali *(Queen's University)*; Morin, Evelyn *(Queen's University)*

18:00-19:30 WePOS-04.8
Signal2Image Modules in Deep Neural Networks for EEG Classification
Bizopoulos, Paschalis* *(National Technical University of Athens)*; Lambrou, George I. *(National & Kapodistrian University of Athens)*; Koutsouris, Dimitrios *(Biomedical Engineering Laboratory, School of Electrical & Comp)*

18:00-19:30 WePOS-04.9
LSTMs and Neural Attention Models for Blood Glucose Prediction: Comparative Experiments on Real and Synthetic Data
Mirshekarian, Sadegh *(Ohio Univ.)*; Shen, Hui *(Ohio Univ.)*; Bunescu, Razvan* *(Ohio Univ.)*; Marling, Cindy *(Ohio Univ.)*

18:00-19:30 WePOS-04.10
Learning to Sort: Few-Shot Spike Sorting with Adversarial Representation Learning
Wu, Tong* *(University of Minnesota, Twin Cities)*; Rátkai, Anikó *(Eötvös Loránd University, Dept. of Physiology & Neurobiolo)*; Schlett, Katalin *(Dept. Physiology & Neurobiology, Eotvos Lorand University)*; Grand, László *(Imperial College London)*; Yang, Zhi *(University of Minnesota)*

18:00-19:30 WePOS-04.11
Deep Learning Approach to Parkinson's Disease Detection using Voice Recordings and Convolutional Neural Network Dedicated to Image Classification
Wodzinski, Marek* *(AGH Univ. of Science & Technology)*; Skalski, Andrzej *(AGH Univ. of Science & Technology)*; Hemmerling, Daria *(AGH Univ. of Science & Technology)*; Orozco-Arroyave, Juan-Rafael *(Universidad de Antioquia)*; Noeth, Elmar *(Friedrich-Alexander-Univ. Erlangen-Nuremberg)*

WePOS-05: 18:00-19:30 Hall B
Nonlinear Analysis of Biosignals – Poster (Poster Session)

18:00-19:30 WePOS-05.1
Transfer Entropy in Artificial and Cardiovascular Environment in Stress
Skoric, Tamara* *(University of Novi Sad, Faculty of Technical Sciences)*; Japundzic-Zigon, Nina *(University of Belgrade)*; Bajic, Dragana *(University of Novi Sad)*

18:00-19:30 WePOS-05.2
The Relation of Skin Conductance and Pupillary Fluctuations Assessed by Phase-Rectified Signal Averaging
Schumann, Andy* *(Psychiatric Brain & Body Research Group Jena, Dept. of Psyc)*; Kietzer, Stephanie *(University Hospital Jena)*; Ebel, Juliane *(University Hospital Jena)*; Bär, Karl-Jürgen *(Friedrich-Schiller-University of Jena)*

18:00-19:30 WePOS-05.3
Quantification of Dynamic Gastric Slow Wave Activity using Recurrence Plots
Paskaranandavadivel, Niranchan* *(The Univ. of Auckland)*; Avci, Recep *(Univ. of Auckland)*; Cheng, Leo K *(The Univ. of Auckland)*

18:00-19:30 WePOS-05.4
A Novel Multiscale Cross-Entropy Method Applied to Navigation Data Acquired with a Bike Simulator
Jamin, Antoine* *(COTTOS Medical)*; Duval, Guillaume *(Dept. of Geriatric Medicine, Angers University Hospital, An)*; Annweiler, Cédric *(Dept. of Geriatric Medicine, Angers University Hospital, An)*; Abraham, Pierre *(Centre Hospitalier Universitaire d'Angers)*; Humeau-Heurtier, Anne *(University of Angers)*

18:00-19:30 WePOS-05.5
Cross Entropy Profiling to Test Pattern Synchrony in Short-Term Signals
Udhayakumar, Radhagayathri* *(Univ. of Melbourne)*; Karmakar, Chandan *(Deakin Univ.)*; Palaniswami, Marimuthu *(The Univ. of Melbourne)*

WePOS-06: 18:00-19:30 Hall B
Physiological Systems Modeling – Poster (Poster Session)

18:00-19:30 WePOS-06.1
Nanoswimmer-Oriented Direct Targeting Strategy Inspired by Momentum-Based Gradient Optimization
Ali, Muhammad *(University of Waikato)*; Cree, Michael *(University of Waikato)*; Sharifi, Neda *(The University of Waikato)*; Chen, Yifan* *(The University of Waikato)*

18:00-19:30 WePOS-06.2
Tonic and Phasic Decomposition of Skin Conductance Data: A Generalized-Cross-Validation-Based Block Coordinate Descent Approach
Amin, Md. Rafiul *(University of Houston)*; Faghih, Rose T.* *(University of Houston)*

18:00-19:30 WePOS-06.3
Modeling the Measurement Error of Factory-Calibrated Continuous Glucose Monitoring Sensors: Application to Dexcom G6 Sensor Data
Vettoretti, Martina* *(Univ. of Padova)*; Del Favero, Simone *(Univ. of Padova, Padova, Italy)*; Sparacino, Giovanni *(Univ. of Padova)*; Facchinetti, Andrea *(Univ. of Padova)*

18:00-19:30 WePOS-06.4
Can we Rely on the Pulse Transit Time – Pressure Relationship – Models Comparison
Polinski, Artur *(Gdansk University of Technology)*; Bujnowski, Adam *(Gdansk University of Technology)*; Kocejko, Tomasz* *(Gdansk University of Technology)*; Wtorek, Jerzy *(Gdansk University of Technology)*

WePOS-07: 18:00-19:30 Hall B
Signal Processing and Classification for BCIs and Motor Imagery – Poster (Poster Session)

18:00-19:30 WePOS-07.1
Classification of EEG Motor Imagery Tasks using Convolution Neural Networks
Ling, Sai Ho, Steve* *(University of Technology Sydney)*; Makgawinata, Henry *(University of Technology Sydney)*; Monsivais, Fernando Huerta *(University of Technology Sydney)*; Lourenco, Andre dos Santos Goncalves *(University of Technology Sydney)*; Lyu, Juan *(Harbin Engineering University)*; Chai, Rifai *(Swinburne University of Technology)*

18:00-19:30 WePOS-07.2
Discrimination of SSVEP Responses using a Kernel based Approach
Oikonomou, Vangelis* *(Centre for Research & Technology Hellas)*; Nikolopoulos, Spiros *(Information Technologies Institute, Centre for Research & Tech)*; Kompatsiaris, Ioannis (Yannis) *(Information Technologies Institute, CERTH)*

18:00-19:30 WePOS-07.3
Evaluation of Electroencephalography Analysis Methods
Wetzel, Dominik* *(Univ. of Applied Sciences Zwickau)*; Spahn, Nico *(Univ. of Applied Sciences Zwickau)*; Heilemann, Martin *(Univ. of Applied Sciences Zwickau)*; Löffler, Marcus Michael *(Univ. of Applied Sciences Zwickau)*; Seidel, Markus *(Univ. of Applied Sciences Zwickau)*; Kolbig, Silke *(Univ. of Applied Sciences Zwickau)*; Winkler, Dirk *(Leipzig Univ.)*

18:00-19:30 WePOS-07.4
A Framework on Optimization Strategy for EEG Motor Imagery Recognition
Yang, Banghua* *(Shanghai University)*; Fan, Chengcheng *(Shanghai University)*; Guan, Cuntai *(Nanyang Technological University)*; Gu, xuelin *(Shanghai University)*

WePOS-08: 18:00-19:30 Hall B
Signal Processing and Classification for Contactless Measurements – Poster (Poster Session)

18:00-19:30 WePOS-08.1
Non-Contact Blood Pressure Measurement Scheme using Doppler Radar
Ohata, Tomoyuki* *(The University of Electro-Communications)*; Ishibashi, Koichiro *(The University of Electro-Communications)*; Sun, Guanghao *(The University of Electro-Communications)*

18:00-19:30 WePOS-08.2
ITERATOR: A 3D Gait Identification from IR-UWB Technology
Rana, Soumya Prakash* *(London South Bank University)*; Dey, Maitreyee *(London South Bank University)*; Ghavami, Mohammad *(London South Bank University)*; Dudley, Sandra *(London South Bank University)*

18:00-19:30 WePOS-08.3
Precise Heart Rate Measurement using Non-Contact Doppler Radar Assisted by Machine-Learning-Based Sleep Posture Estimation
Higashi, Kotaro* *(The University of Electro-Communications)*; Sun, Guanghao *(The University of Electro-Communications)*; Ishibashi, Koichiro *(The University of Electro-Communications)*

18:00-19:30 WePOS-08.4
Non-Contact Apnea-Hypopnea Index Estimation using Near Infrared Video
Zhu, Kaiyin *(Toronto Rehab-University Health Network)*; Yadollahi, Azadeh *(University of Toronto)*; Taati, Babak* *(Toronto Rehabilitation Institute & University of Toronto)*

18:00-19:30 WePOS-08.5
Novel CA-CFAR Approach for Improvement of Doppler Sensor-Based Heart Rate Variability Estimation
Hiromatsu, Ryosuke* *(Keio University)*; Yamamoto, Kohei *(Keio University)*; Toyoda, Kentaroh *(Keio University)*; Ohtsuki, Tomoaki *(Keio University)*

WePOS-09: 18:00-19:30 Hall B
Brain Imaging and Image Analysis – Poster (Poster Session)

18:00-19:30 WePOS-09.1
Investigations on the Functional Connectivity Disruptive Patterns of Progressive Neurodegenerative Disorders
A, Kavitha* *(SSN College of Engineering)*; S Prakash, Sucharitha *(SSN College of Engineering)*; P, Sreeja *(SSN College of Engineering)*; S, Ancy Carshia *(SSN College of Engineering)*

18:00-19:30 WePOS-09.2
A Feature Ranking and Selection Algorithm for Brain Tumor Segmentation in Multi-Spectral Magnetic Resonance Image Data
Gyorfi, Agnes* *(Sapientia Hungarian University of Transylvania)*; Kovacs, Levente *(Obuda University)*; Szilagyi, Laszlo *(Budapest Univ. of Tech & Economics)*

18:00-19:30 WePOS-09.3
On the use of Linear-Modelling-Based Algorithms for Physiological Noise Correction in fMRI Studies of the Central Breathing Control
Cauzzo, Simone* *(Scuola Superiore Sant'Anna)*; Callara, Alejandro Luis *(Dipartimento di Ingegneria dell'Informazione, University of Pisa)*; Morelli, Maria Sole *(Scuola Superiore Sant'Anna (Pisa))*; Hartwig, Valentina *(CNR)*; Montanaro, Domenico *(Fondazione Toscana "G. Monasterio", National Research Council, P)*; Passino, Claudio *(Fondazione Gabriele Monasterio, Pisa)*; Emdin, Michele *(Fondazione Gabriele Monasterio, Pisa)*; Giannoni, Alberto *(Fondazione Gabriele Monasterio, Pisa)*; Vanello, Nicola *(University of Pisa)*

18:00-19:30 WePOS-09.4
Automatic Classification of Alzheimer's Disease based on CPD Brain Point Cloud Registration for Feature Extraction
Perez-Gonzalez, Jorge* *(Univ. Nacional Autonoma de Mexico)*; Azamar, Cristian *(Univ. Autonoma Metropolitana)*; Pina-Ramirez, Omar *(Univ. Autonoma Metropolitana)*

WePOS-10: 18:00-19:30 Hall B
Cardiac Imaging and Image Analysis – Poster (Poster Session)

18:00-19:30 WePOS-10.1
Coronary Artery Vascular Segmentation on Limited Data via Pseudo-Precise Label
Zhai, Mo *(Beijing Univ. of Posts & Telecommunications)*; Du, Tianming *(Beijing Univ. of Posts & Telecommunications)*; Yang, Ruolin *(Beijing Univ. of Posts & Telecommunications)*; Zhang, Honggang* *(Beijing Univ. of Posts & Telecommunications)*

18:00-19:30 WePOS-10.2
Elevated Right Atrial Pressure Associated with Alteration of Left Ventricular Contractility and Ventricular-Arterial Coupling in Pulmonary Artery Hypertension
Zhao, Xiaodan *(National Heart Centre Singapore)*; Tan, Ru-San *(National Heart Centre Singapore)*; Tan, Ju Le *(National Heart Centre Singapore)*; Chai, Ping *(National Univ. Heart Centre Singapore)*; Teo, Lynette Li San *(National Univ. Hospital)*; Fortier, Marielle V *(KK Women's & Children's Hospital)*; Tan, Teng Hong *(KK Women's & Children's Hospital)*; Leng, Shuang *(National Heart Centre Singapore)*; Ruan, Wen *(National Heart Centre Singapore)*; Zhang, Jun-Mei *(National Heart Center)*; Bryant, Jennifer *(NHCS)*; Yap, Jonathan *(NHCS)*; Ong, Ching Ching *(National Univ. Hospital)*; Singh, Devinder *(National Univ. Hospital)*; Lim, Soo Teik *(National Heart Centre Singapore)*; Yip, James Wei Luen *(National Univ. Hospital)*; Chen, Yucheng *(West China Hospital, Sichuan Univ., Chengdu, China)*; Zhong, Liang* *(Duke-Duke Medical School, National Univ. of Singapore)*

18:00-19:30 WePOS-10.3
Deep CNN with LM Learning based Myocardial Ischemia Detection in Cardiac Magnetic Resonance Images
Muthunayagam, Muthulakshmi *(MIT Campus, Anna Univ.,)*; Ganesan, Kavitha* *(MIT Campus, Anna Univ.,)*

18:00-19:30 WePOS-10.4
Detection and Classification of Chronic Total Occlusion Lesions using Deep Learning
Liu, Xuqing *(Beijing Univ. of Posts & Telecommunications)*; Du, Tianming *(Beijing Univ. of Posts & Telecommunications)*; Zhang, Honggang* *(Beijing Univ. of Posts & Telecommunications)*; Sun, Chunlei *(Beijing Univ. of Posts & Telecommunications)*

18:00-19:30 WePOS-10.5
Kernel-Based Reconstruction of C-11-Hydroxyephedrine Cardiac PET Images of the Sympathetic Nervous System
Ashouri, Zahra* *(Carleton University)*; Hunter, Chad *(University of Ottawa Heart Institute)*; Spencer, Benjamin *(UC Davis Medical Center)*; Wang, Guobao *(Univ. of California – Davis)*; Dansereau, Richard *(Carleton University)*; deKemp, Robert *(uOttawa Heart Institute)*

18:00-19:30 WePOS-10.6
Automatic Assessment of 3D Coronary Artery Distensibility from Time-Resolved Coronary CT Angiography
Ghanem, Ahmed *(NIH)*; Hamimi, Ahmed *(NIH)*; Gharib, Ahmed *(NIH)*; Abd-Elmoniem, Khaled* *(NIH)*

WePOS-11: 18:00-19:30 Hall B
Image Analysis and Classification – Machine Learning / Deep Learning Approaches – Poster (Poster Session)

18:00-19:30 WePOS-11.1
Assessment of Data Augmentation Strategies Toward Performance Improvement of Abnormality Classification in Chest Radiographs
Ganesan, Prasanth *(Florida Atlantic Univ.)*; Rajaraman, Sivaramakrishnan *(National Library of Medicine)*; Long, L. Rodney *(National Library of Medicine)*; Ghoraani, Behnaz *(Florida Atlantic Univ.)*; Antani, Sameer* *(National Library of Medicine)*

18:00-19:30 WePOS-11.2
Comparison and Analyzation of Different Feature Parameters for Alzheimer's Disease Identification
Liu, Yan *(University of Chinese Academy of Sciences)*; Zeng, Xiangzhu *(Peking University Third Hospital, Beijing, China)*; Wang, Ling* *(University of Electronic Science & Technology of China)*; Wang, Zheng *(Capital University of Medical Sciences)*; Wang, Qiang *(Beijing Union University)*

18:00-19:30 WePOS-11.3
Anterior Chamber Angles Classification in Anterior Segment OCT Images via Multi-Scale Regions Convolutional Neural Networks
Hao, Huaying *(Ningbo University)*; Zhao, Yitian* *(Chinese Academy of Sciences)*; Fu, Huazhu *(Inception Institute of Artificial Intelligence)*; Shang, Qiaoling *(Shenyang Jianzhu University)*; Chen, Zhili *(Shenyang Jianzhu University)*; Li, Fei *(Zhongshan Ophthalmic Center, State Key Laboratory of Ophthalmolo)*; Zhang, Xiulan *(Zhongshan Ophthalmic Center, State Key Laboratory of Ophthalmolo)*; Liu, Jiang *(Ningbo Institute of Materials Technology & Engineering, CAS)*

18:00-19:30 WePOS-11.4
Improving the Malignancy Characterization of Hepatocellular Carcinoma using Deeply Supervised Cross Modal Transfer Learning for Non-Enhanced MR
Jian, Wanwei *(Guangzhou Univ. of Chinese Medicine)*; Ju, HanQiu *(Guangzhou Univ. of Chinese Medicine)*; Cen, Xiaoping *(Guangzhou Univ. of Chinese Medicine)*; Cui, Manman *(Guangzhou Univ. of Chinese Medicine)*; Zhang, Honglai *(Guangzhou Univ. of Chinese Medicine)*; Wang, Guangyi *(Guangdong General Hospital)*; Zhang, Lijuan *(Shenzhen Institute of Advanced Technology)*; Gu, Lin *(National Institute of Informatics (NII))*; Zhou, Wu* *(Guangzhou Univ. of Chinese Medicine)*

18:00-19:30 WePOS-11.5
Understanding Deep Convolutional Networks for Biomedical Imaging: A Tutorial
Ng, Dianwen *(National University of Singapore)*; Feng, Mengling* *(Massachusetts Institute of Technology)*

18:00-19:30 WePOS-11.6
Monitoring of Patient Blanket Coverage using 3D Camera Data
Vaughn, Julie *(MIT)*; Milosevic, Mladen *(Philips Research North America)*; Parvaneh, Saman* *(Philips Research North America)*

18:00-19:30 WePOS-11.7
Deep Learning based Dosimetry Evaluation at Organs-at-Risk in Esophageal Radiation Treatment Planning
Jiang, Dashan *(Electrical Engineering & Automation, Anhui University)*; Li, Teng* *(Anhui University)*; Mao, Ronghu *(Dept. of Radiation Oncology,The Affiliated Cancer Hospital)*; Du, Chi *(Cancer Center, The Second People's Hospital of Neijiang, Neijian)*; Liu, Jianfei *(Anhui University)*

18:00-19:30 WePOS-11.8
Automatic Detection of Focal Liver Lesions in Multi-Phase CT Images using a Multi-Channel and Multi-Scale CNN
Todoroki, Yoshihiro* *(Ritsumeikan Univ.)*; Iwamoto, Yutaro *(Ritsumeikan Univ.)*; Chen, Yen-Wei *(Ritsumeikan Univ.)*

18:00-19:30 WePOS-11.9
Convolutional Neural Network-Based Regression for Biomarker Estimation in Corneal Endothelium Microscopy Images
Vigueras-Guillén, Juan P.* *(Rotterdam Eye Hospital)*; van Rooij, Jeroen *(Rotterdam Eye Hospital)*; Lemij, Hans G. *(Glaucoma Service, Rotterdam Eye Hospital)*; Vermeer, Koenraad A. *(Rotterdam Ophthalmic Institute, Rotterdam Eye Hospital)*; van Vliet, Lucas *(TU Delft)*

18:00-19:30 WePOS-11.10
Mild Cognitive Impairment Diagnosis using Extreme Learning Machine Combined with Multivoxel Pattern Analysis on Multi-Biomarker Resting-State fMRI
Nguyen, Thanh Duc *(Gwangju Institute of Science & Technology)*; Ryu, Seungjun *(Gist)*; Choi, Min *(Gwangju Institute of Science & Technology)*; Qureshi, Muhammad Naveed Iqbal *(Gwangju Institute of Science & Technology, Gwangju)*; Lee, Boreom* *(Gwangju Institute of Science & Technology (GIST))*

18:00-19:30 WePOS-11.11
Improving CNN Training using Disentanglement for Liver Lesion Classification in CT
Ben-Cohen, Avi *(Tel Aviv Univ.)*; Mechrez, Roey *(Technion)*; Yedidia, Noa *(Tel-Aviv Univ.)*; Greenspan, Hayit K.* *(Tel Aviv Univ.)*

18:00-19:30 WePOS-11.12
Variations on Branding with Text Occurrence for Optimized Body Parts Classification
Pelka, Obioma *(Univ. of Applied Sciences & Arts Dortmund)*; Nensa, Felix *(Univ. Hospital Essen)*; Friedrich, Christoph M.* *(Univ. of Applied Sciences & Arts Dortmund; Dept. of)*

18:00-19:30 WePOS-11.13
Hierarchical Fine-Tuning for Joint Liver Lesion Segmentation and Lesion Classification in CT
Heker, Michal* *(Tel- Aviv University)*; Ben-Cohen, Avi *(Tel Aviv University)*; Greenspan, Hayit K. *(Tel Aviv University)*

18:00-19:30 WePOS-11.14
Hybrid Unified Deep Learning Network for Highly Precise Gleason Grading of Prostate Cancer
Sharma, Shanker Lal *(Omart Technologies)*; Uthappa, Poojitha* *(Indian Institute of Technology)*

18:00-19:30 WePOS-11.15
Automated Glaucoma Screening from Retinal Fundus Image using Deep Learning
Phasuk, Siriporn *(Thammasat Univ.)*; Pooprasert, Pakinee *(Cardiff Univ. School of Medicine)*; Yaemsuk, Akarachai *(Thammasat Univ.)*; Suvannachart, Pukkapol *(Chulalongkorn Univ.)*; Itthipanichpong, Rath *(Chulalongkorn Univ.)*; Chansangpetch, Sunee *(Chulalongkorn Univ.)*; Manassakorn, Anita *(Chulalongkorn Univ. & King Chulalongkorn Memorial Hospita)*; Tantisevi, Visanee *(Chulalongkorn Univ.)*; Rojanapongpun, Prin *(Chulalongkorn Univ.)*; Tantibundhit, Charturong* *(Thammasat Univ.)*

18:00-19:30 WePOS-11.16
Pattern Detection from Seating Pressure Distribution during Wheelchair Motion using Deep Embedded Clustering
Noguchi, Hiroshi* *(The Univ. of Tokyo)*; Maeda, Tomonori *(The Univ. of Tokyo)*; Tamai, Nao *(The Univ. of Tokyo)*; Minematsu, Takeo *(The Univ. of Tokyo)*; Sanada, Hiromi *(The Univ. of Tokyo)*; Mori, Taketoshi *(The Univ. of Tokyo)*

18:00-19:30 WePOS-11.17
A Random Initialization Deep Neural Network for Discriminating Malignant Breast Cancer Lesions
Duggento, Andrea* *(University of Rome "Tor Vergata")*; Scimeca, Manuel *(University of Rome Tor Vergata)*; Urbano, Nicoletta *(University of Rome Tor Vergata)*; Bonanno, Elena *(University of Rome Tor Vergata)*; Aiello, Marco *(IRCCS SDN, Naples, Italy)*; Cavaliere, Carlo *(IRCCS SDN, Naples, Italy)*; Cascella, Giuseppe L. *(Politecnico di Bari)*; Cascella, Davide *(GEM ICT)*; Conte, Giovanni *(GEM ICT)*; Guerrisi, Maria *(University of Rome "Tor Vergata")*; Toschi, Nicola *(University of Rome "Tor Vergata", Faculty of Medicine)*

18:00-19:30 WePOS-11.18
Skin Lesion Classification using GAN based Data Augmentation
Rashid, Haroon *(National Univ. of Sciences & Tech.)*; Tanveer, M. Asjid *(National Univ. of Sciences & Tech.)*; Khan, Hassan Aqeel* *(National Univ. of Sciences & Tech.)*

18:00-19:30 WePOS-11.19
Predicting Human Embryos' Implantation Outcome from a Single Blastocyst Image
Moradi Rad, Reza* *(Simon Fraser University)*; Saeedi, Parvaneh *(Simon Fraser University)*; Au, Jason Ka Man *(Pacific Center for Reproductive Medicine)*; Havelock, Jon *(Pacific Centre for Reproductive Medicine)*

18:00-19:30 WePOS-11.20
Detection of Rapid Mouse's Scratching Behavior based on Shape and Motion Features
Akita, Shingo* *(Tokyo Univ. of Science)*; Tsuichihara, Satoki *(Tokyo Univ. of Science)*; Takemura, Hiroshi *(Tokyo Univ. of Science)*

18:00-19:30 WePOS-11.21
An End-to-End Deep Learning Pipeline for Emphysema Quantification using Multi-Label Learning
Negahdar, Mohammadreza* *(IBM)*; Coy, Adam *(University of California San Francisco)*; Beymer, David *(IBM Almaden Research Center)*

18:00-19:30 WePOS-11.22
Ultrasound-Based Diagnosis of Breast Tumor with Parameter Transfer Multilayer Kernel Extreme Learning Machine
Fei, Xiaoyan *(Shanghai University)*; Zhou, Weijun *(First Affiliated Hospital of USTC)*; Shen, Lu *(Shanghai University)*; Chang, Cai *(Fudan University)*; Zhou, Shichong *(Fudan University)*; Shi, Jun* *(Shanghai University)*

18:00-19:30 WePOS-11.23
Driver Drowsiness Estimation by Parallel Linked Time-Domain CNN with Novel Temporal Measures on Eye States
Shiau, Jia-Yau *(National Taiwan University)*; Nishiyuki, Kenta* *(Omron Corporation)*; Nagae, Shigenori *(Omron Corporation)*; Yabuuchi, Tomohiro *(Omron Corporation)*; Kinoshita, Koichi *(Omron Corporation)*; Hasegawa, Yuki *(Omron Corporation)*

18:00-19:30 WePOS-11.24
Analysis of Carotid Plaque using Multifractal Method in Ultrasound Images
B., Smitha* *(National Institute of Technology, Calicut)*; Joseph, Paul *(National Institute of Technology Calicut)*

18:00-19:30 WePOS-11.25
Boundary-Aware Semi-Supervised Deep Learning for Breast Ultrasound Computer-Aided Diagnosis
Zhang, Erlei *(Univ. of Texas Southwestern Medical Center)*; Seiler, Stephen *(Univ. of Texas Southwestern Medical Center)*; Chen, Mingli *(Univ. of Texas Southwestern Medical Center)*; Lu, Weiguo* *(Univ. of Texas Southwestern Medical Center)*; Gu, Xuejun *(Univ. of Texas Southwestern Medical Center)*

18:00-19:30 WePOS-11.26
Deep Neural Network for Automatic Characterization of Lesions on 68Ga-PSMA PET/CT Images
Zhao, Yu* *(Technische Universität München)*; Tetteh, Giles *(Technische Universität München (TUM))*; Menze, Bjoern *(TU Munich)*; Eiber, Matthias *(Klinikum Rechts der Isar, Technische Universitaet Muenchen)*; Shi, Kuangyu *(University of Bern)*

18:00-19:30 WePOS-11.27
Semantic Segmentation of Microengineered Neural Tissues
Karimian, Hamid R.* *(Tulane University)*; Pollard, Kevin *(Tulane University)*; Moore, Michael J. *(Tulane University)*; Kordjamshidi, Parisa *(Tulane University)*

18:00-19:30 WePOS-11.28
Machine Learning for Computer-Aided Polyp Detection using Wavelets and Content-Based Image
Viscaino Sarango, Michelle Estefania* *(Universidad Técnica Federico Santa María)*; Auat Cheein, Fernando A. *(National University of San Juan)*

18:00-19:30 WePOS-11.29
Segmentation of Femoral Cartilage from Knee Ultrasound Images using Mask R-CNN
Kompella, Gayatri* *(Indian Institute of Technology, Madras)*; Antico, Maria *(Queensland Univ. of Technology)*; Sasazawa, Fumio *(Queensland Univ. of Technology)*; Singarayan, Jeevakala *(Healthcare Technology & Innovation Center)*; Ram, Keerthi *(IIT Madras)*; Fontanarosa, Davide *(Queensland Univ. of Technology)*; Pandey, Ajay K *(Queensland Univ. of Technology, Australia)*; Sivaprakasam, Mohanasankar *(Indian Institute of Technology Madras)*

18:00-19:30 WePOS-11.30
Hierarchiacal Pruning for Simplification of Convolutional Neural Networks in Diabetic Retinopathy Classification
Hajabdollahi, Mohsen *(Isfahan Univ. of Technology)*; Esfandiarpoor, Reza *(Isfahan Univ. of Technology)*; Najarian, Kayvan *(Univ. of Michigan – Ann Arbor)*; Karimi, Nader *(Isfahan Univ. of Technology)*; Samavi, Shadrokh *(McMaster Univ.)*; Soroushmehr, S.M.Reza* *(Univ. of Michigan, Ann Arbor)*

WePOS-12: 18:00-19:30 Hall B
Image Registration, Segmentation, Compression and Visualization – Machine Learning / Deep Learning Approaches – Poster (Poster Session)

18:00-19:30 WePOS-12.1
Fully Automatic White Matter Hyperintensity Segmentation using U-Net and Skip Connection
Zhang, Yue *(Southern University of Science & Technology)*; Wu, Jiong *(Sun Yat-Sen University)*; Chen, Wanli *(Southern University of Science & Technology of China)*; Liu, Yilong *(The University of Hong Kong)*; Lyu, Junyan *(Southern University of Science & Technology)*; Shi, Hongjian *(Southern University of Science & Technology)*; Chen, Yifan *(The University of Waikato)*; Wu, Ed X. *(The University of Hong Kong)*; Tang, Xiaoying* *(Southern University of Science & Technology)*

18:00-19:30 WePOS-12.2
Deep Learning based Sub-Retinal Fluid Segmentation in Central Serous Chorioretinopathy Optical Coherence Tomography Scans
Rao T J, Narendra *(National Institute of Technology Karnataka, Surathkal)*; Girish, GN* *(National Institute of Technology Karnataka, Surathkal)*; R Kothari, Abhishek *(Dr. Agarwal's Eye Hospital, Jaipur, India)*; Rajan, Jeny *(Dept. of Computer Science & Engineering, National Institu)*

18:00-19:30 WePOS-12.3
OpenArm 2.0: Automated Segmentation of 3D Tissue Structures for Multi-Subject Study of Muscle Deformation Dynamics
Nozik, Yonatan *(UC Berkeley)*; Hallock, Laura* *(UC Berkeley)*; Ho, Daniel *(UC Berkeley)*; Mandava, Sai *(UC Berkeley)*; Mitchell, Chris *(UC Berkeley)*; Li, Thomas Hui *(UC Berkeley)*; Bajcsy, Ruzena *(UC Berkeley, CITRIS)*

18:00-19:30 WePOS-12.4
Data Representations for Segmentation of Vascular Structures using Convolutional Neural Networks with U-Net Architecture
Bargsten, Lennart* *(Hamburg University of Technology)*; Wendebourg, Mareike *(Hamburg University of Technology)*; Schlaefer, Alexander *(Hamburg University of Technology)*

18:00-19:30 WePOS-12.5
Deep Learning-Based Automatic Endometrium Segmentation and Thickness Measurement for 2D Transvaginal Ultrasound
Hu, Szu-Yeu *(Massachusetts General Hospital)*; Xu, Hong *(MGH)*; Li, Qian *(Massachusetts General Hospital)*; Telfer, Brian *(MIT Lincoln Laboratory)*; Brattain, Laura* *(MIT Lincoln Laboratory)*; Samir, Anthony Edward *(Harvard Medical School, Massachusetts General Hospital)*

18:00-19:30 WePOS-12.6
Automatic Brain Tumor Segmentation Method based on Modified Convolutional Neural Network
Yang, Chushu *(Harbin Institute of Technology)*; Xutao, Guo *(HIT)*; Wang, Tong *(Harbin Institute of Technology, Shenzhen)*; Yang, Yanwu *(Harbin Institute of Technology Shenzhen Graduate School)*; Ji, Nan *(Dept. of Neurosurgery, China National Clinical Research Cen)*; Li, Deling *(Beijing Tiantan Hospital)*; Lv, Haiyan *(Mindsgo Life Science Shenzhen Ltd.)*; Ma, Ting* *(Harbin Institute of Technology at Shenzhen)*

18:00-19:30 WePOS-12.7
Diabetic Wound Segmentation using Convolutional Neural Networks
Cui, Can *(University of Michigan)*; Thurnhofer-Hemsi, Karl *(University of Málaga)*; Soroushmehr, S.M.Reza *(University of Michigan, Ann Arbor)*; Mishra, Abinash *(University of Michigan)*; Gryak, Jonathan* *(University of Michigan)*; Dominguez, Enrique *(University of Malaga)*; Wrobel, James *(University of Michigan)*; Najarian, Kayvan *(University of Michigan – Ann Arbor)*; Lopez-Rubio, Ezequiel *(University of Malaga)*

18:00-19:30 WePOS-12.8
Adrenal Tumor Vessels Segmentation using Convolutional Neural Network in Computed Tomography Angiography
Zhao, Wangyuan *(Shanghai Jiao Tong University)*; He, Hongchao *(Shanghai Ruijin Hospital, Shanghai Jiao Tong University School of)*; Zhao, Jun *(Shanghai Jiao Tong University)*; Sun, Jianqi* *(Shanghai Jiao Tong University)*

18:00-19:30 WePOS-12.9
Adversarially Trained Convolutional Neural Networks for Semantic Segmentation of Ischaemic Stroke Lesion using Multisequence Magnetic Resonance Imaging
Sathish, Rachana *(Indian Institute of Tech. Kharagpur)*; Rajan, Ronnie* *(Indian Institute of Tech. Kharagpur)*; Vupputuri, Anusha *(Indian Institute of Tech. Kharagpur)*; Ghosh, Nirmalya *(Indian Institute of Tech. (IIT), Kharagpur)*; Sheet, Debdoot *(Indian Institute of Tech. Kharagpur)*

18:00-19:30 WePOS-12.10
Brain-Vascular Segmentation for SEEG Planning via a 3D Fully-Convolutional Neural Network
El Hadji, Sara* *(Politecnico di Milano)*; Moccia, Sara *(Unviersità Politecnica delle Marche)*; Scorza, Davide *(Vicomtech Foundation)*; Rizzi, Michele *(Ospedale Niguarda, Milano)*; Cardinale, Francesco *(Niguarda Hospital)*; Baselli, Giuseppe *(Politecnico di Milano)*; De Momi, Elena *(Politecnico di Milano)*

18:00-19:30 WePOS-12.11
Automatic Sternum Segmentation in Thoracic MRI
Ribeiro Dias, Mariana *(Univ. of Porto)*; Rocha, Beatriz *(Univ. of Porto)*; João, F. Teixeira* *(INESCTEC)*; Oliveira, Hélder P. *(INESC TEC, Faculdade de Ciências, Universidade do Porto)*

18:00-19:30 WePOS-12.12
An MR Radiomics Framework for Predicting the Outcome of Stereotactic Radiation Therapy in Brain Metastasis
Karami, Elham *(Sunnybrook Research Institute, Univ. of Toronto)*; Ruschin, Mark *(Sunnybrook Health Sciences Centre, Univ. of Toronto)*; Soliman, Hany *(Univ. of Toronto, Sunnybrook Health Sciences Centre)*; Sahgal, Arjun *(Sunnybrook Health Sciences Centre, Univ. of Toronto)*; Stanisz, Greg *(Sunnybrook Research Institute, Univ. of Toronto)*; Sadeghi-Naini, Ali* *(York Univ.)*

18:00-19:30 WePOS-12.13
Scribbles for Metric Learning in Histological Image Segmentation
Harada, Daisuke *(Kyushu University)*; Bise, Ryoma* *(Kyushu University)*; Tokunaga, Hiroki *(Kyushu University)*; Ohyama, Wataru *(Kyushu University)*; Oka, Sanae *(National Institute for Basic Biology)*; Fujimori, Toshihiko *(National Institute for Basic Biology)*; Uchida, Seiichi *(Kyushu University)*

18:00-19:30 WePOS-12.14
Gland Segmentation in Histopathology Images based on Deep Networks and Handcrafted Features
Rezaei, Safiyeh *(Isfahan University of Technology, Iran)*; Emami, Ali *(Isfahan University of Technology)*; Zarrabi, Hamidreza *(Isfahan University of Technology)*; Rafiei, Shima *(IUT)*; Najarian, Kayvan *(University of Michigan – Ann Arbor)*; Karimi, Nader *(Isfahan University of Technology)*; Samavi, Shadrokh *(McMaster University)*; Soroushmehr, S.M.Reza* *(University of Michigan, Ann Arbor)*

18:00-19:30 WePOS-12.15
Volume Visualization for Improving CT Lung Nodule Detection
Huang, Adam* *(National Central University)*; Lee, Chung-Wei *(National Taiwan University Hospital)*; Yang, Chung-Yi *(E-Da Hospital)*; Liu, Hon-Man *(Fu Jen Catholic University Hospital)*

WePOS-13**:** 18:00-19:30 Hall B
Micro/Nano-Bioengineering; Cellular/Tissue Engineering and Biomaterials (I) – Poster (Poster Session)

18:00-19:30 WePOS-13.1
Influence of Substrate Stiffness on Human Induced Pluripotent Stem Cells: Preliminary Results
Iberite, Federica* *(Scuola Superiore Sant' Anna)*; Salerno, Marco *(Istituto Italiano di Tecnologia)*; Canale, Claudio *(Dept. of Physics, Univ. of Genoa)*; Rosa, Alessandro *(Sapienza Univ. of Rome)*; Ricotti, Leonardo *(Scuola Superiore Sant'Anna)*

18:00-19:30 WePOS-13.2
Microdevice for Evaluating Ion Channel Expression by Axon-Targeted Recording to Cultured Neurons
Shimba, Kenta* *(The University of Tokyo)*; Sakai, Koji *(University of Tokyo)*; Kotani, Kiyoshi *(University of Tokyo)*; Jimbo, Yasuhiko *(University of Tokyo)*

18:00-19:30 WePOS-13.3
Pilot Study on Fibrin for Chronic Wound Healing
Fernandes, Beatriz* *(Pontifícia Univ. Católica do Paraná)*; Moreschi, Maria Eduarda *(Pontifícia Univ. Católica do Paraná)*; dos Santos, Romilda Prado *(Pontifical Catholic Univ. of Paraná)*; Sellmer, Danielle *(Pontifical Catholic Univ. of Paraná)*

18:00-19:30 WePOS-13.4
Nanocomposite Thin Films based on Polyethylene Vinyl Acetate and Piezoelectric Nanomaterials
Vannozzi, Lorenzo* *(Scuola Superiore Sant'Anna)*; Mariotti, Giulia *(Scuola Superiore Sant'Anna)*; Ricotti, Leonardo *(Scuola Superiore Sant'Anna)*

18:00-19:30 WePOS-13.5
A Scalable Random Access Membrane Displacement Traps Array for Selective Capture and Release of Individual Droplets
Babahosseini, Hesam* *(National Institutes of Health)*; Padmanabhan, Supriya *(University of Maryland)*; Misteli, Tom *(National Cancer Institute, National Institutes of Health)*; DeVoe, Don L. *(University of Maryland)*

18:00-19:30 WePOS-13.6
A Compact Visible Light Spectrometer for Molecular Detection with Spherical Gold Nanoparticles
Niyonambaza, Shimwe Dominique* *(Univ. Laval)*; Boisselier, Elodie *(Univ. Laval)*; Boukadoum, Mounir *(Univ. of Quebec at Montréal)*; Miled, Amine *(Laval Univ.)*

18:00-19:30 WePOS-13.7
High-Performance Nanocrystal Platinum on Hierarchical Microelectrode for Biochemical Sensing
Zeng, Qi *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Zhang, Yi *(University of Southern California & Doheny Eye Institute)*; Wu, Tianzhun* *(Shenzhen Institutes of Advanced Technology (SIAT), Chinese Acade)*

18:00-19:30 WePOS-13.8
Growth Factor Releasing Core-Shell Polymeric Scaffolds for Tissue Engineering Applications
Augustine, Robin *(Qatar University, Doha)*; Zahid, Alap Ali *(Qatar University)*; Mian, Wang *(Northeastern University)*; Thomas, Webster *(Northeastern University)*; Anwarul, Hasan* *(Qatar University, Doha)*

18:00-19:30 WePOS-13.9
Effects of Hydrogel-Fiber on Cystic Cavity after Spinal Cord Injury
Xijie, Zhou *(Dept. of Neurosurgery, University of Maryland School of Med)*; Du, Jian *(University of Maryland School of Medicine)*; Jia, Xiaofeng* *(University of Maryland School of Medicine, Johns Hopkins University)*

WePOS-14**:** 18:00-19:30 Hall B
Micro/Nano-Bioengineering; Cellular/Tissue Engineering and Biomaterials (II) – Poster (Poster Session)

18:00-19:30 WePOS-14.1
High-Throughput Droplet Array Generated by Roller Nanoimprint Lithography with Biomimetic Surfaces
Peng, Zhiting *(Chinese Academy of Sciences)*; Wu, Tianzhun* *(Shenzhen Institutes of Advanced Tech. (SIAT), Chinese Academy)*

18:00-19:30 WePOS-14.2
Optimization of the Single Emulsion Method for Encapsulation of a Cancer Drug in Nanoparticles
Holley, Claire *(Univ. of Houston)*; Sinquefield, Bridgett *(Univ. of Houston)*; Majd, Sheereen* *(Univ. of Houston)*

18:00-19:30 WePOS-14.3
Requirements for Documenting Electrical Cell Stimulation Experiments for Replicability and Numerical Modeling
Budde, Kai* *(University of Rostock)*; Zimmermann, Julius *(University of Rostock)*; Neuhaus, Elisa *(University of Rostock)*; Schröder, Max *(University of Rostock)*; Uhrmacher, Adelinde *(Institute of Computer Science, University of Rostock)*; van Rienen, Ursula *(University of Rostock)*

18:00-19:30 WePOS-14.4
Azopolymer based Nanoparticles for Phototriggered Drug Delivery
Perez-Buitrago, Sandra* *(Pontificia Universidad Católica del Perú)*; Mena-Giraldo, Pedro *(Max Planck Tandem Group in Nanobioengineering, Universidad de An)*; Pinal, Rodolfo *(Industrial & Physical Pharmacy Dept., Purdue University)*; Hoyos, Lina M. *(Universidad Pontificia Bolivariana)*

18:00-19:30 WePOS-14.5
Biocompatibility and Thermodynamic Properties of PEGDA and Two of Its Co-Polymers
Rekowska, Natalia* *(Rostock University Medical Centre)*; Arbeiter, Daniela *(Rostock University Medical Centre)*; Brietzke, Andreas *(Rostock University Medical Centre)*; Konasch, Jan *(Rostock University)*; Riess, Alexander *(University of Rostock)*; Mau, Robert *(Rostock University)*; Eickner, Thomas *(Rostock University Medical Centre)*; Seitz, Hermann *(University of Rostock)*; Grabow, Niels *(Rostock University Medical Centre)*; Teske, Michael *(Rostock University Medical Centre)*

18:00-19:30 WePOS-14.6
Investigation of Bifurcation Effect on Various Microfluidic Designs for Blood Separation
Hamad, Eyad* *(German Jordanian Univ.)*; Sawalmeh, Basil *(German Jordanian Univ.)*; Al Mhawsh, Abdulrahman *(German Jordan Univ.)*; Mansour, Maher *(German Jordan Univ.)*; Awad, Mohamad *(German Jordan Univ.)*; Al-Halhouli, Alaaldeen *(German Jordan Univ.)*; Al-Gharabli, Samer *(Pharmaceutical & Chemical Engineering Dept., German Jorda)*

18:00-19:30 WePOS-14.7
Mechanical Properties of Double Network Poly (Acrylic Acid) based Hydrogels for Potential use as a Biomaterial
Udayanandana, Ruwan* *(University of Moratuwa)*; Silva, Pujitha *(University of Moratuwa, Kairos Sensing)*; Mudiyanselage, Thilini Kuruwita *(University of Sri Jayewardenepura)*

18:00-19:30 WePOS-14.8
Long-Term Safety of the Carbon Fiber as an Implant Scaffold Material
Baba, Kazutomo* *(Univ. of Tsukuba)*; Mikhailov, Andrey *(Univ. of Tsukuba)*; Sankai, Yoshiyuki *(Univ. of Tsukuba)*

18:00-19:30 WePOS-14.9
EEG-Hat with Candle-Like Microneedle Electrode
Kawana, Takumi* *(Keio Univ.)*; Yoshida, Yuri *(Keio Univ.)*; Kudo, Yuta *(Keio Univ.)*; Miki, Norihisa *(Univ.)*

WePOS-15: 18:00-19:30 Hall B
Bio-Electric Sensor Systems – Poster (Poster Session)

18:00-19:30 WePOS-15.1
Portable Device based on Microwave Resonator for Noninvasive Blood Glucose Monitoring
Garcia Martinez, Hector *(Miguel Hernández University of Elche)*; Juan, Carlos G.* *(Miguel Hernandez University)*; Avila-Navarro, Ernesto *(Miguel Hernandez University)*; Bronchalo, Enrique *(Miguel Hernandez University)*; Sabater-Navarro, Jose Maria *(Universidad Miguel Hernandez)*

18:00-19:30 WePOS-15.2
Sensitivity Enhancement of Point-of-Care for Cardiac Markers Detection using Micro-Impedimetric Immunosensor Arrays
Hamad, Eyad* *(German Jordanian University)*; Al-Gharabli, Samer *(Pharmaceutical & Chemical Engineering Dept., German Jorda)*; McLaughlin, James *(University of Ulster)*

18:00-19:30 WePOS-15.3
The Optimization of Analog Front-End for Fully Integrated Wearable Sweat Sensor
Kim, Ikhwan *(Fudan University)*; Jin, Han *(Fudan University)*; Jiang, Yizhou *(Fudan University)*; Qin, Yajie* *(Fudan University)*

18:00-19:30 WePOS-15.4
Monitoring and Modulating the Gastrointestinal Activity: A Wirelessly Programmable System with Impedance Measurement Capability
Javan-Khoshkholgh, Amir *(New York Institute of Technology)*; Kang, Qi *(New York Institute of Technology)*; Abumahfouz, Nadi *(New York Institute of Technology)*; Farajidavar, Aydin* *(New York Institute of Technology)*

18:00-19:30 WePOS-15.5
Development of a Biosensor based on Graphene for Detection of Physiological Signals
Zi, Xingyu *(Northeastern Univ.)*; Xie, Liping *(Northeastern Univ.)*; Meng, Qingshi *(Shenyang Aerospace Univ.)*; Liu, Zhiwen *(Shenyang Aerospace Univ.)*; Xu, Lisheng* *(Northeastern Univ.)*

18:00-19:30 WePOS-15.6
Design and Characterisation of a Graphene-Based FET for Ultrasensitive Detection of Clinical Biomarkers
Santos, Simão *(University Southeast Norway)*; Yang, Shuai *(Congqing Technology & Business University)*; Pires, Nuno M. M. *(University of Southeast Norway and Institute of Applied Micr)*; Yang, Zhaochu *(University of Southeast Norway)*; Dong, Tao* *(University Southeast Norway – HSN, TekMar)*

18:00-19:30 WePOS-15.7
Optical Fiber Sensors for Monitoring in Critical Care
Morgan, Stephen Peter* *(Univ. of Nottingham)*; Korposh, Serhiy *(Univ. of Nottingham)*; Liu, LiangLiang *(Univ. of Nottingham)*; Hernandez, Francisco Ulises *(Univ. of Nottingham)*; Correia, Ricardo *(Univ. of Nottingham)*; Norris, Andrew *(Nottingham Univ. Hospitals Trust)*; Sinha, Rishie *(Nottingham Univ. Hospitals Trust)*; Hayes-Gill, Barrie *(Univ. of Nottingham)*; Piletsky, Sergey *(Univ. of Leicester)*; Canfarotta, Francesco *(MIP Diagnostics)*; Piletska, Elena *(Univ. of Leicester)*; Grillo, Fabiana *(Univ. of Leicester)*

18:00-19:30 WePOS-15.8
Continuous ECG Monitoring Trial for Outpatient – Patient Receptiveness and Signal Accuracy
Wong, David Liang Tai *(National University of Singapore)*; Sathappan, Selva Muthu Kumaran *(NUS)*; Yu, Jufeng *(National University of Singapore)*; Heng, Chun Huat *(National University of Singapore)*; Kojodjojo, Pipin *(National University Hospital)*; Feng, Mengling* *(Massachusetts Institute of Technology)*

18:00-19:30 WePOS-15.9
A Simple and Stable Load Control Algorithm for Time-Varying Harvested Energy in Miniaturized Implantable Devices
Bae, ChiSung* *(Samsung Advanced Institute of Technology)*

18:00-19:30 WePOS-15.10
Non-Contact Capacitive Ballistocardiogram Measurements using In-Bed Fabric Sheet Electrode for Blood Pressure Estimation
Sakajiri, Yuichiro* *(Tokyo Denki Univ.)*; Nakamura, Hajime *(Tokyo Denki Univ.)*; Ueno, Akinori *(Tokyo Denki Univ.)*

WePOS-16: 18:00-19:30 Hall B
Chemical and Biological Sensors – Poster (Poster Session)

18:00-19:30 WePOS-16.1
A Biosensor for the Detection of Acetylcholine and Diazinon
Herrera, Elisa G *(Univ. of Pisa, Dept. of Chemistry & Industrial Chemis)*; Bonini, Andrea *(Univ. of Pisa, Dept. of Chemistry & Industrial Chemi)*; Vivaldi, Federico *(Univ. of Pisa, Dept. of Chemistry & Industrial Chemis)*; Melai, Bernardo *(Dept. of Chemistry & Industrial Chemistry, Univ. of)*; Salvo, Pietro* *(National Research Council)*; Poma, Noemi *(Univ. of Pisa, Dept. of Chemistry & Industrial Chemis)*; Santalucia, Delio *(Univ. of Pisa, Dept. of Chemistry & Industrial Chemis)*; Kirchhain, Arno *(Univ. of Pisa, Dept. of Chemistry & Industrial Chemis)*; Di Francesco, Fabio *(Univ. of Pisa)*

18:00-19:30 WePOS-16.2
A Single-Chain Templated Polymer-Based Target Receptor as a New Platform for Label-Free Selective Electrochemical Sensing
Dutta, Gaurab *(University of New Hampshire)*; Yang, Rongfang *(University of New Hampshire)*; Ahmad, Habib *(University of New Hampshire)*; Si, Bo *(University of New Hampshire)*; Csoros, John *(University of New Hampshire)*; Ren, Tianyu *(University of New Hampshire)*; Halpern, Jeffrey *(University of New Hampshire)*; Seitz, W. Rudolf *(University of New Hampshire)*; Song, Edward* *(University of New Hampshire)*

18:00-19:30 WePOS-16.3
A Hybrid Glucose Fuel Cell based on Electrodeposited Carbon Nanotubes and Platinized Carbon
Slaughter, Gymama* *(Univ. of Maryland Baltimore County)*; Kulkarni, Tanmay *(Univ. of Maryland Baltimore County)*

18:00-19:30 WePOS-16.4
Computational Evaluation of Suspended Microcantilever and Microfluidic Channel
Gavalas, Iakovos *(Unit of Medical Technology & Intelligent Information Systems)*; Fotiadis, Dimitrios I.* *(Univ. of Ioannina)*

18:00-19:30 WePOS-16.5
Low Cost Wavelength Specific Water Quality Measurement Technique
Nayeem, Huzaifa *(International Institute of Information Technology, Hyderabad)*; Syed, Azeemuddin* *(International Institute of Information & Technology, Hyderabad)*; Mohammed, Zafar Ali Khan *(Indian Institute of Technology Hyderabad)*

18:00-19:30 WePOS-16.6
Non-Invasive Blood Glucose Sensor: A Feasibility Study
Lopez Albalat, Alvaro *(Univ. Politècnica de València)*; Sanz Alaman, Maria Begoña *(Univ. Politècnica de València)*; Dejoz Diez, Maria Cristina *(Univ. Politècnica de València)*; Martinez-Millana, Antonio* *(Univ. Politècnica de València)*; Traver, Vicente *(ITACA – Univ. Politècnica de València)*

18:00-19:30 WePOS-16.7
Dielectric Permittivity of Human Blood of Different Lactate Levels Measured at Millimeter Waves
Koutsoupidou, Maria *(King's College London)*; Cano-Garcia, Helena* *(King's College London, Medical Wireless Sensing Ltd.)*; Pricci, Roberto L. *(MediWise, Medical Wireless Sensing Ltd.)*; Saha, Shimul C. *(MediWise, Medical Wireless Sensing Ltd.)*; Rana, Srinivas *(King's College London)*; Ancu, Oana *(Institute of life Sciences, Roehampton University)*; Draicchio, Fulvia *(Institute of life Sciences, Roehampton University)*; Mackenzie, Richard *(Institute of life Sciences, Roehampton University)*; Kosmas, Panagiotis *(Kings College London)*; Kallos, Efthymios *(MediWise, Medical Wireless Sensing Ltd.)*

WePOS-17: 18:00-19:30 Hall B
Instrumentation for Physiological Monitoring – Poster (Poster Session)

18:00-19:30 WePOS-17.1
Wireless Low-Cost Bioimpedance Measurement Device for Lung Capacity Screening
Pino, Esteban J* *(Universidad de Concepcion)*; Gomez, Britam *(University of Concepcion)*; Monsalve, Emyrna *(Universidad de Concepción)*; Aqueveque, Pablo *(University of Concepcion)*

18:00-19:30 WePOS-17.2
Application of Signed Distance Function Neural Network in Real-Time Feet Tracking
Foo, Ming Jeat* *(Nanyang Technological Univ.)*; Tiseo, Carlo *(Univ. of Edinburgh)*; Ang, Wei Tech *(Nanyang Technological Univ.)*

18:00-19:30 WePOS-17.3
Pitfall of Heart Rate Variability Analyses for Autonomic Nervous System Activity with Photoplethysmography
Nakamura, Hideo* *(Osaka Electro-Communication Univ)*; Tagawa, Munenori *(Osaka electro-communication University)*

18:00-19:30 WePOS-17.4
Emotion Classification in Response to Tactile Enhanced Multimedia using Frequency Domain Features of Brain Signals
Raheel, Aasim *(Univ. of Engineering & Technology Taxila)*; Majid, Muhammad *(Univ. of Engineering & Technology, Taxila)*; Anwar, Syed* *(Univ. of Central Florida)*; Bagci, Ulas *(Univ. of Central Florida)*

18:00-19:30 WePOS-17.5
In Vitro Quantification of Lactate in Phosphate Buffer Saline (PBS) Samples
Budidha, Karthik* *(City, Univ. of London)*; Mamouei, MohammadHossein *(City, Univ. of London)*; Baishya, Nystha *(City, Univ. of London)*; Vadgama, Pankaj *(Queen Mary Univ. of London)*; Kyriacou, Panayiotis *(City Univ. London)*

18:00-19:30 WePOS-17.6
EEG-Based Emotion Recognition with Similarity Learning Network
Wang, Yixin *(Institute of Automation, Chinese Academy of Science)*; Qiu, Shuang *(Institute of Automation, Chinese Academy of Science)*; Li, Jinpeng *(Research Center for Brain-inspired Intelligence, Institute of Au)*; Ma, Xuelin *(Institute of Automation, Chinese Academy of Sciences)*; Liang, Zhiyue *(Capital Normal University)*; Li, Hui *(Dept. of Educational technology, Capital Normal University)*; He, Huiguang* *(Institute of Automation, Chinese Academy of Sciences)*

18:00-19:30 WePOS-17.7
UKF Magnetometer-Free Sensor Fusion for Pelvis Pose Estimation during Treadmill Walking
Cardarelli, Stefano* *(Univ. Politecnica delle Marche)*; Mengarelli, Alessandro *(Univ. Politecnica delle Marche)*; Tigrini, Andrea *(Univ. Politecnica delle Marche)*; Strazza, Annachiara *(Univ. Politecnica delle Marche)*; Di Nardo, Francesco *(Polytechnic University of Marche)*; Verdini, Federica *(Univ. Politecnica delle Marche)*; Fioretti, Sandro *(Univ. Politecnica delle Marche)*

18:00-19:30 WePOS-17.8
A Wearable RF Sensor for Monitoring Respiratory Patterns
Sharma, Pragya* *(Cornell University)*; Hui, Xiaonan *(Cornell University)*; Kan, Edwin *(Cornell University)*

WePOS-18: 18:00-19:30 Hall B
Modeling and Analysis in Sensors and Wearable Systems – Poster (Poster Session)

18:00-19:30 WePOS-18.1
Wearable-Based Temporal Parameters of Gait in Circuitous Routes under Dual-Task Conditions
Caramia, Carlotta *(Roma Tre Univ.)*; Bibbo, Daniele *(Universita' degli Studi Roma TRE)*; D'Anna, Carmen *(Roma TRE Univ. – Engineering Dept.)*; De Marchis, Cristiano *(Università degli Studi Roma Tre)*; Ranaldi, Simone *(Roma Tre Univ.)*; Varrecchia, Tiwana *(Roma Tre Univ.)*; Conforto, Silvia *(Univ. Roma TRE)*; Schmid, Maurizio* *(Roma Tre Univ.)*

18:00-19:30 WePOS-18.2
A Pilot Study on Continuous Breaststroke Phase Recognition with Fast Training based on Lower-Limb Inertial Signals
Zheng, Enhao* *(Institute of Automation, Chinese Academy of Sciences)*; Zhang, Zhendong *(Peking University)*; Mai, Jingeng *(Peking University)*; Wang, Qining *(Peking University)*; Qiao, Hong *(Institute of Automation, Chinese Academy of Sciences)*

18:00-19:30 WePOS-18.3
Magnetometer-Free Realtime Inertial Motion Tracking by Exploitation of Kinematic Constraints in 2-DoF Joints
Laidig, Daniel* *(TU Berlin)*; Lehmann, Dustin *(TU Berlin)*; Begin, Marc-Andre *(Sherbrooke University)*; Seel, Thomas *(Technische Universität Berlin)*

18:00-19:30 WePOS-18.4
Turning the Finger into a Writing Tool
Sakuma, Katsuyuki* *(IBM T.J. Watson Research Center)*; Blumrosen, Gaddi *(Hebrew University)*; Rice, John J *(IBM T.J. Watson Research Center)*; Rogers, Jeff *(IBM T.J. Watson Research Center)*; Knickerbocker, John *(IBM T.J. Watson Research Center)*

18:00-19:30 WePOS-18.5
Hierarchical Classification Scheme for Real-Time Recognition of Physical Activities and Postural Transitions using Smartphone Inertial Sensors
Talha, Sid Ahmed Walid* *(IMT Lille Douai)*; Fleury, Anthony *(IMT Lille Douai)*; Lecoeuche, Stéphane *(IMT Lille Douai)*

18:00-19:30 WePOS-18.6
Classification of Perceived Human Stress using Physiological Signals
Arsalan, Aamir *(University of Engineering & Technology, Taxila)*; Majid, Muhammad *(University of Engineering & Technology, Taxila)*; Anwar, Syed* *(University of Central Florida)*; Bagci, Ulas *(University of Central Florida)*

18:00-19:30 WePOS-18.7
Physical Activity based Classification of Serious Mental Illness Group Participants in the UK Biobank using Ensemble Dense Neural Networks
Zebin, Tahmina *(Univ. of Manchester)*; Peek, Niels *(Univ. of Manchester)*; Casson, Alexander James* *(Univ. of Manchester)*

18:00-19:30 WePOS-18.8
Exploring Cortex Connectivity Signal in Sensory Response to Odors
Zhang, Zhuo *(A*STAR)*; Zhang, Haihong *(Institute for Infocomm Research)*; Zhang, Lu *(Procter & Gamble International Operations SA SG Branch)*; Guan, Cuntai* *(Nanyang Technological Univ.)*

WePOS-19: 18:00-19:30 Hall B
New Sensing Technologies – Poster (Poster Session)

18:00-19:30 WePOS-19.1
Improved Acquisition of Vibroarthrographic Signals of the Knee Joint
Klemm, Lisa *(Otto-von-Guericke Univ.)*; Sühn, Thomas* *(Otto-von-Guericke-Univ. of Magdeburg)*; Spiller, Moritz *(Otto-von-Guericke Univ. Magdeburg)*; Illanes, Alfredo *(Otto-von-Guericke Univ. of Magdeburg)*; Boese, Axel *(Dept. of Medical Engineering, Otto-von-Guericke-Univ.)*; Friebe, Michael *(Otto-von-Guericke-Univ.)*

18:00-19:30 WePOS-19.2
Comparison of Silence Removal Methods for the Identification of Audio Cough Events
Cohen-McFarlane, Madison* *(Carleton University)*; Goubran, Rafik A. *(Carleton University)*; Knoefel, Frank-Dietrich *(Bruyere Continuing Care, University of Ottawa, Carleton Universi)*

18:00-19:30 WePOS-19.3
A Wearable Daily Respiration Monitoring System using PDMS-Graphene Compound Tensile Sensor for Adult
Chen, Hongyu *(Technische Univ. Eindhoven – TU/e)*; Bao, Shenjie *(Fudan Univ.)*; Ma, Jianhua *(Molecular Engineering of Polymers, Dept. of Macromolecular)*; Peng, Wang *(Molecular Engineering of Polymers, Dept. of Macromolecular)*; Hongbin, Lu *(Molecular Engineering of Polymers, Dept. of Macromolecular)*; Bambang Oetomo, Sidarto *(Máxima Medical Center)*; Chen, Wei* *(Fudan Univ.)*

18:00-19:30 WePOS-19.4
Respiratory Signal of Bathing Person – Preliminary Study
Bujnowski, Adam* *(Gdansk University of Technology)*; Osiński, Kamil *(Gdansk University of Technology)*; Przystup, Piotr *(Gdansk University of Technology)*; Wtorek, Jerzy *(Gdansk University of Technology)*

18:00-19:30 WePOS-19.5
Balanced Adjustable Mirrored Current Source with Common Mode Feedback and Output Measurement for Bioimpedance Applications
Klum, Michael* *(Technische Universität Berlin)*; Schmidt, Malte *(Technische Universität Berlin)*; Klaproth, Joel *(Technische Universität Berlin)*; Pielmus, Alexandru Gabriel *(Technische Universität Berlin)*; Tigges, Timo *(Technical University Berlin)*; Orglmeister, Reinhold *(Technische Universität Berlin)*

18:00-19:30 WePOS-19.6
Stretchability Enhancement of Electronics According to Three Shapes of Substrate Fabricated by Thermal Reflow Process
Lee, Ho Jin* *(Seoul National Univ.)*; Seo, Min-won *(Seoul National Univ.)*; Yi, Jungho *(Seoul National Univ.)*; Seo, Jong Mo *(Seoul National Univ., School of Engineering)*

18:00-19:30 WePOS-19.7
Electrode Design on Plastic Substrates using Laser Patterned Double-Sided Tape and Gold Leaf
Jeong, Hyunbeen* *(Seoul National University)*; Seo, Jong Mo *(Seoul National University, School of Engineering)*

18:00-19:30 WePOS-19.8
Nightingale V2: Low-Power Compact-Sized Multi-Sensor Platform for Wearable Health Monitoring
Lee, Seulki* *(imec)*; Grundlehner, Bernard *(Holst Centre)*; Garcia Van der Westen, Roberto *(imec / Holst Centre)*; Polito, Salvatore *(Holst Centre/imec)*; Van Hoof, Chris *(imec)*

18:00-19:30 WePOS-19.9
Wireless Sensor Platform for Detection of Vital Parameters of Bats
Duda, Niklas* *(Friedrich-Alexander-Univ. Erlangen-Nuremberg)*; Ripperger, Simon *(Museum fuer Naturkunde – Leibniz Institute for Evolution & Bio)*; Tschapka, Marco *(Univ. of Ulm, Institute of Evolutionary Ecology & Conserv)*; Mayer, Frieder *(Museum fuer Naturkunde – Leibniz Institute for Evolution & Bio)*; Weigel, Robert *(Univ. of Erlangen Nuremberg)*; Koelpin, Alexander *(Chair for Electronics & Sensor Systems, Brandenburg Univ.)*

18:00-19:30 WePOS-19.10
Development of an Electrostatic Oral Cavity Generator Driven by Occlusal Force
Ichikawa, Kenta* *(Tokyo Institute of Technology)*; Hijikata, Wataru *(Tokyo Institute of Technology)*

WePOS-20: 18:00-19:30 Hall B
Assistive Technologies for Aging, Rehabilitation, and Disabilities – Poster (Poster Session)

18:00-19:30 WePOS-20.1
Improving Accessibility for People with Disabilities: A Case Study on Inclusive Beach Tourism
Mayordomo-Martínez, Diego *(Technical Univ. of Cartagena)*; Sánchez-Aarnoutse, Juan-Carlos *(Technical Univ. of Cartagena)*; Merzoukid, Khalil *(Technical Univ. of Cartagena)*; García-Hernández, Manuel *(FAMDIF)*; Carrillo de Gea, Juan Manuel* *(Univ. of Murcia)*; García-Berná, José Alberto *(Univ. of Murcia)*; Fernandez Aleman, Jose Luis *(Univ. of Murcia)*; Idri, Ali *(Mohammed V Univ. Rabat)*; García-Mateos, Ginés *(Univ. of Murcia)*

18:00-19:30 WePOS-20.2
A Multiscript Gaze-Based Assistive Virtual Keyboard
Cecotti, Hubert* *(California State University Fresno)*; Meena, Yogesh Kumar *(Ulster University)*; Bhushan, Braj *(IIT Kanpur)*; Dutta, Ashish *(Indian Institute of Technology Kanpur)*; Prasad, Girijesh *(University of Ulster)*

18:00-19:30 WePOS-20.3
Eye Gaze-Based Early Intent Prediction Utilizing CNN-LSTM
Koochaki, Fatemeh *(Rutgers University)*; Najafizadeh, Laleh* *(Rutgers University)*

18:00-19:30 WePOS-20.4
Evaluation of a Mental Care System for Patients Recuperating in a Sterile Room after Hematopoietic Cell Transplantation
Joko, Shiho* *(Graduate School of Robotics & Design, Osaka Institute of Techno)*; Ohsuga, Mieko *(Osaka Institute of Technology)*; Tada, Yuma *(Dept. of Hematology, Osaka International Cancer Institute)*; Ishihara, Jun *(Dept. of Hematology, Osaka International Cancer Institute)*

WePOS-21: 18:00-19:30 Hall B
Behavioral Health Informatics – Poster (Poster Session)

18:00-19:30 WePOS-21.1
Effect and Safety Evaluation of XETHRU X4 Radar Radiation on Sexual Hormone Levels in Mice
Yaolei, Zhang *(Center Laboratory, The General Hospital of Western Theater Comma)*; Xin, Guo *(Center Laboratory, The General Hospital of Western Theater Comma)*; Ting, Li *(Center Laboratory, The General Hospital of Western Theater Comma)*; Zhang, Ming *(Center Laboratory, The General Hospital of Western Theater Comma)*; Feng, yaxing *(Center Laboratory, The General Hospital of Western Theater Comma)*; Li, Wei *(Center Laboratory, The General Hospital of Western Theater Comma)*; Zhu, Xiaoyan *(Center Laboratory, The General Hospital of Western Theater Comma)*; Gu, Rui *(Center Laboratory, The General Hospital of Western Theater Comma)*; Zhou, Longfu* *(The General Hospital of Western Theater Command)*

18:00-19:30 WePOS-21.2
A Sensor-Enabled Digital Trier Social Stress Test in an Enterprise Context
Gavas, Rahul *(TCS Research & Innovation, Tata Consultancy Services Ltd.)*; Das, Deepan *(TATA Consultancy Services)*; Bhattacharjee, Tanuka *(Research & Innovation, TATA Consultancy Services, India)*; Basaralu Sheshachala, Mithun *(Tata Consultancy Services)*; Kumar Hissaria, Lalit *(Manhattan Associates)*; Vempada, Ramu Reddy *(TCS Research & Innovation Lab)*; Viraraghavan, Venkata Subramanian* *(Tata Consultancy Services Limited)*; Dutta Choudhury, Anirban *(Tata Consultancy Services Ltd.)*; Muralidharan, Kartik *(Tata Consultancy Services Limited)*; Ramakrishnan, Ramesh Kumar *(TATA Consultancy Services)*; P, Balamuralidhar *(TATA Consultancy Services)*; Pal, Arpan *(Tata Consultancy Services)*

18:00-19:30 WePOS-21.3
An Unobtrusive Stress Recognition System for the Smart Office
Yu, Bin* *(Eindhoven Univ. of Tech.)*; Zhang, Biyong *(BOBO Tech. Ltd.)*; An, Pengcheng *(Eindhoven Univ. of Tech.)*; Xu, Lisheng *(Northeastern Univ.)*; Xue, Mengru *(Eindhoven Univ. of Tech.)*; Hu, Jun *(Eindhoven Univ. of Tech.)*

18:00-19:30 WePOS-21.4
Multiple-Instance Learning for Sparse Behavior Modeling from Wearables: Toward Dementia-Related Agitation Prediction
Alam, Ridwan* *(Univ. of Virginia)*; Bankole, Azziza *(Virginia Tech Carilion School of Medicine)*; Anderson, Martha *(Virginia Tech Carilion School of Medicine)*; Lach, John *(Univ. of Virginia)*

18:00-19:30 WePOS-21.5
Portable, Low Cost Smartphone-Based Potentiostat System for the Salivary α-Amylase Detection in Stress Paradigm
Ma, Lei *(Nantong Univ.)*; Ju, Feng *(Nantong Univ.)*; Tao, Chunling *(Nantong Univ.)*; Shen, Xiaoyan* *(Nantong Univ.)*

18:00-19:30 WePOS-21.6
Cluster Analysis of Alcohol Consumption during Pregnancy in the Safe Passage Study
Pini, Nicolò* *(Politecnico di Milano)*; Shuffrey, Lauren C. *(Columbia Univ. Medical Center)*; Lucchini, Maristella *(Politecnico di Milano)*; Sania, Ayesha *(Dept. of Psychiatry & Pediatrics, Columbia Univ. Col)*; Nelson, Morgan *(Avera Research Institute)*; Nugent, J. David *(New York State Psychiatric Institute, Teachers College, Columbia)*; Ochoa, Timothy *(New York State Psychiatric Institute)*; Odendaal, Hein *(Stellenbosch Univ.)*; Fifer, William P. *(Dept. of Psychiatry & Pediatrics, Columbia Univ. Col)*; Myers, Michael *(Columbia Univ. Medical Center)*; Elliott, Amy *(Avera Research Institute)*

WePOS-22: 18:00-19:30 Hall B
Bioinformatics – Poster (Poster Session)

18:00-19:30 WePOS-22.1
The "Prisoner's Dilemma" in the Tumor Biology Context: The Warburg Effect, Proliferation Dynamics and Equilibria
Lambrou, George I. *(National & Kapodistrian Univ. of Athens)*; Sarafidis, Michail* *(National Technical Univ. of Athens)*; Bizopoulos, Paschalis *(National Technical Univ. of Athens)*; Iliopoulou, Dimitra *(National Technical Univ. of Athens)*; Paidi, Anna *(National Technical Univ. of Athens)*; Koutsouris, Dimitrios *(Biomedical Engineering Laboratory, School of Electrical & Comp)*

18:00-19:30 WePOS-22.2
Bioinformatics Analysis Reveals Ki-67 Specific microRNA Functions in Pediatric Embryonal Tumors
Braoudaki, Maria *(National & Kapodistrian Univ. of Athens, First Dept.)*; Sarafidis, Michail* *(National Technical Univ. of Athens)*; Koutsouris, Dimitrios *(Biomedical Engineering Laboratory, School of Electrical & Comp)*; Koutsouri, Georgia *(Biomedical Engineering Laboratory, National Technical Univ.)*; Lambrou, George I. *(National & Kapodistrian Univ. of Athens)*

18:00-19:30 WePOS-22.3
Multi-Omic Pathway and Network Analysis to Identify Biomarkers for Hepatocellular Carcinoma
Barefoot, Megan *(Georgetown University Medical Center)*; Varghese, Rency *(Georgetown University Medical Center)*; Zhou, Yuan *(Georgetown University)*; Di Poto, Cristina *(Georgetown University)*; Ferrarini, Alessia *(Georgetown University)*; Ressom, Habtom* *(Georgetown University)*

18:00-19:30 WePOS-22.4
Protein Subcellular Localization Prediction based on Internal Micro-Similarities of Markov Chains
Alaa, Asem* *(Cairo Univ., Faculty of Engineering)*; Eldeib, Ayman M. *(Cairo Univ.)*; Metwally, Ahmed *(Stanford Univ.)*

WePOS-23: 18:00-19:30 Hall B
Clinical Information and Decision Support Methods and Systems – Poster (Poster Session)

18:00-19:30 WePOS-23.1
Characterization of Physicians Workload in a Reference Center for the Treatment of Thrombotic and Bleeding Disorders
Rosati, Samanta *(Politecnico di Torino)*; Valeri, Federica *(Città della Salute e della Scienza di Torino)*; Borchiellini, Alessandra *(Città della Salute e della Scienza di Torino)*; Gianfreda, Claudia Maria *(Politecnico di Torino)*; Balestra, Gabriella* *(Politecnico di Torino)*

18:00-19:30 WePOS-23.2
Nutrition Adherence in Critically Ill Patients; How is Nutritional Intake within the 1st Week of Hospitalization Affecting the Patient's Outcome?
Chytas, Achilleas *(Lab of Medical Informatics, Medical School, Aristotle Univ.)*; Vaporidi, Katerina *(Medical School, Univ. of Crete)*; Soundoulounaki, Stella *(Medical School, Univ. of Crete)*; Georgopoulos, Dimitris *(Dept. of Intensive Care Medicine, Univ. Hospital of He)*; Maglaveras, Nikolaos *(Aristotle Univ. of Thessaloniki)*; Chouvarda, Ioanna* *(Aristotle Univ.)*

18:00-19:30 WePOS-23.3
Using Ensemble Classification Methods in Lung Cancer Disease
Hosni, Mohamed *(ENSIAS, Mohammed V Univ.)*; Carrillo de Gea, Juan Manuel* *(Univ. of Murcia)*; Idri, Ali *(Mohammed V Univ. Rabat)*; Fernandez Aleman, Jose Luis *(Univ. of Murcia)*; García-Berná, José Alberto *(Univ. of Murcia)*

18:00-19:30 WePOS-23.4
An Accurate Data Preparation Approach for the Prediction of Mortality in ACLF Patients using the CANONIC Dataset
Sanchez Garcia, Moises Noe* *(IBM)*; Doyle, Gordon *(IBM)*; Ranco, Gabriele *(IBM)*; Agarwal, Banwari *(Royal Free Hospital)*; Arroyo, Vicente *(EF Clif)*; Saliba, Faouzi *(Hospital paul Brousse)*; Garcia Lopez, Elisabet *(EFClif)*; Pavesi, Marco *(European Foundation for the Study of Chronic Liver Failure (EF-C)*; Jalan, Rajiv *(UCL)*; Fernandez, Javier *(Liver ICU, Hospital Clinic Barcelona, Catalonia)*; Bañares, Rafael *(Hospital General Univ. Gregorio Marañón)*; Mookerjee, Rajeshwar Prosad *(Univ. College London)*

18:00-19:30 WePOS-23.5
Detection of Abnormal Segments in Finger Tapping Waveform using One-Class SVM
Sano, Yuko* *(Hitachi Co. Ltd.)*; Yin, Ying *(Hitachi China R&D)*; Mizuguchi, Tomohiko *(Maxell, Ltd.)*; Kandori, Akihiko *(Hitachi Ltd.)*

18:00-19:30 WePOS-23.6
KardiaSoft Architecture – A Software Supporting Diagnosis and Therapy Monitoring of Heart Failure Patients Exploiting Saliva Biomarkers
Tripoliti, Evanthia *(Univ. of Ioannina)*; Ioannidou, Pinelopi *(Dept. of Biomedical Research, Institute of Molecular Biolog)*; Toumpaniaris, Petros *(National Technical Univ. of Athens)*; Bechlioulis, Aris *(Michaelidion Cardiac Center, Univ. of Ioannina, & 2nd Dep)*; Rammos, Aidonis *(2nd Dept. of Cardiology, Univ. of Ioannina)*; Gallagher, Joseph *(Univ. College Dublin, National Univ. of Ireland, Belfi)*; Salvo, Pietro *(National Research Council)*; Goletsis, Yorgos *(Univ. of Ioannina)*; Naka, Katerina *(Univ. of Ioannina)*; Abdelhamid, Errachid *(Université de Lyon, Institut de Sciences Analytiques (ISA))*; Fotiadis, Dimitrios I.* *(Univ. of Ioannina)*

18:00-19:30 WePOS-23.7
Using Machine Learning Models to Classify Stroke Risk Level based on National Screening Data
Li, XueMeng *(Academy of Military Medical Sciences)*; Bian, Di *(Xi'an University of Science & Technology)*; Yu, Jinghui *(Academy of Military Medical Sciences)*; Mao, Huajian *(Academy of Military Medical Sciences of Chinese PLA)*; Li, Mei *(China Stroke Data Center)*; Zhao, Dongsheng* *(Institute of Health Service & Medical Information, Academy of)*

18:00-19:30 WePOS-23.8
Development of Objective Evidence in Rorschach Ink Blot Test: An Eye Tracking Study
Roy, Anup Kumar* *(IIT Kharagpur)*; Nasreen, Shazia *(IIT Kharagpur)*; Majumder, Debabrata *(IIT Kharagpur)*; Mahadevappa, Manjunatha *(Indian Institute of Technology Kharagpur)*; Guha, Rajlakshmi *(IIT Kharagpur)*; Mukhopadhyay, Jayanta *(Dept. of Computer Science & Engineering, IIT Kharagpur)*

18:00-19:30 WePOS-23.9
SmartHypnos: Developing a Toolbox for Polysomnographic Data Visualization and Analysis
Chriskos, Panteleimon* *(Aristotle Univ. of Thessaloniki)*; Frantzidis, Christos *(Aristotle Univ. of Thessaloniki)*; Gkivogkli, Polyxeni *(Aristotle Univ. of Thessaloniki)*; Papanastasiou, Emmanouil *(Aristotle Univ. of Thessaloniki)*; Kourtidou-Papadeli, Chrysoula *(Greek Aerospace Medical Association)*; Bamidis, Panagiotis *(Aristotle Univ.)*

18:00-19:30 WePOS-23.10
Architecture for a Multimodal and Domain-Independent Clinical Decision Support System Software Development Kit
Muro, Naiara* *(Vicomtech)*; Larburu, Nekane *(Vicomtech)*; Torres, Jordi *(Vicomtech)*; Kerexeta, Jon *(Vicomtech)*; Artola, Garazi *(Vicomtech)*; Arrúe, Mónica *(Vicomtech)*; Macía, Iván *(Vicomtech-Ik4)*; Seroussi, Brigitte *(LIMICS)*

WePOS-24**:** 18:00-19:30 Hall B
eHealth, Games, and Education – Poster (Poster Session)

18:00-19:30 WePOS-24.1
An Ontology-Based Serious Game Design for the Development of Nutrition and Food Literacy Skills
Mitsis, Konstantinos* *(National Technical University of Athens)*; Zarkogianni, Konstantia *(National Technical University of Athens)*; Bountouni, Nefeli *(Biomedical Simulations & Imaging Laboratory, National Technical)*; Athanasiou, Maria *(National Technical University of Athens)*; Nikita, Konstantina *(National Technical University of Athens)*

18:00-19:30 WePOS-24.2
Methodology for Assessing End-User Requirements in the Ella4Life Project: Elders' Perspectives about Self-Monitoring
Kaczmarek, Mariusz* *(Gdansk University of Technology)*; Velciu, Magdalena *(Fundation Ana Aslan International)*; Spiru, Luiza *(Fundation Ana Aslan International)*; Bujnowski, Adam *(Gdansk University of Technology)*; Andrushevich, Alexey *(iHomeLab, Lucerne University of Applied Sciences & Arts)*; Birrer, Edith *(Lucerne University of Applied Sciences & Arts)*

18:00-19:30 WePOS-24.3
Software Code Complexity Assessment using EEG Features
Medeiros, Julio *(University of Coimbra)*; Couceiro, Ricardo *(University of Coimbra)*; Castelhano, João *(ICNAS, University of Coimbra)*; Castelo-Branco, Miguel *(University of Coimbra)*; Duarte, Gonçalo *(CISUC, University of Coimbra)*; Duarte, Catarina *(Institute of Nuclear Sciences Applied to Health, University of C)*; Durães, João *(Polytechnic Institute of Coimbra)*; Madeira, Henrique *(Centre for Informatics & Systems of The University of Coimbra)*; de Carvalho, Paulo* *(University of Coimbra)*; Teixeira, César *(University of Coimbra)*

WePOS-25**:** 18:00-19:30 Hall B
General and Theoretical Informatics for Pediatric Health Applications – Poster (Poster Session)

18:00-19:30 WePOS-25.1
Learning Clusters in Autism Spectrum Disorder: Image-Based Clustering of Eye-Tracking Scanpaths with Deep Autoencoder
Elbattah, Mahmoud* *(Université de Picardie Jules Verne)*; Carette, Romuald *(Romuald Carette)*; Dequen, Gilles *(University of Picardie Jules Verne)*; Guérin, Jean-Luc *(Université de Picardie Jules Verne)*; Cilia, Federica *(Université de Picardie Jules Verne)*

18:00-19:30 WePOS-25.2
Kinematic Features of a Simple and Short Movement Task to Predict Autism Diagnosis
Vabalas, Andrius* *(The University of Manchester)*; Gowen, Emma *(The University of Manchester)*; Poliakoff, Ellen *(The University of Manchester)*; Casson, Alexander James *(The University of Manchester)*

18:00-19:30 WePOS-25.3
Identifying Optimal Features from Heart Rate Variability for Early Detection of Sepsis in Pediatric Intensive Care
Amiri, Paria* *(Tehran University of Medical Sciences)*; Derakhshan, Amin *(Shahed University)*; Gharib, Behdad *(Tehran University of Medical Sciences)*; Liu, Ying-Hsang *(The Australian National University)*; Mirzaaghayan, Mohamadreza *(Tehran University of Medical Sciences)*

18:00-19:30 WePOS-25.4
Asthma Device Calibrator (ADC)
Sassiya, Bedouin *(Notre Dame University-louaizy)*; Chaaya, Pamela *(Notre Dame University-Louaize)*; Ghnatios, Chady *(Notre Dame University-Louaize)*; Kassem, Abdallah* *(Notre Dame University-Louaize)*

WePOS-26**:** 18:00-19:30 Hall B
Education and Simulation – Poster (Poster Session)

18:00-19:30 WePOS-26.1
Legal Issues in Implantable Medical Devices: Liability and Hedge
Yi, Jungho* *(Seoul National University)*; Seo, Jong Mo *(Seoul National University, School of Engineering)*; Lee, Sang-Won *(Seoul National University)*

18:00-19:30 WePOS-26.2
Supervision of M.Sc. Theses using the Writing of a Scientific Article as a Framework to Increase Efficiency and Quality of Research Outcomes
Ortiz-Catalan, Max* *(Chalmers University of Technology)*; Middleton, Alexandra *(Princeton University)*; Gustafsson, Magnus *(Chalmers University of Technology)*

WePOS-27**:** 18:00-19:30 Hall B
Translational Engineering for Healthcare Innovation and Commercialization – Poster (Poster Session)

18:00-19:30 WePOS-27.1
Realtime Indoor Workout Analysis using Machine Learning and Computer Vision
Nagarkoti, Amit* *(Samsung R&D Bangalore)*; Teotia, Revant *(Samsung R&D Bangalore)*; Das, Pankaj Kumar *(Samsung R&D Bangalore)*; Mahale, Amith Kumar *(Samsung R&D Bangalore)*

18:00-19:30 WePOS-27.2
PANDAS: Paediatric Attention-Deficit/Hyperactivity Disorder Application Software
Mwamba, Hervé Mukenya* *(Stellenbosch University)*; Fourie, Pieter Rousseau *(Stellenbosch University)*; Van Den Heever, Dawie *(Stellenbosch University)*

18:00-19:30 WePOS-27.3
Cloud Database Construction for the Expressway Design by the use of the Medical Information
Yambe, Tomoyuki* *(Tohoku Univ)*

18:00-19:30 WePOS-27.4
Research Platform for Medical Device Development to Simplify Translation to the Market
Somerlik-Fuchs, Karin H* *(inomed Medizintechnik GmbH)*; Uecker, Florian Cornelius *(Charité Universitätsmedizin Berlin)*; Reich, Uta *(Charité Universitätsmedizin Berlin)*; Kogut, Andreas *(Spinal Cord Injury Center, Heidelberg University Hospital)*; Schiemer, Jonas *(Universitätsmedizin Mainz)*; Olze, Heidi *(Charité Universitätsmedizin Berlin)*; Rupp, Rüdiger *(Heidelberg University Hospital)*; Kneist, Werner *(AVTC Unimedizin Mainz)*; Hoffmann, Klaus-Peter *(Fraunhofer Institut für Biomedizinische Technik)*; Krueger, Thilo B *(inomed Medizintechnik GmbH)*

18:00-19:30 WePOS-27.5
An Exploration of Form Factors for Sleep-Olfactory Interfaces
Amores Fernandez, Judith* *(MIT Media Lab)*; Maes, Pattie *(MIT Media Lab)*; Dotan, Mae *(MIT Media Lab)*

18:00-19:30 WePOS-27.6
Non Invasive Brain Stimulation (NIBS) Study based on Ischemic Stroke Patients
Sharma, Gaurav *(Indian Institute of Technology Mandi)*; Karwal, Om *(Indian Institute of Technology Mandi)*; Roy Chowdhury, Shubhajit* *(Indian Institute of Technology Mandi)*

18:00-19:30 WePOS-27.7
A Comparative Evaluation of SteamVR Tracking and the OptiTrack System for Medical Device Tracking
Ameler, Tim *(Univ. of Applied Sciences & Arts (FH Dortmund))*; Blohme, Kai *(Univ. of Applied Sciences & Arts Dortmund (FH Dortmund))*; Brandt, Lilith *(Univ. of Applied Sciences & Arts Dortmund (FH Dortmund))*; Brüngel, Raphael *(Univ. of Applied Sciences & Arts Dortmund (FH Dortmund))*; Hensel, Alice *(Univ. of Applied Sciences & Arts Dortmund (FH Dortmund))*; Huber, Lisa *(Univ. of Applied Sciences & Arts (FH Dortmund))*; Kuper, Francis *(Univ. of Applied Sciences & Arts (FH Dortmund))*; Swoboda, Jessica *(Univ. of Applied Sciences & Arts Dortmund (FH Dortmund))*; Warnecke, Maren *(Univ. of applied Sciences & Arts (FH Dortmund))*; Warzecha, Michaela *(Univ. of Applied Sciences & Arts Dortmund (FH Dortmund))*; Froemke, Johannes *(Univ. of Applied Sciences & Arts Dortmund (FH Dortmund))*; Hess, Daniel *(Fachhochschule Dortmund – Univ. of Applied Sciences & Art)*; Schmitz-Stolbrink, Annette *(Klinikum Dortmund)*; Friedrich, Christoph M.* *(Univ. of Applied Sciences & Arts Dortmund; Dept. of)*

18:00-19:30 WePOS-27.8
Gait Analysis using Stereo Camera in Daily Environment
Li, Yuan* *(Hitachi Ltd. Research & Development Group)*; Zhang, Pan *(Hitachi (China) Research & Development Corporation)*; Zhang, Yang *(Hitachi (China) Research & Development Corporation)*; Miyazaki, Kunihiko *(Hitachi (China) Research & Development Corporation)*

18:00-19:30 WePOS-27.9
Development and Evaluation of a Customized Wrist-Hand Orthosis using 3D Technology for a Child with Cerebral Palsy – A Case Study
Schmitz, Cristiane *(Federal Univ. of Technology – Paraná (UTFPR))*; Mori, Ivy Tiemi *(Federal Univ. of Technology Parana)*; Gamba, Humberto *(Federal Univ. of Technology UTFPR- C.N.P.J.)*; Nohama, Percy *(Pontifícia Universidade Católica do Paraná)*; Abreu de Souza, Mauren* *(Pontifical Catholic Univ. of Paraná – PUCPR)*

WePOS-28: 18:00-19:30 Hall B
Smart Implants – Poster (Poster Session)

18:00-19:30 WePOS-28.1
General Voltage Injection Device for Immunity Test of Active Implantable Neurostimulators to Electromagnetic Fields Over the Frequency Range 16.6Hz to 80MHz
Li, Bing* *(Tsinghua University)*; Wang, Weiming *(Tsinghua University)*; Wu, Feng *(Beijing PINS medical Co., Ltd)*; Hu, Chunhua *(Tsinghua University)*; Liu, FangJun *(Tsinghua University)*; Li, Luming *(Tsinghua University)*

18:00-19:30 WePOS-28.2
Technical, Medical and Ethical Challenges in Networks of Smart Active Implants
Hoffmann, Klaus-Peter* *(Fraunhofer Institut für Biomedizinische Technik)*; Olze, Heidi *(Charité Univ. Berlin)*; Kneist, Werner *(AVTC Unimedizin Mainz)*; Schiemer, Jonas *(Univ. Mainz)*; Krueger, Thilo B *(inomed Medizintechnik GmbH)*; Somerlik-Fuchs, Karin H *(Albert-Ludwigs-Univ. Freiburg)*; Gottschalk, Michael *(VARTA Microbattery GmbH)*; Kostelnik, Jan *(Würth Elektronik GmbH & Co. KG)*; Schreivogel, Alina *(Würth Elektronik GmbH & Co. KG)*; Ruff, Roman *(Fraunhofer Institut für Biomedizinische Technik)*; Droste, Wiebke *(Institute for German, European & International Medical Law, Pu)*; Rupp, Rüdiger *(Heidelberg Univ. Hospital)*

WePOS-29: 18:00-19:30 Hall B
Research-Poster-1-Page We A (Poster Session)

18:00-19:30 WePOS-29.1
Using On-Demand, Multi-Sensor Wearable 3D-Printed Medical Device for Hemodialysis Patient Care
Chen, Wei Ling *(Kaohsiung Veterans General Hospital)*; Kan, Chung-Dann* *(National Cheng Kung University Hospital, Dept. of Surgery, Ta)*

18:00-19:30 WePOS-29.2
Coupled Active, Artificial Hair Cells for Enhanced Sound Detection
Lenk, Claudia* *(TU Ilmenau)*; Seeber, Lars *(Technische Universität Ilmenau)*; Gutschmidt, Stefanie *(University of Canterbury)*; Ziegler, Martin *(Technische Universität Ilmenau)*

18:00-19:30 WePOS-29.3
Adaptive Signal Processing Algorithm for Estimating Respiratory and Heart Rate by UWB Radar Technology
Xu, Shengqian* *(Zhejiang Univ.)*; Li, Peilun *(Zhejiang Univ.)*; Karumudi, Rambabu *(Univ. of Alberta, ECE Dept.)*; Chen, Gary C.-Y. *(Univ. of Alberta)*; Ning, Gangmin *(Zhejiang Univ.)*

18:00-19:30 WePOS-29.4
Automated Stimulus Artefact Removal for the Clinical S1-S2 Pacing Protocol
Nothstein, Mark* *(Karlsruhe Institute of Technology (KIT))*; Luik, Armin *(Staedtisches Klinikum Karlsruhe)*; Wülfers, Eike Moritz *(Universitäts-Herzzentrum Freiburg – Bad Krozingen)*; Jadidi, Amir *(Universitäts-Herzzentrum Freiburg – Bad Krozingen)*; Doessel, Olaf *(Karlsruhe Institute of Technology (KIT))*; Schmitt, Claus *(Staedtisches Klinikum Karlsruhe)*; Seemann, Gunnar *(University Heart Center Freiburg – Bad Krozingen)*; Loewe, Axel *(Karlsruhe Institute of Technology (KIT))*

18:00-19:30 WePOS-29.5
Development of a Wireless Tactile Measurement System for Quantitative Sensory Testing in Plantar Skin
Ino, Shuichi* *(National Institute of Advanced Industrial Science & Technology)*; Chikai, Manabu *(National Institute of Advanced Industrial Science & Technology)*; Nomura, Yoshihiro *(Univ. of Tsukuba)*; Doi, Kouki *(National Institute of Special Needs Education)*; Nunokawa, Kiyohiko *(Tokyo International Univ.)*; Honda, Tetsumi *(Hanno Seiwa Hospital Rehabilitation Center)*

18:00-19:30 WePOS-29.6
The Importance of Biomarker Stability and Sampling Procedures of Saliva for the Design of Point-of-Care and Lab-on-Chip Devices
Bellagambi, Francesca *(Univ. of Pisa, Dept. of Chemistry & Industrial)*; Salvo, Pietro* *(National Research Council)*; Lomonaco, Tommaso *(Univ. of Pisa, Dept. of Chemistry & Industrial)*; Ghimenti, Silvia *(Univ. of Pisa, Dept. of Chemistry & Industrial)*; Biagini, Denise *(Univ. of Pisa, Dept. of Chemistry & Industrial)*; Trivella, Maria G. *(Istituto di Fisiologia Clinica-CNR, Pisa)*; Di Francesco, Fabio *(Univ. of Pisa)*; Fuoco, Roger *(Univ. of Pisa, Dept. of Chemistry & Industrial)*

18:00-19:30 WePOS-29.7
Label-Free Plasmonic Biosensor for Detection of Parkinson's Disease Biomarkers
Robles, Denise* *(Rutgers University)*; Lechuga, Laura *(Catalan Institute of Nanoscience & Nanotechnology)*

18:00-19:30 WePOS-29.8
NIR Spectroscopic Prediction of Urinary Components for Management of Protein and Salt Intake
Suzuki, Ikuto* *(Graduate School of Natural Science & Technology, Kanazawa Univer)*; Tsuruda, Takahiro *(Graduate School of Natural Science & Technology, Kanazawa Univ)*; Nogawa, Masamichi *(Kanazawa Univ.)*; Naito, Hisashi *(Kanazawa Univ.)*; Ikarashi, Akira *(Aino Univ.)*; Ogawa, Mitsuhiro *(Teikyo Univ.)*; Yamakoshi, Ken-ichi *(Kanazawa Univ.)*; Tanaka, Shinobu *(Kanazawa Univ.)*

18:00-19:30 WePOS-29.9
EMG Biofeedback Aided Rehabilitation Game for Patients with Oropharyngeal Dysphagia
Mathew James, Nisanth* *(Anhalt Univ. of Applied Sciences)*; Shaji, Ashly *(Anhalt Univ. of Applied Sciences)*; Bracio, Boris Romanus *(Univ. of Applied Science Anhalt)*; Pannier, Judith *(Städtisches Klinikum Dessau)*

18:00-19:30 WePOS-29.10
A Model Predictive Control Algorithm for Joint Insulin Infusion and Carbohydrates Intake Suggestion in Type 1 Diabetes
Pavan, Jacopo *(Univ. of Padova)*; Facchinetti, Andrea *(Univ. of Padova)*; Sparacino, Giovanni *(Univ. of Padova)*; Del Favero, Simone* *(Univ. of Padova, Padova, Italy)*

18:00-19:30 WePOS-29.11
Next-Generation Wheelchairs Will Incorporate Brain-Controlled Exoskeleton Robotic Arms
Catalán Orts, José María* *(Univ. Miguel Hernandez de Elche)*; Díez Pomares, Jorge *(Univ. Miguel Hernández de Elche)*; Blanco Ivorra, Andrea *(Univ. Miguel Hernandez de Elche)*; Bertomeu-Motos, Arturo *(Univ. Miguel Hernandez de Elche)*; García Perez, José Vicente *(Univ. Miguel Hernandez de Elche)*; Lopez-Perez, David *(Univ. Miguel Hernandez)*; Garcia-Aracil, Nicolas *(Univ. Miguel Hernandez)*

18:00-19:30 WePOS-29.12
Dot Code Activation Area for Braille-to-Voice Function in Braille Learning Materials
Doi, Kouki* *(National Institute of Special Needs Education)*; Nishimura, Takahiro *(National Institute of Special Needs Education)*; Fujimoto, Hiroshi *(Waseda University)*

18:00-19:30 WePOS-29.13
Elderly Care Robot to Recognize and Alert Emergency Situation
Lee, Deok-Won *(Gwangju Institute of Science & Technology)*; Elsharkawy, Ahmed *(Gwangju Institute of Science & Technology)*; Lee, Yun-dong *(Gwangju Institute of Science & Technology (GIST))*; Kim, SeungJun *(Gwangju Institute of Science & Technology)*; Jun, Kooksung *(Gwangju Institute of Science & Technology)*; Naheem, Khawar *(Gwangju Institute of Science & Technology (GIST))*; Kim, Mun Sang* *(Gwangju Institute of Science & Technology)*

18:00-19:30 WePOS-29.14
Muscle Force Estimation for Upper Limb Assistive Device for Home Setting
Muhamad, Fadzli* *(Shibaura Institute of Technology)*; Hanafusa, Akihiko *(Shibaura Institute of Technology)*; Kub ota, Yuji *(Shibaura Institute of Technology)*; Nishimori, Daigo *(Shibaura Institute of Technology)*

18:00-19:30 WePOS-29.15
Evaluation of Sucking Ability in Infants by using a Portable Tongue Movement Detection Device
Nishi, Eri* *(Setsunan Univ.)*; Okuda, Ryousuke *(Setsunan Univ.)*; Niikawa, Takuya *(Osaka Electro-Communication Univ.)*

18:00-19:30 WePOS-29.16
Development of a Skin Patch Biophotonic Sensor using Impedance Elasticity for Simultaneous Diagnosis and Treatment of Pressure Ulcers
Park, Eun-Bin *(Keimyung University)*; Kim, Chan-Il *(Keimyung University)*; Hwang, Seokmin *(Keimyoung)*; Lee, Jong-Ha* *(Keimyung University, School of Medicine)*

18:00-19:30 WePOS-29.17
Long-Term Heart Rate Variability in Bovines
Yuda, Emi* *(Tohoku Univ. Graduate School of Engineering)*; Yayo, Ken-ichi *(National Agriculture & Food Research Organization)*; Hayano, Junichiro *(Nagoya City Univ.)*

18:00-19:30 WePOS-29.18
Pulsation Measurement via Wearable Devices based on Bioelectromagnetic Responses
Muramatsu, Dairoku* *(Tokyo University of Science)*; Nakada, Yuno *(Tokyo University of Science)*

18:00-19:30 WePOS-29.19
Design and Simulation of Optimum Interdigitated Electrode Structure
Tamilselvi, Munusamy *(National Central Univ.)*; Settu, Kalpana *(National Taipei Univ.)*; Tsai, Jang-Zern* *(National Central Univ.)*

18:00-19:30 WePOS-29.20
Forearm is a Suitable Part of Exerciser for a Wireless Vital Sensor Node in Terms of Accurate Vital Sensing and Reliable Data Transmission
Maruo, Hiroto *(Osaka City Univ.)*; Shimazaki, Takunori *(Osaka City Univ.)*; Hara, Shinsuke* *(Osaka City Univ.)*

18:00-19:30 WePOS-29.21
Deep Learning Algorithm for Preterm Birth Monitoring using STFT Images of Segmented Uterine EHG Data
Jo, Young Chang* *(Korea Electronics Technology Institute)*; Hong, Hyuckki *(Korea Electronics Technology Institute)*; Hwang, Won Hee *(Korea Electronics Technology Institute)*; Hwang, Dong Hyun *(Korea Electronics Technology Institute)*; Jeong, Chan Hee *(Korea Electronics Technology Institute)*; Choi, Yeon Shik *(Korea Electronics Technology Institute)*; Jung, Suk Won *(Korea Electronics Technology Institute)*

18:00-19:30 WePOS-29.22
Design of an Electrocardiogram Measurement System using a Capacitively Coupled Electrode Array Capable of Posture Tracking
Arima, Yuto* *(Hosei University)*; Suzuki, Shuhei *(Hosei University)*; Nakamura, Tetsuo *(Meisei University)*; Nakamura, Sousuke *(Hosei University)*

18:00-19:30 WePOS-29.23
Detection of Cell Attachment on Interdigitated Electrodes by Means of Impedance Spectroscopy
Mojena Medina, Dahiana* *(Universidad Carlos III de Madrid)*; Quevedo de Cea, Rosario *(Universidad Carlos III de Madrid)*; López-Ruiz, Nuria *(Universidad Carlos III de Madrid)*; Acedo Gallardo, Pablo *(Universidad Carlos III de Madrid)*

18:00-19:30 WePOS-29.24
Implementation of the Recurrent Neural Networks onto the Remote Photoplethysmography-Based Heart Rate Monitoring
Woo, Jong-Hyuk *(Seoul National Univ., Samsung Electronics)*; Choi, Seung-Won *(Seoul National Univ.)*; Park, Yong-In *(Samsung Electronics Co., Ltd.)*; Kim, Joon-Seok *(Samsung Electronics Co., Ltd.)*; Kim, Seong-Woo *(Seoul National Univ.)*; Seo, Jong Mo* *(Seoul National Univ., School of Engineering)*

18:00-19:30 WePOS-29.25
An Adaptive Bladder Volume Estimation Model for Wearable Electrical Impedance Measurement
Noyori, Shuhei* *(The University of Tokyo)*; Noguchi, Hiroshi *(The University of Tokyo)*; Mori, Taketoshi *(The University of Tokyo)*; Sanada, Hiromi *(The University of Tokyo)*

18:00-19:30 WePOS-29.26
Multimodal Colon Cancer Imaging Database for Disease Modeling
Credi, Caterina *(Univ. of Florence)*; Bocchi, Leonardo* *(Università degli Studi di Firenze, Firenze, Italy)*; Picon, Artzai *(Tecnalia Research & Innovation)*; L. Saratxaga, Cristina *(Tecnalia Research & Innovation)*; Sánchez-Peralta, Luisa Fernanda *(Centro de Cirugía de Mínima Invasión Jesús Usón)*; Ortega-Morán, Juan Francisco *(Centro de Cirugía de Mínima Invasión Jesús Usón)*; Bote Chacón, Jorge *(Centro de Cirugía de Mínima Invasión Jesús Usón)*; Azpeitia Garcia, Agueda *(Biobanco Vasco, Fundación Vasca de Innovación e Investigación Sa)*; Egia Bizkarralegorra, Ainara *(Biobanco Vasco, Fundación Vasca de Innovación e Investigación Sa)*; Glover, Ben *(Imperial College)*; Sorelli, Michele *(Univ. of Florence)*; Pavone, Francesco Saverio *(LENS – Univ. of Florence)*; Cicchi, Riccardo *(National Institute of Optics, National Research Council. LENS, E)*

18:00-19:30 WePOS-29.27
Preliminary Investigation on 3D-Printed Ti6Al4V Scaffolds with a Bioactive and Electrically Conductive Polymer Coating
Polley, Christian* *(University of Rostock)*; Distler, Thomas *(Friedrich Alexander University Erlangen Nuremberg)*; Weizel, Alina *(University of Rostock)*; Detsch, Rainer *(Friedrich Alexander University Erlangen Nuremberg)*; Boccaccini, Aldo R. *(Friedrich Alexander University Erlangen Nuremberg)*; Seitz, Hermann *(University of Rostock)*

18:00-19:30 WePOS-29.28
Influence of Applied Magnetic Field on Cultured Muscle Cells in Differentiation
Uto, Sadahito* *(Osaka Institute of Technology)*

18:00-19:30 WePOS-29.29
Anti-Inflammatory Coating of Melanin by Layer-by-Layer Assembly
Eom, Taesik *(Inha Univ.)*; Shim, Bong Sup* *(Inha Univ.)*

18:00-19:30 WePOS-29.30
A Diffusion Gradient Generator to Maintain Stable Concentration Gradients within Agarose and/or Agarose-Collagen Scaffolds
Dravid, Anusha* *(Univ. of Auckland)*; Aqrawe, Zaid *(Univ. of Auckland)*; Parittotokkaporn, Tassanai *(Univ. of Auckland)*; Raos, Brad J *(Univ. of Auckland)*; O'Carroll, Simon *(Univ. of Auckland)*; Svirskis, Darren *(Univ. of Auckland, School of Pharmacy)*

18:00-19:30 WePOS-29.31
Jerk Components are Dependent on Movement Size during Arm Cranking
Zsenák, István *(University of Pécs)*; Botzheim, Lilla *(Pazmany Peter Catholic University)*; Laczko, Jozsef* *(Wigner Res. Ctr. for Physics, Univ. of Pazmany Peter Cath. Univ)*; Piovesan, Davide *(Gannon University)*

18:00-19:30 WePOS-29.32
Passive Knee Exoskeleton Reduces Quadriceps Muscle Activation during Downhill Skiing: A Pilot Study
Azocar, Alejandro* *(University of Michigan)*; Leestma, Jennifer *(Georgia Institute of Technology)*; Kudzia, Pawel *(Simon Fraser University)*; Lazzaroni, Maria *(Istituto Italiano di Tecnologia)*; Liu, Yixing *(KTH Royal Institute of Technology)*; Bayon, Cristina *(University of Twente)*; Rampeltshammer, Wolfgang *(University of Twente)*; van Asseldonk, Edwin h.f. *(University of Twente)*

18:00-19:30 WePOS-29.33
Natural Dynamics of Spring-Like Running with Asymmetric Legs
Zhang, Zhiqiang* *(National Research Center for Rehab. Technical Aids)*; Guo, JunChao *(National Research Center for Rehab. Technical Aids)*; Yang, Jiemeng *(National Research Center for Rehab. Technical Aids)*; Wang, Zhenze *(National Research Center for Rehab. Technical Aids)*

18:00-19:30 WePOS-29.34
Smart Maltose Microneedle for Blood Sampling Fabricated by Stepwise Controlled Drawing
Puttaswamy, Srinivasu Valagerahally* *(Ulster Univ.)*; Fishlock, Sam *(Ulster Univ.)*; Steele, David *(Ulster Univ.)*; Navarro, Cesar Oswaldo *(Ulster Univ.)*; Lubarsky, Gennady *(Ulster Univ.)*; Raj, Shasidran *(Ulster Univ.)*; Lee, Chengkuo *(National Univ. of Singapore)*; McLaughlin, James *(Univ. of Ulster)*

18:00-19:30 WePOS-29.35
High Throughput Generation of Calcium-Alginate Micro-Particles using Centrifugal Force-Based Device
Le, Thi Huong* *(University of Ulsan)*; Duong, Thuy *(University of Ulsan)*; Phan, Huu Lam *(Ulsan University)*; Nguyen, Trung *(University of Ulsan)*; Nguyen, Hang Phuong *(University of Ulsan)*; Son, Hyewon *(University of Ulsan, Ulsan)*; Oh, Seok *(University of Ulsan)*; Lee, HyoSeok *(University of Ulsan)*; Lee, Suwon *(University of Ulsan)*; Hwang, Changho *(Ulsan University Hospital)*; Koo, Kyoin *(University of Ulsan)*

18:00-19:30 WePOS-29.36
Distance-Preserving Speech Visualization for the Hearing Impaired
Pok, Gouchol* *(PaiChai University)*

18:00-19:30 WePOS-29.37
Cyber Physical CPR Training System with Physiological Feedback
Kesavadas, Mrinali *(Mahomet-Seymour High School)*; Rajeswaran, Pavithra* *(Univ. of Illinois at Urbana Champaign)*

WePOS-30**:** 18:00-19:30 Hall B
Research-Poster-1-Page We B (Poster Session)

18:00-19:30 WePOS-30.1
Tracking Functional Connectivity Dynamics across Intrinsic Connectivity Networks from Resting-State EEG
Shou, Guofa* *(Univ. of Oklahoma)*; Ding, Lei *(Univ. of Oklahoma)*

18:00-19:30 WePOS-30.2
EEG Functional Network in Oddball Paradigm: Connectivity Estimation based on ERP Waveforms
Kim, Minju *(Ulsan National Institute of Science & Technology)*; Lee, Jongmin *(UNIST)*; Lee, Taejun *(UNIST)*; Kim, Sung-Phil* *(Ulsan National Institute of Science & Technology)*

18:00-19:30 WePOS-30.3
A System to Record EEG from Multiple Adult Zebrafish
Lee, Yuhyun* *(Dept. of Robotics Engineering, Daegu Gyeongbuk Institute of)*; Kim, Sohee *(Daegu Gyeongbuk Institute of Science & Technology (DGIST))*

18:00-19:30 WePOS-30.4
Analysis of EEG Signal Changes during Attention Training Game Contents
Park, Jung-Hyun *(Korea Polytechnic University)*; Shin, Sung-Wook *(Korea Polytechnic University)*; Chung, Sung-Taek* *(Korea Polytechnic University)*

18:00-19:30 WePOS-30.5
Prediction of Reaching Direction from EEG Signal in a Reaction Task
Yoshino, Koya* *(Nagaoka University of Technology)*; Nambu, Isao *(Nagaoka University of Technology)*; Wada, Yasuhiro *(Nagaoka University of Technology)*

18:00-19:30 WePOS-30.6
Resynchronizing Recordings using Fixation-Related Potentials
Wobrock, Dennis* *(Bielefeld University)*; Finke, Andrea *(Bielefeld University, Bielefeld, Germany)*; Ritter, Helge *(CITEC, CoR-Lab, Bielefeld University, Bielefeld, Germany)*; Schack, Thomas *(CITEC, Bielefeld University)*

18:00-19:30 WePOS-30.7
Emotional Modulation of Late Positive Potentials Elicited by Dynamic Facial Expressions
Momose, Keiko* *(Waseda University)*

18:00-19:30 WePOS-30.8
Basal Ganglia Adaptability Reduced in Diabetic Peripheral Neuropathy Patients with Impaired Balance Control
Zheng, Yijia* *(Peking University)*; Yuan, Geheng *(Peking University First Hospital)*; Wang, Ye *(Communication University of China)*; Zhang, Jue *(Peking University)*

18:00-19:30 WePOS-30.9
The Effect of Additional Cognitive Tasks on Balance in the Eelderly: A Preliminary GFT-fMRI Study
Guo, Wenyu* *(Peking Univ., Shandong Univ.)*; Wang, Ye *(Communication Univ. of China)*; Zheng, Yijia *(Peking Univ.)*; Yue, Zhuang *(Peking Univ.)*; Zhang, Jue *(Peking Univ.)*

18:00-19:30 WePOS-30.10
Alteration of Middle-Frequency Components in Patients with Diabetic Peripheral Neuropathy using Graph Signal Processing
Zheng, Yijia* *(Peking Univ.)*; Wang, Ye *(Communication Univ. of China)*; Yue, Zhuang *(Peking Univ.)*; Guo, Wenyu *(Peking Univ., Shandong Univ.)*; Zhang, Jue *(Peking Univ.)*

18:00-19:30 WePOS-30.11
Frequency Component Differences in Plantar Stimulation Task using GSP: A fMRI Comparison Study of the Young and the Elderly
Yue, Zhuang* *(Peking University)*; Zheng, Yijia *(Peking University)*; Wang, Ye *(Communication University of China)*; Zhang, Jue *(Peking University)*

18:00-19:30 WePOS-30.12
A Magnetoencephalographic Hyperscanning System Enabling Natural Face-to-Face Communication
Yokosawa, Koichi* *(Hokkaido Univ.)*; Shimojyo, Atsushi *(Hokkaido Univ.)*; Watanabe, Hayato *(Hokkaido Univ.)*; Yagyu, Kazuyori *(Hokkaido Univ.)*; Sonehara, Tsuyoshi *(Hitachi Ltd.)*; Boasen, Jared *(Hokkaido Univ.)*; Shiraishi, Hideaki *(Hokkaido Univ.)*; Saito, Takuya *(Hokkaido Univ.)*

18:00-19:30 WePOS-30.13
Evaluation of Auditory Information Processing using a Dichotic Listening Test with Frequency Tagging
Asami, Nao* *(Tokyo Denki University)*; Tanaka, Keita *(Tokyo Denki University)*

18:00-19:30 WePOS-30.14
Measurements of MEG with a Superconducting Self-Shield and Zero Boil-Off System
Tanaka, Keita* *(Tokyo Denki University)*; Tsukahara, Akihiko *(Tokyo Denki University)*; Uchikawa, Yoshinori *(Tokyo Denki University)*; Hornberger, Erik *(Sumitomo Heavy Industries, Ltd.)*; Mizutani, Shouhei *(Sumitomo Heavy Industries, Ltd.)*; Yokoyama, Kazuhiro *(Sumitomo Heavy Industries, Ltd.)*; Yamaguchi, Takashi *(Sumitomo Heavy Industries, Ltd.)*; Tsunematsu, Shoji *(Sumitomo Heavy Industries, Ltd.)*; Kato, Takanori *(Sumitomo Heavy Industries, Ltd.)*; Narasaki, Katsuhiro *(Sumitomo Heavy Industries, Ltd.)*

18:00-19:30 WePOS-30.15
Neural Processing of Octave Illusion Revealed by Frequency Tagging
Aizawa, Yoshiki* *(Tokyo Denki University)*; Tanaka, Keita *(Tokyo Denki University)*

18:00-19:30 WePOS-30.16
Automated Drosophila Brain Functional Area Delineation
Chang, Wei *(National Tsing Hua Univ.)*; Hsiao, Ching-Chun *(National Tsing Hua Univ.)*; Hsiao, Jyun-Ya *(National Tsing Hua Univ.)*; Chu, Li-An *(National Tsing Hua Univ.)*; Swindlehurst, A. Lee *(Univ. of California, Irvine)*; Chu, Shi-Wei *(National Taiwan Univ.)*; Chiang, AnnShyn *(National Tsing Hua Univ.)*; Wu, Shun Chi* *(National Tsing Hua Univ.)*

18:00-19:30 WePOS-30.17
Analysis of Brain Shift Transformation in Closed Cranium using MR Volume Images Acquired in Different Body Positions
Kumamoto, Etsuko* *(Kobe University)*; Hayashi, Shigeto *(Hyogo Emergency Medical Center, Kobe Red Cross Hospital)*; Kyotani, Katsusuke *(Dept. of Radiology, Kobe University Hospital)*; Matsuda, Kento *(Kobe University)*; Nakai, Tomoaki *(Dept. of Neurosurgery, Kobe University Graduate School of M)*; Nishino, Takashi *(Dept. of Chemical Science & Engineering Faculty of Engine)*; Kohmura, Eiji *(Dept. of Neurosurgery, Kobe University Graduate School of M)*

18:00-19:30 WePOS-30.18
Estimating Active Brain Region of MRI from EEG
Nakayama, Koharu* *(Doshisha Univ.)*; Okuya, Teruhisa *(Panasonic Corporation, Eco Solutions Company)*; Iwakawa, Mikio *(Panasonic Corporation, Eco Solutions Company)*; Sasabe, Kohji *(Panasonic Corporation)*; Uegaki, Yuriko *(Panasonic Corporation, Eco Solutions Company)*; Akiyama, Iwaki *(Doshisha Univ.)*; Watanabe, Yoshiaki *(Doshisha Univ.)*

18:00-19:30 WePOS-30.19
Changes in Brain Temperature when Applying Thermal Stimulus Measured by Magnetic Resonance Images
Mikami, Kanako* *(Kokushikan University)*; Oura, Kunihiko *(Kokushikan University)*

18:00-19:30 WePOS-30.20
Development of Continuous Speech-Evoked Electroencephalography to Predict Speech Intelligibility
Na, Youngmin *(University of Ulsan)*; Choi, Inyong *(University of Iowa)*; Woo, Jihwan* *(University of Ulsan)*

18:00-19:30 WePOS-30.21
A Novel Approach to Quantification of Mental Effort
Greene, Patrick* *(Johns Hopkins University)*; Sarma, Sridevi V. *(Johns Hopkins University)*

18:00-19:30 WePOS-30.22
Anatomically Accurate Brain Phantom for Transcranial Magnetic Stimulation
Magsood, Hamzah* *(Mechanical & Nuclear Engineering Dept. College of Engineering.)*; Hadimani, Ravi L. *(Virginia Commonwealth University)*

18:00-19:30 WePOS-30.23
Feasibility of Detecting Steady-State Visual Evoked Potentials Contaminated by Intensity-Manipulated Muscular Artifacts
Kanoga, Suguru* *(National Institute of Advanced Industrial Science & Technology)*; Nakanishi, Masaki *(Univ. of California San Diego)*; Murai, Akihiko *(National Institute of Advanced Industrial Science & Technology)*; Tada, Mitsunori *(National Institute of Advanced Industrial Science & Technology)*; Kanemura, Atsunori *(National Institute of Advanced Industrial Science & Technology)*

18:00-19:30 WePOS-30.24
Classification of Motor-Imagery EEG Considering Task Complexity
Hori, Junichi* *(Niigata University)*

18:00-19:30 WePOS-30.25
Development of an Online Home Appliance Control System using Augmented Reality and an SSVEP-Based Brain-Computer Interface
Park, Seonghun *(Hanyang University)*; Choi, Kang-Min *(Hanyang University)*; Im, Chang-Hwan* *(Hanyang University)*

18:00-19:30 WePOS-30.26
Performance Enhancement of Near-Infrared Spectroscopy-Based Brain-Computer Interfaces using Transcranial Near-Infrared Photobiomodulation of Prefrontal Cortex
Kwon, Jinuk *(Hanyang Univ.)*; Im, Chang-Hwan* *(Hanyang Univ.)*

18:00-19:30 WePOS-30.27
Comparison of Visual Stimuli for Steady-State Visual Evoked Potential-Based Brain-Computer Interfaces in VR Environment in Terms of Classification Accuracy and Visual Comfort
Choi, Kang-Min *(Hanyang University)*; Park, Seonghun *(Hanyang University)*; Im, Chang-Hwan* *(Hanyang University)*

18:00-19:30 WePOS-30.28
Virtual Hand Rehabilitation with Force Guidance Adaptable to Mental States using Brain-Computer Interface
Choi, Kup-Sze* *(Centre for Smart Health, School of Nursing, The Hong Kong Polyte)*; Liang, Shuang *(Chinese Academy of Sciences)*

18:00-19:30 WePOS-30.29
Onset Detection of a Hybrid EEG-NIRS Brain-Computer Interface
Han, Chang-Hee *(Technical University of Berlin)*; Hwang, Han-Jeong* *(Kumoh National Institute of Technology)*

18:00-19:30 WePOS-30.30
Multidimensional Scaling Analysis of Natural Sounds for Inducing High Auditory Response Amplitude
Ogino, Mikito* *(Dentsu ScienceJam Inc.)*; Kanoga, Suguru *(National Institute of Advanced Industrial Science & Technology)*; Tsuchiya, Yasuhiro *(Dentsu Inc.)*; Mitsukura, Yasue *(Keio University)*

18:00-19:30 WePOS-30.31
An Optimal Re-Referencing Method for Ear-EEG-Based Endogenous Brain Computer Interfaces
Choi, Soo-In *(Kumoh National Institute of Technology)*; Choi, Ga-Young *(Kumoh National Institute of Technology)*; Hwang, Han-Jeong* *(Kumoh National Institute of Technology)*

18:00-19:30 WePOS-30.32
The Interference of Cognitive-Motor Dual-Task on Walking Speed and Brain Activity in Young Adults: 3D Motion Analysis-fNIRS Study
Huang, Xin* *(Dept. of Rehabilitation Medicine, The First Affiliated Hosp)*; Lin, Chuang *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Li, Le *(The First Affiliated Hospital, Sun Yat-Sen University)*

18:00-19:30 WePOS-30.33
Suppression of Low Beta by the Action Observation Game Program based BCI (Brain computer interface) with FES (Functional Electrical Stimulation)
Son, JiEun *(Keimyung Univ.)*; Ku, Jeonghun* *(Keimyung Univ.)*

18:00-19:30 WePOS-30.34
Asynchronous Decoding of P300 Potentials for Self-Paced BCI Control
Will, Matthias* *(Otto-von-Guericke Univ. Magdeburg)*; Reichert, Christoph *(Leibniz Institute for Neurobiology Magdeburg)*; Rose, Georg *(Otto-von-Guericke Univ., Magdeburg)*

18:00-19:30 WePOS-30.35
A Novel Multi-Class Visual Stimuli for Steady-State Visual Evoked Potential based Brain-Computer Interfaces
Kim, Sang-Su* *(Chonnam National University)*; Kim, Do-Won *(Chonnam National University)*

18:00-19:30 WePOS-30.36
Four-Class MI EEG Complexity Classification for ALS Patients
Huang, Tsai Hsun *(National Taipei University of Technology)*; Yang, Shang-Qing *(National Taipei University of Technology)*; Liu, Yi-Hung* *(National Taipei University of Technology)*

18:00-19:30 WePOS-30.37
Possibility of Bone-Conductive Earphones for Electroencephalogram Experiments
Lee, Juok *(Chonnam National University)*; Kim, Do-Won* *(Chonnam National University)*

18:00-19:30 WePOS-30.38
Neuron-Type Utility in a Brain-Machine Interface
Garcia-Garcia, Martha G.* *(University of Toronto)*; Marquez-Chin, Cesar *(Toronto Rehabilitation Institute)*; Popovic, Milos R. *(University of Toronto)*

18:00-19:30 WePOS-30.39
Low-Cost and Open-Source Semi-Dry Electrodes for Assistive BCIs
Malvicino, Selene *(University of Genoa)*; Schiatti, Lucia* *(Istituto Italiano di Tecnologia)*; Tessadori, Jacopo *(IIT – Italian Institute of Technology)*; Barresi, Giacinto *(Istituto Italiano di Tecnologia)*; Casadio, Maura *(University of Genova)*; Mattos, Leonardo *(Istituto Italiano di Tecnologia)*

18:00-19:30 WePOS-30.40
Gaze and Attention Shifts as the Source of Human Error in P300 BCI: A Pilot Study
Pronina, Anna* *(Lomonosov Moscow State University)*

18:00-19:30 WePOS-30.41
Computational Study to Derive the Stochastic Model for Estimation of Mechanical Behavior during Ventricular Tachyarrhythmia
Jeong, Da Un *(Kumoh National Institute of Technology)*; Lim, Ki Moo* *(Kumoh National Institute of Technology)*

18:00-19:30 WePOS-30.42
Millisecond Optogenetic Cardioversion of Murine Hearts using Global Illumination
Quiñonez Uribe, Raul Alejandro* *(Max Planck Institute for Dynamics & Self-Organization)*; Luther, Stefan *(Max Planck Institute for Dynamics & Self-Organization)*; Richter, Claudia *(Max Planck Institute for Dynamics & Self-Organization)*

18:00-19:30 WePOS-30.43
Evaluation of Real Time Catheter Tissue Contact using Unipolar Intracardiac Signal Morphology
Jovicic, Ivana* *(BioSig Technologies Inc)*; Padmanabhan, Deepak *(Mayo Clinic)*; Yasin, Omar *(Mayo Clinic)*; Foxall, Tom *(BioSig Technologies Inc)*; Fakhar, Sina *(BioSig Technologies Inc)*; Krstic, Djordje *(BioSig Technologies Inc)*; Vlajinic, Branislav *(BioSig Technologies Inc)*; Mikolaitis, Lora *(BioSig Technologies Inc)*; Drakulic, Budimir *(BioSig Technologies Inc)*; Venkatachalam, K.L. *(Mayo Clinic)*; Asirvatham, Samuel *(Mayo Clinic)*

18:00-19:30 WePOS-30.44
Computational Prediction of Cardiac Electromechanical Delay under Normal Sinus Rhythm and Arrhythmia Conditions
Heikhmakhtiar, Aulia Khamas *(Kumoh National Institute of Tech.)*; Jeong, Da Un *(Kumoh National Institute of Tech.)*; Lim, Ki Moo* *(Kumoh National Institute of Tech.)*

18:00-19:30 WePOS-30.45
A Paced QRS Detector for Automatic Identification of Catheter Ablation Targets in Ventricular Arrhythmias
Hoyland, Philip* *(Université de Lorraine)*; Battaglia, Alberto *(Université de Lorraine)*; de Chillou, Christian *(IADI, Inserm & Université de Lorraine & with Pôle Cardiologi)*; Felblinger, Jacques *(IADI, UHP-Inserm ERI 13)*; Odille, Freddy *(IADI, Inserm, Université de Lorraine & with CIC-IT 1433, Inser)*

18:00-19:30 WePOS-30.46
Non-Contact Cardiac Beat Detection using Dot-Line based Oneshot Scanner
Nagamatsu, Genki* *(Kyushu Univ.)*; Furukawa, Ryo *(Hiroshima City Univ.)*; Kawasaki, Hiroshi *(Kyushu Univ.)*

18:00-19:30 WePOS-30.47
Transcutaneous Energy Transmission System for Ventricular Assist Device with Transmission Distance of Two Cm: Analysis of Power Consumption using Equivalent Circuit
Miura, Daiki* *(Tokyo University of Science)*; Shiba, Kenji *(Tokyo University of Science)*

18:00-19:30 WePOS-30.48
Analysis of High-Frequency Leakage Current from an Air-Core Transcutaneous Transformer to Ground through the Human Body
Shiba, Kenji* *(Tokyo University of Science)*

18:00-19:30 WePOS-30.49
Couette Shearing Device for the Investigation of Shear-Induced Damage of the Primary Hemostasis by Left Ventricular Assist Devices
Lommel, Michael* *(Charité — Universitätsmedizin Berlin)*; Goubergrits, Leonid *(Institute for Imaging Science & Computational Modelling in Car)*; Affeld, Klaus *(Biofluid Mechanics Laboratory, Institute for Imaging Science and)*; Kertzscher, Ulrich *(Biofluid Mechanics Laboratory, Institute for Imaging Science and)*

WePOS-31: 18:00-19:30 Hall B
Research-Poster-1-Page We C (Poster Session)

18:00-19:30 WePOS-31.1
Determination of Ejection Duration based on a Finger Pulse Waveform: Methodology and Feasibility
Hametner, Bernhard* *(AIT Austrian Institute of Technology)*; Mayer, Christopher *(AIT Austrian Institute of Technology)*; Chorherr, Philipp *(TU Wien)*; Bachler, Martin *(AIT Austrian Institute of Technology)*; Kaniusas, Eugenijus *(Vienna Univ. of Technology)*; sehnert, Walter *(Clinical Research Institute Dortmund)*; Mikisek, Ines *(ines mikisek coaching)*; Mengden, Thomas *(Kerckhoff Clinic)*; Wassertheurer, Siegfried *(AIT Austrian Institute of Technology, Health & Environment Dept.)*

18:00-19:30 WePOS-31.2
A Study of the Frequency Band of Filter for High Accuracy Detection of the R-Peak Wave from Head Electrocardiogram
Kihara, Hiromu *(Fukuoka Institute of Technology)*; Lee, Jihyoung* *(Fukuoka Institute of Technology)*; Kusaba, Shihori *(Fukuoka Institute of Technology)*; Fukumoto, Yuto *(Fukuoka Institute of Technology)*; Ikejiri, Kouki *(Fukuoka Institute of Technology)*; Isizaki, Shouta *(Fukuoka Institute of Technology)*; Yamakoshi, Takehiro *(Fukuoka Institute of Technology)*

18:00-19:30 WePOS-31.3
Reduce Error and Update Time of Continuous Cardiac Output
Moon, Sang-Hyub *(Dongguk University)*; Nam, Ki Chang* *(Dongguk University College of Medicine)*

18:00-19:30 WePOS-31.4
Detection of Atrial Fibrillation using a Wrist Device
Solosenko, Andrius* *(Kaunas University of Technology)*; Petrėnas, Andrius *(Kaunas University of Technology)*; Paliakaite, Birute *(Kaunas University of Technology, Biomedical Engineering Institu)*; Sornmo, Leif *(Lund University)*; Marozas, Vaidotas *(Kaunas University of Technology)*

18:00-19:30 WePOS-31.5
Recurrence Quantification Analysis Applied to Cardiac and Respiratory Signals of Patients on Weaning Process
Giraldo, Beatriz* *(Univ. Poiltècnica de Catalunya)*; Garriga, Pau *(Univ. Politècnica de Catalunya)*; Diaz, Ivan *(Hospital de la Santa Creu i Sant Pau)*; Benito, Salvador *(Hospital de la Santa Creu i Sant Pau)*

18:00-19:30 WePOS-31.6
Comparison of Validity of Blood Pressure Estimation Parameters between Blood Pressure Change Patterns
Yang, Seungman *(Seoul National University)*; Kim, Hee Chan* *(Seoul National University)*

18:00-19:30 WePOS-31.7
Analysis of the Influence of Cuff Blood Pressure on the Prediction of Non-Invasive Fractional Flow Reserve from CTCA and Reduced Order CFD
Zhang, Jun-Mei *(National Heart Center)*; Chandola, Gaurav *(National Heart Center Singapore)*; Low, Ris *(National Heart Center Singapore)*; Tan, Ru-San *(National Heart Centre Singapore)*; Wong, Aaron Sung Lung *(National Heart Centre Singapore)*; Tan, Jack Wei Chieh *(National Heart Centre Singapore)*; Yeo, Khung Keong *(National Heart Centre Singapore)*; Chai, Ping *(National University Heart Centre Singapore)*; Teo, Lynette Li San *(National University Hospital)*; Ong, Ching Ching *(National University Hospital)*; Low, Adrian F *(National University Hospital)*; Baskaran, Lohendran *(National Heart Centre Singapore)*; Chua, Terrance *(National Heart Center)*; Koh, Tian Hai *(National Heart Centre Singapore)*; Tan, Swee Yaw *(National Heart Center)*; Lim, Soo Teik *(National Heart Centre Singapore)*; Zhong, Liang* *(National Heart Centre Singapore, Duke-NUS Medical School, Nation)*

18:00-19:30 WePOS-31.8
Pressure Wave Propagation in the Artificial Artery Model with Stenosis
Shimizu, Hiroto* *(Doshisha Univ.)*; Fumiaki, Iwase *(Doshisha Univ.)*; Matsukawa, Mami *(Doshisha Univ.)*; Ventre, Jeanne *(Univ. Paris 1 Panthéon-Sorbonne)*; Lagrée, Pierre-Yves *(UPMC)*

18:00-19:30 WePOS-31.9
Influence of Exercise on the Modified Blalock-Taussig Shunt: Patient-Specific Hemodynamic Analysis
Liu, Jinlong *(Shanghai Children's Medical Center, Shanghai Jiao Tong Univ.)*; Xiong, Jiwen *(Shanghai Children's Medical Center, Shanghai Jiao Tong Univ.)*; Qian, Yi *(Macquarie Univ.)*; Huang, Jihong *(Shanghai Children's Medical Center, Shanghai Jiao Tong Univ.)*; Sun, Qi* *(Shanghai Children's Medical Center, Shanghai Jiao Tong Univ.)*; Liu, Jinfen *(Shanghai Children's Medical Center, Shanghai Jiao Tong Univ.)*

18:00-19:30 WePOS-31.10
Unsuccessful Flow-Diverter Treatment of Intracranial Aneurysms – An Academic In-Silico Study
Berg, Philipp* *(University of Magdeburg)*; Roloff, Christoph *(University of Magdeburg)*; Janiga, Gabor *(University of Magdeburg)*; Beuing, Oliver *(University Hospital Magdeburg)*

18:00-19:30 WePOS-31.11
Computational Simulation of Mechanically Ventilated Neonatal Patients in the Intensive Care Unit
Saffaran, Sina* *(The Univ. of Warwick)*; Das, Anup *(Univ. of Warwick)*; Algarni, Saleh *(Univ. of Nottingham)*; Laviola, Marianna *(Univ. of Nottingham)*; Niklas, Christian *(Univ. of Nottingham)*; Hardman, Jonathan G. *(Univ. of Nottingham)*; Sharkey, Don *(Univ. of Nottingham)*; Bates, Declan Gerard *(Univ. of Warwick)*

18:00-19:30 WePOS-31.12
Cardiopulmonary Coupling as a New Parameter for Non-Intrusive Sleep Staging based on Polyvinylidene Fluoride Sensor
Kwon, Hyunbin *(Seoul National University)*; Choi, Sang Ho *(Seoul National University)*; Jin, Hyungwon *(Seoul National University)*; Lee, Yujin *(Seoul National University Hospital)*; Park, Kwang S.* *(Seoul National University)*

18:00-19:30 WePOS-31.13
Design of ECG Sensor for Fatigue Detection
Salb, David Julian *(Reutlingen University)*; Gromer, Markus Elia *(Reutlingen University)*; Walzer, Thomas *(Reutlingen University)*; Martinez Madrid, Natividad* *(Reutlingen University)*; Seepold, Ralf *(HTWG Konstanz)*

18:00-19:30 WePOS-31.14
Development of Evaluation System for Von Willebrand Factor Degradation by Mechanical Stress of Blood Pump
Inoue, Yusuke* *(Institute of Development, Aging & Cancer, Tohoku Univ.)*; Hayakawa, Masaki *(Nara Medical Univ.)*; Yamada, Akihiro *(Tohoku Univ.)*; Matsumoto, Masanori *(Nara Medical Univ.)*; Horiuchi, Hisanori *(Tohoku Univ.)*; Shiraishi, Yasuyuki *(Tohoku Univ.)*; Tachizaki, Yuma *(Tohoku Univ.)*; Sahara, Genta *(Tohoku Univ.)*; Fukaya, Aoi *(Tohoku Univ.)*; Iwamoto, Naoki *(Tohoku Univ.)*; Morita, Ryosuke *(Tohoku Univ.)*; Yambe, Tomoyuki *(Tohoku Univ)*

18:00-19:30 WePOS-31.15
A Multi-Objective Optimisation of Stent Geometries
Wright, Heidi *(UNSW)*; Khullar, Somesh *(University of New South Wales)*; Jinbo, Liu *(University of New South Wales)*; Ray, Tapabrata *(University of New South Wales)*; Beier, Susann* *(University of New South Wales)*

18:00-19:30 WePOS-31.16
Age Related Correlation of Short-Term RR Interval Means and HRV Measures based on Holter Data in Normal People
Pan, Yue *(Institute of Basic Medical Sciences, Chinese Academy of Medical)*; Wang, Zhigang *(Peking Union Medical College)*; Peng, Yi* *(Institute of Basic Medical Sciences, Chinese Academy of Medical)*

18:00-19:30 WePOS-31.17
Portable Nitric Oxide Generator for Intravascular Catheters
Novak, Ondrej* *(University of Utah)*; Konopinska, Kamila K. *(University of Michigan)*; Meyerhoff, Mark E. *(University of Michigan)*; Brown, Richard *(University of Utah)*

18:00-19:30 WePOS-31.18
Robust Conditional Granger Causality Analysis
Zheng, Yu *(Michigan State University)*; Li, Tongtong* *(Michigan State University)*

18:00-19:30 WePOS-31.19
Decreased Motor Control of the Core Muscles in Osteoarthritis Patients
Wang, Hanbin* *(Peking Univ.)*; Lin, Chutong *(Peking Univ. People's hospital)*; Yue, Zhuang *(Peking Univ.)*; Lin, Jianhao *(Peking Univ. People's hospital)*; Zhang, Jue *(Peking Univ.)*

18:00-19:30 WePOS-31.20
Evaluation of Cardiac Fibroblast Activation by Traction Force Microscopy
Zancla, Andrea* *(Università Roma Tre)*; Mozetic, Pamela *(St. Ann's University Hospital, International Clinical Research C)*; Orsini, Monica *(University of Roma Tre)*; Forte, Giancarlo *(St. Anne's University Hospital, International Clinical Research)*; Rainer, Alberto *(Campus Bio-Medico University of Rome)*

18:00-19:30 WePOS-31.21
Detaching RAW264.7 Macrophages from a Culture Dish using Ultrasound Excited by Langevin Transducer
Kuriyama, Takuma *(Keio Univ.)*; Fukuma, Yuki *(Keio Univ.)*; Imashiro, Chikahiro *(Keio Univ.)*; Kabayama, Kazuya *(Osaka Univ.)*; Takemura, Kenjiro* *(Keio Univ.)*

18:00-19:30 WePOS-31.22
Regulating Cell Migration by Horizontal Vibration of a Clinically Ubiquitous Cell Culture Dish
Enomoto, Umi *(Keio University)*; Imashiro, Chikahiro *(Keio University)*; Takemura, Kenjiro* *(Keio University)*

18:00-19:30 WePOS-31.23
High-Throughput Magnetic Actuation Platform to Induce Biomimetic Mechanical Cues on 3D Cell Culture
Enriquez, Angel* *(Purdue University)*; Libring, Sarah *(Purdue University)*; Park, Hyunsu *(Purdue University)*; Solorio, Luis *(Purdue University)*; Lee, Hyowon *(Purdue University)*

18:00-19:30 WePOS-31.24
Development of the Sensing and Monitoring System for Obstructive Sleep Apnea Diagnosis
Jang, Won Ick* *(ETRI)*; Ryu, Jin Hwa *(ETRI)*; Jang, Yongwon *(Electronics & Telecom Research Inst.)*

18:00-19:30 WePOS-31.26
Development of a Handheld Instrument with O-Phthalaladehyde Sensor Strip for Concentration Verification of Clinical Disinfectant
Cheng, Tzong-Jih* *(National Taiwan University)*

18:00-19:30 WePOS-31.27
Laparoscopic Renal Denervation as a Novel Therapeutic Approach of Resistant Hypertension: Simulation and Safety Validation
Baik, Jinhwan *(POSTECH)*; Song, Won Hoon *(Seoul National University Hospital)*; Yim, Donghyun *(POSTECH)*; Ye, Eunbi *(Postech)*; Yang, Sunchoel *(Osong Medical Innovation Foundation)*; Jeong, Chang Wook *(Seoul National University Hospital)*; Park, Sung-Min* *(POSTECH)*

18:00-19:30 WePOS-31.28
Trace Elemental Profile in Oral Precancer and Cancer
Sharma, Neha* *(Indian Institute of Tech. Kharagpur)*; Naik, Akash *(Indian Institute of Tech. Kharagpur)*; Shome, Sayani *(Guru Nanak Institute of Dental Sciences & Research)*; Biswas, Karabi *(Indian Institute of Tech. Kharagpur)*; Pal, Mousumi *(Guru Nanak Institute of Dental Science & Research)*; Paul, Rashmi Ranjan *(Guru Nanak Institute of Dental Science & Research)*; Chatterjee, Jyotirmoy *(Indian Institute of Tech. Kharagpur)*

18:00-19:30 WePOS-31.29
Biosensor for Rapid Detection of Influenza with High Sensitivity
Vasadi, Lukas James *(University of Cambridge)*; Wang, Ruizhi *(University of Cambridge)*; Danner, Patrick *(University of Cambridge)*; Hofmann, Stephan* *(University of Cambridge)*

18:00-19:30 WePOS-31.30
MRI-Targeted Placement of Handheld Raman Spectroscopy Probe in Prostate Tumor
Shono, Naoyuki* *(Brigham & Women's Hospital)*; Picot, Fabien *(Polytechnique Montreal)*; Leblond, Frederic *(Advanced Research Technologies Inc.)*; Kadoury, Samuel *(Polytechnique Montreal)*; Hata, Nobuhiko *(Brigham & Women's Hospital & Harvard Medical School)*

18:00-19:30 WePOS-31.31
A New Device to Predict the Evolution of Antibiotic Resistance
Froese, Vera* *(Charité Universitätsmedizin Berlin)*; Mütter, Malte *(Evolutionary Biology, Institute of Biology, Freie Universität Be)*; Jonuzi, Shpetime *(Evolutionary Biology, Institute of Biology, Freie Universität Be)*; Kertzscher, Ulrich *(Biofluid Mechanics Laboratory, Institute for Imaging Science and)*; Affeld, Klaus *(Biofluid Mechanics Laboratory, Institute for Imaging Science and)*; Rolff, Jens *(Evolutionary Biology, Institute of Biology, Freie Universität Be)*

18:00-19:30 WePOS-31.32
Numerical Investigation of the Heat Transfer Effects of Ingestion of Cold Water after a Hot Meal
Hosseini, Saeed* *(Auckland Bioengineering Institute, Univ. of Auckland, New Z)*; Paskaranandavadivel, Niranchan *(The Univ. of Auckland)*; Avci, Recep *(Univ. of Auckland)*; Suresh, Vinod *(Univ. of Auckland)*; Cheng, Leo K *(The Univ. of Auckland)*

18:00-19:30 WePOS-31.33
Prediction of Susceptible Sites to Plaque Depositions in Coronary Arteries by using Virtual Stenosis Method
Lee, Kyung Eun* *(Korea Institute of Industrial Technology)*; Shim, Eun Bo *(Kangwon National University)*

18:00-19:30 WePOS-31.34
Numerical Simulation of Electro-Active Hydrogels to be used for Cartilage Tissue Engineering
Farooqi, Abdul Razzaq* *(University of Rostock)*; Zimmermann, Julius *(University of Rostock)*; Bader, Rainer *(University Medicine of Rostock, Dept. of Orthopaedics)*; van Rienen, Ursula *(University of Rostock)*

18:00-19:30 WePOS-31.35
Human Upper Limb Heat Transfer: Effect of Thermal Properties
Ghadam Soltani, Elias* *(The University of Auckland)*; Safaei, Soroush *(University of Auckland)*; Bradley, Chris *(The University of Auckland)*; Hunter, Peter *(University of Auckland)*; Mithraratne, Kumar *(University of Auckland)*

18:00-19:30 WePOS-31.36
Human Upper Limb Heat Transfer: Effect of Geometry
Ghadam Soltani, Elias* *(The University of Auckland)*; Safaei, Soroush *(University of Auckland)*; Bradley, Chris *(The University of Auckland)*; Hunter, Peter *(University of Auckland)*; Mithraratne, Kumar *(University of Auckland)*

18:00-19:30 WePOS-31.37
Inhibition of Protein Aggregation by Small Molecules: Experimental and Molecular Docking Approaches
Al Adem, Kenana* *(Khalifa Univ. of Science & Technology)*; Lee, Sungmun *(Khalifa Univ. of Science & Technology)*

18:00-19:30 WePOS-31.38
InSilc: An in Silico Clinical Trials Cloud Platform for Bioresorbable Vascular Scaffolds
Karanasiou, Georgia *(Institute of Molecular Biology & Biotechnology, FORTH, Ioannin)*; Rigas, Georgios *(Univ. of Ioannina)*; Tachos, Nikolaos *(Unit of Medical Technology & Intelligent Information Systems,)*; Fotiadis, Dimitrios I.* *(Univ. of Ioannina)*

18:00-19:30 WePOS-31.39
Non-Invasive Assessment of Coronary Stenosis using Mean Age Theory
Hashemi, Javad *(University of Louisville)*; Rai, Shesh *(University of Louisville)*; Ghafghazi, Shahab *(University of Louisville)*; Berson, Eric* *(University of Louisville)*

18:00-19:30 WePOS-31.40
Connectivity Assessment in the Human Temporal Lobe by Cortico-Cortical Evoked Potentials and Granger Causality
Dümpelmann, Matthias* *(University Medical Center Freiburg)*; Novitskaya, Yulia *(Epilepsy Center, Medical Center – University of Freiburg, Fac)*; Schulze-Bonhage, Andreas *(University Hospital Freiburg)*

18:00-19:30 WePOS-31.41
Fading Effect Analysis in Time-Varying Functional Connectivity for AD, MCI and NC based on Resting-State fMRI Data
Renli, Brighty *(Okemos High School)*; Zheng, Yu *(Michigan State University)*; Zhu, David *(Michigan State University)*; Li, Tongtong* *(Michigan State University)*

18:00-19:30 WePOS-31.42
Changes in Prefrontal Cortex's EEG based Functional Connectivity during Laparoscopic Simulation Training
Keskin, Seda *(Acíbadem Mehmet Ali Aydínlar Univ.)*; Aksoy, Mehmet Emin *(Acibadem Mehmet Ali Aydinlar Univ. – Dept. of Biomedi)*; Ucrak, Fuat *(Bogazici Univ.)*; Bayram, Mehmed Bugrahan *(Acibadem Mehmet Ali Aydinlar Univ.)*; Ozcan, Alpay* *(Acibadem Mehmet Ali Aydinlar Univ.)*

18:00-19:30 WePOS-31.43
Study of the Influence of a Segmentation Threshold in the FFRCT
Agujetas, Rafael *(Univ. of Extremadura)*; Montanero, José María *(Univ. of Extremadura)*; Ferrera, Conrado* *(Univ. of Extremadura)*

18:00-19:30 WePOS-31.44
Asymmetric Multifractal Detrended Cross-Correlation Analysis of EEG and sEMG in the Processes of Force Changes
Chen, Xiaobi *(Xi'an Jiao Tong University)*; Xu, Guanghua* *(Xi'an Jiao Tong University)*; Zhang, Kai *(Xi'an Jiao Tong University)*; Zhang, Sicong *(Xi'an Jiao Tong University)*

18:00-19:30 WePOS-31.45
Development of an Omni-Directional Intraoperative Computed Tomography using Mecanum Wheel
Jonghyun, Ryu *(Wonkwang Univ. Hospital)*; Jeong, Kilhwan *(Wonkwang Univ.)*; Kim, Tae-Hoon *(Wonkwang Univ.)*; Jeong, Chang Won *(Wonkwang Univ.)*; Yoon, Kwon-Ha *(Wonkwang Univ. School of Medicine)*; Kim, Dae Won *(Wonkwang Univ. Hospital)*; Kim, Kou Gyeom* *(Wonkwang Univ.)*

18:00-19:30 WePOS-31.46
Electrical Impedance Tomography with Planar Electrode Arrangement
Osakada, Yuki* *(Osaka Institute of Technology)*; Uto, Sadahito *(Osaka Institute of Technology)*

18:00-19:30 WePOS-31.47
BronchoNav: Haptic based Preoperative Planning Tool for Virtual Bronchoscopy
Shaji, Ashly* *(Anhalt University of Applied Sciences)*; Mathew James, Nisanth *(Anhalt University of Applied Sciences)*; Bracio, Boris Romanus *(University of Applied Science Anhalt)*; Xhoxhaj, Festim *(Anhalt University of Applied Sciences)*; Pannier, Judith *(Städtisches Klinikum Dessau)*

18:00-19:30 WePOS-31.48
Synthesis of Pediatric Computed Tomography Scans with Deep Convolutional Generative Adversarial Networks
Kan, Chi Nok Enoch *(University of Minnesota, Twin Cities)*; Ye, Dong Hye* *(Marquette University)*

18:00-19:30 WePOS-31.49
Deep Learning Segmentation Performance Analysis on Pediatric Computed Tomography Scans
Maheen Aboobacker, Najib Akram *(Marquette University)*; Ye, Dong Hye* *(Marquette University)*

WePOS-32: 18:00-19:30 Hall B
Research-Poster-1-Page We D (Poster Session)

18:00-19:30 WePOS-32.1
Identification of Parkinson's Disease from Scarce Data using Learning Vector Quantization
Manome, Nobuhito* *(SoftBank Robotics Corp. / The University of Tokyo)*; Shinohara, Shuji *(The University of Tokyo)*; Suzuki, Kouta *(SoftBank Robotics Corp. / The University of Tokyo)*; Omiya, Yasuhiro *(PST Inc.)*; Higuchi, Masakazu *(The University of Tokyo)*; Mitsuyoshi, Shunji *(Dept. of Verbal Analysis of Pathophysiology Graduate School of M)*

18:00-19:30 WePOS-32.2
Time Delays in Higher Language Areas during Language Activities
Annovazzi, Valerio *(Univ. of Pavia)*; Aromataris, Giuseppe *(Dept. of Electrical, Computer, & Biomedical Engineering, Univ.)*; Cabrini, Alessandro *(Dept. of Electrical, Computer, & Biomedical Engineering, Univ.)*; Carone Fabiani, Filippo* *(Università degli Studi di Bergamo)*; Leporini, Roberto *(Universita di Bergamo)*; Moro, Andrea *(Institute of Advanced Study IUSS, Pavia)*; Magrassi, Lorenzo *(Fondazione IRCCS Policlinico S. Matteo)*

18:00-19:30 WePOS-32.3
Using Linear and Non-Linear Acoustic Parameters to Assess Vocal Status after Phonomicrosurgery in Reinke's Edema
Perez, Carlos J.* *(Universidad de Extremadura)*; Paniagua Vivas, M. Sandra *(Universidad de Extremadura)*; Madruga, Mario *(Universidad de Extremadura)*; De la O, Esther *(Hospital San Pedro de Alcántara)*

18:00-19:30 WePOS-32.4
Feature Quantities of EEG for a Model to Estimate Human Internal States of Concentration and Relaxation
Sazuka, Naoya* *(Sony Corporation)*; Komoriya, Yota *(Sony Corporation)*; Ezaki, Takayuki *(Sony Corporation)*; Oba, Takeyuki *(Nagoya Univ.)*; Ohira, Hideki *(Nagoya Univ.)*

18:00-19:30 WePOS-32.5
Parkinson's Disease Detection based on LightGBM
Suzuki, Kouta* *(SoftBank Robotics Corp. / The University of Tokyo)*; Shinohara, Shuji *(The University of Tokyo)*; Higuchi, Masakazu *(The University of Tokyo)*; Manome, Nobuhito *(SoftBank Robotics Corp. / The University of Tokyo)*; Omiya, Yasuhiro *(PST Inc.)*; Mitsuyoshi, Shunji *(Dept. of Verbal Analysis of Pathophysiology Graduate School of M)*

18:00-19:30 WePOS-32.6
Feature Selection using Kullback-Leibler Divergence for Emotion Classification
Lee, JeeEun *(YonSei University)*; Yoo, Sun K.* *(Yonsei University Health System)*

18:00-19:30 WePOS-32.7
Presence of Atrial and Ventricular Extrasystoles during Intervals of Moderate Physical Activity in Healthy Subjects
Pérez López, Nancy Gabriela* *(Instituto Politécnico Nacional-Unidad Profesional Interdiscipli)*; Muñoz-Diosdado, Alejandro *(UPIBI, Instituto Politécnico Nacional, Mexico)*

18:00-19:30 WePOS-32.8
Automatic Classification of Non-Snore, Simple Snore and OSA Related Snore using Audio Signal
Sebastian, Arun* *(University of Sydney)*; de Chazal, Philip *(University of Sydney)*

18:00-19:30 WePOS-32.9
Predicting Future Falls of Parkinsonians using Posturography and Random Forest
Bargiotas, Ioannis* *(Univ. Paris Saclay – ENS Cachan)*; Moreau, Albane *(COGNACG, CNRS/SSA UMR 8257, Univ. Paris Descartes)*; Vayatis, Nicolas *(Centre de Mathématiques et Leurs Applications, ENS Cachan, CNRS,)*; Ricard, Damien *(COGNACG, CNRS/SSA UMR 8257, Univ. Paris Descartes)*

18:00-19:30 WePOS-32.10
Integrating Real Patient's Data into Force Simulation
Wang, Kuocheng *(UIUC/HCESC)*; Kesavadas, Thenkurussi* *(UIUC/HCESC)*; Sankaran, Naveen Kumar *(University of Illinois at Urbana-Champaign)*

18:00-19:30 WePOS-32.11
A System of Estimation on Optical Properties of Biological Tissue using Inverse Monte Carlo Method
Suzuki, Shiho* *(Tokyo Denki Univ.)*; Washio, Toshikatsu *(National Institute of Advanced Industrial Science & Technology)*; Kuroda, Kagayaki *(School of Information Science & Technology, Tokai Univ.)*; Matsumae, Mitsunori *(School of Medicine, Tokai Univ.)*; Arafune, Tatsuhiko *(Tokyo Denki Univ.)*

18:00-19:30 WePOS-32.12
Design Method for Robots for Overground Physical Interaction
Regmi, Sambad *(Missouri Univ. of Science & Technology)*; Song, Yun Seong* *(Missouri Univ. of Science & Technology)*

18:00-19:30 WePOS-32.13
Movement Analysis of Shoulder Musculoskeletal Disorders
Mangal, Naveen Kumar* *(IIT JODHPUR)*; Tiwari, Anil Kumar *(IIT Jodhpur)*

18:00-19:30 WePOS-32.14
Contribution of the Quadriceps Femoris Muscle for Recumbent Bicycle Pedaling, Evaluated by an MMG/EMG Hybrid Transducer
Oka, Hisao* *(Okayama University)*; Fukuhara, Shinichi *(Kawasaki University of Medical Welfare)*

18:00-19:30 WePOS-32.15
Mechanomyogram and Electromyogram Measurement during Isometric Contraction of a Biceps Brachii Muscle
Oka, Hisao* *(Okayama University)*; Fukuhara, Shinichi *(Kawasaki University of Medical Welfare)*

18:00-19:30 WePOS-32.16
Hidden Object Test [HOT]: A Memory Test that Can Detect Early Stage Dementia using Virtual Reality Technology
Choi, Jongdoo* *(Samsung Medical Center)*; Kim, Eun Ji *(Samsung Medical Center)*

18:00-19:30 WePOS-32.17
A Brief Version of Social Event Memory Test (BSEMT): A Sensitive Cognitive Test that can Detect Early Stage Dementia
Kim, Eun Ji* *(Samsung Medical Center)*; Choi, Jongdoo *(Samsung Medical Center)*

18:00-19:30 WePOS-32.18
Low-Cost System for Experimental Manometry
Díez de los Ríos, Iván *(Univ. of Seville)*; Barriga-Rivera, Alejandro* *(Univ. Pablo de Olavide)*; Elena, Mar *(Univ. de Sevilla)*

18:00-19:30 WePOS-32.19
Non-Invasive Ring-Type Electroceuticals for Treatment of Preterm Labor
Lee, Yi Jae *(Korea Institute of Science & Technology)*; Kotov, Dmytro *(Korea Institute of Science & Technology)*; Lee, Changhyuk *(Korea Institute of Science & Technology)*; Hwang, Jung-ho *(Korea Institute of Toxicology)*; Ahn, Ki Hoon *(Dept. of Obstetrics & Gynecology, Korea University Medica)*; Lee, Soo Hyun* *(Korea Institute of Science & Technology)*

18:00-19:30 WePOS-32.20
Sleep Apnea/Hypopnea Causes an Anterior to Posterior Information Flow Increase in EEG
Zhou, Guolin* *(Sun Yat-Sen University)*; Liao, Yuanyuan *(Sun Yat-Sen University, Guangzhou City, Guangdong Prov, China)*; Luo, Yu-Xi *(Sun Yat-Sen University)*

18:00-19:30 WePOS-32.21
Comparisons of the Delivery Efficiency of Salbutamol with Jet and Mesh Nebulizer
Chang, Kyung Hwa *(Dongguk University College of Medicine)*; Moon, Sang-Hyub *(Dongguk University)*; Park, Hyun Mok *(Dongguk University)*; Lee, Ye Jin *(Dongguk University)*; Park, Bong Joo *(Kwangwoon University)*; Nam, Ki Chang* *(Dongguk University College of Medicine)*

18:00-19:30 WePOS-32.22
Enhancement of Nebulization Output Rate for Viscous Solution
Moon, Sang-Hyub *(Dongguk University)*; Chang, Kyung Hwa *(Dongguk University College of Medicine)*; Lee, Ye Jin *(Dongguk University)*; Park, Hyun Mok *(Dongguk University)*; Park, Bong Joo *(Kwangwoon University)*; Nam, Ki Chang* *(Dongguk University College of Medicine)*

18:00-19:30 WePOS-32.23
Performance Testing Method for Needle Free Injector
Lee, Ye Jin *(Dongguk University)*; Kwon, Bumsun *(Dongguk University Hospital)*; Park, Sukang *(Korea Testing Certification)*; Park, ByungEun *(Korea Testing Certification)*; Kim, Ho Chul *(Eulji University)*; Chang, Kyung Hwa *(Dongguk University College of Medicine)*; Moon, Sang-Hyub *(Dongguk University)*; Nam, Ki Chang* *(Dongguk University College of Medicine)*

18:00-19:30 WePOS-32.24
Alternating Magnetic Field Induced Drug Release in Erythromycin Nano-Vesicles Encapsulating Magnetic Nanoparticles
Serag El Din, Nermeen* *(German Univ. in Cairo)*; Hassan, Mai *(German Univ. in Cairo)*; Salah, Bassant *(German Univ. in Cairo)*; Abdel Halim, Mohammed *(German Univ. in Cairo)*

18:00-19:30 WePOS-32.25
Antifungal Plasma Activated Hydrogels
Liu, Zhengxin* *(Peking University)*; Dang, Jie *(Peking University)*; Zhang, Jue *(Peking University)*

18:00-19:30 WePOS-32.26
Heat Generation of Magnetic Nanoparticles Vibrated by Alternative Magnetic Field for Targeted Drug Release
Phan, Huu Lam* *(Ulsan Univ.)*; Anh Le, Tuan *(Gyeongsang National Univ.)*; Le, Thi Huong *(Univ. of Ulsan)*; Nguyen, Hang Phuong *(Univ. of Ulsan)*; Duong, Thuy *(Univ. of Ulsan)*; Nguyen, Trung *(Univ. of Ulsan)*; Lee, HyoSeok *(Univ. of Ulsan)*; Oh, Seok *(Univ. of Ulsan)*; Lee, Suwon *(Univ. of Ulsan)*; Son, Hyewon *(Univ. of Ulsan, Ulsan)*; Hwang, Changho *(Ulsan Univ. Hospital)*; Yoon, Jungwon *(Gyeongsang National Univ.)*; Koo, Kyoin *(Univ. of Ulsan)*

18:00-19:30 WePOS-32.27
Substrate Characterization with Local Impedance Mapping
Unger, Laura Anna* *(Institute of Biomedical Engineering, Karlsruhe Institute of Tech)*; Doessel, Olaf *(Karlsruhe Institute of Technology (KIT))*; Schmitt, Claus *(Staedtisches Klinikum Karlsruhe)*; Luik, Armin *(Staedtisches Klinikum Karlsruhe)*

18:00-19:30 WePOS-32.28
Application of a Decision Tree Algorithm to Predict the Rehabilitation Duration of Gait-Related Dysfunctions: A Proof of Concept
Caldas, Rafael* *(RWTH Aachen Univ.)*; Campos, Mariana *(Univ. of Pernambuco)*; Buarque de Lima Neto, Fernando *(Univ. of Pernambuco)*; Markert, Bernd *(IAM – RWTH Aachen Univ.)*

18:00-19:30 WePOS-32.29
Interactive Process Mining: Training Health Care Professionals towards a Sustainable Value based Health Care System
Traver, Vicente* *(ITACA – Univ. Politècnica de València)*; Ibañez, Gema *(ITACA-TSB Univ. Politecnica de Valencia)*; de Carvalho, Paulo *(Univ. of Coimbra)*; Rodríguez, Blanca *(Atos Spain, S.A.)*; Posada, Jorge *(Medtronic)*; Seoane, Fernando *(Karolinska Institutet)*; Gonçalves, Lino *(Centro Hospitalar de Coimbra)*; Santos, Manuel *(Centro Hospitalar e Universitário de Coimbra)*; Sala, Pilar *(Institute ITACA)*; Fernandez-Llatas, Carlos *(Univ. Politecnica de Valencia)*

18:00-19:30 WePOS-32.30
Use of Granger Causality from fMRI as a Biomarker for Body Mass Index
Byeon, Kyoungseob *(Sungkyunkwan University)*; Park, Hyunjin* *(Sungkyunkwan University)*

18:00-19:30 WePOS-32.31
Evaluation of Experimental Task with fMRI Measurement for Applying NIRS Measurement
Fukuda, Keiko* *(Tokyo Metropolitan College of Industrial Tech.)*; Seki, Shun *(Tokyo Metropolitan College of Industrial Tech.)*; Kunii, Ren *(Tokyo Metropolitan College of Industrial Tech.)*; Wang, Li-qun *(Tokyo Denki Univ.)*; Kuriki, Shinya *(Tokyo Denki Univ.)*; Tanaka, Keita *(Tokyo Denki Univ.)*

18:00-19:30 WePOS-32.32
Ultrafast Ultrasound Imaging of Motor Units in Skeletal Muscle during Voluntary Contractions – A Pilot Validation Study by using Needle-EMG
Rohlén, Robin* *(Umeå University)*; Stålberg, Erik *(Uppsala University)*; Grönlund, Christer *(Umeå University)*

18:00-19:30 WePOS-32.33
A Magnetic Cell-Based Theranostic Microrobot for Anticancer Therapy: A Preliminary Study
Nguyen, Van Du* *(Chonnam National Univ.)*; Min, Hyun-Ki *(Chonnam National Univ.)*; Kim, Ho Yong *(Chonnam National Univ.)*; Kim, Chang-Sei *(Chonnam National Univ.)*; Han, Jiwon *(Chonnam National Univ.)*; Park, Jongoh *(Chonnam National Univ.)*; Choi, Eunpyo *(Chonnam National Univ.)*

18:00-19:30 WePOS-32.34
Controlled Release of Doxorubicin from Polyethylene Glycol Functionalized Melanin Nanoparticles for Breast Cancer Therapy
Ozlu, Busra *(Inha Univ.)*; Shim, Bong Sup* *(Inha Univ.)*

WePOS-33: 18:00-19:30 Hall B
Research-Poster-1-Page We E (Poster Session)

18:00-19:30 WePOS-33.1
An Experiment to Distinguish Major Depression and Dementia with Lewy Bodies from Healthy Participants using Voice
Uraguchi, Tomotaka* *(PST Inc.)*; Omiya, Yasuhiro *(PST Inc.)*; Shinohara, Shuji *(Univ. of Tokyo)*; Manome, Nobuhito *(SoftBank Robotics Corp. / Univ. of Tokyo)*; Suzuki, Kouta *(SoftBank Robotics Corp. / Univ. of Tokyo)*; Kumamoto, Yorio *(Life Science Institute Inc.)*; Tokuno, Shinichi *(Univ. of Tokyo)*

18:00-19:30 WePOS-33.2
Constructing Artificial Microvascular Trees by Generative Adversarial Networks
Jiang, Akang *(Zhejiang University of Technology)*; Fang, Luping *(Zhejiang University of Technology)*; Ning, Gangmin *(Zhejiang University)*; Pan, Qing* *(Zhejiang University of Technology)*

18:00-19:30 WePOS-33.3
Discriminative Model based on Recurrent Neural Network Architecture for Recognition of Abnormal Gait Patterns
Jun, Kooksung *(Gwangju Institute of Science & Technology)*; Lee, Deok-Won *(Gwangju Institute of Science & Technology)*; Lee, Sanghyub *(Gwangju Institute of Science & Technology)*; Kim, Mun Sang* *(Gwangju Institute of Science & Technology)*

18:00-19:30 WePOS-33.4
Postoperative Pain Assessment using Convolutional Neural Network
Shin, Hangsik* *(Chonnam National University)*; Park, Junyung *(Chonnam National University)*; Seok, HyeonSeok *(Chonnam National University)*; Yun, Yonghyeon *(Daelim University)*

18:00-19:30 WePOS-33.5
Text Field Analysis of 'Big Data' – 14, 000 24hr ECG Recordings
Khamis, Heba* *(UNSW Sydney)*; Fulthorp, Elias Joseph *(Central Sydney Cardiology)*; Schindhelm, Klaus *(University of New South Wales)*; Lovell, Nigel H. *(University of New South Wales)*; Wilcox, Ian *(University of New South Wales)*

18:00-19:30 WePOS-33.6
Association Between Blood Pressure Classification and Incident Proteinuria Risk – 2017 American College of Cardiology/American Heart Association Guidelines
Park, Yujin *(Seoul National Univ. College of Medicine)*; Park, Minseon *(Seoul National Univ. Hospital)*; Seo, Seungmin *(Seoul National Univ. Hospital)*; Hong, Yoonjung *(Seoul National Univ. Hospital)*; Yoon, Hyung-Jin* *(Seoul National Univ.)*

18:00-19:30 WePOS-33.7
Analysis and Classification of Urinary Stones based on Radiology_CDM for Machine Learning
Noh, SiHyeong *(Wonkwang Univ.)*; Kim, SeungJin *(Wonkwang Univ.)*; Kim, Tae-Hoon *(Wonkwang Univ.)*; Jun, Hong Young *(Wonkwang Univ. Hospital)*; Lee, Chung Sub *(Wonkwang Univ.)*; Jeong, Chang Won* *(Wonkwang Univ.)*; Yoon, Kwon-Ha *(Wonkwang Univ. School of Medicine)*

18:00-19:30 WePOS-33.8
Bayesian Estimation of Prevalence of Interstitial Pneumonia by Two-Sources Phenotyping Method
Nohara, Yasunobu* *(Kyushu University Hospital)*; Izukura, Rieko *(Kyushu University Hospital)*; Nojiri, Chinatsu *(Care Four Inc.)*; Yamashita, Takanori *(Kyushu University Hospital)*; Nakashima, Naoki *(Kyushu University Hospital)*

18:00-19:30 WePOS-33.9
An Experiment to Detect Laryngomalacia using Baby's Crying Voice
Omiya, Yasuhiro* *(PST Inc.)*; Nakamura, Mitsuteru *(The University of Tokyo)*; Shinohara, Shuji *(The University of Tokyo)*; Higuchi, Masakazu *(The University of Tokyo)*; Suzuki, Kouta *(SoftBank Robotics Corp. / The University of Tokyo)*; Manome, Nobuhito *(SoftBank Robotics Corp. / The University of Tokyo)*; Mitsuyoshi, Shunji *(Dept. of Verbal Analysis of Pathophysiology Graduate School of M)*; Yamamoto, Isao *(Kanagawa Dental University)*; Mukai, Susumu *(Mukai Clinic)*; Tokuno, Shinichi *(The University of Tokyo)*

18:00-19:30 WePOS-33.10
Forecasting of Disease Progression: Hidden Markov Models vs. Recurrent Neural Networks
Baucum, Matthew* *(University of Tennessee, Knoxville)*; Khojandi, Anahita *(University of Tennessee)*

18:00-19:30 WePOS-33.11
Multiclass Classification of Arrhythmia based on Convolutional Neural Network
Yoon-Ji, Kim *(Yonsei University)*; Urtnasan, Erdenebayar *(Yonsei University)*; Park, Jonguk *(Yonsei University)*; Lee, Kyoung Joung* *(Yonsei University)*

18:00-19:30 WePOS-33.12
Service for Digital Annotation of Scientific Data
Kulhanek, Tomas* *(E-Science Data Factory)*; Le Franc, Yann *(E-Science Data Factory)*

18:00-19:30 WePOS-33.13
Validation of Machine Learning Algorithms to Predict Proteinuria
Kwak, Jin Seul *(Seoul National Univ.)*; yu, Mi-Yeon *(Hanyang Univ. Guri Hospital)*; Lee, Hajeong *(Seoul National Univ. Hospital)*; Kang, Hee Gyung *(Seoul National Univ. College of Medicine)*; Yoon, Hyung-Jin* *(Seoul National Univ.)*

18:00-19:30 WePOS-33.14
A Machine Learning Approach to Investigate the Predictive Value of Pulse Pressure in ICU Mortality-Risk
Youssef Ali Amer, Ahmed* *(KU Leuven)*; Vranken, Julie *(Hasselt Univ., Faculty of Medicine & Life Sciences; Zieke)*; Mesotten, Dieter *(Hasselt Univ., Faculty of Medicine & Life Sciences, Limbu)*; Vandervoort, Pieter *(Dept. of Cardiology, Ziekenhuis Oost-Limburg, Genk)*; Storms, Valerie *(Hasselt Univ., Faculty of Medicine & Life Sciences, Limbu)*; Luca, Stijn *(KU Leuven Technology Campus Geel, AdvISe)*; Vanrumste, Bart *(Katholieke Univ. Leuven)*; Aerts, Jean-Marie *(KU Leuven)*

18:00-19:30 WePOS-33.15
A New Formula for the Estimation of Meal Insulin-Bolus in Type 1 Diabetes Therapy Accounting for Glucose Rate of Change
Noaro, Giulia *(University of Padova)*; Cappon, Giacomo* *(University of Padova)*; Del Favero, Simone *(University of Padova, Padova, Italy)*; Sparacino, Giovanni *(University of Padova)*; Facchinetti, Andrea *(University of Padova)*

18:00-19:30 WePOS-33.16
Obstructive Sleep Apnea Detection in General Population
Chen, Gengbo* *(Biofourmis)*; Xie, Jiecheng *(Biofourmis)*

18:00-19:30 WePOS-33.17
Deep ConvNets for Multivariate Time Series Classification with Application to Healthcare
Viton, Fabien* *(University of Picardie Jules Verne)*; Elbattah, Mahmoud *(Université de Picardie Jules Verne)*; Dequen, Gilles *(University of Picardie Jules Verne)*; Guérin, Jean-Luc *(Université de Picardie Jules Verne)*

18:00-19:30 WePOS-33.18
Near-Infrared Spectrum Features of Different Water Samples and Temperature Changes
Sumali, Brian *(Keio University)*; Mitsukura, Yasue* *(Keio University)*; Tsenkova, Roumiana *(Kobe University)*; Hamada, Nozomu *(Keio University)*

18:00-19:30 WePOS-33.19
Recognition of Basic Driving Scenarios
Doniec, Rafal* *(Silesian University of Technology)*; Mocny-Pachońska, Katarzyna *(Medical University of Silesia)*; Piaseczna, Natalia *(Silesian University of Technology)*; Siecinski, Szymon *(Silesian University of Technology, Faculty of Biomedical Enginee)*; Szymczyk, Jacek *(Silesian University of Technology (Politechnika Śląska))*; Wadas, Marta *(Silesian University of Technology, Gliwice, Poland)*

18:00-19:30 WePOS-33.20
Liver Fibrosis Classified by Quantitative Ultrasound Parameters and Deep Convolutional Neural Networks
Lin, Huang-Chen *(National Cheng Kung University)*; Wu, Ting-An *(National Cheng Kung University)*; Wang, Shyh-Hau* *(National Cheng Kung University)*

18:00-19:30 WePOS-33.21
Modeling the Carb-Counting Error in Type 1 Diabetes Management
Roversi, Chiara *(University of Padova)*; Vettoretti, Martina* *(University of Padova)*; Facchinetti, Andrea *(University of Padova)*; Del Favero, Simone *(University of Padova, Padova, Italy)*; Sparacino, Giovanni *(University of Padova)*

18:00-19:30 WePOS-33.22
Joint 3D CNN Prediction Framework of AHI using Physiological Indicators and CT Images
Ning, Guochen *(Tsinghua Univ.)*; He, Mu *(Dept. of Otolaryngology, Head & Neck Surgery, Beijing Tsi)*; You, Jingyuan *(Tsinghua Univ., School of Medicine)*; Zhang, Xinran *(Tsinghua Univ.)*; Liao, Hongen *(Tsinghua Univ.;)*; Ye, Jingying* *(Beijing Tsinghua Changgung Hospital)*

18:00-19:30 WePOS-33.23
Manual Dexterity Assessment for Stroke Patients by using Fuzzy C-Means Clustering Algorithm
Lin, Bor-Shing *(National Taipei University)*; Lee, I-Jung* *(National Taipei University)*; Hsiao, Pei-Chi *(Dept. of Physical Medicine & Rehabilitation, Chi-Mei Medi)*; Yang, Shu-Yu *(Dept. of Physical Medicine & Rehabilitation, Chi-Mei Medi)*; Lin, Bor-Shyh *(National Chiao Tung University)*

18:00-19:30 WePOS-33.24
Treadmill-to-Overground Mapping of Marker Trajectory for Treadmill-Based Gait Analysis
Jung, Woo Chang *(Hankyong National University)*; Lee, Jung Keun* *(Hankyong National University)*

18:00-19:30 WePOS-33.25
Transition Characteristics Analysis of Muscle Activity Patterns for Firefighters
Isezaki, Takashi* *(NTT Service Evolution Labs)*; Aoki, Ryosuke *(NTT Corp.)*; Indo, Takuya *(NTT)*; Deshpande, Sameer *(IISRI, Deakin Univ.)*; Tamir, Levin *(Dimension Data Australia)*

18:00-19:30 WePOS-33.26
Identification System for Surgical Instruments on Metal Tray using UHF Band RFID and Low-Intensity Antennae
Hosaka, Ryosuke* *(Shonan Institute of Technology)*

18:00-19:30 WePOS-33.27
Trilhar – The Mobile App for Speech Therapy Support
E. C. Silva, Samuel* *(UFRN)*; S. Silva, Raul *(UFRN)*; de Araújo Barbosa, Alexandre Lucas *(Federal Univ. Rio Grande do Norte)*; Alves Salgado Azoni, Cíntia *(Federal Univ. Rio Grande do Norte)*; Stransky, Beatriz *(Federal Univ. Rio Grande do Norte)*; Bezerra Soares, Heliana *(Federal Univ. of Rio Grande do Norte)*

18:00-19:30 WePOS-33.28
Portuguese Haemophilia Registry: A First Characterization of Patients based on a Web-Based Application
Teixeira, Leonor *(Aveiro Univ.)*; Ferreira, Carlos Manuel Santos *(Aveiro Univ.)*; Sousa Santos, Beatriz* *(Aveiro Univ.)*

18:00-19:30 WePOS-33.29
Automatic Classification of Sleep Stages based on Convolutional Neural Network using an Electrocardiogram
Urtnasan, Erdenebayar *(Yonsei University)*; Yoon-Ji, Kim *(Yonsei University)*; Park, Jonguk *(Yonsei University)*; Lee, Kyoung Joung* *(Yonsei University)*

18:00-19:30 WePOS-33.30
Odontofile Application for Personalized Treatment in Oral Health
Pereira da Cunha, Ana Julia* *(UFRN)*; B. e Silva, Ana Luíza *(UFRN)*; B. Fernandes, João Paulo *(UFRN)*; Bezerra Soares, Heliana *(Federal Univ. of Rio Grande do Norte)*; Ribeiro, Anna Giselle *(Univ. Federal do Rio Grande do Norte)*; D. Vilar Wanderley, Caroline *(Univ. Federal do Rio Grande do Norte (UFRN))*

18:00-19:30 WePOS-33.31
Heart Rate Rhythm based Psychological Flow Frequency Prediction
Shibui, Toyohito* *(Graduate School of Engineering, Hosei University)*; Yajima, Tomoaki *(Hosei University)*; Momoi, Emi *(University of Electro-Communications)*; Yana, Kazuo *(Hosei University)*; Asakawa, Kiyoshi *(Hosei University)*

18:00-19:30 WePOS-33.32
Flow Related State Classification based on the Experience Sampling Method
Yoshikawa, Reina *(Hosei Univ.)*; Yana, Kazuo* *(Hosei Univ.)*; Asakawa, Kiyoshi *(Hosei Univ.)*; Hirahara, Makoto *(Hosei Univ.)*

18:00-19:30 WePOS-33.33
App to Measure the Degree of Patient Satisfaction in the Clinical Dentistry School of UFRN
Beatriz Cavalcante Souza, Flavia *(UFRN)*; Pereira da Cunha, Ana Julia *(UFRN)*; Goulart, Leonardo* *(Federal Univ. of Rio Grande do Norte)*; Larissa Pereira da Cunha, Mariana *(UFRN)*; Bezerra Soares, Heliana *(Federal Univ. of Rio Grande do Norte)*; Ribeiro, Anna Giselle *(Univ. Federal do Rio Grande do Norte)*; D. Vilar Wanderley, Caroline *(Univ. Federal do Rio Grande do Norte (UFRN))*

18:00-19:30 WePOS-33.34
Decentralized Framework for Medical Images based on Blockchain and Inter Planetary File System
Jabarulla, Mohamed Yaseen *(Gwangju Institute of Science & Tech.)*; Jung, GilJun *(Gwangju Institute of Science & Tech.)*; Lee, Heung-No* *(Gwangju Institute of Science & Tech. (GIST))*

18:00-19:30 WePOS-33.35
eHealth4Ageing: Electronic Health Record for the Elderly
Eliadou, Eliana *(Archaggelos Michael Elderly Center)*; Panayides, Andreas* *(Univ. of Cyprus)*; Antoniou, Zinonas *(Univ. of Cyprus)*; Constantinou, Ioannis *(Univ. of Cyprus)*; Neokleous, Kleanthis *(Univ. of Cyprus)*; Christodoulou, Costas *(3AeHealth LTD)*; Kouyoumdjian, Maria *(Archaggelos Michael Elderly Center)*; Papayianni, Ersi *(Archaggelos Michael Elderly Center)*; Neofytou, Marios *(Univ. of Cyprus)*

18:00-19:30 WePOS-33.36
A Novel Approach towards Human Posture Estimation to Review Lumbar Lordosis
K, Veena Divya *(Rastreeya Vidyalaya College of Engineering, Bengaluru)*; Mukherjee, Devanshu* *(RVCE)*; Roy, Somali *(RV College of Engineering)*; Shree, Vidhya *(RV College of Engineering)*; P M, Rajasree *(R.V. College of Engineering, Bengaluru)*

18:00-19:30 WePOS-33.37
Heart Rate Respiratory Rhythm Cancelation via Acceleration Signals
Kaseda, Yuto *(Hosei Univ.)*; Shibui, Toyohito *(Graduate School of Engineering, Hosei Univ.)*; Yana, Kazuo* *(Hosei Univ.)*

18:00-19:30 WePOS-33.38
Gait Data Collecting and Analyzing System based on Skeleton Data Obtained by using Multiple Kinect Sensors
Lee, Sanghyub *(Gwangju Institute of Science & Technology)*; Lee, Deok-Won *(Gwangju Institute of Science & Technology)*; Jun, Kooksung *(Gwangju Institute of Science & Technology)*; Ko, Joong-Kwang *(GIST)*; Kim, Mun Sang* *(Gwangju Institute of Science & Technology)*

18:00-19:30 WePOS-33.39
Effectiveness of Voice Biomarker in Detecting Bipolar Disorder
Higuchi, Masakazu* *(The Univ. of Tokyo)*; Nakamura, Mitsuteru *(The Univ. of Tokyo)*; Shinohara, Shuji *(The Univ. of Tokyo)*; Omiya, Yasuhiro *(PST Inc.)*; Takano, Takeshi *(PST Inc.)*; Suzuki, Kouta *(SoftBank Robotics Corp. / The Univ. of Tokyo)*; Manome, Nobuhito *(SoftBank Robotics Corp. / The Univ. of Tokyo)*; Toda, Hiroyuki *(National Defense Medical College)*; Saito, Taku *(National Defense Medical College)*; Yoshino, Aihide *(National Defense Medical College)*; Mitsuyoshi, Shunji *(Dept. of Verbal Analysis of Pathophysiology Graduate School of M)*; Tokuno, Shinichi *(The Univ. of Tokyo)*

18:00-19:30 WePOS-33.40
Sliding Window Sampling (SWS): A Strategy to Improve RNN based Cuffless Blood Pressure Estimation
Tan, Daxin* *(The Chinese Univ. of Hong Kong)*; Su, Peng *(The Chinese Univ. of Hong Kong)*; Liu, Jing *(The Chinese Univ. of Hong Kong)*; Zhang, Yuan-Ting *(The Chinese Univ. of Hong Kong)*; Zhao, Ni *(The Chinese Univ. of Hong Kong)*

18:00-19:30 WePOS-33.41
Performance Comparison of Serialization Libraries using FHIR Resources
Lee, Ah Ra *(KyungPook National Univ.)*; Kim, Min Gyu *(Kyungpook National Univ.)*; Won, Kyung Jae *(KyungPook National Univ.)*; Kim, Il Kon* *(Kyungpook National Univ.)*

18:00-19:30 WePOS-33.42
A Pilot Study of Predicting CPAP Adherence based on the Statistical Values of Previous CPAP Usage Duration and Related Parameters
Eguchi, Kana* *(NTT Corporation)*; Azuma, Shozo *(Nippon Telegraph & Telephone Corporation)*; Indo, Takuya *(NTT)*; Takeyama, Hirofumi *(Dept. of Respiratory Care & Sleep Control Medicine, Gradu)*; Chin, Kazuo *(Univ.)*; Nambu, Masayuki *(Kyoto Univ. Hospital)*; Kuroda, Tomohiro *(Kyoto Univ.)*

18:00-19:30 WePOS-33.43
Linear Data-Driven Models for Real-Time Prediction of Hypo/Hyperglycemic Events using Continuous Glucose Sensor Data Only
Prendin, Francesco *(University of Padova)*; Del Favero, Simone* *(University of Padova, Padova, Italy)*; Vettoretti, Martina *(University of Padova)*; Sparacino, Giovanni *(University of Padova)*; Facchinetti, Andrea *(University of Padova)*

18:00-19:30 WePOS-33.44
A Comparison between Measured Values and Estimated Values of Resting Metabolic Rate in Spinal Cord Injured Patients
Kang, Jungsun* *(Rehabilitation Engineering Research Institute)*; Chang, Yunhee *(Rehabilitation Engineering Research Institute)*; Kim, Gyuseok *(Rehabilitation Engineering Research Institute)*; Hong, Engpyo *(Rehabilitation Engineering Research Institute)*

18:00-19:30 WePOS-33.45
Measurement of Energy Expenditure According to Changes in Wheelchair Driving Speed for SCI
Chang, Yunhee* *(Rehab. Engineering Research Institute)*; Kang, Jungsun *(Rehab. Engineering Research Institute)*; Hong, Engpyo *(Rehab. Engineering Research Institute)*; Kim, Gyuseok *(Rehab. Engineering Research Institute)*

18:00-19:30 WePOS-33.46
Respiration and Pulse Variability Analyses in Patient with Spinal Cord Injury using a Less-Burden Monitoring System in Bed and Its Application to Management of Secretions in Airways
Motoi, Kosuke* *(Shizuoka Institute of Science & Technology)*; Suganuma, Miki *(Shizuoka Institute of Science & Technology)*; Yamakoshi, Yasuhiro *(Showa University School of Medicine)*; Kuga, Yusuke *(Spinal Injuries Center)*; Ehara, Yoshito *(Spinal Injuries Center)*; Tanaka, Naoto *(Kanazawa University)*; Sakai, Hiroaki *(Spinal Injuries Center)*; Yamakoshi, Ken-ichi *(Kanazawa University)*

18:00-19:30 WePOS-33.47
Design and Implementation of a Biosensing Microsystem for Non-Invasive Estimation of NIR-Visible Spectrum
Sen, Prasanta Kr* *(IIT Kharagpur)*; Das Mandal, Shyamal Kumar *(IIT Kharagpur)*; Laskar, Mostafizur Rahaman *(IIT Kharagpur)*

18:00-19:30 WePOS-33.48
VR-Based Multiplayer Game Contents for Upper Limb Rehabilitation
Shin, Sung-Wook *(Korea Polytechnic Univ.)*; Lee, HyeokMin *(Korea Polytechnic Univ.)*; Moon, Ho-Sang *(Korea Polytechnic Univ.)*; Chung, Sung-Taek* *(Korea Polytechnic Univ.)*

18:00-19:30 WePOS-33.49
Toward the Development of a System that Facilitates Continuous Exercise for Middle-Aged and Elderly People
Arai, Ryota* *(Osaka Institute of Technology)*; Ohsuga, Mieko *(Osaka Institute of Technology)*

WePOS-34: 18:00-19:30 Hall B
Research-Poster-1-Page We F (Poster Session)

18:00-19:30 WePOS-34.1
The Battle of Codecs in the Healthcare Domain: VVC or AV1?
Panayides, Andreas* *(Univ. of Cyprus)*; Loizou, Christos *(Cyprus Univ. of Technology)*; Pattichis, Marios *(Univ. of New Mexico,)*; Pantziaris, Marios *(The Cyprus Institute of Neurology & Genetics)*; Pattichis, Constantinos *(Univ. of Cyprus)*

18:00-19:30 WePOS-34.2
VitalsAssist: A Usability Study on mHealth Application to Monitor Vital Signs in Acute Care Settings
Baig, Mirza Mansoor* *(Orion Health)*; GholamHosseini, Hamid *(Auckland University of Technology)*; Ahmad, Farhan *(VitalsAssist)*; Abdul Moqeem, Aasia *(Auckland University of Technology)*; Mirza, Farhaan *(Auckland University of Technology)*; Ullah, Ehsan *(Auckland District Health Board)*

18:00-19:30 WePOS-34.3
Implementing Mobile Healthcare Apps through Usability Evaluations from an Elderly Perspective
Won, Kyung Jae *(KyungPook National Univ.)*; Lee, Ah Ra *(KyungPook National Univ.)*; Kim, Min Gyu *(Kyungpook National Univ.)*; Kim, Il Kon* *(Kyungpook National Univ.)*

18:00-19:30 WePOS-34.4
Blockchain-Based Personal Health Record Transaction: Proof of Concept
Lee, Joonnyong *(Seoul National Univ. Hospital)*; Ko, Taehoon *(Seoul National Univ. Hospital)*; Lee, Saram *(Seoul National Univ. Hospital)*; Choi, Saewon *(Seoul National Univ. Hospital)*; Lee, Eunsol *(Medibloc Inc)*; Kim, Kang San *(Seoul National Univ. Hospital)*; Yoon, Hyung-Jin* *(Seoul National Univ.)*

18:00-19:30 WePOS-34.5
On the Accurate Vessel Age Estimation based on the Second Derivative of Photoplethysmogram
Hirose, Kumi *(Hosei Univ.)*; Hama, Kengo *(Hosei Univ.)*; Yana, Kazuo* *(Hosei Univ.)*; Wakabayashi, Satoshi *(Hosei Univ.)*

18:00-19:30 WePOS-34.6
Heartrate Measurement Accuracy of Consumer Wrist Devices
Hama, Kengo *(Hosei Univ.)*; Shibui, Toyohito *(Graduate School of Engineering, Hosei Univ.)*; Yana, Kazuo* *(Hosei Univ.)*

18:00-19:30 WePOS-34.7
Relation between Stress Estimated by Voice Analysis and Blood Interleukin-1 Receptor Antagonist in High-Intensity Training
Nakamura, Mitsuteru* *(The Univ. of Tokyo)*; Suzuki, Go *(Japan Self Defense Force Central Hospital)*; Shinohara, Shuji *(The Univ. of Tokyo)*; Omiya, Yasuhiro *(PST Inc.)*; Higuchi, Masakazu *(The Univ. of Tokyo)*; Takano, Takeshi *(PST Inc.)*; Mitsuyoshi, Shunji *(Dept. of Verbal Analysis of Pathophysiology Graduate School of M)*; Kobayashi, Nobuhisa *(Japan Self Defense Force Central Hospital)*; Tokuno, Shinichi *(The Univ. of Tokyo)*

18:00-19:30 WePOS-34.8
Classification of the Eldeerly's ADL (Activities of Daily Living) using IMU Sensor
Jaesoo, Hong* *(Korea Institute of Industrial Technology)*

18:00-19:30 WePOS-34.9
Lying Posture Analytics using Convolutional Neural Network from Pressure Distribution Data for Pressure Ulcer Prevention
Kang, SooIn* *(The Univ. of Tokyo)*; Noguchi, Hiroshi *(The Univ. of Tokyo)*; Araki, Daichi *(The Univ. of Tokyo)*; Takahashi, Toshiaki *(The Univ. of Tokyo)*; Sanada, Hiromi *(The Univ. of Tokyo)*; Mori, Taketoshi *(The Univ. of Tokyo)*

18:00-19:30 WePOS-34.10
Investigation of Regression Model by Multivariate Regression Analysis to Relate Answers of the Japanese Orthopaedic Association Back Pain Evaluation Questionnaire (JOABPEQ) and Physical Findings
Ishitani, Hayato* *(Nara Institute of Science & Tech., Graduate School of Inf)*; Tamura, Toshiyo *(Waseda Univ.)*; Kanaya, Shigehiko *(Nara Institute of Science & Tech.)*; Kurokawa, Jun *(Funabashi Orthopedic Hospital Nishifuna Clinic)*

18:00-19:30 WePOS-34.11
Comparison between Four Devices for Focal Muscle Vibration
Botter, Alberto *(Politecnico di Torino)*; Cerone, Giacinto Luigi* *(Politecnico di Torino)*; Saggini, R *(Univers)*; Minetto, Marco Alessandro *(Division of Physical Medicine & Rehab., Dept. of)*

18:00-19:30 WePOS-34.12
Investigation on the Radial Augmentation Index and Radial-Carotid Pulse Wave Velocity using a Three-Axis Tactile Force Sensor
Yoo, Sunyoung* *(Seoul National Univ.)*; Wang, Zihuan *(Seoul National Univ.)*; Cserey, György *(Pázmány Péter Catholic Univ.)*; Lee, Hae-Young *(Seoul National Univ. Hospital)*; Seo, Jong Mo *(Seoul National Univ., School of Engineering)*

18:00-19:30 WePOS-34.13
Assessment of Non-Contact Respiration during Pedaling Motion using RealSense
Aoki, Hirooki* *(Chitose Institute of Science & Technology)*; Majima, Mitsuru *(Saitama Medical University)*; Takayama, Eri *(Saitama Medical University)*; Naka, Hiroyuki *(Saitama Medical University)*; Miura, Saori *(Saitama Medical University)*; Akagami, Tomoe *(Saitama Medical University)*; Nakamura, Hidetoshi *(Saitama Medical University)*

18:00-19:30 WePOS-34.14
Driving Situation Recognition System for Elderly
Hyun Seo, Cho *(SKTelecom)*; Kim, Il Kon* *(Kyungpook National University)*; Lee, Eunjoo *(Kyungpook National University)*

18:00-19:30 WePOS-34.15
Effect of Slider Thumb/Finger Movement Ratio on Drag Operability of Slider in Touch Screen
Nishimura, Takahiro *(National Institute of Special Needs Education)*; Doi, Kouki* *(National Institute of Special Needs Education)*; Fujimoto, Hiroshi *(Waseda University)*

18:00-19:30 WePOS-34.16
Machine Learning Algorithms Could be used to Detect Postural Control Patterns for Individuals with Parkinson's Disease
Li, Yumeng* *(California State University)*

18:00-19:30 WePOS-34.17
Modulation of Feedback Negativity Caused by Events in Virtual Reality Shooting Game
Yokota, Yusuke* *(National Institute of Information & Communications Technology)*; Naruse, Yasushi *(National Institute of Information & Communications Technology)*

18:00-19:30 WePOS-34.18
Study of Relationship between Motor Function of Inpatients with Hemiparesis and their Daily Posture in Rehabilitation Ward
Ogasawara, Takayuki* *(NTT Device Innovation Center)*; Mukaino, Masahiko *(Asahikawa Medical University)*; Matsuura, Hirotaka *(Fujita Health University)*; Matsunaga, Kenichi *(NTT Corporation)*; Togo, Hiroyoshi *(NTT Device Innovation Center)*; Saitoh, Eiichi *(Fujita Health University)*

18:00-19:30 WePOS-34.19
Basic Study on Development of the Grip Training Device which used the EAM Brake
Kawashima, Motoki* *(Tokyo Denki University)*; Nagatsuma, Akemi *(Fujikurakasei Co., Ltd.)*; Anzai, Hidenobu *(Fujikura Kasei Co. Ltd)*; Mitsui, Kazuyuki *(Tokyo Denki University)*

18:00-19:30 WePOS-34.20
A Relation between Error-Related Negativity and Player's Skill on TV Game
Osugi, Kiyoyuki *(Osaka Univ., National Institute of Information & Communic)*; Yokota, Yusuke *(National Institute of Information & Communications Technology)*; Naruse, Yasushi* *(National Institute of Information & Communications Technology)*

18:00-19:30 WePOS-34.21
Adaptive Neuro-Learning: A New Education Strategy using EEG-Based Passive Brain-Computer Interfaces
Chae, Younsoo *(Hanyang University)*; Kim, Hodam *(Hanyang University)*; Im, Chang-Hwan* *(Hanyang University)*

18:00-19:30 WePOS-34.22
Lambda Response as an Attention Indicator during Visual Inspection
Saga, Takuma *(Osaka University)*; Nakajima, Kae *(National Institute of Information & Communications Technology)*; Osugi, Kiyoyuki *(Osaka University, National Institute of Information & Communic)*; Yokota, Yusuke *(National Institute of Information & Communications Technology)*; Higashi, Yuichiro *(Omron Corporation)*; Nakajima, Hiroshi *(Omron Corporation)*; Kotake, Yasuyo *(Omron Corporation)*; Naruse, Yasushi* *(National Institute of Information & Communications Technology)*

18:00-19:30 WePOS-34.23
A Study on the Facial Temperature Variations of the Elderly by the Emotional State Induced during Video Watching
Shin, Young Seok *(Eulji Univ.)*; Kim, Wooseop *(The Seongnam Senior Experience Complex, Eulji Univ.)*; Jung, Duk Young* *(The Seongnam Senior Experience Complex, Eulji Univ.)*

18:00-19:30 WePOS-34.24
Biomechanical Evaluation of the Patient with Hallux Valgus Wearing Three-Dimensional Printed Orthosis
Chen, You-Yu *(National Yang Ming University)*; Chen, Chen-Sheng* *(National Yang Ming University)*

18:00-19:30 WePOS-34.25
Development of a Motion Improvement Support System for Baton Twirling Players
Fujiwara, Daichi* *(Osaka Institute of Technology)*; Ohsuga, Mieko *(Osaka Institute of Technology)*

18:00-19:30 WePOS-34.26
Assistive Device for Freezing of Gait Symptoms in Parkinson Patients
Piccinini, David Jesús *(UTN Fac Reg San Nicolas)*; Antonelli, Sofia Lara *(University)*; Rodriguez, Hernan Atilio *(National Technology University – San Nicolás)*; López, Natalia M* *(Universidad Nacional de San Juan)*; Mercado, Federico Gustavo *(Universidad Nacional de San Juan)*; Ponce, Sergio Damian *(Universidad Tecnológica Nacional)*

18:00-19:30 WePOS-34.27
The Effects of the Angle of an Elbow Joint on the Latency and Duration When Tendon Vibration Evoke the Motion Illusion
Ohshima, Hiroyuki* *(Tokyo Metropolitan Industrial Technology Research Institute)*; Shimada, Shigenobu *(Tokyo Metropolitan Industrial Technology Research Institute)*

18:00-19:30 WePOS-34.28
Estimating Otolith Function from Reflexive Eye Movements during the Head Impulse Test
Sugawara, Tomoko* *(Toyota Central R&D Labs.)*; Ito, Taeko *(Nara Medical University)*; Wada, Yoshiro *(Nara Medical University)*; Sakai, Hiroyuki *(Toyota Central R&D Laboratories)*

Thursday, 25 July 2019

ThA01: 08:30-10:00 Hall A6+A7 – Level 1
Transcranial Direct Current Stimulation in Adolescents and Adults: Towards a Precision Medicine Approach based on Numerical Models (Invited Session)
Chair: Thielscher, Axel *(Copenhagen University Hospital Hvidovre, Denmark & Biomedical Engineering Section)*

08:30-08:45 ThA01.1
Individual Targeting and Optimization of Multi-Channel Transcranial Electric Stimulation of the Human Primary Somatosensory Cortex
Antonakakis, Marios* *(Univ. of Muenster)*; Khan, Asad *(Universität Klinikum Münster,Univ. of Münster)*; Wollbrink, Andreas *(Univ. of Muenster)*; Zervakis, Michalis *(Technical Univ. of Crete, Greece)*; Paulus, Walter *(Georg-August-Univ., Goettingen)*; Nitsche, Michael A. *(Georg-August-Univ., Goettingen)*; Lencer, Rebekka *(Univ. of Muenster, Dept. of Psychiatry & Psychothera)*; Suntrup-Krueger, Sonja *(Univ. Hospital of Muenster, Dept. of Neurology)*; Schneider, Till *(Dept. of Neurophysiology & Pathophysiology, Univ. Me)*; Herrmann, Christoph *(Research Center Neurosensory Science, European Medical School, U)*; Haueisen, Jens *(Technical Univ. Ilmenau)*; Wolters, Carsten *(Univ. of Muenster)*

08:45-09:00 ThA01.2
Automated and Robust Segmentation of the Human Head Anatomy
Puonti, Oula* *(Copenhagen Univ. Hospital Hvidovre, Denmark)*; Van Leemput, Koen *(Massachusetts General Hospital, Harvard Medical School)*; Nielsen, Jesper D. *(Copenhagen Univ. Hospital Hvidovre, Denmark & Dept. of Appl)*; Madsen, Kristoffer H. *(Copenhagen Univ. Hospital Hvidovre, Denmark & Dept. of Appl)*; Thielscher, Axel *(Copenhagen Univ. Hospital Hvidovre, Denmark & Biomedical En)*

09:00-09:15 ThA01.3
From Model to Montage: Importance of Personalization of Multi-Electrode Setups in TCS
Salvador, Ricardo* *(Neuroelectrics)*; Biagi, Maria Chiara *(Neuroelectrics)*; Puonti, Oula *(Copenhagen University Hospital Hvidovre, Denmark & Dept. of Elec)*; Thielscher, Axel *(Copenhagen University Hospital Hvidovre, Denmark & Biomedical En)*; Ruffini, Giulio *(Starlab Barcelona SL)*

09:15-09:30 ThA01.4
TDCS Modeling with Boundary Element Fast Multipole Method: Accuracy and Speed
Makarov, Sergey* *(Electrical & Computer Engineering, Worcester Polytechnic Instit)*; Noetscher, Gregory *(Worcester Polytechnic Institute)*; Pham, Dung *(Worcester Polytechnic Institute)*; Nummenmaa, Aapo *(Massachusetts General Hospital)*; Deng, Zhi-De *(National Institute of Mental Health)*

09:30-09:45 ThA01.5
Modelling Studies of Transcutaneous Spinal Cord Direct Current Stimulation
Miranda, Pedro Cavaleiro* *(Faculdade de Ciências, Univ. de Lisboa)*; Fernandes, Sofia Rita *(Faculdade de Ciências e Faculdade de Medicina da Univ. de)*; de Carvalho, Mamede *(IMM Molecular Medicine Institute, Faculty of Medicine, Univ.)*

ThA02: 08:30-10:00 Hall A8 – Level 1
Photoplethysmography Measurements, Advanced Signal Processing and Cardiovascular Applications (Minisymposium)
Chair: Allen, John *(Freeman Hospital)*
Co-Chair: Zheng, Dingchang *(Anglia Ruskin University)*

08:30-08:45 ThA02.1
Photoplethysmography in Solid and Hollow Organs
Kyriacou, Panayiotis* *(City University London)*

08:45-09:00 ThA02.2
Significantly Greater Effect of Aging on Peripheral Arterial Volume Distensibility Measured with Applied External Cuff Pressure
Zheng, Dingchang* *(Anglia Ruskin University)*; Liu, Haipeng *(Anglia Ruskin University)*

09:00-09:15 ThA02.3
Effect of Measurement Site on the Accuracy of Respiration Rate Estimation from PPG Signal
Liu, Haipeng* *(Anglia Ruskin Univ.)*; Hartmann, Vera *(Anglia Ruskin Univ.)*; Zheng, Dingchang *(Anglia Ruskin Univ.)*

09:15-09:30 ThA02.4
Multi-Site Photoplethysmography: Offering Great Potential in Cardiovascular Assessment
Allen, John* *(Freeman Hospital)*

09:30-09:45 ThA02.5
Effects of Aging on the Characteristics of Arterial Pulse Waveform
Li, Mingtao *(Southern University of Science & Technology)*; Chen, Fei* *(Southern University of Science & Technology)*

09:45-10:00 ThA02.6
Gaussian Modelling Characteristics of Peripheral Arterial Pulse Difference between Measurements from the Three Trimesters of Healthy Pregnancy
Li, Kunyan *(Beijing Univ. of Technology)*; Zhang, Song *(Beijing Univ. of Technology)*; Yang, Lin* *(Beijing Univ. of Technology)*; Jiang, Hongqing *(Haidian Maternal & Child Health Hospital)*; Hao, Dongmei *(Beijing Univ. of Technology)*

ThA03: 08:30-10:00 Hall A3 – Level 1
Magnetic Particle Imaging (Invited Session)
Chair: Buzug, Thorsten M. *(Univ. of Luebeck)*
Co-Chair: Knopp, Tobias *(Univ. Medical Center Hamburg-Eppendorf)*

08:30-08:45 ThA03.1
MPI Meets CT – Simultaneous Acquisition of MPI and CT Images
Vogel, Patrick *(Experimental Physics 5, Univ. of Würzburg)*; Markert, Jonathan *(Institute of Medical Engineering, Univ. of Applied Sciences)*; Rückert, Martin A. *(Experimental Physics 5, Univ. of Würzburg)*; Herz, Stefan *(Diagnostic & Interventional Radiology, Univ. Hospital Wür)*; Keßler, Benedikt *(Institute of Medical Engineering, Univ. of Applied Sciences)*; Dremel, Kilian *(Fraunhofer Development Center X-ray Tech. EZRT)*; Althoff, Daniel *(Fraunhofer Development Center X-ray Tech. EZRT)*; Weber, Matthias *(Institute of Medical Engineering, Univ. of Lübeck)*; Buzug, Thorsten M. *(Univ. of Luebeck)*; Bley, Thorsten A. *(Diagnostic & Interventional Radiology, Univ. Hospital Wür)*; Kullmann, Walter H. *(Fachhochschule Wuerzburg-Schweinfurt, Univ. of Applied Scien)*; Hanke, Randolf *(Dept. of Experimental Physics (X-Ray Microscopy), Univ.)*; Zabler, Simon *(Dept. of Experimental Physics (X-Ray Microscopy), Univ.)*; Behr, Volker Christian* *(Univ. of Würzburg)*

08:45-09:00 ThA03.2
Halbach-Based Field-Free Line MPI Scanner
Beuke, Jonas *(University of Lübeck)*; Weber, Matthias *(Institute of Medical Engineering, University of Lübeck)*; von Gladiss, Anselm *(University of Lübeck)*; Vogel, Patrick *(Experimental Physics 5, University of Würzburg)*; Behr, Volker Christian *(University of Würzburg)*; Gräfe, Ksenija *(Universität zu Lübeck)*; Buzug, Thorsten M.* *(University of Luebeck)*

09:00-09:15 ThA03.3
Conditions and Possibilities for Quantitative Magnetic Particle Imaging
Wells, James* *(Physikalisch-Technische Bundesanstalt)*; Paysen, Hendrik *(Physikalisch-Technische Bundesanstalt)*; Kosch, Olaf *(Physikalisch-Technische Bundesanstalt)*; Wiekhorst, Frank *(Physikalisch-Technische Bundesanstalt)*

09:15-09:30 ThA03.4
An Algorithmic Approach for Increasing the Dynamic Range of Magnetic Particle Imaging
Knopp, Tobias* *(University Medical Center Hamburg-Eppendorf)*; Werner, Franziska *(University Medical Center Hamburg-Eppendorf)*; Möddel, Martin *(University Medical Center Hamburg-Eppendorf)*; Gdaniec, Nadine *(University Medical Center Hamburg-Eppendorf)*

ThA04: 08:30-10:00 Hall A1 – Level 1
Individualized Magnetoencephalography with Multichannel Devices (Invited Session)
Chair: Sander-Thömmes, Tilmann H. *(Physikalisch-Technische Bundesanstalt)*
Co-Chair: Labyt, Etienne *(CEA/LETI)*

08:30-08:45 ThA04.1
Microfabricated Optically-Pumped Magnetometer Array for Conformal Pediatric MEG
Korenko, Branislav *(Univ. of Colorado)*; Li, Linfeng *(Univ. of Colorado)*; Romanov, Gleb *(Univ. of Colorado)*; Gerginov, Marja *(Univ. of Colorado)*; Gerginov, Vladislav *(Univ. of Colorado)*; Hughes, Jeramy *(Univ. of Colorado)*; Alem, Orang *(Univ. of Colorado)*; Knappe, Svenja* *(Univ. of Colorado)*

08:45-09:00 ThA04.2
Optically Pumped 4He Magnetometers for on Scalp MEG Recordings at Ambient Temperature
Labyt, Etienne* *(CEA/LETI)*; Tong, Longzheng *(Capital Medical University China)*; Edward, Deepak *(Summa)*

09:00-09:15 ThA04.3
Individualized Magnetoencephalography using MRI-Derived Helm Shaped OPM Sensor Holders
Jodko-Władzińska, Anna* *(Warsaw University of Technology, Faculty of Mechatronics)*; Brühl, Rüdiger *(Physikalisch-Technische Bundesanstalt)*; Sander-Thömmes, Tilmann H. *(Physikalisch-Technische Bundesanstalt)*

09:15-09:30 ThA04.4
On-Scalp Magnetoencephalography with High-Tc SQUIDs
Pfeiffer, Christoph* *(Chalmers Univ. of Technology)*; Ruffieux, Silvia *(Chalmers Univ. of Technology)*; Andersen, Lau Moller *(NatMEG, Dept. of Clinical Neuroscience, Karolinska Institut)*; Lundqvist, Daniel *(NatMEG, Dept. of Clinical Neuroscience, Karolinska Institut)*; Orekhova, Elena *(MedTech West & the Institute of Neuroscience & Physiology, S)*; Kalaboukhov, Alexei *(Dept. of Microtechnology & Nanoscience – MC2, Chalmers Un)*; Winkler, Dag *(Dept. of Microtechnology & Nanoscience – MC2, Chalmers Un)*; Schneiderman, Justin F. *(MedTech West & the Institute of Neuroscience & Physiology, S)*

09:30-09:45 ThA04.5
Multichannel Optically Pumped Magnetometers with a K-Rb Hybrid Cell for High-Resolution Magnetoencephalography
Ito, Yosuke* *(Kyoto University)*; Nishi, Kazumasa *(Kyoto University)*; Kobayashi, Tetsuo *(Kyoto University)*

ThA05: 08:30-10:00 Hall A2 – Level 1
Pattern Detection and Classification in Cardiovascular Signals (Oral Session)
Chair: Barbieri, Riccardo *(Politecnico di Milano)*
Co-Chair: Glos, Martin *(Charité-Universitaetsmedizin Berlin)*

08:30-08:45 ThA05.1
Markov Models for Detection of Ventricular Arrhythmia
Li, Zhi* *(Univ. of Michigan)*; Derksen, Harm *(Univ. of Michigan, Ann Arbor)*; Gryak, Jonathan *(Univ. of Michigan)*; Hooshmand, Mohsen *(Univ. of Michigan)*; Wood, Alexander *(Univ. of Michigan)*; Ghanbari, Hamid *(Univ. of Michigan)*; Gunaratne, Pujitha *(Toyota Motor North America)*; Najarian, Kayvan *(Univ. of Michigan – Ann Arbor)*

08:45-09:00 ThA05.2
Deterministic Learning-Based Methodology for Detecting Abnormal Dynamics of Cardiac Repolarization during Ischemia
Deng, Muqing* *(Hangzhou Dianzi University)*; Wu, Weiming *(South China University of Technology)*; Cao, Jiuwen *(School of Automation Hangzhou Dianzi University / COGNACG, CNRS)*; Tang, Min *(Peking Union Medical College)*; Wang, Cong *(South China University of Technology)*

09:00-09:15 ThA05.3
Detection of Myocardial Infarction from Multi-Lead ECG using Dual-Q Tunable Q-Factor Wavelet Transform
Liu, Jia* *(University of Jyvakyla)*; Zhang, Chi *(Dalian University of Technology)*; Ristaniemi, Tapani *(University of Jyväskylä)*; Cong, Fengyu *(Dalian University of Technology)*

09:15-09:30 ThA05.4
Deep Learning based Patient-Specific Classification of Arrhythmia on ECG Signal
Zhao, Wei* *(Guangzhou Shiyuan Electronics Co., Ltd)*; Hu, Jing *(Guangzhou Shiyuan Electronic Technology Co., Ltd.)*; Jia, Dongya *(CVTE, Guangdong Province, China)*; Wang, Hongmei *(Guangzhou Shiyuan Electronics Co., Ltd)*; Li, Zhenqi *(Guangzhou Shiyuan Electronics Co., Ltd)*; Yan, Cong *(Guangzhou Shiyuan Electronics Co., Ltd)*; You, Tianyuan *(Guangzhou Shiyuan Electronics Co., Ltd.)*

09:30-09:45 ThA05.5
ECG-Based Random Forest Classifier for Cardiac Arrest Rhythms
Manibardo, Eric *(UPV/EHU)*; Irusta, Unai* *(UPV/EHU)*; Del Ser, Javier *(Tecnalia)*; Aramendi, Elisabete *(University of the Basque Country)*; Isasi Liñero, Iraia *(UPV/EHU)*; Olbarria, Mikel *(Emergentziak Osakidetza)*; Corcuera, Carlos *(Emergentziak Osakidetza)*; Veintemillas, Jose *(Emergentziak Osakidetza)*; Larrea, Andima *(Emergentziak Osakidetza)*

09:45-10:00 ThA05.6
A Simple Unsupervised, Real-Time Clustering Method for Arterial Blood Pressure Signal Classification
Holland, Alex* *(Edwards Lifesciences)*; Asgari, Shadnaz *(California State University, Long Beach)*

ThA06: 08:30-10:00 Hall A5 – Level 1
Neuromuscular Systems (I) (Oral Session)

08:30-08:45 ThA06.1
A Technique for Measuring Visuomotor Feedback Contributions to the Control of an Inverted Pendulum
Franklin, David W.* *(Technical University of Munich)*; Cesonis, Justinas *(Technical University of Munich)*; Franklin, Sae *(Institute for Cognitive Systems, Technical University of Munich)*; Leib, Raz *(Technical University of Munich)*

08:45-09:00 ThA06.2
Feedback Delay Changes the Control of an Inverted Pendulum
Franklin, Sae* *(Institute for Cognitive Systems, Technical University of Munich)*; Cesonis, Justinas *(Technical University of Munich)*; Leib, Raz *(Technical University of Munich)*; Franklin, David W. *(Technical University of Munich)*

09:00-09:15 ThA06.3
A Method to Quantify Multi-Degree-of-Freedom Lower Limb Isometric Joint Torques in Children with Hemiplegia
Goyal, Vatsala* *(Northwestern Univ.)*; Sukal, Theresa *(Northwestern Univ.)*; Dewald, Julius P. A. *(Northwestern Univ.)*

09:15-09:30 ThA06.4
How to Improve Robustness in Muscle Synergy Extraction
Ghislieri, Marco* *(Politecnico di Torino)*; Agostini, Valentina *(Politecnico di Torino)*; Knaflitz, Marco *(Politecnico di Torino)*

09:30-09:45 ThA06.5
Error Augmentation Improves Visuomotor Adaptation during a Full-Body Balance Task
Fasola, Jemina* *(EPFL – LNCO)*; Kannape, Oliver Alan *(Swiss Institute of Technology Lausanne (EPFL))*; Bouri, Mohamed *(EPFL)*; Bleuler, Hannes *(EPFL)*; Blanke, Olaf *(LNCO, EPFL)*

09:45-10:00 ThA06.6
Modeling Expected Reaching Error and Behaviors for Motor Adaptation
Earley, Eric J* *(Northwestern University)*; Hargrove, Levi *(Rehabilitation Institute of Chicago)*

ThA08: 08:30-10:00 M8 – Level 3
Time-Series Modelling of Physiology: Inference, Implementation, and Interpretability (Invited Session)
Chair: Colopy, Glen Wright *(University of Oxford)*
Co-Chair: Casson, Alexander James *(University of Manchester)*

08:30-08:45 ThA08.1
Predicting On-Field Recovery Rates of Athletes to Inform Athletic Management
Bergmann, Jeroen* *(University of Oxford)*; Milnthorpe, William Robert Fenton *(University of Oxford)*

08:45-09:00 ThA08.2
Signal Quality Index based Adaptive Algorithms to Reduce Alarm Fatigue
Moreland, Samuel A* *(Current Health)*; Courty, Justine *(Current Health)*; Kramer, Annabel *(Current Health)*; Colopy, Glen Wright *(University of Oxford)*; Whiting, Stewart *(Current Health)*

09:00-09:15 ThA08.3
Adaptive Personalized Vital Sign Inference: From Data Acquisition to Algorithms
Kramer, Annabel *(Current Health)*; Courty, Justine *(Current Health)*; Moreland, Samuel A *(Current Health)*; Whiting, Stewart *(Current Health)*; Colopy, Glen Wright* *(University of Oxford)*

ThA09**:** 08:30-10:00 M1 – Level 3
Computational Models of Neuromodulation (Invited Session)
Chair: Dokos, Socrates *(University of New South Wales)*
Co-Chair: Shils, Jay *(Rush University Medical Center)*

08:30-08:45 ThA09.1
Functional Requirements of Small and Large-Scale Neural Circuitry Connectome Models
Carlson, Kris* *(BIDMC/Harvard Medical School)*; Shils, Jay *(Rush University Medical Center)*; Arle, Jeffrey *(Beth Israel Deaconess Medical Center)*

08:45-09:00 ThA09.2
Modeling Spectral Energy Differences in the Sub-Thalamic Nucleus and Cortex between Parkinson's Disease Patients "ON" and "OFF" Stimulation
Shils, Jay* *(Rush University Medical Center)*; Mei, Longzhi *(BIDMC)*; Carlson, Kris *(BIDMC/Harvard Medical School)*; Arle, Jeffrey *(Beth Israel Deaconess Medical Center)*

09:00-09:15 ThA09.3
Stability in Complex and Recurrent Neural Systems
Arle, Jeffrey* *(Beth Israel Deaconess Medical Center)*

09:15-09:30 ThA09.4
Selective Stimulation of Retinal Ganglion Cells
Dokos, Socrates* *(Univ. of New South Wales)*; Guo, Tianruo *(Univ. of New South Wales)*; Li, Liming *(Shanghai Jiao Tong Univ.)*; Lovell, Nigel H. *(Univ. of New South Wales)*

09:30-09:45 ThA09.5
Finding Optimal Stimulus Waveforms with Intelligent Algorithms
Chang, Joshua* *(Dell Medical School, The University of Texas as Austin)*; Paydarfar, David *(The University of Texas at Austin, Dell Medical School)*

09:45-10:00 ThA09.6
Computational Models of Compound Action Potentials Recorded during Spinal Cord Stimulation for Pain Relief
Parker, John* *(Saluda Medical Pty Ltd)*

ThA10**:** 08:30-10:00 M2 – Level 3
Phantoms and Models for Performance Assessment and Validation in Biomedical Optics (Minisymposium)
Chair: Nahm, Werner *(Karlsruhe Institute of Technology)*
Co-Chair: Hornberger, Christoph *(Wismar University of Applied Sciences, Technology, Business and Design)*

08:30-08:45 ThA10.1
Accurate Determination of the Optical Properties of Tissue Phantoms
Kienle, Alwin* *(Institute of Laser Technologies in Medicine & Metrologie)*; Foschum, Florian *(Institute of Laser Technologies & Metrology)*

08:45-09:00 ThA10.2
Multi-Laboratory Efforts for Performance Assessment of Diffuse Optics Instruments
Pifferi, Antonio* *(Politecnico di Milano)*; Lanka, Pranav *(Politecnico di Milano)*; Spinelli, Lorenzo *(IFN-CNR)*; Torricelli, Alessandro *(Politecnico di Milano)*; Wabnitz, Heidrun *(Physikalisch-Technische Bundesanstalt (PTB))*

09:00-09:15 ThA10.3
Validation of Time Domain and Spatial Domain Diffuse Optical Methods for the Estimation of Tissue Optical Properties
Grosenick, Dirk* *(Physikalisch-Technische Bundesanstalt (PTB))*; Gladytz, Thomas *(Physikalisch-Technische Bundesanstalt (PTB))*; Cantow, Kathleen *(Charité – Univ. Berlin)*; Seeliger, Erdmann *(Charité – Univ. Berlin)*

09:15-09:30 ThA10.4
Assessing Tissue Oximeter Performance in Blood-Lipid Phantoms
Kleiser, Stefan* *(Biomedical Optics Research Laboratory, University & University)*; Ostojic, Daniel *(University of Zurich)*; Isler, Helene *(Biomedical Optics Research Laboratory, University & University)*; Wolf, Martin *(University of Zurich)*

09:30-09:45 ThA10.5
Notes on Modeling and Validation in Biomedical Optics
Verkruysse, Wim* *(Philips Innovation Group, Philips Research, Eindhoven)*

ThA11**:** 08:30-10:00 M4 – Level 3
Next Generation Mechanical Ventilation – Closed Loop and Patient Specific? (Invited Session)
Chair: Moeller, Knut *(Furtwangen University)*
Co-Chair: Chase, J. Geoffrey *(University of Canterbury)*

08:30-08:45 ThA11.1
Virtual Patients for Managing Mechanical Ventilation in the ICU
Chase, J. Geoffrey* *(Univ. of Canterbury)*; Morton, Sophie E. *(Univ. of Canterbury)*; Knopp, Jennifer L. *(Univ. of Canterbury)*

08:45-09:00 ThA11.2
Model-Based Research in Mechanical Ventilation Treatment: The Development and Introduction to CURE Trial
Chiew, Yeong Shiong* *(Monash Univ. Malaysia)*; Tan, Chee Pin *(Monash Univ. Malaysia)*; Chase, J. Geoffrey *(Univ. of Canterbury)*

09:00-09:15 ThA11.3
Electrical Impedance Tomography in Mechanical Ventilation
Frerichs, I.* *(University Medical Centre Schleswig-Holstein, Campus Kiel, Dept.)*; Moeller, Knut *(Furtwangen University)*

09:15-09:30 ThA11.4
Absolute EIT -- New Chances for Ventilation Support?
Lima, Raul Gonzalez* *(Escola Politecnica da Universidade de Sao Paulo)*; Martins, Thiago de Castro *(Escola Politecnica da Universidade de Sao Paulo)*; Sato, André Kubagawa *(Escola Politecnica da Universidade de Sao Paulo)*; Moura, Fernando Silva de *(Federal University of ABC)*; Camargo, Erick Dario Leon Bueno *(Federal University of ABC (UFABC))*; Silva, Olavo Luppi *(Universidade Federal do ABC)*; Rattis Santos, Talles Batista *(Escola Politecnica da Universidade de São Paulo)*; Nakanishi, Rafael Mikio *(Escola Politecnica da Universidade de São Paulo)*; Mueller, Jennifer *(Colorado State University)*; Tsuzuki, Marcos de Sales Guerra *(Escola Politecnica da Universidade de Sao Paulo)*; Amato, Marcelo Brito Passos *(Hospital da Clinicas da Universidade de Sao Paulo)*

09:30-09:45 ThA11.5
Integrative Models of the Respiratory System for Patient-Device Interaction
Tawhai, Merryn* *(The University of Auckland)*; Chase, J. Geoffrey *(University of Canterbury)*

09:45-10:00 ThA11.6
EIT: Algorithms and Methods for Clinical Applications
Gong, Bo *(Furtwangen Univ.)*; Krueger-Ziolek, Sabine *(Furtwangen Univ.)*; Moeller, Knut* *(Furtwangen Univ.)*

ThA12: 08:30-10:00 M6 – Level 3
EEG and Electrical Impedance Imaging (Oral Session)
Chair: Ding, Lei *(University of Oklahoma)*
Co-Chair: Doessel, Olaf *(Karlsruhe Institute of Technology (KIT))*

08:30-08:45 ThA12.1
Cortical Theta Activity and Postural Control in Non-Visual and High Cognitive Load Tasks: Impact for Clinical Studies
Carro Domínguez, Manuel* *(Trinity Centre for Bioengineering)*; O'Keeffe, Clodagh *(Trinity College Dublin)*; O'Rourke, Eugene *(Trinity Centre of Bioengineering, Trinity College Dublin.)*; Feerick, Niamh *(Trinity Centre of Bioengineering, Trinity College Dublin.)*; Reilly, Richard *(Trinity College Dublin)*

08:45-09:00 ThA12.2
Altered Cortical and Postural Response to Balance Perturbation in Traumatic Brain Injury – An EEG Pilot Study
Allexandre, Didier* *(Kessler Foundation)*; Hoxha, Armand *(Kessler Foundation)*; Shenoy Handiru, Vikram *(Kessler Foundation)*; Saleh, Soha *(Kessler Foundation)*; Suviseshamuthu, Easter *(Kessler Foundation)*; Yue, Guang *(Kessler Foundation)*

09:00-09:15 ThA12.3
Influence of Background Lung Tissue Conductivity on the Cardiosynchronous EIT Signal Components: A Sensitivity Study
Kircher, Michael* *(Karlsruhe Institute of Technology)*; Hattiangdi, Rohit *(Institute of Biomedical Engineering, Karlsruhe Institute of Tech)*; Menges, Robert *(Institute of Biomedical Engineering, Karlsruhe Institute of Tech)*; Doessel, Olaf *(Karlsruhe Institute of Technology (KIT))*

09:15-09:30 ThA12.4
Improved Imaging Resolution of Electrical Impedance Tomography using Artificial Neural Networks for Image Reconstruction
Huang, Shu-Wei *(National Chiao Tung University)*; Cheng, Hao-Min *(Taipei Veterans General Hospital)*; Lin, Shien-Fong* *(National Chiao Tung University)*

09:30-09:45 ThA12.5
Noninvasive Localization of High-Frequency Oscillations in Children with Epilepsy: Validation against Intracranial Gold-Standard
Dirodi, Matilde* *(Unit of Biomedical Robotics & Biomicrosystems, Engineering Dep)*; Tamilia, Eleonora *(Harvard Medical School / Boston Children's Hospital)*; Grant, Patricia Ellen *(Boston Children's Hospital, Harvard Medical School)*; Madsen, Joseph *(Children's Hospital Boston, Harvard Medical School)*; Stufflebeam, Steve *(Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts)*; Pearl, Philip *(Division of Epilepsy & Clinical Neurophysiology, Dept. of)*; Papadelis, Christos *(Harvard Medical School)*

09:45-10:00 ThA12.6
Using a Spatio-Temporal Basis for ECG Imaging of Ventricular Pacings: Insights from Simulations and First Application to Clinical Data
Schuler, Steffen* *(Karlsruhe Institute of Technology (KIT))*; Potyagaylo, Danila *(EP Solutions SA)*; Doessel, Olaf *(Karlsruhe Institute of Technology (KIT))*

ThA13: 08:30-10:00 R2 – Level 3
Chemical and Biological Sensing (Oral Session)
Co-Chair: Mainardi, Luca *(Politecnico di Milano)*

08:30-08:45 ThA13.1
A Graphene-Based pH Sensor on Paper for Human Plasma and Seawater
Vivaldi, Federico *(University of Pisa, Dept. of Chemistry & Industrial Chemis)*; Bonini, Andrea *(University of Pisa, Dept. of Chemistry & Industrial Chemi)*; Melai, Bernardo *(Dept. of Chemistry & Industrial Chemistry, University of)*; Poma, Noemi *(University of Pisa, Dept. of Chemistry & Industrial Chemis)*; Kirchhain, Arno *(University of Pisa, Dept. of Chemistry & Industrial Chemis)*; Santalucia, Delio *(University of Pisa, Dept. of Chemistry & Industrial Chemis)*; Salvo, Pietro* *(National Research Council)*; Di Francesco, Fabio *(University of Pisa)*

08:45-09:00 ThA13.2
Wireless Bipotentiostat Circuit for Glucose and H2O2 Interrogation
Slaughter, Gymama* *(Univ. of Maryland Baltimore County)*; Annamalai, Priyanka *(Univ. of Maryland Baltimore County)*

09:00-09:15 ThA13.3
An Integrated and Automated Electronic System for Point-of-Care Protein Testing
Wu, Dan *(Massachusetts Institute of Technology)*; voldman, Joel* *(Massachusetts Institute of Technology)*

09:15-09:30 ThA13.4
On-Chip Multiwell Plate Impedance Analysis of Microwell Array Sensor for Label-Free Detection of Cytokines in Rat Serum
Mahmoodi, Seyed Reza* *(Rutgers University)*; Xie, Pengfei *(Rutgers University)*; Javanmard, Mehdi *(Rutgers University)*

09:30-09:45 ThA13.5
Design and Development of a Disposable Lab-on-a-Chip for Prostate Cancer Detection
Farazmand, Meer* *(University of Warwick)*; Rodrigues, Rui *(University of Warwick, WMG)*; Gardner, Julian *(University of Warwick)*; Charmet, Jerome *(University of Warwick)*

09:45-10:00 ThA13.6
A Metal Oxide Gas Sensors Array for Lung Cancer Diagnosis through Exhaled Breath Analysis
Marzorati, Davide* *(Politecnico di Milano)*; Mainardi, Luca *(Politecnico di Milano)*; Sedda, Giulia *(IEO European Institute of Oncology IRCCS)*; Gasparri, Roberto *(IEO European Institute of Oncology IRCCS)*; Spaggiari, Lorenzo *(IEO European Institute of Oncology IRCCS)*; Cerveri, Pietro *(Politecnico di Milano)*

ThA14: 08:30-10:00 R3 – Level 3
Signal Processing and Classification for Sleep Apnea (Oral Session)
Chair: Bailon, Raquel *(University of Zaragoza)*
Co-Chair: de Chazal, Philip *(University of Sydney)*

08:30-08:45 ThA14.1
Evaluation of Methods to Characterize the Change of the Respiratory Sinus Arrhythmia with Age in Sleep Apnea Patients
Morales Tellez, John Fredy* *(KU Leuven)*; Deviaene, Margot *(KU Leuven)*; Milagro, Javier *(University of Zaragoza)*; Testelmans, Dries *(Universitair Ziekenhuis Gasthuisberg)*; Buyse, Bertien *(Katholieke Universiteit Leuven)*; Willems, Rik *(KU Leuven)*; Orini, Michele *(University College London)*; Van Huffel, Sabine *(KU Leuven)*; Bailon, Raquel *(University of Zaragoza)*; Varon, Carolina *(Katholieke Universiteit Leuven)*

08:45-09:00 ThA14.2
A Preliminary Study of the Automatic Classification of the Site of Airway Collapse in OSA Patients using Snoring Signals
Sebastian, Arun* *(University of Sydney)*; de Chazal, Philip *(University of Sydney)*; Cistulli, Peter *(University of Sydney)*

09:00-09:15 ThA14.3
AI vs Humans for the Diagnosis of Sleep Apnea
Thorey, Valentin* *(Dreem, Paris)*; Bou i Hernandez, Albert *(Algorithms Team, Dreem)*; Arnal, Pierrick Jacques *(Research Team, Dreem, New York City, USA)*; During, Emmanuel Hossein *(Center for Sleep Sciences & Medicine, Stanford University, Sta)*

09:15-09:30 ThA14.4
Sleep Apnea Severity Estimation from Respiratory Related Movements using Deep Learning
Hafezi, Maziar *(Toronto Rehabilitation Institute, University Health Network)*; Montazeri Ghahjaverestan, Nasim *(Institute of Biomaterial & Biomedical Engineering, University of)*; Zhu, Kaiyin *(Toronto Rehab-University Health Network)*; Alshaer, Hisham *(Toronto Rehabilitation Inst, UHN)*; Yadollahi, Azadeh *(University of Toronto)*; Taati, Babak* *(Toronto Rehabilitation Institute & University of Toronto)*

09:30-09:45 ThA14.5
Diagnosis of Obstructive Sleep Apnea during Wakefulness using Upper Airway Negative Pressure and Machine Learning
Lim, Jan *(Toronto Rehabilitation Institute)*; Khan, Shehroz *(Toronto Rehabilitation Institute)*; Pandya, Aditya *(Ryerson Univ.)*; Ryan, Clodagh *(Toronto General Hospital, Univ. Health Network, Toronto, ON)*; Ul Haq, Mohammad Adnan *(Toronto Rehabilitation Institute, Univ. Health Network, Tor)*; Macarthur, Kori *(Toronto Rehabilitation Institute)*; Haleem, Ahmed *(UHN Toronto Rehabilitation Institute)*; Sivakulam, Niveca *(Toronto Rehabilitation Institute)*; Sahak, Hosna *(Univ. of Toronto)*; Alshaer, Hisham* *(Toronto Rehabilitation Inst, UHN)*

09:45-10:00 ThA14.6
Non-Invasive Diagnosis of Sleep Apnoea using ECG and Respiratory Bands
Sadr, Nadi* *(Univ. of Sydney)*; de Chazal, Philip *(Univ. of Sydney)*

ThA15: 08:30-10:00 M3 – Level 3
Image Analysis and Classification – Machine Learning Approaches (I) (Oral Session)
Chair: Wang, Wenjin *(Eindhoven Engineering)*
Co-Chair: Wang, Haifeng *(Shenzhen Institutes of Advanced Technology, Chinese Academy of Science)*

08:30-08:45 ThA15.1
MelanomaNet: An Effective Network for Melanoma Detection
Huang, Rian *(Shenzhen Univ.)*; Liang, Jiajun *(Shenzhen Univ.)*; Jiang, Feng *(Shenzhen Univ.)*; Zhou, Feng *(The Univ. of Michigan)*; Cheng, Nina *(Shenzhen Univ.)*; Wang, Tianfu *(Shenzhen Univ.)*; Lei, Baiying* *(Shenzhen Univ.)*

08:45-09:00 ThA15.2
Recognizing Occlusal Caries in Dental Intraoral Images using Deep Learning
Moutselos, Konstantinos *(Univ. of Piraeus)*; Berdouses, Elias *(Dept. of Paediatric Dentistry, Dental School, National & Kapod)*; Oulis, Constantine *(Dept. of Paediatric Dentistry, Dental School, National & Kapod)*; Maglogiannis, Ilias* *(Univ. of Piraeus)*

09:00-09:15 ThA15.3
Unsupervised Face Anti-Spoofing using Dual Cameras based Feature Matching
Shen, Wang *(Hunan University)*; Liu, Jie *(Hunan University)*; He, Min *(Hunan University)*; Wang, Wenjin* *(Eindhoven University of Technology)*

09:15-09:30 ThA15.4
Vision-Based Mouth Motion Analysis in Epilepsy: A 3D Perspective
Ahmedt-Aristizabal, David* *(Queensland Univ. of Technology)*; Nguyen, Kien *(Queensland Univ. of Technology)*; Denman, Simon *(Queensland Univ. of Technology)*; Sarfraz, Muhammad Saquib *(Karlsruhe Institute of Technology)*; Sridharan, Sridha *(Queensland Univ. of Technology)*; Dionisio, Sasha *(Mater Hospital)*; Fookes, Clinton *(Queensland Univ. of Technology)*

09:30-09:45 ThA15.5
Tournament based Ranking CNN for the Cataract Grading
Kim, Dohyeun* *(Electronics & Telecommunications Research Institute)*; Jun, Tae Joon *(KAIST)*; Eom, Youngsub *(Korea University College of Medicine)*; Kim, Cherry *(Korea University College of Medicine)*; Kim, Daeyoung *(KAIST)*

09:45-10:00 ThA15.6
Real-Time Detection of Ureteral Orifice in Urinary Endoscopy Videos based on Deep Learning
Peng, Xin *(Shanghai Jiao Tong University)*; Liu, Dingyi *(Dept. of Urology, Shanghai Punan Hospital of Pudong New Dis)*; Li, Yiming *(Deepwise Artificial Intelligence Laboratory)*; Xue, Wei *(Dept. of Urology, Ren Ji Hospital affiliated to Shanghai Ji)*; Qian, Dahong* *(Shanghai Jiao Tong University)*

ThA16: 08:30-10:00 M5 – Level 3
Human-Robot Interaction: Systems and Controls (Oral Session)
Chair: Desai, Jaydip *(Wichita State University)*
Co-Chair: Yano, Kenichi *(Mie University)*

08:30-08:45 ThA16.1
Design and Validation of Two Embodied Mirroring Setups for Interactive Games with Autistic Children using the NAO Humanoid Robot
Geminiani, Alice* *(Politecnico di Milano)*; Santos, Laura *(Politecnico di Milano)*; Casellato, Claudia *(Politecnico di Milano)*; Farabbi, Andrea *(Politecnico di Milano)*; Farella, Nicola *(Politecnico di Milano)*; Santos-Victor, Jose *(Technical University of Lisbon)*; Olivieri, Ivana *(IRCCS Fondazione Don Carlo Gnocchi)*; Pedrocchi, Alessandra *(Politecnico di Milano)*

08:45-09:00 ThA16.2
Development of Cybernic Robot Arm to Realize Support Action Cooperated with Hemiplegic Person's Arm
Toyama, Hiroaki* *(Univ. of Tsukuba)*; Kawamoto, Hiroaki *(Univ. of Tsukuba)*; Sankai, Yoshiyuki *(Univ. of Tsukuba)*

09:00-09:15 ThA16.3
Detection of Stressful Situations using GSR While Driving a BCI-Controlled Wheelchair
Cruz, Aniana* *(University of Coimbra)*; Pires, Gabriel *(University of Coimbra)*; Lopes, Ana *(Instituto Politécnico de Tomar)*; Nunes, Urbano *(University of Coimbra)*

09:15-09:30 ThA16.4
Bio-Compatible Piezoresistive Pressure Sensing Skin Sleeve for Millimetre-Scale Flexible Robots: Design, Manufacturing and Pitfalls
Wasylczyk, Piotr *(King's College London)*; Ozimek, Filip *(University College London)*; Tiwari, Manish *(University College London)*; da Cruz, Lyndon *(Moorfields Eye Hospital)*; Bergeles, Christos* *(King's College London)*

09:30-09:45 ThA16.5
Artificial Neural Network to Detect Human Hand Gestures for a Robotic Arm Control
Schabron, Bridget *(Wichita State Univ.)*; Alashqar, Zaid *(Wichita State Univ.)*; Fuhrman, Nicole *(Wichita State Univ.)*; Jibbe, Khaled *(Wichita State Univ.)*; Desai, Jaydip* *(Wichita State Univ.)*

09:45-10:00 ThA16.6
Joystick Grip for Electric Wheelchair for Tension-Athetosis-Type Cerebral Palsy
Ogata, Yuto* *(Mie Univ.)*; Katsumura, Motoyu *(Mie Univ.)*; Yano, Kenichi *(Mie Univ.)*; Nakao, Tomoyuki *(Imasen Engineering Corp.)*; Hamada, Atsushi *(Imasen Engineering Corp.)*; Torii, Katsuhiko *(Imasen Engineering Corp.)*

ThA17: 08:30-10:00 R12 – Level 3
Pharmaceutical Engineering and Drug Delivery Systems (Oral Session)
Chair: Oh, Yu-Kyoung *(Seoul National University)*
Co-Chair: Kurose, Hitoshi *(Kyushu University, Graduate School of Pharmaceutical Sciences)*

08:30-08:45 ThA17.1
in-Vivo Intradermal Delivery of Co-57 Labeled Vitamin B-12, and Subsequent Comparison with Standard Subcutaneous Administration
Paul Chaudhuri, Buddhadev* *(Biolinq, Inc.)*; Ceyssens, Frederik *(ESAT, Catholic Univ., Leuven, Belgium)*; Celen, Sofie *(Radiopharmacy Research, KU Leuven)*; Bormans, Guy *(Radiopharmacy Research, KU Leuven)*; Kraft, Michael *(Univ. of Liege)*; Puers, Robert *(Catholic Univ. of Leuven)*

08:45-09:00 ThA17.2
Magnetic Stimulus Responsive DDS based on Chitosan Microbeads Embedded with Magnetic Nanoparticles
Mohapatra, Ankita* *(California State Univ. Fullerton)*; Harris, Michael *(Univ. of Memphis)*; Levine, David *(Univ. of Memphis)*; Ghimire, Madhav *(Univ. of Memphis)*; Morshed, Bashir *(The Univ. of Memphis)*; Jennings, Jessica *(Univ. of Memphis)*; Bumgardner, Joel *(Univ. of Memphis)*; Haggard, Warren *(Univ. of Memphis)*; Mishra, Sanjay *(Univ. of Memphis)*; Fujiwara, Tomoko *(Univ. of Memphis)*

09:00-09:15 ThA17.3
Feasibility of Drug Delivery Mediated by Ultra-Short and Intense Pulsed Electric Fields
Caramazza, Laura* *(ICemB@La Sapienza, University of Rome)*; Nardoni, Martina *(Sapienza University of Rome)*; De Angelis, Annalisa *(ICEMB@La Sapienza University Rome)*; della Valle, Elena *(University of Michigan)*; Denzi, Agnese *(Istituto Italiano di Tecnologia (IIT@Sapienza))*; Paolicelli, Patrizia *(Sapienza University of Rome)*; Merla, Caterina *(ENEA)*; Liberti, Micaela *(ICEmB at Sapienza University of Rome)*; Apollonio, Francesca *(ICEmB@La Sapienza Univ. Rome)*; Petralito, Stefania *(Sapienza University of Rome)*

09:15-09:30 ThA17.4
A Finite Element Model for Insulin Adsorption in ICU Infusion Sets
Knopp, Jennifer L.* *(Univ. of Canterbury)*; Bishop, Kaia *(Univ. of Canterbury)*; Chase, J. Geoffrey *(Univ. of Canterbury)*

09:30-09:45 ThA17.5
Laterally Dispersing Nozzles for Needle-Assisted Jet Injection
Mckeage, James William* *(Auckland Bioengineering Institute)*; Abeysekera, Nandoun *(Auckland Bioengineering Institute)*; Ruddy, Bryan *(Univ. of Auckland)*; Nielsen, Poul *(The Univ. of Auckland)*; Taberner, Andrew *(The Univ. of Auckland)*

ThA18: 08:30-10:00 R13 – Level 3
Brain Functional Imaging (Oral Session)

08:30-08:45 ThA18.1
Higher Resolution sLORETA (HR-sLORETA) in EEG Source Imaging
Sadat-Nejad, Younes* *(Ryerson University)*; Beheshti, Soosan *(Ryerson University)*

08:45-09:00 ThA18.2
Characterising Brain Network Topology in Cervical Dystonia Patients and Unaffected Relatives via Graph Theory
Narasimham, Shruti* *(Trinity College Dublin)*; Sundararajan, Vikram *(Trinity College Dublin)*; McGovern, Eavan *(St. Vincent's Univ. Hospital)*; Quinlivan, Brendan *(Trinity College Dublin)*; Killian, Owen *(Trinity College Dublin)*; O'Riordan, Sean *(St. Vincent's Univ. Hospital)*; Hutchinson, Michael *(St. Vincent's Univ. Hospital Dublin)*; Reilly, Richard *(Trinity College Dublin)*

09:00-09:15 ThA18.3
Reconstructing Cortical Intrinsic Connectivity Networks using a Regression Method Combining EEG Data from Sensor and Source Levels
Shou, Guofa* *(Univ. of Oklahoma)*; Ding, Lei *(Univ. of Oklahoma)*

09:15-09:30 ThA18.4
AttentivU: A Biofeedback Device to Monitor and Improve Engagement in the Workplace
Kosmyna, Nataliya* *(MIT Media Lab)*; Maes, Pattie *(MIT Media Lab)*

09:30-09:45 ThA18.5
Characteristic Changes in the EEG Signals between Microsleeps and Preceding Responsive States
Venkatasubramanian, Umamaheswari* *(Univ. of Otago)*; Pearson, John *(Univ. of Otago)*; Beckert, Lutz *(Univ. of Otago)*; Jones, Richard D. *(New Zealand Brain Research Institute)*

09:45-10:00 ThA18.6
Different Roles for Theta and Alpha-Band Brain Rhythms during Sequential Memory
Takase, Ryoken *(Hokkaido University)*; Boasen, Jared *(Hokkaido University)*; Yokosawa, Koichi* *(Hokkaido University)*

ThA19: 08:30-10:00 R4 – Level 3
General and Theoretical Informatics – Machine Learning (I) (Oral Session)
Chair: Najarian, Kayvan *(University of Michigan – Ann Arbor)*
Co-Chair: Bianchi, Anna Maria *(Politecnico di Milano)*

08:30-08:45 ThA19.1
Detection of Acute Respiratory Distress Syndrome by Incorporation of Label Uncertainty and Partially Available Privileged Information
Sabeti, Elyas* *(Univ. of Michigan, Ann Arbor)*; Drews, Joshua *(Univ. of Michigan, Ann Arbor)*; Reamaroon, Narathip *(Univ. of Michigan, Ann Arbor)*; Gryak, Jonathan *(Univ. of Michigan)*; Sjoding, Michael *(Univ. of Michigan, Ann Arbor)*; Najarian, Kayvan *(Univ. of Michigan – Ann Arbor)*

08:45-09:00 ThA19.2
Prediction of Patient Evolution in Terms of Clinical Risk Groups Form Routinely Collected Data using Machine Learning
de Toledo, Paula* *(Univ. Carlos III de Madrid)*; Pérez-Rodríguez, Rodrigo *(Biomedical Research Foundation – Getafe Univ. Hospital)*; de Miguel, Pablo *(Hospital Univ. de Fuenlabrada)*; Sanchis, Araceli *(Univ. Carlos III de Madrid)*; Serrano Balazote, Pablo *(Hospital Univ. 12 de Octubre. Madrid)*

09:00-09:15 ThA19.3
Domain Adaptation in Children Activity Recognition
Hosseini, Anahita *(Dept. of Computer Science, Univ. of California, Los An)*; Zamanzadeh, Davina* *(Univ. of California Los Angeles)*; Valencia, Lisa *(Univ. of Southern California – Los Angeles)*; Habre, Rima *(Univ. of Southern California – Los Angeles)*; Bui, Alex *(Univ. of California, Los Angeles)*; Sarrafzadeh, Majid *(Univ. of California Los Angeles)*

09:15-09:30 ThA19.4
A Novel Hybrid Model for Visceral Adipose Tissue Prediction using Shape Descriptors
Wang, Qiyue* *(George Washington Univ.)*; Lu, Yao *(George Washington Univ.)*; Zhang, Xiaoke *(George Washington Univ.)*; Hahn, James *(George Washington Univ.)*

09:30-09:45 ThA19.5
Learning a Cytometric Deep Phenotype Embedding for Automatic Hematological Malignancies Classification
Li, Jeng-Lin *(Dept. of Electrical Engineering, National Tsing Hua Univers)*; Wang, Yu-Fen *(Tai-Cheng Stem Cell Therapy Center, National Taiwan Univ.)*; Ko, Bor-Sheng *(Dept. of Internal Medicine, National Taiwan Univ. Hosp)*; Li, Chi-Cheng *(Center of Stem Cell & Precision Medicine, Buddhist Tzu Chi Gen)*; Tang, Jih-Luh *(Dept. of Internal Medicine, National Taiwan Univ. Hosp)*; Lee, Chi-Chun* *(National Tsing Hua Univ.)*

09:45-10:00 ThA19.6
A Thermal Imaging Solution for Early Detection of Pre-Ulcerative Diabetic Hotspots
Quinn, Susan* *(Ulster Univ.)*; Saunders, Catherine *(Ulster Univ.)*; Cleland, Ian *(Univ. of Ulster)*; Nugent, Chris *(Univ. of Ulster)*; Garcia-Constantino, Matias Fernando *(Ulster Univ.)*; Cundell, Jill *(Ulster Univ.)*; Madill, Godfrey *(Prosthetic Forum NI)*; Morrison, Gareth *(The Lava Group)*

ThA20: 08:30-10:00 R5 – Level 3
Smart Textiles (Oral Session)
Chair: Paradiso, Rita *(Smartex srl)*
Co-Chair: Lendaro, Eva *(Chalmers University of Technology)*

08:30-08:45 ThA20.1
An Ecological Study based on Textile Sensory Platforms to Improve Safety and Well-Being at Work
Paradiso, Rita* *(Smartex srl)*; Crupi, Riccardo *(Smartex s.r.l.)*; Pacelli, Maria *(Smartex s.r.l.)*; Cuervo, Gabriel *(Ferrovial)*; Saunder, Mark *(Ferrovial)*

08:45-09:00 ThA20.2
A Comparative Characterization of Smart Textile Pressure Sensors
Kamara, Vanessa L* *(University of Rhode Island, Electrical, Computer & Biomedical)*; Kargwal, Sahil *(Dept. of Textile Technology, Indian Institute of Technology)*; Constant, Nicholas *(Dept. of Electrical, Computer & Biomedical Engineering, U)*; Gordon, Renee *(University of Rhode Island, Electrical, Computer & Biomedical)*; Humphreys, George *(University of Rhode Island)*; Mankodiya, Kunal *(University of Rhode Island)*

09:00-09:15 ThA20.3
Development of a Prototype E-Textile Sock
D'Addio, Giovanni *(ICS Maugeri Institute of Care & Scientific Research of Telese)*; Evangelista, Simone *(ICS Maugeri Institute of Care & Scientific Research of Telese)*; Donisi, Leandro* *(Electrical & ICT Engineering Dept. of University Federico)*; Biancardi, Arcangelo *(ICS Maugeri Institute of Care & Scientific Research of Telese)*; Andreozzi, Emilio *(University of Naples Federico II)*; Pagano, Gaetano *(ICS Maugeri Institute of Care & Scientific Research of Telese)*; Pasquale, Arpaia *(Electrical & ICT Engineering Dept. of University Federico)*; Cesarelli, Mario *(University "Federico II", Naples, Italy.)*

09:15-09:30 ThA20.4
Seamless Integrated Textrode-Band for Real-Time Lower Limb Movements Classification to Facilitate Self-Administrated Phantom Limb Pain Treatment
Lendaro, Eva* *(Chalmers University of Technology)*; Guo, Li *(University of Borås)*; Muñoz, María Jose *(Chalmers University of Technology)*; Sandsjö, Leif *(University of Borås)*; Ortiz-Catalan, Max *(Chalmers University of Technology)*

09:30-09:45 ThA20.5
A Pilot Study on an Integrated Service based on Wearable Textile Platforms to Promote Workers Wellness at Workplace
De Toma, Gianluca *(Smartex S.r.l.)*; Pacelli, Maria *(Smartex s.r.l.)*; Paradiso, Rita* *(Smartex srl)*; Ana Rosa, Victoria *(Reale Seguros Generales S.A)*; Saunder, Mark *(Ferrovial)*; Cuervo, Gabriel *(Ferrovial)*

09:45-10:00 ThA20.6
An Improved Liquid Metal Mask Printing Enabled Fast Fabrication of Wearable Electronics on Fabrics
Guo, Rui *(Tsinghua Univ.)*; Yao, Siyuan *(Chinese Academy of Sciences)*; Sun, Xuyang *(Technical Institute of Physics & Chemistry, Chinese Academy of)*; Liu, Jing* *(Tsinghua Univ.)*

ThA21: 08:30-10:00 R8 – level 3
Cardiovascular Assessment and Diagnostic Technologies (Oral Session)
Chair: Friebe, Michael *(Otto-von-Guericke-University)*
Co-Chair: Panescu, Dorin *(Zidan Medical, Inc.)*

08:30-08:45 ThA21.1
Operation Stability of Chitosan and Nafion-Chitosan Coatings on Bioelectrodes in Enzymatic Glucose Biofuel Cells
Kuis, Robinson *(University of Maryland Baltimore County)*; Hasan, Md Qumrul *(University of Maryland Baltimore County)*; Slaughter, Gymama* *(University of Maryland Baltimore County)*

08:45-09:00 ThA21.2
High Impedance Electrical Accidents: Importance of Source and Subject Impedance
Kroll, Mark William *(University of Minnesota)*; Kroll, Lori *(Independent Consultant)*; Panescu, Dorin* *(Advanced Cardiac Therapeutics)*; Perkins, Pete *(Safety Engineering)*; Andrews, Chris *(University of Queensland)*

09:00-09:15 ThA21.3
Design of an Auscultation System for Phonoangiography and Monitoring of Carotid Artery Diseases
Sühn, Thomas* *(Otto-von-Guericke-University of Magdeburg)*; Sreenivas, Arathi *(Otto-von-Guericke-University of Magdeburg)*; Mahmoodian, Naghmeh *(Otto-von-Guericke-Universität Magdeburg)*; Maldonado, Ivan *(OVGU, INKA)*; Boese, Axel *(Dept. of Medical Engineering, Otto-von-Guericke-University)*; Illanes, Alfredo *(Otto-von-Guericke University of Magdeburg)*; Bloxton, Michael *(Bloxton Investment Group, LLC)*; Friebe, Michael *(Otto-von-Guericke-University)*

09:15-09:30 ThA21.4
Deep Learning Approach for Highly Specific Atrial Fibrillation and Flutter Detection based on RR Intervals
Ivanovic, Marija* *(Vinca Institute of Nuclear Sciences)*; Atanasoski, Vladimir *(University of Belgrade)*; Shvilkin, Alexei *(Beth Israel Deaconess Medical Center; Harvard Medical School)*; Hadzievski, Ljupco *(Vinca Institute of Nuclear Sciences)*; Maluckov, Aleksandra *(Vinca Institute of Nuclear Sciences)*

09:30-09:45 ThA21.5
Effect of Beta-Blocker on Maternal-Fetal Heart Rates and Coupling in Pregnant Mice and Fetuses
Khandoker, Ahsan H* *(Khalifa Univ. of Science, Technology & Research)*; Yoshida, Chihiro *(Tohoku Univ.)*; Kasahara, Yoshiyuki *(Tohoku Univ.)*; Funamoto, Kiyoe *(Tohoku Univ.)*; Nakanishi, Kana *(Tohoku Univ.)*; Kanda, Keiichi *(Tohoku Univ.)*; Fukase, Miyabi *(Tohoku Univ.)*; Niizeki, Kyuichi *(Yamagata Univ.)*; Kimura, Yoshitaka *(Tohoku Univ.)*

09:45-10:00 ThA21.6
Dosimetry for Ventricular Fibrillation Risk with Short Electrical Pulses: History and Future
Kroll, Mark William *(University of Minnesota)*; Panescu, Dorin* *(Advanced Cardiac Therapeutics)*; Hirtler, Reinhard *(Elektroschutz Gemeinnützige Privatstiftung)*; Koch, Michael *(Eaton GmbH)*; Andrews, Chris *(University of Queensland)*

ThB01: 10:30-12:00 Hall A6+A7 – Level 1
Sensory Neuroprostheses (Oral Session)
Chair: Suaning, Gregg *(The University of Sydney)*

10:30-10:45 ThB01.1
The Effects of Phase Durations on the Spatial Responses of Retinal Ganglion Cells to EPI and Sub-Retinal Electrical Stimulation
Tong, Wei* *(Univ. of Melbourne)*; Stamp, Melanie *(Univ. of Melbourne)*; Hejazi, Maryam *(Univ. of Melbourne)*; Garrett, David J. *(Univ. of Melbourne)*; Prawer, Steven *(Univ. of Melbourne)*; Ibbotson, Michael R *(Australian College of Optometry)*

10:45-11:00 ThB01.2
An Investigation of Audibility Effects on Cochlear Implant Speech Perception Prediction
Watkins, Gregory Douglas* *(The University of Sydney)*; Swanson, Brett Anthony *(Cochlear Limited)*; Suaning, Gregg *(The University of Sydney)*

11:00-11:15 ThB01.3
Electrotactile Feedback with Spatial and Mixed Coding for Object Identification and Closed-Loop Control of Grasping Force in Myoelectric Prostheses
Chai, Guohong* *(Shanghai Jiao Tong Univ.)*; Briand, Josselin *(Shanghai Jiao Tong Univ.)*; Su, Shiyong *(Shanghai Jiao Tong Univ.)*; Sheng, Xinjun *(Shanghai Jiao Tong Univ.)*; Zhu, Xiangyang *(Shanghai Jiao Tong Univ.)*

11:15-11:30 ThB01.4
Somatosensory Cortex Microstimulation: Behavioral Effects of Phase Duration and Asymmetric Waveforms
Urdaneta, Morgan* *(Univ. of Florida)*; Kunigk, Nicolas *(Univ. of Florida)*; Delgado, Francisco *(Dr.)*; Otto, Kevin *(Univ. of Florida)*

11:30-11:45 ThB01.5
Comparison of Electrically Elicited Responses in Rabbit and Mouse Retinal Ganglion Cells
Werginz, Paul* *(Massachusetts General Hospital / Harvard Medical School)*; Fried, Shelley *(Massachusetts General Hospital / Harvard Medical School)*

11:45-12:00 ThB01.6
Effect of Interphase Gap Duration and Stimulus Rate on Threshold of Visual Cortical Neurons in the Rat
Xie, Hui *(City University of Hong Kong)*; Shek, Chi Ho *(City University of Hong Kong)*; Wang, Yi *(City University of Hong Kong)*; Chan, Leanne LH* *(City University of Hong Kong)*

ThB02: 10:30-12:00 Hall A8 – Level 1
Deep Learning Methods in Biosignal Analysis (Oral Session)
Chair: Celler, Branko George *(University of New South Wales)*

10:30-10:45 ThB02.1
Blood Pressure Estimation using Time Domain Features of Auscultatory Waveforms and Deep Learning
Argha, Ahmadreza* *(University of New South Wales)*; Celler, Branko George *(University of New South Wales)*

10:45-11:00 ThB02.2
2D Wavelet Scalogram Training of Deep Convolutional Neural Network for Automatic Identification of Micro-Scale Sharp Wave Biomarkers in the Hypoxic-Ischemic EEG of Preterm Sheep
Abbasi, Hamid* *(University of Auckland)*; Bennet, Laura *(The University of Auckland)*; Gunn, Alistair Jan *(University of Auckland)*; Unsworth, Charles Peter *(University of Auckland)*

11:00-11:15 ThB02.3
Fusion of End-to-End Deep Learning Models for Sequence-to-Sequence Sleep Staging
Phan, Huy* *(University of Kent)*; Chén, Oliver *(University of Oxford)*; Koch, Philipp *(University of Lübeck)*; Mertins, Alfred *(University of Lübeck)*; De Vos, Maarten *(University of Oxford)*

11:15-11:30 ThB02.4
Deep Learning Techniques for Improving Digital Gait Segmentation
Gadaleta, Matteo *(University of Padova)*; Cisotto, Giulia* *(University of Padova)*; Rossi, Michele *(University of Padova)*; Rehman, Rana Zia Ur *(Newcastle University)*; Rochester, Lynn *(Newcastle University)*; Del Din, Silvia *(Newcastle University)*

11:30-11:45 ThB02.5
A Joint-Feature Learning-Based Voice Conversion System for Dysarthric User based on Deep Learning Technology
Chen, Ko-Chiang *(National Yang-Ming Univ.)*; Yeh, Hsiu – Wei *(Yuan Ze Univ.)*; Han, Ji Yan *(Yang Ming)*; Jhang, Sin-Hua *(National Yang-Ming Univ.)*; Zheng, Wei-Zhong *(National Yang Ming Univ.)*; Lai, Ying-Hui* *(National Yang-Ming Univ.)*

11:45-12:00 ThB02.6
Improved A-Phase Detection of Cyclic Alternating Pattern using Deep Learning
Hartmann, Simon* *(The University of Adelaide)*; Baumert, Mathias *(The University of Adelaide)*

ThB03: 10:30-12:00 Hall A3 – Level 1
Novel Imaging Modalities (Oral Session)

10:30-10:45 ThB03.1
Experimental Validation for Microwave based Real-Time Monitoring for Microwave Ablation Treatment
Kanazawa, Kazuki *(University of Electro-Communications)*; Kidera, Shouhei* *(University of Electro-Communications)*

10:45-11:00 ThB03.2
Hyperspectral Imaging for Thermal Effect Monitoring in in-Vivo Liver during Laser Ablation
De Landro, Martina* *(Politecnico di Milano)*; Saccomandi, Paola *(Politecnico di Milano)*; Barberio, Manuel *(IHU Institute of Image-Guided Surgery, Strasbourg)*; Schena, Emiliano *(University of Rome Campus Bio-Medico)*; Marescaux, Jacques *(IRCAD)*; Diana, Michele *(IRCAD: Research Institute against Cancer of Digestive System, St)*

11:00-11:15 ThB03.3
Magnetomyographic Recordings of Pelvic Floor Activity during Pregnancy and Postpartum: A Novel Non-Invasive Approach
Escalona-Vargas, Diana* *(University of Arkansas for Medical Sciences)*; Oliphant, Sallie *(University of Arkansas for Medical Sciences)*; Eswaran, Hari *(Univ. of Arkansas for Medical Sci)*

11:15-11:30 ThB03.4
An Air-Operated Bistatic System for Breast Microwave Radar Imaging: Pre-Clinical Validation
Solis-Nepote, Mario *(Research Institute in Oncology & Hematology, Winnipeg, MB.)*; Reimer, Tyson *(University of Manitoba)*; Pistorius, Stephen* *(University of Manitoba)*

11:30-11:45 ThB03.5
Multi-Frequency Integration Algorithm of Contrast Source Inversion Method for Microwave Breast Tumor Detection
Sato, Hiroki* *(The University of Electro-Communications)*; Kidera, Shouhei *(University of Electro-Communications)*

11:45-12:00 ThB03.6
Super-Resolution Radar Imaging for Breast Cancer Detection with Microwaves: The Integrated Information Selection Criteria
Fasoula, Angie* *(Microwave Vision)*; Moloney, Brian *(Lambe Institute for Translational Research, National University)*; Duchesne, Luc *(Microwave Vision)*; Gil Cano, Julio Daniel *(Microwave Vision)*; Oliveira, Barbara Luz *(HRB Clinical Research Facility, National University of Ireland G)*; Bernard, Jean-Gael *(Microwave Vision)*; Kerin, Michael *(Lambe Institute for Translational Research, National University)*

ThB04: 10:30-12:00 Hall A1 – Level 1
Modeling Cell, Tissue, and Physiology for Patient Care (Oral Session)
Chair: Marmarelis, Vasilis *(University of Southern California)*
Co-Chair: Dokos, Socrates *(University of New South Wales)*

10:30-10:45 ThB04.1
Inter-Species Differences in the Response of Sinus Node Cellular Pacemaking to Changes of Extracellular Calcium
Loewe, Axel* *(Karlsruhe Institute of Technology (KIT))*; Lutz, Yannick *(Karlsruhe Institute of Technology (KIT))*; Nagy, Norbert *(University of Szeged)*; Fabbri, Alan *(University Medical Center Utrecht)*; Schweda, Christoph *(Karlsruhe Institute of Technology (KIT))*; Varró, András *(University of Szeged)*; Severi, Stefano *(University of Bologna)*

10:45-11:00 ThB04.2
Closed-Loop Modeling of the Heart-Rate Reflex for Improved Diagnosis and Monitoring of Mild Cognitive Impairment
Marmarelis, Vasilis* *(University of Southern California)*; Shin, Dae *(University of Southern California)*; Zhang, Rong *(University of Texas Southwestern Medical Center at Dallas)*

11:00-11:15 ThB04.3
The Influence of Vectorcardiogram Orientation on the T/QRS Ratio Obtained via Non-Invasive Fetal ECG
Keenan, Emerson* *(The Univ. of Melbourne)*; Karmakar, Chandan *(Deakin Univ.)*; Palaniswami, Marimuthu *(The Univ. of Melbourne)*

11:15-11:30 ThB04.4
XLIF Interbody Cage Reduces Stress and Strain of Fixation in Spinal Reconstructive Surgery in Comparison with TLIF Cage with Bilateral or Unilateral Fixation: A Computational Analysis
Zhang, Teng* *(The Univ. of Hong Kong, Queen Marry Hospital)*; Bai, Siwei *(Technical Univ. of Munich)*; Dokos, Socrates *(Univ. of New South Wales)*; Cheung, Jason Pui Yin *(The Univ. of Hong Kong)*; Diwan, Ashish *(Spine Service, St George Hospital)*

11:30-11:45 ThB04.5

Identification of the Infarct Time in Patients with Acute Myocardial Infarction

Procopio, Anna *(Univ. degli Studi Magna Graecia di Catanzaro)*; De Rosa, Salvatore *(Magna Graecia Univ.)*; Covello, Caterina *(Univ. degli Studi Magna Graecia di Catanzaro)*; Merola, Alessio *(Univ. degli Studi Magna Graecia di Catanzaro)*; Sabatino, Jolanda *(Univ. degli Studi Magna Graecia di Catanzaro)*; De Luca, Alessia *(Univ. degli Studi Magna Graecia di Catanzaro)*; Liebetrau, Christoph *(German Center for Cardiovascular Research (DZHK))*; Hamm, Christian W. *(German Center for Cardiovascular Research (DZHK))*; Indolfi, Ciro *(Magna Graecia Univ.)*; Amato, Francesco *(Univ. degli Studi Magna Graecia di Catanzaro)*; Cosentino, Carlo* *(Univ. degli Studi Magna Graecia di Catanzaro)*

11:45-12:00 ThB04.6

Modeling RF-Induced Power Deposition and Temperature Rise of Coaxial Leads with Helical Wires

Kozlov, Mikhail* *(Max Planck Institute for Human Cognitive & Brain Sciences)*; Horner, Marc *(ANSYS, Inc.)*; Kainz, Wolfgang *(Food & Drug Administration)*

ThB05: 10:30-12:00 Hall A2 – Level 1

Neural Networks for Cardiovascular Signal Applications (Oral Session)

Chair: Valenza, Gaetano *(University of Pisa)*

Co-Chair: Barbieri, Riccardo *(Politecnico di Milano)*

10:30-10:45 ThB05.1

PPGnet: Deep Network for Device Independent Heart Rate Estimation from Photoplethysmogram

A, Shyam* *(Healthcare Technology Innovation Centre)*; R, Vignesh *(Healthcare Technology Innovation Center, IIT Madras)*; SP, Preejith *(Healthcare Technology Innovation Center – IITMadras)*; Joseph, Jayaraj *(HTIC, Indian Institute of Technology Madras)*; Sivaprakasam, Mohanasankar *(Indian Institute of Technology Madras)*

10:45-11:00 ThB05.2

A Robust Machine Learning Architecture for a Reliable ECG Rhythm Analysis during CPR

Isasi Liñero, Iraia* *(UPV/EHU)*; Irusta, Unai *(UPV/EHU)*; Elola, Andoni *(University of the Basque Country)*; Aramendi, Elisabete *(University of the Basque Country)*; Eftestøl, Trygve *(University of Stavanger)*; Kramer-Johansen, Jo *(Oslo University Hospital)*; Wik, Lars *(Oslo University Hospital)*

11:00-11:15 ThB05.3

A Deep Learning Method to Detect Atrial Fibrillation based on Continuous Wavelet Transform

Wu, Ziqian *(Fudan University)*; Feng, Xujian *(Fudan University)*; Yang, Cuiwei* *(Fudan University)*

11:15-11:30 ThB05.4

An Electrocardiogram Delineator via Deep Segmentation Network

Jia, Dongya* *(Guangzhou Shiyuan Electronics Co., Ltd)*; Zhao, Wei *(Guangzhou Shiyuan Electronics Co., Ltd)*; Li, Zhenqi *(Guangzhou Shiyuan Electronics Co., Ltd)*; Hu, Jing *(Guangzhou Shiyuan Electronic Technology Co., Ltd.)*; Yan, Cong *(Guangzhou Shiyuan Electronics Co., Ltd)*; Wang, Hongmei *(Guangzhou Shiyuan Electronics Co., Ltd)*; You, Tianyuan *(Guangzhou Shiyuan Electronics Co., Ltd.)*

11:30-11:45 ThB05.5

Novel Deep Convolutional Neural Network for Cuff-Less Blood Pressure Measurement using ECG and PPG Signals

Yan, Cong* *(Guangzhou Shiyuan Electronics Co., Ltd)*; Li, Zhenqi *(Guangzhou Shiyuan Electronics Co., Ltd)*; Zhao, Wei *(Guangzhou Shiyuan Electronics Co., Ltd)*; Hu, Jing *(Guangzhou Shiyuan Electronic Technology Co., Ltd.)*; Jia, Dongya *(Guangzhou Shiyuan Electronics Co., Ltd)*; Wang, Hongmei *(Guangzhou Shiyuan Electronics Co., Ltd)*; You, Tianyuan *(Guangzhou Shiyuan Electronics Co., Ltd.)*

11:45-12:00 ThB05.6

Convolutional Recurrent Neural Networks to Characterize the Circulation Component in the Thoracic Impedance during Out-of-Hospital Cardiac Arrest

Elola, Andoni* *(University of the Basque Country)*; Aramendi, Elisabete *(University of the Basque Country)*; Irusta, Unai *(UPV/EHU)*; Picon, Artzai *(Tecnalia Research & Innovation)*; Alonso, Erik *(University of the Basque Country)*; Isasi Liñero, Iraia *(UPV/EHU)*; Idris, Ahamed *(University of Texas Southwestern Medical Center)*

ThB06: 10:30-12:00 Hall A5 – Level 1

Neuromuscular Systems (II) (Oral Session)

Chair: Perreault, Eric *(Northwestern University)*

Co-Chair: Al-Jumaily, Adel *(University of Technology Sydney)*

10:30-10:45 ThB06.1

Heterogeneity Counts More than Power for HD-sEMG-Based Joint Force Estimation

Zhang, Cong *(USTC)*; Chen, Xiang* *(University of Science & Technology of China)*; Zhang, Xu *(University of Science & Technology of China)*

10:45-11:00 ThB06.2

A Wearable Neural Interface for Detecting and Decoding Attempted Hand Movements in a Person with Tetraplegia

Ting, Jordyn* *(Univ. of Pittsburgh)*; Del Vecchio, Alessandro *(Imperial College London)*; Friedenberg, David *(Battelle Memorial Institute)*; Liu, Monica *(Univ. of Pittsburgh)*; Schoenewald, Caroline *(Univ. of Pittsburgh)*; Sarma, Devapratim *(Univ. of Pittsburgh)*; Collinger, Jennifer *(Univ. of Pittsburgh)*; Colachis, Sam *(Battelle Memorial Institute)*; Sharma, Gaurav *(Battelle)*; Farina, Dario *(Imperial College London)*; Weber, Douglas *(Univ. of Pittsburgh)*

11:00-11:15 ThB06.3

Evaluation of Langevin Model for Human Stabilogram based on Reproducibility of Statistical Indicators

Tawaki, Yuta* *(Keio Univ.)*; Murakami, Toshiyuki *(Keio Univ.)*

11:15-11:30 ThB06.4

LQG Framework Explains Performance of Balancing Inverted Pendulum with Incongruent Visual Feedback

Leib, Raz* *(Technical University of Munich)*; Cesonis, Justinas *(Technical University of Munich)*; Franklin, Sae *(Institute for Cognitive Systems, Technical University of Munich)*; Franklin, David W. *(Technical University of Munich)*

11:30-11:45 ThB06.5

Investigation of the Neural Drive during Vibration Exercise by High-Density Surface-Electromyography

Xu, Lin* *(Eindhoven Univ. of Technology)*; Negro, Francesco *(Aalborg Univ., Aalborg, Denmark)*; Rabotti, Chiara *(Eindhoven Univ. of Technology)*; Farina, Dario *(Imperial College London)*; Mischi, Massimo *(Eindhoven Univ. of Technology)*

11:45-12:00 ThB06.6

Muscle Fatigue Analysis by using a Scale Mixture-Based Stochastic Model of Surface EMG Signals

Furui, Akira* *(Hiroshima Univ.)*; Tsuji, Toshio *(Hiroshima Univ.)*

ThB08: 10:30-12:00 M8 – Level 3

Opportunities and Challenges on the use of Data-Driven Solutions for Empowering Children with Chronic Conditions (Minisymposium)

Chair: Fernandez-Luque, Luis *(Qatar Computing Research Institute – Hamad bin Khalifa Univ.)*

Co-Chair: Traver, Vicente *(ITACA – Univ. Politècnica de València)*

10:30-10:45 ThB08.1

Dr Jekyll and Mr Hyde: How Human Factors Can Hinder and Support Data-Driven Solutions for Patient Empowerment in Childhood Obesity

Fernandez-Luque, Luis* *(Qatar Computing Research Institute – Hamad bin Khalifa Universit)*

10:45-11:00 ThB08.2
Achieving Adherence to Growth Hormone Therapy – How eHealth Can Help
Koledova, Ekaterina* *(Merck KGaA)*

11:00-11:15 ThB08.3
Shaping the Future of Children's Health through Technology and Innovation
Dimitri, Paul* *(Sheffield Children's NHS Foundation Trust)*

11:15-11:30 ThB08.4
MyCyFAPP: The use of Mobile Technology to Enhance Research and Patient Support in Cystic Fibrosis
Traver, Vicente* *(ITACA – Universitat Politècnica de València)*

11:30-11:45 ThB08.5
Opportunities and Challenges on the use of Data-Driven Solutions for Empowering Children with Chronic Conditions: The Care of Growth-Related Disorders
Savendahl, Lars* *(Karolinska Institute)*

ThB09: 10:30-12:00 M1 – Level 3
Modeling of Networks and Diseases (Oral Session)
Chair: Bouteiller, Jean-Marie Charles *(Univ. of Southern California)*
Co-Chair: Liang, Jie *(University of Illinois at Chicago)*

10:30-10:45 ThB09.1
Parameter Uncertainty Analysis of a Mathematical Ion Channel Model
Shimayoshi, Takao* *(Kyushu University)*

10:45-11:00 ThB09.2
Pathogenic Processes Underlying Alzheimer's Disease: Modeling the Effects of Amyloid Beta on Synaptic Transmission
Bouteiller, Jean-Marie Charles* *(Univ. of Southern California)*; Mergenthal, Adam *(Univ. of Southern California)*; Hu, Eric *(Univ. of Southern California)*; Berger, Theodore *(USC)*

11:00-11:15 ThB09.3
Quantifying Interactions between Neural Populations during Behavior using Dynamical Systems Models
D'Aleo, Raina* *(Johns Hopkins Univ.)*; Rouse, Adam *(Univ. of Rochester Medical Center)*; Schieber, Marc *(Univ. of Rochester)*; Sarma, Sridevi V. *(Johns Hopkins Univ.)*

11:15-11:30 ThB09.4
Sparse, Predictive, and Interpretable Functional Connectomics with UoI-Lasso
Sachdeva, Pratik* *(University of California, Berkeley)*; Bouchard, Kristofer E. *(LBNL)*; Bhattacharyya, Sharmodeep *(Oregon State University)*

11:30-11:45 ThB09.5
Sensitivities of Regulation Intensities in Feed-Forward Loops with Multistability
Terebus, Anna *(University of Illinois at Chicago)*; Cao, Youfang *(Merck & Co. Inc)*; Liang, Jie* *(University of Illinois at Chicago)*

11:45-12:00 ThB09.6
Overcoming Channel Uncertainties in Molecular-Communication-Inspired Direct Drug Targeting
Sharifi, Neda *(The University of Waikato)*; Holmes, Geoffrey *(The University of Waikato)*; Yu, Zhou *(Beijing Institute of Collaborative Innovation)*; Ali, Muhammad *(University of Waikato)*; Chen, Yifan* *(The University of Waikato)*

ThB10: 10:30-12:00 M2 – Level 3
Image-Guided Therapies (Oral Session)
Chair: Haemmerich, Dieter *(Medical University of South Carolina)*
Co-Chair: Linte, Cristian A. *(Rochester Institute of Technology)*

10:30-10:45 ThB10.1
Shoulder-Mounted Robot for MRI-Guided Arthrography: Clinically Optimized System
Kim, Gyeong Hu* *(Johns Hopkins Univ.)*; Patel, Niravkumar *(Johns Hopkins Univ.)*; Yan, Jiawen *(Johns Hopkins Univ.)*; Wu, Di *(Johns Hopkins Univ.)*; Li, Gang *(Johns Hopkins Univ.)*; Iordachita, Iulian *(Johns Hopkins Univ.)*; Cleary, Kevin *(Children's National Medical Center)*

10:45-11:00 ThB10.2
Auditory and Visual User Interface for Optical Guidance during Stereotactic Brain Tumor Biopsies
Maintz, Michaela *(Fachhochschule Nordwestschweiz)*; Black, David *(Fraunhofer MEVIS)*; Haj-Hosseini, Neda* *(Univ. of Linköping)*

11:00-11:15 ThB10.3
Remotely Actuated Needle Driving Device for MRI-Guided Percutaneous Interventions: Force and Accuracy Evaluation
Wu, Di* *(Johns Hopkins University)*; Li, Gang *(Johns Hopkins University)*; Patel, Niravkumar *(Johns Hopkins University)*; Yan, Jiawen *(Johns Hopkins University)*; Kim, Gyeong Hu *(Johns Hopkins University)*; Monfaredi, Reza *(Children's National Health System)*; Cleary, Kevin *(Children's National Medical Center)*; Iordachita, Iulian *(Johns Hopkins University)*

11:15-11:30 ThB10.4
Body-Mounted MRI-Conditional Parallel Robot for Percutaneous Interventions Structural Improvement, Calibration, and Accuracy Analysis
Yan, Jiawen* *(Johns Hopkins Univ.)*; Patel, Niravkumar *(Johns Hopkins Univ.)*; Li, Gang *(Johns Hopkins Univ.)*; Wu, Di *(Johns Hopkins Univ.)*; Cleary, Kevin *(Children's National Medical Center)*; Iordachita, Iulian *(Johns Hopkins Univ.)*

11:30-11:45 ThB10.5
Primary Design Concept for Non-Metallic Needle for MRI Guided Spinal Applications
Al-Maatoq, Marwah* *(Faculty of Electrical Engineering & Information Technology, Ot)*; Boese, Axel *(Dept. of Medical Engineering, Otto-von-Guericke-University)*; Werner Henke, Heinz *(Innovative Tomography Products (ITP), Bochum, Germany)*; Friebe, Michael *(Otto-von-Guericke-University)*

11:45-12:00 ThB10.6
Tunability of Acoustic and Mechanical Behaviors in Breast Tissue Mimicking Materials
Ng, Si Yen *(National Cheng Kung University)*; Lin, Chi-Lun* *(National Cheng Kung University)*

ThB11: 10:30-12:00 M4 – Level 3
Heart Rate and Blood Pressure Variability (Oral Session)
Chair: Zaunseder, Sebastian *(Dortmund University of Applied Sciences and Arts)*

10:30-10:45 ThB11.1
Strength and Latency of the HP-SAP Closed Loop Variability Interactions in Subjects Prone to Develop Postural Syncope
Bari, Vlasta* *(IRCCS Policlinico San Donato)*; Cairo, Beatrice *(Univ. degli Studi di Milano)*; Vaini, Emanuele *(IRCCS Policlinico San Donato)*; De Maria, Beatrice *(IRCCS Fondazione Salvatore Maugeri, Milano)*; Rossato, Gianluca *(Sacro Cuore Hospital, Negrar (VR))*; Tonon, Davide *(IRCCS Sacro Cuore Don Calabria Hospital, Negrar, Verona, Italy)*; Faes, Luca *(Univ. of Palermo)*; Porta, Alberto *(Univ. degli Studi di Milano)*

10:45-11:00 ThB11.2
Cardiovascular Coupling-Based Classification of Ischemic and Dilated Cardiomyopathy Patients
Rodriguez, Javier* *(Institut de Bioenginyeria de Catalunya (IBEC))*; Schulz, Steffen *(University of Applied Sciences Jena)*; Voss, Andreas *(University of Applied Sciences Jena)*; Giraldo, Beatriz *(Universitat Poiltècnica de Catalunya)*

11:00-11:15 ThB11.3
Assessment of the Coupling Strength of Cardiovascular Control via Joint Symbolic Analysis during Postural Challenge in Recreational Athletes
Martins de Abreu, Raphael* *(Federal University of São Carlos)*; Catai, Aparecida *(Dept. of Physiotherapy, Federal University of São Carlos, S)*; Cairo, Beatrice *(Universita' degli Studi di Milano)*; Rehder-Santos, Patrícia *(Federal University of São Carlos)*; De Maria, Beatrice *(IRCCS Fondazione Salvatore Maugeri, Milano)*; Vaini, Emanuele *(IRCCS Policlinico San Donato)*; Bari, Vlasta *(IRCCS Policlinico San Donato)*; Porta, Alberto *(Universita' degli Studi di Milano)*

11:15-11:30 ThB11.4
The Complexity of Dreams: A Multiscale Entropy Study on Cardiovascular Variability Series
Nardelli, Mimma* *(University of Pisa)*; Faraguna, Ugo *(Dept. of Translational Research & of New Surgical & Med)*; Grandi, Giulia *(Dept. of Translational Research & of New Surgical & Med)*; Bruno, Rosa Maria *(Dept. of Clinical & Experimental Medicine, University of)*; Valenza, Gaetano *(University of Pisa)*; Scilingo, Enzo Pasquale *(University of Pisa)*

11:30-11:45 ThB11.5
Automatic Detection of General Anesthetic-States using ECG-Derived Autonomic Nervous System Features
Polk, Sam, L* *(Tufts University)*; Kashkooli, Kimia *(Tufts University School of Medicine)*

11:45-12:00 ThB11.6
Heartbeat Dynamics Analysis under Cold-Pressure Test using Wavelet P-Leader Non-Gaussian Multiscale Expansions
Catrambone, Vincenzo* *(Univ. di Pisa)*; Wendt, Herwig *(CNRS, Univ. of Toulouse)*; Scilingo, Enzo Pasquale *(Univ. of Pisa)*; Barbieri, Riccardo *(Politecnico di Milano)*; Abry, Patrice *(ENS Lyon, CNRS)*; Valenza, Gaetano *(Univ. of Pisa)*

ThB12: 10:30-12:00 M6 – Level 3
Ophthalmic Imaging and Analysis (Oral Session)

10:30-10:45 ThB12.1
Depthwise Separable Convolutional Neural Network Model for Intra-Retinal Cyst Segmentation
Girish, GN* *(National Institute of Technology Karnataka, Surathkal)*; Saikumar, Banoth *(Dept. of Computer Science & Engineering, National Institu)*; Roychowdhury, Sohini *(University of Washington, Bothell)*; R Kothari, Abhishek *(Dr. Agarwal's Eye Hospital, Jaipur, India)*; Rajan, Jeny *(Dept. of Computer Science & Engineering, National Institu)*

10:45-11:00 ThB12.2
Conditional Adversarial Transfer for Glaucoma Diagnosis
Wang, Jingwen *(South China University of Technology)*; Yan, Yuguang *(South China University of Technology)*; Xu, Frank Yanwu* *(Baidu)*; Zhao, Wei *(Guangzhou Shiyuan Electronics Co., Ltd)*; Min, Huaqing *(South China University of Technology)*; Tan, Mingkui *(South China University of Technology)*; Liu, Jiang *(Ningbo Institute of Materials Technology & Engineering, CAS)*

11:00-11:15 ThB12.3
Enhancing the Accuracy of Glaucoma Detection from OCT Probability Maps using Convolutional Neural Networks
Thakoor, Kaveri* *(Columbia Univ.)*; Li, Xinhui *(Columbia Univ.)*; Tsamis, Emmanouil *(Columbia Univ.)*; Sajda, Paul *(Columbia Univ.)*; Hood, Donald *(Columbia Univ.)*

11:15-11:30 ThB12.4
Accurate Cross-Section Estimation of Blood Vessels in Choroidal Haller's Layer: An Iterative Method based on 3D Tensor Voting
Ibrahim, Mohammed Nasar *(Indian Institute of Technology, Hyderabad)*; Vupparaboina, Kiran Kumar *(Indian Institute of Technology Hyderabad)*; Marupally, Abhilash Goud *(L V Prasad Eye Institute)*; Bin Bashar, Sarforaz *(L V Prasad Eye Institute)*; Chhablani, Jay *(L.V. Prasad Eye Institute Hyderabad)*; Jana, Soumya* *(Indian Institute of Technology Hyderabad)*

11:30-11:45 ThB12.5
An Interpretable Ensemble Deep Learning Model for Diabetic Retinopathy Disease Classification
Jiang, Hongyang* *(Sino-Dutch Biomedical & Information Engineering School, Northe)*; Yang, Kang *(Beijing ZhiZhen Internet Technology Co., Ltd .)*; Gao, Mengdi *(Sino-Dutch Biomedical & Information Engineering School, Northe)*; Zhang, Dongdong *(Beijing ZhiZhen Internet Technology Co., Ltd .)*; Ma, He *(Northeastern Univ.)*; Qian, Wei *(Northeastern Univ.)*

11:45-12:00 ThB12.6
Deep Learning Classification Models Built with Two-Step Transfer Learning for Age Related Macular Degeneration Diagnosis
An, Guangzhou* *(RIKEN)*; Yokota, Hideo *(RIKEN Center for Advanced Photonics)*; Motozawa, Naohiro *(Dept. of Ophthalmology, Kobe City Eye Hospital)*; Takagi, Seiji *(Teikyo Univ. Mizonokuchi hospital)*; Mandai, Michiko *(RIKEN BDR)*; Kitahata, Shohei *(RIKEN Center for Biosystems Dynamics Research)*; Hirami, Yasuhiko *(RIKEN Center for Biosystems Dynamics Research)*; Takahashi, Masayo *(RIKEN)*; Kurimoto, Yasuo *(Kobe City Eye Hospital)*; Akiba, Masahiro *(Topcon Corp.)*

ThB13: 10:30-12:00 R2 – Level 3
Clinical Applications of Inertial Sensors (Oral Session)
Co-Chair: Hedin, Daniel *(Advanced Medical Electronics)*

10:30-10:45 ThB13.1
Accuracy of the Orientation Estimate Obtained using Four Sensor Fusion Filters Applied to Recordings of Magneto-Inertial Sensors Moving at Three Rotation Rates
Caruso, Marco* *(Politecnico di Torino)*; Sabatini, Angelo Maria *(Scuola Superiore Sant'Anna)*; Knaflitz, Marco *(Politecnico di Torino)*; Gazzoni, Marco *(Politecnico di Torino)*; Della Croce, Ugo *(Univ. of Sassari)*; Cereatti, Andrea *(Univ. of Sassari)*

10:45-11:00 ThB13.2
Investigating Normal Day to Day Variations of Postural Control in a Healthy Young Population using Wii Balance Boards
Johnston, William* *(University College Dublin, Insight Centre)*; McGrath, Denise *(University College Dublin)*; Greene, Barry R. *(Kinesis Health Technologies)*; Caulfield, Brian *(UCD)*

11:00-11:15 ThB13.3
Capturing Concussion Related Changes in Dynamic Balance using the Quantified Y Balance Test – A Case Series of Six Elite Rugby Union Players
Johnston, William* *(Univ. College Dublin, Insight Centre)*; O'Reilly, Martin *(Insight Centre for Data Analytics, Univ. College Dublin)*; Liston, Mairead *(IRFU)*; McLoughlin, Rod *(IRFU)*; Coughlan, Garrett *(Univ. College Dublin)*; Caulfield, Brian *(UCD)*

11:15-11:30 ThB13.4
Laboratory and On-Field Data Collected by a Head Impact Monitoring Mouthguard
Bartsch, Adam* *(Prevent Biometrics)*; Hedin, Daniel *(Advanced Medical Electronics)*; Gibson, Paul *(Advanced Medical Electronics)*; Miele, Vincent *(University of Pittsburg)*; Benzel, Edward *(Cleveland Clinic)*; Alberts, Jay *(Cleveland Clinic)*; Samorezov, Sergey *(Cleveland Clinic)*; Shah, Alok *(Medical College of Wisconsin)*; Stemper, Brian *(Medical College of Wisconsin)*; McCrea, Michael *(Medical College of Wisconsin)*

11:30-11:45 ThB13.5
Predictive Control for an Active Prosthetic Socket informed by FEA-Based Tissue Damage Risk Estimation
Mbithi, Florence M.* *(Univ. of Southampton)*; Chipperfield, Andrew John *(Univ. of Southampton)*; Steer, Joshua W. *(Univ. of Southampton)*; Dickinson, Alexander S. *(Univ. of Southampton)*

11:45-12:00 ThB13.6
Portable Gait Lab: Zero Moment Point for Minimal Sensing of Gait
Mohamed Refai, Mohamed Irfan* *(Univ. of Twente)*; van Beijnum, Bert-Jan F. *(Univ. of Twente)*; Buurke, Jacob Hilbert *(Roessingh Research & Development)*; Saes, Mique *(Amsterdam Univ. Medical Centre)*; Bussmann, Hans B.J. *(Erasmus MC)*; Meskers, Carel *(VU Univ. Medical Center)*; Wegen, Erwin E.H. *(Dept. of Rehabilitation Medicine, VU Univ. Medical Cen)*; Kwakkel, Gert *(Dept. of Rehabilitation Medicine, VU Univ. Medical Cen)*; Veltink, Peter *(Univ. of Twente)*

ThB15: 10:30-12:00 M3 – Level 3
Image Analysis and Classification – Machine Learning Approaches (II) (Oral Session)
Chair: Toschi, Nicola *(Univ. of Rome "Tor Vergata", Faculty of Medicine)*
Co-Chair: Cardoso, Jaime S. *(INESC TEC and University of Porto)*

10:30-10:45 ThB15.1
Hand and Object Segmentation from Depth Image using Fully Convolutional Network
Lim, Guan Ming* *(Nanyang Technological University)*; Jatesiktat, Prayook *(NTU)*; Kuah, Christopher Wee Keong *(Tan Tock Seng Hospital Rehabilitation Centre)*; Ang, Wei Tech *(Nanyang Technological University)*

10:45-11:00 ThB15.2
Prediction of Multiple Sclerosis Patient Disability from Structural Connectivity using Convolutional Neural Networks
Marzullo, Aldo* *(University of Calabria)*; Kocevar, Gabriel *(University Claude Bernard Lyon 1)*; Stamile, Claudio *(CREATIS, Université Lyon 1)*; Calimeri, Francesco *(University of Calabria)*; Terracina, Giorgio *(University of Calabria)*; Durand-Dubief, Françoise *(Hôpital Neurologique)*; Sappey-Marinier, Dominique *(Université Claude Bernard – Lyon1)*

11:00-11:15 ThB15.3
Diagnostic Quality Assessment of Ocular Fundus Photographs: Efficacy of Structure-Preserving ScatNet Features
Dev, Chander *(Indian Institute of Tech. Hyderabad)*; Sriramu, Sharang *(IIT Hyderabad)*; Manne, Shanmukh Reddy* *(Indian Institute of Tech. Hyderabad)*; Marupally, Abhilash Goud *(L V Prasad Eye Institute)*; Bin Bashar, Sarforaz *(L V Prasad Eye Institute)*; Richhariya, Ashutosh *(L.V. Prasad Eye Institute Hyderabad)*; Chhablani, Jay *(L.V. Prasad Eye Institute Hyderabad)*; Vupparaboina, Kiran Kumar *(Indian Institute of Tech. Hyderabad)*; Jana, Soumya *(Indian Institute of Tech. Hyderabad)*

11:15-11:30 ThB15.4
Differential Diagnosis for Pancreatic Cysts in CT Scans using Densely-Connected Convolutional Networks
Menze, Bjoern *(TU Munich)*; Li, Hongwei* *(Technical University of Munich)*; Shi, Kuangyu *(University of Bern)*

11:30-11:45 ThB15.5
Motion Signatures for the Analysis of Seizure Evolution in Epilepsy
Ahmedt-Aristizabal, David* *(Queensland Univ. of Tech.)*; Sarfraz, Muhammad Saquib *(Karlsruhe Institute of Tech.)*; Denman, Simon *(Queensland Univ. of Tech.)*; Nguyen, Kien *(Queensland Univ. of Tech.)*; Fookes, Clinton *(Queensland Univ. of Tech.)*; Dionisio, Sasha *(Mater Hospital)*; Stiefelhagen, Rainer *(Karlsruhe Institute of Tech.)*

11:45-12:00 ThB15.6
Weight Rotation as a Regularization Strategy in Convolutional Neural Networks
Castro, Eduardo* *(INESCTEC)*; Costa Pereira, Jose *(INESCTEC / Porto University)*; Cardoso, Jaime S. *(INESC TEC & University of Porto)*

ThB16: 10:30-12:00 M5 – Level 3
Joint Mechanics (Oral Session)

10:30-10:45 ThB16.1
System Identification of Ankle Joint Dynamics based on Plane-Wave Ultrasound Muscle Imaging
Ossenkoppele, Boudewine Willemine* *(TU Delft)*; Daeichin, Verya *(Delft University of Technology)*; Rodríguez Hernandez, Karen Elena *(TU Delft)*; de Jong, Nico *(Delft University of Technology & Erasmus MC)*; Verweij, Martin D. *(Delft University of Technology)*; Schouten, Alfred C. *(Delft University of Technology)*; Mugge, Winfred *(Delft University of Technology)*

10:45-11:00 ThB16.2
4D in-Vivo Quantification of Ankle Joint Space Width using Dynamic MRI
Makki, Karim* *(IMT Atlantique)*; Borotikar, Bhushan *(University of Western Brittany)*; Garetier, Marc *(Latim)*; Acosta, Oscar *(Univ. Rennes, CLCC Eugène Marquis, INSERM, LTSI – UMR 1099)*; Brochard, Sylvain *(CHRU Brest)*; Ben Salem, Douraied *(CHRU Brest)*; Rousseau, François *(Telecom Bretagne)*

11:00-11:15 ThB16.3
Estimation of Time-Varying Ankle Joint Stiffness under Dynamic Conditions via System Identification Techniques
Moya Esteban, Alejandro* *(University of Twente)*; van 't Veld, Ronald C. *(University of Twente)*; Cop, Christopher P. *(University of Twente)*; Durandau, Guillaume *(University of Twente)*; Sartori, Massimo *(University of Twente)*; Schouten, Alfred C. *(Delft University of Technology)*

11:15-11:30 ThB16.4
Evaluation of Tibiofibular Joint Alignment in Ankle Osteoarthritis based on 3D Bone Thickness
Fujinuma, Takuya* *(Tokyo University of Science)*; Kosugi, Shinichi *(Nara Prefectual Seiwa Medical Center)*; Kurokawa, Hiroaki *(Nara Medical University)*; Tanaka, Yasuhito *(Nara Medical University)*; Takemura, Hiroshi *(Tokyo University of Science)*; Tsuichihara, Satoki *(Tokyo University of Science)*

11:30-11:45 ThB16.5
Prediction and Visualisation of Bony Impingement for Subject Specific Total Hip Arthroplasty
Palit, Arnab* *(The Univ. of Warwick)*; King, Richard *(Univ. Hospital Coventry & Warwickshire NHS Trust)*; Gu, Yolanda *(Corin Group Pty Ltd)*; Pierrepont, James *(Corin Group Pty Ltd)*; Hart, Zoe *(Corin Group Pty Ltd)*; Elliott, Mark *(IDH, WMG, Univ. of Warwick)*; Williams, Mark *(WMG, The Univ. of Warwick)*

11:45-12:00 ThB16.6
Using Time-Frequency Analysis to Characterize Altered Knee Dynamics in Post ACL Reconstruction Individuals
Morgan, Kristin* *(University of Connecticut)*

ThB17: 10:30-12:00 R12 – Level 3
Novel Drug Delivery Systems (Minisymposium)
Chair: Kim, Sang Geon *(Seoul National University)*
Co-Chair: Kurose, Hitoshi *(Kyushu University, Graduate School of Pharmaceutical Sciences)*

10:30-10:45 ThB17.1
Immunological Neutralization or RNA Interference Reverses Systemic Insulin Resistance Caused by a Liver-Secreted Protein Identified by Comparative Secretome Analysis
Kim, Sang Geon* *(Seoul National Univ.)*; Kim, Tae Hyun *(Seoul National Univ.)*; Cho, Je-Yoel *(Seoul National Univ.)*

10:45-11:00 ThB17.2
Cardiac Fibrosis: From Target to Treatment
Kurose, Hitoshi* *(Kyushu University, Graduate School of Pharmaceutical Sciences)*

11:00-11:15 ThB17.3
Self-Adhesive Cataplasma System for Iontophoresis
Nam, Tack Soo* *(Wooshin Labottach Co.)*; You, June Seok *(Wooshin Labottach Co.)*

11:15-11:30 ThB17.4
Activation of Chemo/Immunotherapy in Tumor Microenvironment
Oh, Yu-Kyoung* *(Seoul National University)*

ThB18: 10:30-12:00 R13 – Level 3
Brain Physiology and Modeling (Oral Session)
Chair: Butera, Robert *(Georgia Institute of Technology)*

10:30-10:45 ThB18.1
Evaluation of Epistemic Uncertainties for Bipolar Deep Brain Stimulation in Rodent Models
Butenko, Konstantin* *(University of Rostock)*; Bahls, Christian Rüdiger *(University of Rostock, Institute of General Electrical Engineeri)*; van Rienen, Ursula *(University of Rostock)*

10:45-11:00 ThB18.2
Change in Evoked Response of Mature Neuronal Network to Spatial Pattern Stimulation by Immature Neurons
Moriya, Fumika* *(The University of Tokyo)*; Shimba, Kenta *(The University of Tokyo)*; Kotani, Kiyoshi *(University of Tokyo)*; Jimbo, Yasuhiko *(University of Tokyo)*

11:00-11:15 ThB18.3
A Thalamo-Cortex Microcircuit Model of Beta Oscillations in the Parkinsonian Motor Cortex
Farokhniaee, AmirAli* *(University College Dublin)*; Lowery, Madeleine *(University College Dublin)*

11:15-11:30 ThB18.4
Neural Activity from Attention Networks Predicts Movement Errors
Breault, Macauley S.* *(Johns Hopkins University)*; Gonzalez-Martinez, Jorge *(Cleveland Clinic)*; Gale, John *(Cleveland Clinic)*; Sarma, Sridevi V. *(Johns Hopkins University)*

11:30-11:45 ThB18.5
Optimal Trajectories of Brain State Transitions Indicate Motor Function Changes Associated with Aging
Zhu, Hong *(Shanghai Jiao Tong University)*; Zhou, Jie *(Shanghai Jiao Tong University)*; Shu, Pin *(Shanghai Jiao Tong University)*; Tong, Shanbao *(Shanghai Jiao Tong University)*; Sun, Junfeng* *(Shanghai Jiao Tong University)*

11:45-12:00 ThB18.6
Force-Temporal Characteristics of EEG-EMG Coherence during Isometric Contraction of Lateral Head of Gastrocnemius Muscle
Igasaki, Tomohiko* *(Kumamoto Univ.)*; Yamashita, Kento *(Kumamoto Univ.)*; Ushijima, Takeshi *(Kumamoto Univ.)*

ThB19: 10:30-12:00 R4 – Level 3
General and Theoretical Informatics – Machine Learning (II) (Oral Session)
Chair: Holmes, David *(Mayo Clinic)*
Co-Chair: Chouvarda, Ioanna *(Aristotle University)*

10:30-10:45 ThB19.1
Machine Learning for Classification of Uterine Activity Outside Pregnancy
Bakkes, Tom Hendricus Gerardus Franciscus* *(Eindhoven Univ. of Technology)*; Sammali, Federica *(Eindhoven Univ. of Technology)*; Kuijsters, Nienke Pertronella Maria *(Catharina Hospital Eindhoven)*; Turco, Simona *(Eindhoven Univ. of Technology)*; Rabotti, Chiara *(Eindhoven Univ. of Technology)*; Schoot, Benedictus Christiaan *(Catharina Hospital Eindhoven)*; Mischi, Massimo *(Eindhoven Univ. of Technology)*

10:45-11:00 ThB19.2
Predicting Lymphoma Outcomes and Risk Factors in Patients with Primary Sjögren's Syndrome using Gradient Boosting Tree Ensembles
Pezoulas, Vasileios C. *(University of Ioannina)*; Exarchos, Themis P. *(Unit of Medical Tech & Intelligent Info)*; Tzioufas, Athanasios *(National & Kapodistrian University of Athens)*; De Vita, Salvatore *(Udine University)*; Fotiadis, Dimitrios I.* *(University of Ioannina)*

11:00-11:15 ThB19.3
1D Convolutional Neural Networks for Estimation of Compensatory Reserve from Blood Pressure Waveforms
Techentin, Robert *(Mayo Clinic)*; Felton, Christopher *(Mayo Clinic)*; Schlotman, Taylor *(US Army Institute of Surgical Research)*; Gilbert, Barry *(Mayo Clinic College of Medicine)*; Joyner, Michael *(Mayo Clinic)*; Curry, Timothy *(Mayo Clinic)*; Convertino, Victor *(U.S. Army Institute of Surgical Research)*; Holmes, David* *(Mayo Clinic)*; Haider, Clifton *(Mayo Clinic)*

11:15-11:30 ThB19.4
Facilitating Machine Learning on Big Health Data Networks
Pitoglou, Stavros* *(Research & Development Dpt. Computer Solutions SA,Biomedical Eng)*; Anastasiou, Athanasios *(Biomedical Engineering Laboratory, National Technical University)*; Androutsou, Thelma *(National Technical University of Athens)*; Giannouli, Dimitra *(Research & Development Dpt. Computer Solutions SA)*; Kostalas, Evaggelos *(Research & Development Dpt. Computer Solutions SA)*; MATSOPOULOS, GEORGE K *(Inst of Comm & Computer Systems)*; Koutsouris, Dimitrios *(Biomedical Engineering Laboratory, School of Electrical & Comp)*

11:30-11:45 ThB19.5
Machine Learning-Based Risk of Hospital Readmissions: Predicting Acute Readmissions within 30 Days of Discharge
Baig, Mirza Mansoor* *(Orion Health)*; Hua, Ning *(Orion Health)*; Zhang, Edmond *(Orion Health)*; Robinson, Reece *(Orion Health)*; Armstrong, Delwyn *(Waitemata District Health Board)*; Whittaker, Robyn *(Univ. of Auckland)*; Robinson, Tom *(Waitemata District Health Board)*; Mirza, Farhaan *(Auckland Univ. of Technology)*; Ullah, Ehsan *(Auckland District Health Board)*

11:45-12:00 ThB19.6
A Reliable Multi-Classifier Multi-Objective Model for Predicting Recurrence in Triple Negative Breast Cancer
Chen, Xi* *(Xi'an Jiao Tong University)*; Zhou, Zhiguo *(UT Southwestern Medical Center)*; Thomas, Kimberly *(Weill Cornell Medicine)*; Folkert, Michael *(The University of Texas Southwestern Medical Center)*; Kim, Nathan *(University of Texas Southwestern Medical Center)*; Rahimi, Asal *(The University of Texas Southwestern Medical Center)*; Wang, Jing *(University of Texas Southwestern Medical Center)*

ThB20: 10:30-12:00 R5 – Level 3
Stress Monitoring (Oral Session)
Chair: Leonhardt, Steffen *(RWTH Aachen University)*

10:30-10:45 ThB20.1
Daytime Data and LSTM can Forecast Tomorrow's Stress, Health, and Happiness
Umematsu, Terumi* *(NEC Corp.)*; Sano, Akane *(Rice Univ.)*; Picard, Rosalind *(Massachusetts Institute of Technology)*

10:45-11:00 ThB20.2
Prediction of Self-Perceived Stress and Arousal based on Electrodermal Activity
Pakarinen, Tomppa Oskari* *(Tampere Univ.)*; Pietilä, Julia *(Tampere Univ. of Technology)*; Nieminen, Hannu *(Tampere Univ. of Technology)*

11:00-11:15 ThB20.3
Multi-Modal Acute Stress Recognition using Off-the-Shelf Wearable Devices
Montesinos, Victoriano *(EPFL)*; Dell'Agnola, Fabio *(Ecole Polythechique Fédérale de Lausanne (EPFL))*; Arza Valdés, Adriana* *(École Polytechnique Fédérale de Lausanne EPFL)*; Aminifar, Amir *(EPFL)*; Atienza, David *(EPFL)*

11:15-11:30 ThB20.4
Effect of Mental Workload on Breathing Pattern and Heart Rate for a Working Memory Task: A Pilot Study
Jaiswal, Dibyanshu* *(TCS Research & Innovation)*; Chowdhury, Arijit *(TCS Innovation Lab)*; Banerjee, Tanushree *(TCS Innovation Lab)*; Chatterjee, Debatri *(TCS Innovation Lab)*

11:30-11:45 ThB20.5
Evaluation and Classification of Physical and Psychological Stress in Firefighters using Heart Rate Variability
Pluntke, Ulrike *(IBM Deutschland GmbH)*; Gerke, Sebastian *(IBM Research – Zurich)*; Sridhar, Arvind *(IBM Research – Zurich)*; Weiss, Jonas *(IBM Research – Zurich)*; Michel, Bruno* *(IBM Research – Zurich)*

11:45-12:00 ThB20.6
A Comparative Study of Stress and Anxiety Estimation in Ecological Settings using a Smart-Shirt and a Smart-Bracelet
Tiwari, Abhishek* *(Institut National de la Recherche Scientifique)*; Cassani, Raymundo *(Institut National de la Recherche Scientifique)*; Narayanan, Shrikanth *(University of Southern California)*; Falk, Tiago *(Institut National de la Recherche Scientifique)*

ThB21: 10:30-12:00 R8 – level 3
Diagnostic Devices – Physiological Monitoring (Oral Session)
Co-Chair: Fletcher, Richard Ribon *(Massachusetts Institute of Tech.)*

10:30-10:45 ThB21.1
A Force Line Trajectory Measuring System and Algorithms for Unicondylar Knee Replacement Surgery
Su, Zhe *(Tsinghua University)*; Wang, Zhihua *(Tsinghua University)*; Chen, Hong* *(Tsinghua Univ.)*

10:45-11:00 ThB21.2
Methods for Visualization of Gastric Endoscopic Mapping Data from Three-Dimensional, Non-Uniform Electrode Arrays
Chan, Chih-Hsiang Alexander* *(Univ. of Auckland)*; Aghababaie, Zahra *(Univ. of Auckland)*; Paskaranandavadivel, Niranchan *(The Univ. of Auckland)*; Cheng, Leo K *(The Univ. of Auckland)*; Angeli, Timothy Robert *(Auckland Bioengineering Institute, Univ. of Auckland)*

11:00-11:15 ThB21.3
A Sampler Prototype for the Simultaneous Collection of Exhaled Air and Breath Condensate
Lomonaco, Tommaso *(University of Pisa, Dept. of Chemistry & Industrial Chemi)*; Salvo, Pietro* *(National Research Council)*; Ghimenti, Silvia *(University of Pisa, Dept. of Chemistry & Industrial Chemi)*; Biagini, Denise *(University of Pisa, Dept. of Chemistry & Industrial Chemi)*; Antoni, Shaula *(University of Pisa, Dept. of Chemistry & Industrial Chemis)*; Bellagambi, Francesca *(University of Pisa, Dept. of Chemistry & Industrial Chemi)*; Di Francesco, Fabio *(University of Pisa)*; Fuoco, Roger *(University of Pisa, Dept. of Chemistry & Industrial Chemi)*

11:15-11:30 ThB21.4
Sleep Staging Monitoring based on Sonar Smartphone Technology
Zaffaroni, Alberto Antonio *(ResMed Inc.)*; Coffey, Sam *(ResMed Inc.)*; Dodd, Stephen *(ResMed Inc.)*; Kilroy, Hannah *(ResMed)*; Lyon, Graeme* *(ResMed Inc.)*; O'Rourke, Damien *(ResMed Inc.)*; Lederer, Katharina *(Advanced Sleep Research Berlin)*; Fietze, Ingo *(Charité-Universitaetsmedizin Berlin)*; Penzel, Thomas *(Charité Universitätsmedizin Berlin)*

11:30-11:45 ThB21.5
Application of Machine Learning to Prediction of Surgical Site Infection
Fletcher, Richard Ribon* *(Massachusetts Institute of Technology)*; Olubeko, Olasubomi *(MIT)*; Sonthalia, Harsh *(Massachusetts Institute of Technology)*; Kateera, Fredrick *(Partners In Health)*; Nkurunziza, Theoneste *(Partners In Health/ Inshuti Mu Buzima)*; Ashby, Joanna L. *(Program in Global Surgery & Social Change, Harvard Medical Sch)*; Riviello, Robert *(Brigham & Women's Hospital/ Harvard Medical School)*; Hedt-Gauthier, Bethany *(Harvard Medical School)*

11:45-12:00 ThB21.6
Assessment of Lumbar Muscles Coordinated Activity based on High-Density Surface Electromyography: A Pilot Study
Jiang, Naifu *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Xue, Jinwei *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Li, Guanglin* *(Shenzhen Institutes of Advanced Technology)*

ThC01: 14:00-15:30 Hall A6+A7 – Level 1
BCIs for Cognitive Assessment and Real-Time Decoding (Minisymposium)
Chair: Guger, Christoph *(g.tec Medical Engineering GmbH)*
Co-Chair: Rutkowski, Tomasz *(RIKEN)*

14:00-14:15 ThC01.1
Passive BCI for Task-Load and Dementia Biomarker Elucidation
Rutkowski, Tomasz* *(RIKEN)*; Zhao, Qibin *(RIKEN Brain Science Institute)*; Abe, Masato S. *(RIKEN AIP)*; Otake-Matsuura, Mihoko *(RIKEN AIP)*

14:15-14:30 ThC01.2
Online Detection of Spontaneous Face and Kanji Characters in Human ECoG
Guger, Christoph* *(g.tec Medical Engineering GmbH)*; Kapeller, Christoph *(g.tec Medical Engineering GmbH)*; Gruenwald, Johannes *(Johannes Kepler University Linz)*; Kamada, Kyousuke *(Asahikawa Medical University)*

14:30-14:45 ThC01.3
Estimating Cognitive Workload in a Virtual Reality Environment using EEG
Krusienski, Dean* *(Virginia Commonwealth University)*; Tremmel, Christoph *(Old Dominion University)*; Herff, Christian *(Maastricht University)*; Rechowicz, Krzysztof *(Old Dominion University)*; Yamani, Yusuke *(Old Dominion University)*

ThC02: 14:00-15:30 Hall A8 – Level 1
Data Mining for Biosignals (Oral Session)
Co-Chair: Kraemer, Jan F. *(Humboldt-Universität zu Berlin)*

14:00-14:15 ThC02.1
Facial Recognition Task for the Classification of Mild Cognitive Impairment with Ensemble Sparse Classifier
Williams, Patrick *(East Carolina Univ.)*; White, Austin T. *(East Carolina Univ.)*; Merino, Rubi *(East Carolina Univ.)*; Hardin, Sonya *(East Carolina Univ.)*; Mizelle, John Christopher *(East Carolina Univ.)*; Kim, Sunghan* *(East Carolina Univ.)*

14:15-14:30 ThC02.2
Uncovering Low-Dimensional Structure in High-Dimensional Representations of Long-Term Recordings in People with Epilepsy
Rapela, Joaquin *(Brown University)*; Proix, Timothée *(Université de Génève)*; Todorov, Dmitrii *(Brown University)*; Truccolo, Wilson* *(Brown University)*

14:30-14:45 ThC02.3
Cigarettes and Straws: Late Positive Potential Modulation in Mental Illness and Nicotine Addiction
White, Austin T. *(East Carolina University)*; Williams, Patrick *(East Carolina University)*; Anand, Vivek *(East Carolina University)*; Kim, Sunghan* *(East Carolina University)*

14:45-15:00 ThC02.4
Extremely Reduced Data Sets Indicate Optimal Stimulation Parameters for Classification in Brain-Computer Interfaces
Sosulski, Jan* *(University of Freiburg)*; Tangermann, Michael *(University of Freiburg)*

15:00-15:15 ThC02.5
Serologic Diagnosis of Taenia Solium Cysticercosis through Linear Unmixing Analysis of Biosignals from ACEK Capacitive Sensing Method
Liang, Jia* *(University of Tennessee at Knoxville)*; Wang, Fanqi *(University of Tennessee)*; Lin, Xiaogang *(Chongqing University)*; Qi, Hairong *(University of Tennessee)*; Wu, Jayne *(The University of Tennessee)*

15:15-15:30 ThC02.6
Scalable Automatic Sleep Staging in the Era of Big Data
Nakamura, Takashi* *(Imperial College London)*; Davies, Harry *(Imperial College London)*; Mandic, Danilo *(Imperial College)*

ThC03: 14:00-15:30 Hall A3 – Level 1
Advanced Photoacoustic Imaging (Minisymposium)
Chair: Kim, Chulhong *(Pohang Univ. of Science and Technology)*

14:00-14:15 ThC03.1
in-Vivo Photoacoustic Imaging of Human Peripheral Vasculature
Kim, Chulhong* *(Pohang University of Science & Technology)*

14:15-14:30 ThC03.2
Analytical Optoacoustic Spectrometer
Huang, Yuanhui *(Helmholtz Zentrum München – Deutsches Forschungszentrum für Gesu)*; Fuenzalida-Werner, Juan Pablo *(Helmholtz Zentrum München – Deutsches Forschungszentrum für Gesu)*; Mishra, Kanuj *(Helmholtz Zentrum München – Deutsches Forschungszentrum für Gesu)*; Vetschera, Paul *(Helmholtz Zentrum München – Deutsches Forschungszentrum für Gesu)*; Chmyrov, Andriy *(Helmholtz Zentrum München – Deutsches Forschungszentrum für Gesu)*; Ntziachristos, Vasilis *(Technische Universität München & Helmholtz Zentrum München)*; Stiel, Andre C.* *(Helmholtz Zentrum München – Deutsches Forschungszentrum für Gesu)*

14:30-14:45 ThC03.3
Breast Imaging using the Twente Photoacoustic Mammoscope 2
Schoustra, Sjoukje *(Univ. of Twente)*; op 't Root, Tim *(PA Imaging R&D B.V.,)*; Alink, Laurens *(PA Imaging R&D B.V.)*; Kobold, Wouter Muller *(PA Imaging R&D B.V)*; Steenbergen, Wiendelt *(Univ. of Twente)*; Manohar, Srirang* *(Univ. of Twente)*

14:45-15:00 ThC03.4
Imaging of Multi-Scale in-Vivo Dynamics with Spiral Volumetric Optoacoustic Tomography (SVOT)
Ron, Avihai *(Technical University of Munich & Helmholtz Center Munich)*; Deán-Ben, X. Luis *(Biological & Medical Imaging, Technical University of Munich a)*; Razansky, Daniel* *(University & ETH Zurich)*

ThC04: 14:00-15:30 Hall A1 – Level 1
Recent Advancements in Body Area Sensor Networks (Invited Session)
Chair: Balasingham, Ilangko *(Oslo University Hospital and Norwegian University of Science and Technology)*
Co-Chair: Anzai, Daisuke *(Nagoya Institute of Technology)*

14:00-14:15 ThC04.1
Intra and Extra-Body Sensors for Monitoring Calorie Intake in Real Time
Ohta, Hidetoshi* *(Sapporo Orthopedics & Cardiovascular Hospital)*

14:15-14:30 ThC04.2
Optical Communications through Tissue
Katsafadou, Maria *(University of Strathclyde)*; Zimmermann, Melanie *(Ovesco Endoscopy AG)*; Mahmood, Salman *(Ovesco Endoscopy AG)*; Schostek, Sebastian *(Ovesco Endoscopy AG)*; Giardini, Mario Ettore* *(University of Strathclyde)*

14:30-14:45 ThC04.3
EM Imaging-Based Multiple Implant Device Localization Enhanced by Peak-Formed Incident Fields
Anzai, Daisuke* *(Nagoya Institute of Technology)*; Hoshino, Junya *(Nagoya Institute of Technology)*; Kobayashi, Hisato *(Nagoya Institute of Technology)*; Kirchner, Jens *(Univ. of Erlangen-Nuremberg)*; Fischer, Georg *(FAU Univ. of Erlangen-Nuremberg)*; Wang, Jianqing *(Nagoya Institute of Technology)*

14:45-15:00 ThC04.4
Testbeds for Artificial Molecular Communication
Kirchner, Jens* *(University of Erlangen-Nuremberg)*; Fischer, Georg *(FAU University of Erlangen-Nuremberg)*

15:00-15:15 ThC04.5
Battery-Free Sensing and Wireless Communication for Deep Medical Implants
Khaleghi, Ali* *(Oslo Univ. Hospital)*; Balasingham, Ilangko *(Oslo Univ. Hospital & Norwegian Univ. of Science and)*

15:15-15:30 ThC04.6
Miniaturized Inductive Wireless Power Transfer for Biomedical Applications
Rangriz Rostami, Fazel *(NTNU)*; Khaleghi, Ali* *(Oslo University Hospital)*; Balasingham, Ilangko *(Oslo University Hospital & Norwegian University of Science and)*

ThC05: 14:00-15:30 Hall A2 – Level 1
Nonlinear Analysis of Cardiovascular Signals (Oral Session)
Co-Chair: Loewe, Axel *(Karlsruhe Institute of Technology (KIT))*

14:00-14:15 ThC05.1
Application of Dispersion Entropy to Healthy and Pathological Heartbeat ECG Segments
Kafantaris, Evangelos* *(University of Edinburgh)*; Piper, Ian *(University of Edinburgh)*; Lo, Tsz-Yan Milly *(University of Edinburgh)*; Escudero, Javier *(University of Edinburgh)*

14:15-14:30 ThC05.2
Compressed Segmented Beat Modulation Method using Discrete Cosine Transform
Nasim, Amnah *(Università Politecnica delle Marche)*; Sbrollini, Agnese *(Università Politecnica delle Marche)*; Marcantoni, Ilaria *(Università Politecnica delle Marche)*; Morettini, Micaela *(Università Politecnica delle Marche)*; Burattini, Laura* *(Università Politecnica delle Marche)*

14:30-14:45 ThC05.3
Recurrence Quantification Analysis for Investigating Atrial Fibrillation Dynamics in a Heterogeneous Simulation Setup
Almeida, Tiago P* *(Instituto Tecnológico de Aeronáutica)*; Unger, Laura Anna *(Institute of Biomedical Engineering, Karlsruhe Institute of Tech)*; Soriano, Diogo Coutinho *(UFABC)*; Li, Xin *(University of LEICESTER)*; Doessel, Olaf *(Karlsruhe Institute of Technology (KIT))*; Yoneyama, Takashi *(Instituto Tecnológico de Aeronáutica)*; Loewe, Axel *(Karlsruhe Institute of Technology (KIT))*

14:45-15:00 ThC05.4
Attractor Reconstruction Analysis for Blood Flow Signals
Thanaj, Marjola* *(University of Southampton)*; Chipperfield, Andrew John *(University of Southampton)*; Clough, Geraldine Frances *(University of Southampton)*

15:00-15:15 ThC05.5
The Application of Non-Linear Flow Resistance in Cerebral Artery: Compared with Windkessel Model based on Genetic Algorithm
Liu, Haipeng *(Anglia Ruskin Univ.)*; Wang, Li *(The Chinese Univ. of Hong Kong)*; Chan, Ka Lung *(The Chinese Univ. of Hong Kong)*; Xiong, Li *(The Chinese Univ. of Hong Kong)*; Leng, Xinyi *(The Chinese Univ. of Hong Kong)*; Shi, Lin *(The Chinese Univ. of Hong Kong)*; Leung, Thomas *(The Chinese Univ. of Hong Kong)*; Chen, Fei *(Southern Univ. of Science & Technology)*; Zheng, Dingchang* *(Anglia Ruskin Univ.)*

15:15-15:30 ThC05.6
A Method for Estimating Pulse Wave Amplitude Variability in Children with Sleep Disordered Breathing
Liu, Xiao* *(University of Adelaide)*; Pamula, Yvonne *(Adelaide Women's & Children's Hospital)*; Kohler, Mark *(University of South Australia)*; Baumert, Mathias *(The University of Adelaide)*

ThC06: 14:00-15:30 Hall A5 – Level 1
Neuromuscular Systems (III) (Oral Session)
Co-Chair: Guiraud, David *(INRIA)*

14:00-14:15 ThC06.1
Investigating the Effect of Persistent Inward Currents on Motor Unit Firing Rates and Beta-Band Coherence in a Model of the First Dorsal Interosseous Muscle
Senneff, Sageanne* *(Univ. College Dublin)*; McManus, Lara *(Univ. College Dublin)*; Lowery, Madeleine *(Univ. College Dublin)*

14:15-14:30 ThC06.2
An Approach to Extract Nonlinear Muscle Synergies from sEMG through Multi-View Learning
Dwivedi, Sanjay Kumar *(Kyushu Institute of Technology)*; Shibata, Tomohiro* *(Kyushu Institute of Technology)*

14:30-14:45 ThC06.3
Experimentally Modifiable Parameters and their Relation to the Tonic Vibration Reflex in Chronic Hemiparetic Stroke
Beauchamp, James A.* *(Northwestern University)*; Patterson, Jacqueline R. *(Northwestern University)*; Heckman, CJ *(Feinberg School of Medicine, Northwestern University)*; Dewald, Julius P. A. *(Northwestern University)*

14:45-15:00 ThC06.4
A HD-sEMG Framework for the Study of Motor Neurons Controlling the Intrinsic and Extrinsic Muscles of the Hand
Tanzarella, Simone* *(Imperial College London)*; Muceli, Silvia *(Imperial College London)*; Del Vecchio, Alessandro *(Imperial College London)*; Casolo, Andrea *(Imperial College London)*; Farina, Dario *(Imperial College London)*

15:00-15:15 ThC06.5
Characterizing Strategic Contributions of Physical Therapy to Natural Standing Motion in the Muscle Synergy Space
Lao, Bryan* *(Nara Institute of Science & Technology)*; Tamei, Tomoya *(Nara Institute of Science & Technology)*; Ikeda, Kazushi *(Nara Institute of Science & Technology)*

15:15-15:30 ThC06.6
Assessment of Postural Control after Sleep Deprivation with a Low-Cost Force Plate
Umemura, Guilherme Silva* *(University of São Paulo)*; Pinho, João Pedro *(University of São Paulo)*; Santos, Fabia Camile *(University of Sao Paulo)*; Forner-Cordero, Arturo *(Escola Politécnica da Universidade de Sao Paulo)*

ThC08: 14:00-15:30 M8 – Level 3
Digital Health for Diabetes Management: from Wearables to Big Data Analytics (Invited Session)
Chair: Philip, Nada *(Kingston University)*

14:00-14:15 ThC08.1
POWER2DM – Predictive Model-Based, Personalized Self-Management Support System for Type-1 and Type-2 Diabetes Patient Empowerment
de Graaf, Albert* *(TNO)*

14:15-14:30 ThC08.2
Diabetes Nutrition Meets AI: From Theory to Practice
Mougiakakou, Stavroula* *(University of Bern)*

14:30-14:45 ThC08.3
The use of Technology in Diabetes Care: The Case of Non-Invasive Diabetes Detection based on Human Breath
Manikandan, Suchetha* *(VIT Univ.)*; Philip, Nada *(Kingston Univ.)*

14:45-15:00 ThC08.4
Big Data Analytics and Visualization for Diabetes
Philip, Nada* *(Kingston University)*

ThC09: 14:00-15:30 M1 – Level 3
Modeling Sensory and Neural Activities (Oral Session)
Co-Chair: Castaneda-Villa, Norma *(Univ. Autónoma Metropolitana-Izt)*

14:00-14:15 ThC09.1
Computational Model for Cross-Depolarization in DRG Neurons via Satellite Glial Cells using [K]o: Role of Kir4.1 Channels and Extracellular Leakage
Mandge, Darshan *(Indian Institute of Technology Bombay, Mumbai, India)*; Shukla, Pooja Rajesh *(University of Missouri, Columbia)*; Bhatnagar, Archit* *(Max Planck Institute of Cellular Biology & Genetics, Dresden)*; Manchanda, Rohit *(IIT Bombay)*

14:15-14:30 ThC09.2
Modeling Responses to Peripheral Nerve Stimulation in the Dorsal Horn
Beauchene, Christine* *(Johns Hopkins University)*; Sacré, Pierre *(University of Liège)*; Yang, Fei *(Johns Hopkins University)*; Guan, Yun *(Johns Hopkins University School of Medicine)*; Sarma, Sridevi V. *(Johns Hopkins University)*

14:30-14:45 ThC09.3
Virtual Cortical Stimulation Mapping of Epilepsy Networks to Localize the Epileptogenic Zone
Li, Adam* *(Neuromedical Control Systems Laboratory)*; Fitzgerald, Zachary *(Cleveland Clinic)*; Hopp, Jennifer *(Univ. of Maryland School of Medicine)*; Johnson, Emily *(Johns Hopkins Univ.)*; Crone, Nathan E. *(Johns Hopkins Univ., School of Medicine)*; Bulacio, Juan *(Cleveland Clinic)*; Martinez-Gonzalez, Jorge *(Cleveland Clinic)*; Inati, Sara *(National Institute of Health)*; Zaghloul, Kareem *(National Institute of Health)*; Sarma, Sridevi V. *(Johns Hopkins Univ.)*

14:45-15:00 ThC09.4
Simulation of the Efficiency of Inner Hair Cell Secretion in the Auditory Pathway
Soto-Bear, Jessica *(Univerisidad Autónoma Metropolitana)*; Castaneda-Villa, Norma* *(Universidad Autónoma Metropolitana-Izt)*; González-Vélez, Virginia *(Universidad Autónoma Metropolitana)*; Gil, Amparo *(Univ. de Cantabria)*

15:00-15:15 ThC09.5
Source Localization for Gastric Electrical Activity using Simulated Magnetogastrographic Data
Avci, Recep* *(University of Auckland)*; Paskaranandavadivel, Niranchan *(The University of Auckland)*; Calder, Stefan *(Auckland Bioengineering Institute, University of Auckland)*; Du, Peng *(The University of Auckland)*; Bradshaw, Alan *(Vanderbilt University)*; Cheng, Leo K *(The University of Auckland)*

15:15-15:30 ThC09.6
Mathematical Modeling of Neurostimulation for Post-Traumatic Stress Disorder: A Migration towards Multiscale Modeling to Assess Neural Response to Transcranial Direct Current Stimulation Treatments
Small, Abigail* *(Roger Williams University)*; Dougherty, Edward *(Roger Williams University)*

ThC11: 14:00-15:30 M4 – Level 3
Respiratory Signal Processing and Modeling (Oral Session)
Chair: Chbat, Nicolas W. *(Quadrus Medical Technologies)*
Co-Chair: Jané, Raimon *(Institut de Bioenginyeria de Catalunya (IBEC))*

14:00-14:15 ThC11.1
Neural Offset Time Evaluation in Surface Respiratory Signals during Controlled Respiration
Estrada, Luis *(Institut de Bioenginyeria de Catalunya (IBEC). The Barcelona Ins)*; Sarlabous, Leonardo *(Institute for Bioengineering of Catalonia (IBEC))*; Lozano-García, Manuel *(Institute for Bioengineering of Catalonia (IBEC), The Barcelona)*; Jané, Raimon *(Institut de Bioenginyeria de Catalunya (IBEC))*; Torres, Abel* *(Institute for Bioengineering of Catalonia (IBEC) – BarcelonaTech)*

14:15-14:30 ThC11.2
A Pilot Bench Study of Decision Support for Proportional Assist Ventilation
Karbing, Dan Stieper* *(Aalborg Univ.)*; Lobo-Valbuena, Beatriz *(Intensive Medicine, Hospital Univ. del Henares)*; Poulsen, Mathias Krogh *(Respiratory & Critical Care Group at Dept. of Health Scie)*; Brohus, Jakob Bredal *(Mermaid Care A/S)*; Abella, Ana *(Intensive Medicine, Hospital Univ. del Henares)*; Gordo, Federico *(Intensive Medicine, Hospital Univ. del Henares)*; Rees, Stephen Edward *(Aalborg Univ.)*

14:30-14:45 ThC11.3
Design and Study of a Portable High-Frequency Ventilator for Clinical Applications
Lu, Shao-Yung *(National Chiao Tung Univ.)*; Lin, Hau *(National Chiao Tung Univ.)*; Kuo, Hsu-Tah *(Mackay Memorial Hospital)*; Chen, Chao-Hsien *(MacKay Memorial Hospital)*; Wu, Wen-Jui *(Mackay Memorial Hospital)*; Wu, Chien-Liang *(Mackay Memorial Hospital)*; Liao, Yu-Te* *(National Chiao Tung Univ.)*

14:45-15:00 ThC11.4
High Oxygen Fraction during Airway Opening is Key to Effective Airway Rescue in Obese Subjects
Laviola, Marianna* *(Univ. of Nottingham)*; Niklas, Christian *(Univ. of Nottingham)*; Alahmadi, Husam *(Univ. of Nottingham)*; Das, Anup *(Univ. of Warwick)*; Bates, Declan Gerard *(Univ. of Warwick)*; Hardman, Jonathan G. *(Univ. of Nottingham)*

15:00-15:15 ThC11.5
Modeling of Transport Mechanisms in the Respiratory System: Validation via Congestive Heart Failure Patients
Yuan, Jiayao *(Columbia Univ.)*; Chiofolo, Caitlyn *(Quadrus Medical Technologies)*; Czerwin, Benjamin *(Columbia Univ.)*; Chbat, Nicolas W.* *(Quadrus Medical Technologies)*

15:15-15:30 ThC11.6
Analysis of Time Delay between Bioimpedance and Respiratory Volume Signals under Inspiratory Loaded Breathing
Blanco-Almazán, Dolores* *(Institute for Bioengineering of Catalonia)*; Groenendaal, Willemijn *(imec Netherlands)*; Catthoor, Francky *(imec)*; Jané, Raimon *(Institut de Bioenginyeria de Catalunya (IBEC))*

ThC12: 14:00-15:30 M6 – Level 3
Applications of Liquid Crystal Technologies in Ophthalmology (Minisymposium)
Chair: Gramatikov, Boris *(Johns Hopkins Univ. School of Medicine)*
Co-Chair: Irsch, Kristina *(Sorbonne Univ. (France) & Johns Hopkins Univ. (USA))*

14:00-14:15 ThC12.1
Using Liquid Crystal Variable Retarders as Phase Compensators in Retinal Birefringence Scanning
Gramatikov, Boris* *(Johns Hopkins Univ. School of Medicine)*

14:15-14:30 ThC12.2
Improving the Resolution of Retinal Imaging Systems with Adaptive Optics and Liquid Crystal Lenses
Cense, Barry* *(UWA)*; Maddipatla, Reddikumar *(Indiana Univ.)*

14:30-14:45 ThC12.3
Towards Characterization and Compensation of Loss of Anterior Segment Transparency
Badon, Amaury *(ESPCI Paris)*; Barolle, Victor *(ESPCI Paris)*; Boccara, Albert Claude *(ESPCI CNRS)*; Fink, Mathias *(CNRS)*; Irsch, Kristina* *(Sorbonne University (France) & Johns Hopkins University (USA))*; Aubry, Alexandre *(Institut Langevin, ESPCI Paris, CNRS UMR 7587)*

14:45-15:00 ThC12.4
Evaluation of the Strabismus with Liquid Crystal-Based Shutter Glass
Seo, Jong Mo* *(Seoul National Univ., School of Engineering)*; Bae, So Hyun *(Hallym Univ.)*; Seo, Min-won *(Seoul National Univ.)*; Yi, Jungho *(Seoul National Univ.)*

ThC13: 14:00-15:30 R2 – Level 3
Current Technologies of Continuous Blood Pressure Monitoring (Minisymposium)
Chair: Park, Sung-Min *(POSTECH)*
Co-Chair: Tamura, Toshiyo *(Waseda University)*

14:00-14:15 ThC13.1
Continuous Blood Pressure Monitoring using Tonometry Technology and Clinical Value
Yamashita, Shingo* *(Omron Healthcare Co., Ltd)*

14:15-14:30 ThC13.2
Data-Driven End-to-End Deep Learning Architecture for Long-Term Blood Pressure Estimation
Eom, Heesang *(Kwangwoon Univ.)*; Han, Seungwoo *(Kwangwoon University)*; Park, Kwang S. *(Seoul National University)*; Park, Cheolsoo* *(Kwangwoon University)*

14:30-14:45 ThC13.3
A Novel Smart Card with PDS Functionality: MiParu® Card
Minami, Shigenobi* *(MIRUWS Inc.)*;
Tamura, Toshiyo *(Waseda University)*

14:45-15:00 ThC13.4
The Fluctuation of Pulse Transit Time in Continuous Cuff-Less Blood Pressure Monitoring
Maeda, Yuka* *(University of Tsukuba)*; Sekine, Masaki *(Osaka Electro-Communication University)*; Tamura, Toshiyo *(Waseda University)*; Mizutani, Koichi *(University of Tsukuba)*

ThC14: 14:00-15:30 R3 – Level 3
Novel Methods for the Detection and Prediction of Epileptic Seizures (Oral Session)
Chair: Mitsis, Georgios D. *(McGill University)*
Co-Chair: Tautan, Alexandra-Maria *(Univ. Politehnica of Bucharest)*

14:00-14:15 ThC14.1
Semi-Supervised Seizure Prediction with Generative Adversarial Networks
Truong, Nhan, Duy* *(The University of Sydney)*; Kavehei, Omid *(University of Sydney)*; Zhou, Luping *(University of Sydney)*

14:15-14:30 ThC14.2
Feature Generation and Dimensionality Reduction using the Discrete Spectrum of the Schrodinger Operator for Epileptic Spikes Detection
Chahid, Abderrazak *(King Abdullah Univ. of Science & Tech.)*; Alotaiby, Turky *(KACST)*; Alshebeili, Saleh *(KSU)*; Laleg, Taous-Meriem* *(King Abdullah Univ. of Science & Tech. (KAUST))*

14:30-14:45 ThC14.3
Detection of Epileptic Seizures using Unsupervised Learning Techniques for Feature Extraction
Tautan, Alexandra-Maria *(University Politehnica of Bucharest)*; Dogariu, Mihai* *(University Politehnica of Bucharest)*; Ionescu, Bogdan *(Universitatea Politehnica of Bucharest)*

14:45-15:00 ThC14.4
Epileptic State Classification based on Intrinsic Mode Function and Wavelet Packet Decomposition
Hu, Dinghan *(Hangzhou Dianzi Univ.)*; Cao, Jiuwen* *(School of Automation Hangzhou Dianzi Univ. / COGNACG, CNRS)*; Lai, Xiaoping *(Hangzhou Dianzi Univ.)*; Liu, Junbiao *(Hangzhou Neuro Science & Technology Co. Ltd)*

15:00-15:15 ThC14.5
Ongoing Intracortical Neural Activity Predicts Upcoming Interictal Epileptiform Discharges in Human Epilepsy
Saha, Dipta *(Brown University)*; Proix, Timothée *(Université de Génève)*; Cash, Sydney *(Massachusetts General Hospital)*; Truccolo, Wilson* *(Brown University)*

15:15-15:30 ThC14.6
Epileptic Signal Classification with Deep Transfer Learning Feature on Mean Amplitude Spectrum
Wang, Yaomin *(Hangzhou Dianzi Univ.)*; Cao, Jiuwen* *(School of Automation Hangzhou Dianzi Univ. / COGNACG, CNRS)*; Wang, Jianzhong *(Hangzhou Dianzi Univ.)*; Hu, Dinghan *(Hangzhou Dianzi Univ.)*; Deng, Muqing *(Hangzhou Dianzi Univ.)*

ThC15: 14:00-15:30 M3 – Level 3
Image Analysis and Classification – Machine Learning Approaches (III) (Oral Session)

14:00-14:15 ThC15.1
Classification of Alzheimer's Disease using Volumetric Features of Multiple MRI Scans
Bloch, Louise *(Univ. of Applied Sciences & Arts)*; Friedrich, Christoph M.* *(Univ. of Applied Sciences & Arts Dortmund)*

14:15-14:30 ThC15.2
Automated Detection of Non-Informative Frames for Colonoscopy through a Combination of Deep Learning and Feature Extraction
Yao, Heming* *(University of Michigan)*; Stidham, Ryan W. *(University of Michigan)*; Soroushmehr, S.M.Reza *(University of Michigan, Ann Arbor)*; Gryak, Jonathan *(University of Michigan)*; Najarian, Kayvan *(University of Michigan – Ann Arbor)*

14:45-15:00 ThC15.4
Deep-Learning-Based Fully Automatic Spine Centreline Detection in CT Data
Jakubicek, Roman* *(Brno University of Technology)*; Chmelik, Jiri *(Brno University of Technology, Faculty of Electrical Engineering)*; Ourednicek, Petr *(Philips Nederland)*; Jan, Jiri *(Brno University of Technology)*

15:00-15:15 ThC15.5
Noncontact Blood Pressure Monitoring Technology using Facial Photoplethysmograms
Adachi, Yoshihisa* *(Sharp Corporation)*; Edo, Yuki *(Sharp Corporation)*; Ogawa, Rieko *(Sharp Corporation)*; Tomizawa, Ryota *(Sharp Corporation)*; Iwai, Yoshifumi *(Sharp Corporation)*; Okumura, Tetsuya *(Sharp Corporation)*

15:15-15:30 ThC15.6
Human Induced Pluripotent Stem Cell Reprogramming Prediction in Microscopy Images using LSTM based RNN
Chang, Yuan-Hsiang *(Chung Yuan Christian Univ.)*; Abe, Kuniya *(Mammalian Genome Dynamics, RIKEN BioResource Center)*; Yokota, Hideo *(RIKEN Center for Advanced Photonics)*; Sudo, Kazuhiro *(BioResouce Center, RIKEN)*; Nakamura, Yukio *(RIKEN BioResource Center)*; Chu, Slo-Li *(Chung Yuan Christian Univ.)*; Hsu, Chih-Yung *(Chung Yuan Christian Univ.)*; Tsai, Ming-Dar* *(Chung-Yuan Christian Univ.)*

ThC16: 14:00-15:30 M5 – Level 3
Mechanics of Locomotion (Oral Session)
Co-Chair: Saleh, Soha *(Kessler Foundation)*

14:00-14:15 ThC16.1
A PID Controller Approach to Explain Human Ankle Biomechanics across Walking Speeds
Herve, Ophelie* *(Student at SMU)*; Martin, Anne *(Pennsylvania State Univ.)*; Villarreal, Dario Jose *(Southern Methodist Univ.)*

14:15-14:30 ThC16.2
Prediction of Smooth Gait Transitioning for Active Lower Limb Prosthetics
Boudali, A. Mounir* *(The Univ. of Sydney)*; Sinclair, Peter James *(The Univ. of Sydney)*; Manchester, Ian *(Univ. of Sydney.)*

14:30-14:45 ThC16.3
Pre-Impact Detection Algorithm to Identify Lack of Balance Due to Tripping-Like Perturbations
Aprigliano, Federica* *(The BioRobotics Institute of Scuola Superiore Sant'Anna, Pisa)*; Guaitolini, Michelangelo *(The BioRobotics Institute, Scuola Superiore Sant'Anna, Pi)*; Sabatini, Angelo Maria *(Scuola Superiore Sant'Anna)*; Micera, Silvestro *(Scuola Superiore Sant'Anna)*; Monaco, Vito *(Scuola Superiore Sant'Anna, Pisa)*

14:45-15:00 ThC16.4
Evaluation of Toe Function based on the Plantar Pressure Distribution while Walking and its Relationships with General Gait Parameters
Imaizumi, Kazuya* *(Tokyo Healthcare University)*; Iwakami, Yumi *(Tokyo Healthcare University)*; Kumamoto, Masazumi *(Kao Corporation)*; Tomisaki, Masumi *(Kao Corporation)*; Sudo, Motoki *(Kao Corporation)*; Niki, Yoshifumi *(Kao Corporation)*

15:00-15:15 ThC16.5
Singular Value Decomposition Entropy as a Measure of Ankle Dynamics Efficacy in a Y-Balance Test Following Supportive Lower Limb Taping
Jelinek, Herbert Franz *(Charles Sturt University)*; Donnan, Luke *(Charles Sturt University)*; Khandoker, Ahsan H* *(Khalifa University of Science, Technology & Research)*

15:15-15:30 ThC16.6
Evaluation of Time-Frequency Features as Detectors of Lack of Balance Due to Tripping-Like Perturbations
Guaitolini, Michelangelo* *(The BioRobotics Institute, Scuola Superiore Sant'Anna, Pi)*; Aprigliano, Federica *(The BioRobotics Institute of Scuola Superiore Sant'Anna, Pisa)*; Mannini, Andrea *(Scuola Superiore Sant'Anna)*; Monaco, Vito *(Scuola Superiore Sant'Anna, Pisa)*; Micera, Silvestro *(Scuola Superiore Sant'Anna)*; Sabatini, Angelo Maria *(Scuola Superiore Sant'Anna)*

ThC17: 14:00-15:30 R12 – Level 3
Pharmaceutical IT and Pharmacometrics in Drug Development (Minisymposium)
Chair: Park, Kyungsoo *(Yonsei University College of Medicine)*
Co-Chair: Hahn, Sei Kwang *(Pohang University of Science and Technology (POSTECH))*

14:00-14:15 ThC17.1
Smart Contact Lens for Diagnostic and Drug Delivery Applications to Diabetes and Glaucoma
Hahn, Sei Kwang* *(Pohang University of Science & Technology (POSTECH))*

14:15-14:30 ThC17.2
Semi-Mechanistic Clearance Models of Oncology Biotherapeutics and Impact of Study Design
Grisic, Ana-Marija* *(Merck KGaA)*

14:30-14:45 ThC17.3
Artificial Intelligence for Identifying Novel Therapeutic Targets, Biomarkers and Drug Repositioning Opportunities
Hwang, Woochang *(University of Cambridge)*; Han, Namshik* *(University of Cambridge)*

14:45-15:00 ThC17.4
Prediction of Postoperative Side Effects in Patients Treated with Patient Controlled Analgesia
Park, Kyungsoo* *(Yonsei University College of Medicine)*

ThC18: 14:00-15:30 R13 – Level 3
Trustiness between Human and Intelligent Assistive Devices (Minisymposium)
Chair: Bezerianos, Anastasios *(National University of Singapore)*
Co-Chair: Dragomir, Andrei *(National University of Singapore)*

14:00-14:15 ThC18.1
Cognitive Assessment for Trust-Based Human-Machine Collaborative Systems: A Multimodal Perspective
Bezerianos, Anastasios* *(National University of Singapore)*; Dragomir, Andrei *(National University of Singapore)*

14:15-14:30 ThC18.2
Neurophysiological Analysis of the Interaction between Human and Assistive Technologies
Sciaraffa, Nicolina* *(University of Rome Sapienza)*; Di Flumeri, Gianluca *(University of Rome Sapienza)*; Borghini, Gianluca *(Sapienza University of Rome)*; Arico, Pietro *(Fondazione Santa Lucia)*; Babiloni, Fabio *(University of Rome)*

14:30-14:45 ThC18.3
Advanced Brain-Computer Interfaces for Personalized Motor Rehabilitation
Chouhan, Tushar *(Nanyang Technological University)*; Guan, Cuntai* *(Nanyang Technological University)*

14:45-15:00 ThC18.4
From Brain to Machine Interface (BMI) to Machine to Brain Interface (MBI)
Dragomir, Andrei *(National University of Singapore)*; Thakor, Nitish* *(Johns Hopkins University)*

15:00-15:15 ThC18.5
Robot Trust Appeals and Human Decision-Making in Human-Robot Collaboration
Seet, Manuel *(NUS)*; Bose, Rohit *(National Univ. of Singapore)*; Bezerianos, Anastasios *(National Univ. of Singapore)*; Dauwels, Justin* *(NTU)*; Thakor, Nitish *(National Univ. of Singapore)*

ThC19: 14:00-15:30 R4 – Level 3
General and Theoretical Informatics – Predictive Analytics (Oral Session)
Chair: Reilly, Richard *(Trinity College Dublin)*

14:00-14:15 ThC19.1
Predicting Gastrointestinal Bleeding Events from Multimodal In-Hospital Electronic Health Records using Deep Fusion Networks
Hung, Chen-Ying *(National Tsing Hua University)*; Lin, Ching-Heng *(Dept. of Medical Research, Taichung Veterans General Hospit)*; Chang, Chi-Sen *(Dept. of Internal Medicine, Taichung Veterans General Hospi)*; Li, Jeng-Lin *(Dept. of Electrical Engineering, National Tsing Hua Univers)*; Lee, Chi-Chun* *(National Tsing Hua University)*

14:15-14:30 ThC19.2
Predicting States of Abstract Reasoning: EEG Connectivity Markers
Miasnikova, Aleksandra* *(Institute of Higher Nervous Activity & Neurophysiology of RAS)*; Troshkov, Daniil *(Elvees RnD Center, JSC)*; Baklushev, Mikhail *(Institute of Higher Nervous Activity & Neurophysiology of RAS)*; Perevoznyuk, Gleb *(Lomonosov Moscow State Univ., Faculty of Fundamental Medicine)*

14:30-14:45 ThC19.3
A BLSTM with Attention Network for Predicting Acute Myeloid Leukemia Patient's Prognosis using Comprehensive Clinical Parameters
Lu, Chih-Chuan *(Dept. of Electrical Engineering, National Tsing Hua Univ.)*; Li, Jeng-Lin *(Dept. of Electrical Engineering, National Tsing Hua Univ.)*; Wang, Yu-Fen *(Tai-Cheng Stem Cell Therapy Center, National Taiwan Univ.)*; Ko, Bor-Sheng *(Dept. of Internal Medicine, National Taiwan Univ. Hosp)*; Tang, Jih-Luh *(Dept. of Internal Medicine, National Taiwan Univ. Hosp)*; Lee, Chi-Chun* *(National Tsing Hua Univ.)*

14:45-15:00 ThC19.4
Model Predictive Control of Shallow Drowsiness: Improving Productivity of Office Workers
Kogo, Takuma* *(NEC Corp.)*; Tsujikawa, Masanori *(NEC Corp.)*; Kiuchi, Yukihiro *(NEC Corp.)*; Nishino, Atsushi *(DAIKIN Industries, LTD.)*; Hashimoto, Satoshi *(DAIKIN Industries, LTD.)*

15:00-15:15 ThC19.5
Automatic Disability Categorisation based on ADLs among Older Adults in a Nationally Representative Population using Data Mining Methods
de Melo Oliveira, Isadora* *(Trinity College Dublin)*; Hernandez, Belinda *(TILDA The Irish Longitudinal Study in Ageing, Trinity College Du)*; Kenny, Rose Anne *(Trinity College Dublin)*; Reilly, Richard *(Trinity College Dublin)*

15:15-15:30 ThC19.6
Prediction of the Adherence to a Home-Based Cardiac Rehabilitation Program
Claes, Jomme* *(KU Leuven)*; Filos, Dimitrios *(Aristotle University o Thessaloniki)*; Cornelissen, Veronique *(KU Leuven)*; Chouvarda, Ioanna *(Aristotle University)*

ThC20**:** 14:00-15:30 R5 – Level 3
Wearable Activity Monitoring (Oral Session)
Chair: Jovanov, Emil *(University of Alabama in Huntsville)*

14:00-14:15 ThC20.1
Development of an Automated 30 Second Chair Stand Test using Smartwatch Application
Jovanov, Emil* *(University of Alabama in Huntsville)*; Wright, Shelton *(The University of Alabama in Huntsville)*; Ganegoda, Harsha *(The University of Alabama in Huntsville)*

14:15-14:30 ThC20.2
Visualizing Inertial Data for Wearable Sensor based Daily Life Activity Recognition using Convolutional Neural Network
Huynh-The, Thien* *(Kumoh National Institute of Technology)*; Hua, Cam-Hao *(Kyung Hee University)*; Kim, Dong-Seong *(Kumoh National Institute of Technology)*

14:30-14:45 ThC20.3
Evaluation of Daily Walking Activity and Gait Profiles: A Novel Application of a Time Series Analysis Framework
Buckley, Christopher* *(Newcastle University)*; Mc Ardle, Ríona *(Newcastle University)*; Galna, Brook *(Newcastle University)*; Thomas, Alan *(Newcastle University)*; Rochester, Lynn *(Newcastle University)*; Del Din, Silvia *(Newcastle University)*

14:45-15:00 ThC20.4
Building Robust Models for Human Activity Recognition from Raw Accelerometers Data using Gated Recurrent Units and Long Short Term Memory Neural Networks
Okai, Jeremiah *(Univ. Leiden)*; Paraschiakos, Stylianos* *(Leiden Univ. Medical Center)*; Beekman, Marian *(Molecular Epidemiology, Dept. Biomedical Data Science, LUMC)*; Knobbe, Arno *(Leiden Institute of Advanced Computing Science, Univ. Lei)*; Rebelo de Sa, Claudio *(Data Science Group, Univ. of Twente)*

15:00-15:15 ThC20.5
Experimental Analysis of Artificial Neural Networks Performance for Home-Based Physical Activity Recognition using Belt and Wristband Devices
Qi, Jun *(Liverpool John Moores Univ.)*; Yang, Yun *(Yunnan Univ.)*; Peng, XiYang *(Yunnan Univ.)*; Newcombe, Lee *(Liverpool John Moores Univ.)*; Simpson, Andrew *(Liverpool John Moores Univ.)*; Yang, Po* *(Liverpool John Moores Univ.)*

15:15-15:30 ThC20.6
A Wearable EIT System for Detection of Muscular Activity in the Extremities
Gibas, Christian* *(University of Siegen Institute of Medical Informatics & Micros)*; Gruenewald, Armin *(University of Siegen)*; Wunderlich, Hans-Werner *(University of Siegen Institute of Medical Informatics & Micros)*; Marx, Philipp *(University of Siegen)*; Brück, Rainer *(University of Siegen)*

ThC21**:** 14:00-15:30 R8 – level 3
Focused Ultrasound and Other Thermal Therapies (Oral Session)
Chair: Gerlach, Thomas *(Otto-von-Guericke University Magdeburg)*
Co-Chair: Holmes, David *(Mayo Clinic)*

14:00-14:15 ThC21.1
High-Intensity Focused Ultrasound Therapy in the Uterine Fibroid: A Clinical Case Study of Poor Heating Efficacy
Suomi, Visa* *(Turku University Hospital)*; Viitala, Antti *(Turku University Hospital)*; Sainio, Teija *(Turku University Hospital)*; Komar, Gaber *(Turku University Hospital)*; Blanco, Roberto *(Turku University Hospital)*

14:15-14:30 ThC21.2
Ultrasound-Enhanced Drug Delivery for Treatment of Acanthamoeba Keratitis
Karpinecz, Bianca* *(The George Washington University)*; Edwards, Natalie *(George Washington University)*; Zderic, Vesna *(The George Washington University)*

14:30-14:45 ThC21.3
Setup of an Ablation Magnetic Resonance Imaging Hybrid System: Using MR Imaging Sequences to Destroy Tissue
Gerlach, Thomas* *(Otto-von-Guericke University Magdeburg)*; Pannicke, Enrico *(Otto-von-Guericke University Magdeburg)*; Prier, Marcus *(Otto-von-Guericke University Magdeburg)*; Seifert, Frank *(Physikalisch-Technische Bundesanstalt Berlin-Braunschweig)*; Speck, Oliver *(University of Magdeburg)*; Vick, Ralf *(Otto-von-Guericke University Magdeburg)*

14:45-15:00 ThC21.4
Highly Controlled and Usable System for Low-Intensity Pulsed Ultrasound Stimulation of Cells
Fontana, Francesco* *(The BioRobotics Institute, Sant'Anna School of Advanced Studies)*; Iberite, Federica *(Scuola Superiore Sant' Anna)*; Morchi, Laura *(The BioRobotics Institute, Scuola Superiore Sant'Anna)*; Pratellesi, Tiziano *(BAC srl)*; Cafarelli, Andrea *(Scuola Superiore Sant'Anna)*; Ricotti, Leonardo *(Scuola Superiore Sant'Anna)*

15:00-15:15 ThC21.5
A Pilot Study for a Quantitative Evaluation of Acoustic Coupling in US-Guided Focused Ultrasound Surgery
Morchi, Laura* *(The BioRobotics Institute, Scuola Superiore Sant'Anna)*; Mariani, Andrea *(Politecnico di Milano)*; Cafarelli, Andrea *(Scuola Superiore Sant'Anna)*; Diodato, Alessandro *(Scuola Superiore Sant'Anna/The BioRobotics Institute)*; Tognarelli, Selene *(Scuola Superiore Sant'Anna)*; Menciassi, Arianna *(Scuola Superiore Sant'Anna)*

15:15-15:30 ThC21.6
Validation of Noninvasive Ultrasound Temperature Measurement System through Experiments using Resonant Cavity Applicator
Shindo, Yasuhiro* *(Toyo Univ.)*; Kato, Kazuo *(Meiji Univ.)*

ThPOS-01**:** 18:00-19:30 Hall B
Signal Processing and Classification for Wearable Systems and Smartphones – Poster (Poster Session)

18:00-19:30 ThPOS-01.1
Signal Quality for RR Interval Prediction on Wearable Sensors
Gonzalez, Laura* *(North Carolina State University)*; Paniagua, Thomas *(North Carolina State University)*; Starliper, Nathan *(North Carolina State University)*; Lobaton, Edgar *(North Carolina State University)*

18:00-19:30 ThPOS-01.2
Imputing Missing Data in Large-Scale Multivariate Biomedical Wearable Recordings using Bidirectional Recurrent Neural Networks with Temporal Activation Regularization
Feng, Tiantian* *(Signal Analysis & Interpretation Lab, USC)*; Narayanan, Shrikanth *(University of Southern California)*

18:00-19:30 ThPOS-01.3
A Two-Stage Tremor Detection Algorithm for Wearable Inertial Sensors during Normal Daily Activities
McNames, James* *(Portland State Univ.)*; Shah, Vrutangkumar V *(Oregon Health & Science Univ.)*; Mancini, Martina *(OHSU)*; Curtze, Carolin *(Univ. of Nebraska at Omaha)*; El-Gohary, Mahmoud *(APDM Inc)*; Aboy, Mateo *(Univ. of Cambridge, UK)*; Carlson-Kuhta, Patricia *(Oregon Health & Science Univ.)*; Nutt, John *(Oregon Health & Science Univ.)*; Horak, Fay *(Oregon Health & Science Univ.)*

ThPOS-02: 18:00-19:30 Hall B
Signal Processing and Classification in Epilepsy – Poster (Poster Session)

18:00-19:30 ThPOS-02.1
Epileptic States Recognition using Transfer Learning
Shen, Lei *(Fudan Univ.; Institute of Science & Technology for Brain-)*; Geng, Xinyi *(Fudan Univ.)*; Luo, Huichun *(Univ. of Science & Technology of China, Hefei)*; Wang, Jingying *(Fudan Univ.)*; Wang, Shouyan* *(Fudan Univ.)*

18:00-19:30 ThPOS-02.2
Estimation of the Epileptogenic-Zone with HFO Sub-Groups Exhibiting Various Levels of Epileptogenicity
Lachner-Piza, Daniel* *(Univ. Medical Center Freiburg)*; Jacobs, Julia *(Montreal Neurological Institute)*; Schulze-Bonhage, Andreas *(Univ. Hospital Freiburg)*; Stieglitz, Thomas *(Univ. of Freiburg)*; Dümpelmann, Matthias *(Univ. Medical Center Freiburg)*

18:00-19:30 ThPOS-02.3
A Convolutional Neural Network based Framework for Classification of Seizure Types
Raghu, Raghu* *(Maastricht University)*; Natarajan, Sriraam *(M.S.Ramaiah Institute of Technology, Bangalore, India)*; Yasin, Temel *(Maastricht University)*; Rao, Shyam Vasudeva *(Forus Health Pvt Ltd)*; Kubben, Pieter Leonard *(Maastricht University Medical Center)*

18:00-19:30 ThPOS-02.4
Feature Extraction of Epileptic EEG using Wavelet Power Spectra and Functional PCA
Xie, Shengkun *(Ryerson University, Canada)*; Krishnan, Sridhar* *(Ryerson University)*

18:00-19:30 ThPOS-02.5
Central Sulcus Is a Barrier to Causal Propagation in Epileptic Networks
Maharathi, Biswajit* *(Univ. of Illinois at Chicago, Chicago)*; Loeb, Jeffrey A. *(Univ. of Illinois at Chicago)*; Patton, James *(U. Illinois at Chicago (UIC), & the Shirley Ryan Ability Lab (fo)*

18:00-19:30 ThPOS-02.6
Novel Automatic Epilepsy Detection Method from EEG based on Multi-Weight Transition Network
Li, Yang *(Univ. of Jinan)*; Meng, Qingfang* *(Univ. of Jinan)*; Wu, Peng *(Univ. of Jinan)*; Zhang, Hanyong *(Univ. of Jinan)*; Du, Lei *(Univ. of Jinan)*; Jiang, Hui *(Univ. of Jinan)*

ThPOS-03: 18:00-19:30 Hall B
Signal Processing and Classification in Sleep Studies – Poster (Poster Session)

18:00-19:30 ThPOS-03.1
Electroencephalographic Slow-Wave Activity during Sleep in Different Phases of Blood Pressure and Respiration Oscillations
Forouzanfar, Mohamad* *(SRI International)*; Baker, Fiona *(SRI International)*; Colrain, Ian *(SRI International)*; de Zambotti, Massimiliano *(SRI International)*

18:00-19:30 ThPOS-03.2
An Investigation of Critical Frequency Sub-Bands of Snoring Sounds for OSA Diagnosis
Herath, Dulip *(University of Queensland)*; Abeyratne, Udantha R *(University of Queensland)*; Hukins, Craig *(Prince Alexandra Hospital)*; Markandeya, Mrunal* *(University of Queensland)*

18:00-19:30 ThPOS-03.3
Airflow from Nasal Pulse Oximetry in the Screening of Obstructive Sleep Apnea
Hoppenbrouwer, Xenia L.R.* *(Univ. of Twente)*; Fabius, Timon *(Dept of Pulmonology, Medisch Spectrum Twente)*; Eijsvogel, Michiel *(Medisch Spectrum Twente)*; de Jongh, Frans *(Medisch Spectrum Twente)*; Garde, Ainara *(Univ. of Twente)*

18:00-19:30 ThPOS-03.4
Sleep Apnea and Hypopnea Events Detection based on Airflow Signals using LSTM Network
Yang, Wenming *(Tsinghua University)*; Fan, Jiamin* *(Graduate School at Shenzhen, Tsinghua University, China)*; Wang, Xingjun *(Graduate School at Shenzhen, Tsinghua University)*; Liao, Qingmin *(Tsinghua University)*

18:00-19:30 ThPOS-03.5
Feature Selection Algorithm based on Random Forest Applied to Sleep Apnea Detection
Deviaene, Margot* *(KU Leuven)*; Testelmans, Dries *(Universitair Ziekenhuis Gasthuisberg)*; Borzée, Pascal *(Katholieke Universiteit Leuven, University Hospitals)*; Buyse, Bertien *(Katholieke Universiteit Leuven)*; Van Huffel, Sabine *(KU Leuven)*; Varon, Carolina *(Katholieke Universiteit Leuven)*

ThPOS-04: 18:00-19:30 Hall B
Signal Processing and Classification of Acoustic and Auditory Signals – Poster (Poster Session)

18:00-19:30 ThPOS-04.1
Applying Machine Learning Algorithms for Automatic Detection of Swallowing from Sound
Santoso, Laura Frances *(University of Texas at Austin)*; Baqai, Faiz *(University of Texas at Austin)*; Gwozdz, Mary *(University of Texas at Austin)*; Lange, Justina *(University of Texas at Austin)*; Rosenberger, Matthew *(University of Texas at Austin)*; Sulzer, James *(University of Texas at Austin)*; Paydarfar, David* *(The University of Texas at Austin, Dell Medical School)*

18:00-19:30 ThPOS-04.2
A Novel Method for Automatic Identification of Respiratory Disease from Acoustic Recordings
Kok, Xuen Hoong* *(Imperial College London)*; Imtiaz, Syed Anas *(Imperial College London)*; Rodriguez-Villegas, Esther *(Imperial College London)*

18:00-19:30 ThPOS-04.3
Speaker Diarization during Noisy Clinical Diagnoses of Autism
Gorodetski, Alex *(BGU)*; Dinstein, Ilan *(Ben Gurion University)*; Zigel, Yaniv* *(Ben-Gurion University of the Negev)*

18:00-19:30 ThPOS-04.4
Assessment of Sound Features for Needle Perforation Event Detection
Renna, Francesco *(Instituto de Telecomunicações e Faculdade de Ciências da Univ.)*; Illanes, Alfredo *(Otto-von-Guericke Univ. of Magdeburg)*; Oliveira, Jorge *(Instituto de Telecomunicações, Faculdade de Ciências da Univ.)*; Esmaeili, Nazila *(Otto-von-Guericke Univ. Magdeburg, Magbeburg, Germany)*; Friebe, Michael *(Otto-von-Guericke-Univ.)*; Coimbra, Miguel* *(Instituto de Telecomunicações / Univ. do Porto)*

18:00-19:30 ThPOS-04.5
A Comparative Study of Features for Acoustic Cough Detection using Deep Architectures
Miranda, Igor* *(Stellenbosch Univ.)*; Diacon, Andreas *(Stellenbosch Univ.)*; Niesler, Thomas *(Stellenbosch Univ.)*

18:00-19:30 ThPOS-04.6
Automatic Audio-Based Classification of Patient Inhaler Use: A Pharmacy based Study
McNulty, Johnny *(Trinity College Dublin)*; Reilly, Richard *(Trinity College Dublin)*; Taylor, Terence E.* *(Trinity College Dublin)*; O'Dwyer, Susan M *(Boots Retail (Ireland) Limited)*; Costello, Richard *(Royal College of Surgeons in Ireland (RCSI))*; Zigel, Yaniv *(Ben-Gurion University of the Negev)*

ThPOS-05: 18:00-19:30 Hall B
Signal Processing and Classification of Cardiovascular Signals – Poster (Poster Session)

18:00-19:30 ThPOS-05.1
ECG-Based Estimation of Potassium and Calcium Concentrations: Proof of Concept with Simulated Data
Pilia, Nicolas Alessandro* *(Karlsruhe Institute of Tech. (KIT))*; Hernández Mesa, María *(Karlsruhe Institute of Tech. (KIT))*; Doessel, Olaf *(Karlsruhe Institute of Tech. (KIT))*; Loewe, Axel *(Karlsruhe Institute of Tech. (KIT))*

18:00-19:30 ThPOS-05.2
Myocardial Infarction Detection based on Multi-Lead Ensemble Neural Network
Wang, Hongmei* *(Guangzhou Shiyuan Electronics Co., Ltd)*; Zhao, Wei *(Guangzhou Shiyuan Electronics Co., Ltd)*; Jia, Dongya *(Guangzhou Shiyuan Electronics Co., Ltd)*; Hu, Jing *(Guangzhou Shiyuan Electronic Technology Co., Ltd.)*; Li, Zhenqi *(Guangzhou Shiyuan Electronics Co., Ltd)*; Yan, Cong *(Guangzhou Shiyuan Electronics Co., Ltd)*; You, Tianyuan *(Guangzhou Shiyuan Electronics Co., Ltd.)*

18:00-19:30 ThPOS-05.3
Detection of End of T-Wave in Fetal ECG Signals using Recurrence Plots
Widatalla, Namareq* *(Tohoku Univ.)*; Khandoker, Ahsan H *(Khalifa Univ. of Science, Technology & Research)*; Kasahara, Yoshiyuki *(Tohoku Univ.)*; Kimura, Yoshitaka *(Tohoku Univ.)*

18:00-19:30 ThPOS-05.4
Phase-Domain Deep Patient-ECG Image Learning for Zero-Effort Smart Health Security
Zhang, Qingxue* *(Indiana Univ.-Purdue Univ. Indianapolis)*

18:00-19:30 ThPOS-05.5
Automatic Artifact Detection in Impedance Cardiogram using Pulse Similarity Index
Forouzanfar, Mohamad* *(SRI International)*; Baker, Fiona *(SRI International)*; Colrain, Ian *(SRI International)*; de Zambotti, Massimiliano *(SRI International)*

18:00-19:30 ThPOS-05.6
ECG Biometric Recognition: Template-Free Approaches based on Deep Learning
Hong, Pei-Lun *(National Tsing Hua University)*; Hsiao, Jyun-Ya *(National Tsing Hua University)*; Chung, Chi-Hsun *(National Tsing Hua University)*; Feng, Yao-Min *(National Tsing Hua University)*; Wu, Shun Chi* *(National Tsing Hua University)*

ThPOS-06: 18:00-19:30 Hall B
Signal Processing and Classification of Electromyographic Signals – Poster (Poster Session)

18:00-19:30 ThPOS-06.1
Spatio-Temporal based Descriptor for Limb Movement-Intent Characterization in EMG-Pattern Recognition System
Samuel, Oluwarotimi Williams *(Shenzhen Institutes of Advanced Tech.)*; Asogbon, Mojisola Grace *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Geng, Yanjuan *(Shenzhen Institutes of Advanced Tech.)*; Li, Xiangxin *(Shenzhen Institutes of Advanced Tech., Chinese Academy of Sc)*; Pirbhulal, Sandeep *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Chen, Shixiong *(Shenzhen Institutes of Advanced Tech.)*; Naik, Ganesh R *(Western Sydney Univ.)*; Fang, Peng *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Li, Guanglin* *(Shenzhen Institutes of Advanced Tech.)*

18:00-19:30 ThPOS-06.2
Visualized Evidences for Detecting Novelty in Myoelectric Pattern Recognition using 3D Convolutional Neural Networks
Wu, Le *(University of Science & Technology of China)*; Zhang, Xu* *(University of Science & Technology of China)*; Chen, Xiang *(University of Science & Technology of China)*; Chen, Xun *(University of British Columbia)*

18:00-19:30 ThPOS-06.3
Investigation on the Contributions of Different Muscles to the Generated Force based on HD-sEMG and DBN
Hu, Ruochen *(University of Science & Technology of China)*; Chen, Xiang* *(University of Science & Technology of China)*; Cao, Shuai *(University of Science & Technology of China)*; Zhang, Xu *(University of Science & Technology of China)*; Chen, Xun *(University of British Columbia)*

18:00-19:30 ThPOS-06.4
Synergy Estimation for Myoelectric Control using Regularized NMF
Bahadur, Rabya* *(SS CASE IT, Islamabad)*; Rahman, Saeed ur *(SS CASE IT, Islamabad)*; Khattak, Shahid *(COMSATS University Islamabad, Abbottabad Campus)*

18:00-19:30 ThPOS-06.5
Analysis of Dynamic Contractions from Biceps Brachii Muscle using Surface Electromyography Signals and Multiscale Visibility Graph Features
Makaram, Navaneethakrishna* *(Indian Institute of Technology Madras)*; Ramakrishnan, Swaminathan *(IIT Madras, India)*

18:00-19:30 ThPOS-06.6
A Simple Method to Estimate Muscle Currents from HD-sEMG and MRI using Electrical Network and Graph Theory
Piovanelli, Enrico* *(The University of Tokyo)*; Piovesan, Davide *(Gannon University)*; Shirafuji, Shouhei *(The University of Tokyo)*; Ota, Jun *(The University of Tokyo)*

18:00-19:30 ThPOS-06.7
Gesture Classification from Compressed EMG based on Compressive Covariance Sensing
Park, Chanki *(Gwangju Institute of Science & Tech.)*; Yoo, Hyun-Joon *(Gwangju Institute of Science & Tech..)*; Lee, Sangbaek *(Gwangju Institute of Science & Tech.)*; Lee, Boreom* *(Gwangju Institute of Science & Tech. (GIST))*

18:00-19:30 ThPOS-06.8
Identification of Neuromuscular Causal Relationship between Brain and Muscles in Limb Movement by using Ensemble Empirical Mode Decomposition based Causal Decomposition
Zhang, Yi* *(Univ. of Electronic Science & Technology of China)*; Tie, Yi *(The Univ. of Sydney)*; Wang, Yingxue *(Univ. of Sydney)*; Zhang, Xiabing *(Univ. of Electronic Science & Technology of China)*; Cui, Yan *(Univ. of Electronic Science & Technology of China)*; Hao, Jianmin *(Univ. of Electronic Science & Technology of China)*; Wu, Xiaofeng *(Univ. of Sydney)*; Su, Steven Weidong *(Univ. of Technology, Sydney)*; Xu, Peng *(Univ. of Electronic, Science & Technology of China (UESTC))*; Yao, Dezhong *(Univ. of Electronic Science & Technology of China)*

18:00-19:30 ThPOS-06.9
Spatially Filtered Low-Density EMG and Time-Domain Descriptors Improves Hand Movement Recognition
Ahmed, Ahmed *(University of Technology Sydney)*; Khushaba, Rami N. *(University of Technology, Sydney (UTS))*; Al-Jumaily, Adel* *(University of Technology Sydney)*

18:00-19:30 ThPOS-06.10
Analysis of Muscle Fatigue Conditions in Surface EMG Signal with a Novel Hilbert Marginal Spectrum Entropy Method
Sam Jeeva Raj, Edward Jero* *(Indian Institute of Technology Madras)*; Ramakrishnan, Swaminathan *(IIT Madras, India)*

ThPOS-07: 18:00-19:30 Hall B
Image Enhancement – Denoising – Poster (Poster Session)

18:00-19:30 ThPOS-07.1
OCT Image Denoising based on Asymmetric Normal Laplace Mixture Model
Jorjandi, Sahar *(Student Research Committee, School of Advanced Technologies in M)*; Rabbani, Hossein* *(Isfahan Univ. of Medical Sciences)*; Amini, Zahra *(MUI)*; Kafieh, Raheleh *(Isfahan University of Medical Sciences)*

18:00-19:30 ThPOS-07.2
Semi-Supervised Learning for Low-Dose CT Image Restoration with Hierarchical Deep Generative Adversarial Network (HD-GAN)
Choi, Kihwan* *(Korea Institute of Science & Technology)*; Malinda, Vania *(Korea Institute of Science & Technology)*; Kim, Sungwon *(Yonsei University)*

18:00-19:30 ThPOS-07.3
Adaptive Weighted Nuclear Norm Minimization for Removing Speckle Noise from Optical Coherence Tomography Images
Yoo, Sunyoung* *(Seoul National University)*; Wang, Zihuan *(Seoul National University)*; Seo, Jong Mo *(Seoul National University, School of Engineering)*

18:00-19:30 ThPOS-07.4
Geometrical X-Lets for Image Denoising
Rabbani, Hossein* *(Isfahan Univ. of Medical Sciences)*

ThPOS-08: 18:00-19:30 Hall B
Image Feature Extraction – Poster (Poster Session)

18:00-19:30 ThPOS-08.1
Differentiating Cancerous and Non-Cancerous Prostate Tissue using Multi-Scale Texture Analysis on MRI
Alvarez-Jimenez, Charlems *(Univ. Nacional de Colombia)*; Barrera, Cristian *(Univ. Nacional de Colombia)*; Munera, Nicolas *(Univ. Nacional de Colombia)*; Viswanath, Satish *(Case Western Reserve University)*; Romero, Eduardo* *(Univ. Nacional de Colombia)*

18:00-19:30 ThPOS-08.2
Automatic Screening of Fundus Images using a Combination of Convolutional Neural Network and Hand-Crafted Features
Harangi, Balazs* *(Univ. of Debrecen)*; Toth, Janos *(Univ. of Debrecen, Faculty of Informatics)*; Baran, Agnes *(Faculty of Informatics, Univ. of Debrecen)*; Hajdu, Andras *(Univ. of Debrecen)*

18:00-19:30 ThPOS-08.3
A Preliminary Study on Automatic Characterization and Classification of Vascular Patterns of Contact Endoscopy Images
Esmaeili, Nazila* *(Otto-von-Guericke Univ. Magdeburg, Magbeburg, Germany)*; Illanes, Alfredo *(Otto-von-Guericke Univ. of Magdeburg)*; Boese, Axel *(Dept. of Medical Engineering, Otto-von-Guericke-Univ.)*; Davaris, Nikolaos *(Dept. of Otorhinolaryngology, Head & Neck Surgery, Magdeb)*; Arens, Christoph *(Dept. of Otorhinolaryngology, Head & Neck Surgery, Magdeb)*; Friebe, Michael *(Otto-von-Guericke-Univ.)*

18:00-19:30 ThPOS-08.4
Gait Estimation and Analysis from Noisy Observations
Ismail, Hafsa* *(University of Canberra)*; Radwan, Ibrahim *(Australian National University)*; Suominen, Hanna *(Data61/CSIRO, Australian National University)*; Goecke, Roland *(University of Canberra)*

18:00-19:30 ThPOS-08.5
Waveform Analysis for Camera-Based Photoplethysmography Imaging
Paul, Michael* *(RWTH Aachen Univ.)*; Yu, Xinchi *(RWTH Aachen Univ.)*; Wu, Bin *(RWTH Aachen Univ.)*; Weiss, Christoph *(RWTH Aachen Univ.)*; Hoog Antink, Christoph *(RWTH Aachen Univ., Aachen, Germany)*; Blazek, Vladimir *(Philips Chair for Medical Information Technology, RWTH Aachen Un)*; Leonhardt, Steffen *(RWTH Aachen Univ.)*

ThPOS-09: 18:00-19:30 Hall B
Image Reconstruction and Enhancement – Poster (Poster Session)

18:00-19:30 ThPOS-09.2
Auditory White Noise Affects Left/Right Visual Working Memory in an Opposite Pattern
Wang, Ruimin* *(Kyushu Univ.)*; Ge, Sheng *(Key Laboratory of Child Development & Leaning Science, Ministr)*; Zommara, Noha Mohsen *(Dept. of Human Science, Kyushu Univ.)*; Zheng, WenWei *(Kyushu Univ.)*; Iramina, Keiji *(Kyushu Univ., Japan)*

18:00-19:30 ThPOS-09.3
Mechanically Powered Motion Imaging Phantoms: Proof of Concept
Gomez, Alberto *(King's College London)*; Schmitz, Cornelia *(King's College London)*; Henningsson, Markus *(King's College London)*; Housden, Richard James *(King's College London)*; Noh, Yohan *(King's College London)*; Zimmer, Veronika *(King's College London)*; Clough, James *(Kings College London)*; Oksuz, Ilkay *(King's College London)*; Toussaint, Nicolas *(King's College London)*; King, Andy *(King's College London)*; Schnabel, Julia* *(King's College London)*

18:00-19:30 ThPOS-09.4
Lateral Resolution Improvement in Ultrasound Imaging System using Compressed Sensing: Initial Results
R, Anand R *(Indian Institute of Technology Madras, Chennai, India)*; Thittai, Arun Kumar* *(IIT MADRAS)*

18:00-19:30 ThPOS-09.5
Image Reconstruction Method with Compressed Sensing for High-Speed MR Temperature Measurement of Abdominal Organs
Nakagawa, Yusuke *(Kobe Univ.)*; Kokuryo, Daisuke* *(Kobe Univ.)*; Kaihara, Toshiya *(Faculty of Engineering, Kobe Univ.)*; Fujii, Nobutada *(Kobe Univ.)*; Kumamoto, Etsuko *(Kobe Univ.)*

18:00-19:30 ThPOS-09.6
Synthetic Retinal Images from Unconditional GANs
Biswas, Sangeeta* *(Brno University of Technology)*; Rohdin, Johan *(Brno University of Technology)*; Drahansky, Martin *(Brno University of Technology)*

18:00-19:30 ThPOS-09.7
A Portable Ultrasound Imaging System Utilizing Deep Generative Learning-Based Compressive Sensing on Pre-Beamformed RF Signals
Gupta, Saurabh Kumar* *(Indian Institute of Science, Bangalore)*; Kumar, Kundan *(Indian Institute of Science)*; Seelamantula, Chandra Sekhar *(Indian Institute of Science, Bangalore)*; Thakur, Chetan Singh *(Indian Institute of Science, Bangalore)*

18:00-19:30 ThPOS-09.8
Evaluating Accuracy of Respiratory Rate Estimation from Super Resolved Thermal Imagery
Kwasniewska, Alicja *(Gdansk University of Technology)*; Szankin, Maciej *(Intel Corporation)*; Ruminski, Jacek* *(Gdansk University of Technology)*; Kaczmarek, Mariusz *(Gdansk University of Technology)*

18:00-19:30 ThPOS-09.9
Shape, Pose and Density Statistical Model for 3D Reconstruction of Articulated Structures from X-Ray Images
Tchinde Fotsin, Ted Julien* *(Laboratoire de Recherche en Imagerie et Orthopédie (LIO), École)*; Vazquez, Carlos *(École de Technologie Supérieure)*; Cresson, Thierry *(Ecole de Technologie Superieure)*; de Guise, Jacques A. *(École de Technologie Supérieure)*

18:00-19:30 ThPOS-09.10
Hole Filling in 3D Scans for Digital Anthropometric Applications
Sobhiyeh, Sima *(LSU Pennington Biomedical Research Center)*; Dechenaud, Marcelline* *(Louisiana State University)*; Dunkel, Alexander *(Louisiana State University)*; LaBorde, Margarite *(Louisiana State University)*; Kennedy, Samantha *(LSU Pennington Biomedical Research Center)*; Shepherd, John *(University of Hawaii Cancer Center)*; Heymsfield, Steven *(Pennington Biomedical Research Center)*; Wolenski, Peter *(Louisiana State University)*

ThPOS-10: 18:00-19:30 Hall B
Image Registration – Poster (Poster Session)

18:00-19:30 ThPOS-10.1
Towards CNN-Based Registration of Craniocaudal and Mediolateral Oblique 2-D X-Ray Mammographic Images
Walton, William* *(JHU/APL)*; Kim, Seung-Jun *(Univ. of Maryland, Baltimore County)*; Harvey, Susan *(Johns Hopkins Medicine Dept. of Radiology)*; Mullen, Lisa *(JHU)*; Porter, David *(JHU/APL)*

18:00-19:30 ThPOS-10.3
A Pipeline for the Registration of Calcium Transient Data to Structural Networks of the Interstitial Cells of Cajal
Qian, Anna* *(The University of Auckland)*; Means, Shawn *(The University of Auckland)*; Malysz, John *(University of Tennessee Health Science Center)*; Farrugia, Gianrico *(Mayo Clinic College of Medicine)*; Gibbons, Simon J *(Mayo Clinic College of Medicine)*; Du, Peng *(The University of Auckland)*

18:00-19:30 ThPOS-10.4
Breathing Deformation Model – Application to Multi-Resolution Abdominal MRI
Sarasaen, Chompunuch* *(Otto-von-Guericke-Universität Magdeburg)*; Chatterjee, Soumick *(Otto von Guericke University Magdeburg)*; Breitkopf, Mario *(Otto von Guericke University Magdeburg)*; Iuso, Domenico *(Otto von Guericke University Magdeburg)*; Rose, Georg *(Otto-von-Guericke University, Magdeburg)*; Speck, Oliver *(University of Magdeburg)*

ThPOS-11: 18:00-19:30 Hall B
Image Segmentation – Poster (Poster Session)

18:00-19:30 ThPOS-11.1
Study of Tissue Variation and Analysis of MR Brain Images using Optimized Multilevel Threshold and Deep CNN Features in Neurodegenerative Disorders
N, Ahana Priyanka *(ANNA University)*; Ganesan, Kavitha* *(MIT Campus, Anna University,)*

18:00-19:30 ThPOS-11.2
Automatic Aorta and Left Ventricle Segmentation for TAVI Procedure Planning using Convolutional Neural Networks
Złahoda-Huzior, Adriana* *(AGH University of Science & Technology, Dept. of Measurem)*; Stanuch, Maciej *(AGH University of Science & Technology, Dept. of Measurem)*; Witowski, Jan Sylwester *(2nd Dept. of General Surgery, Jagiellonian University Medic)*; Dudek, Dariusz *(Jagiellonian University Medical College, Institute of Cardiology)*

18:00-19:30 ThPOS-11.3
A Novel Method for Retinal Vessel Segmentation and Diameter Measurement using High Speed Video
Rezaeian, Mahdieh *(Macquarie University)*; Butlin, Mark *(Macquarie University)*; Golzan, S.Mojtaba *(Macquarie University)*; Graham, Stuart L *(Macquarie University)*; Avolio, Alberto P* *(Macquarie University)*

18:00-19:30 ThPOS-11.4
Skin Lesion Segmentation with C-UNet
Wu, Junyan* *(Cleerly)*; Chen, Eric Z. *(Dana-Farber Cancer Institution)*; Rong, Ruichen *(UT Southwestern)*; Li, Xiaoxiao *(Yale University)*; Dong, Xu *(Virginia Tech)*; Jiang, Hongda *(East China University of Science & Technology)*

18:00-19:30 ThPOS-11.5
Automatic Segmentation of the Paranasal Sinus from Computer Tomography Images using a Probabilistic Atlas and a Fully Convolutional Network
Xiong, Kun *(Ritsumeikan Univ.)*; Chen, Yen-Wei* *(Ritsumeikan Univ.)*; Iwamoto, Yutaro *(Ritsumeikan Univ.)*; Han, Xian-Hua *(Ritsumeikan Univ.)*; Kitamura, Takahiro *(National Hospital Organization Osaka National Hospital)*; Matsushiro, Naoki *(Osaka Police Hospital)*

18:00-19:30 ThPOS-11.6
Automated Optic Nerve Sheath Diameter Measurement using Super-Pixel Analysis
Soroushmehr, S.M.Reza* *(Univ. of Michigan, Ann Arbor)*; Rajajee, Krishna *(Univ. of Michigan)*; Williamson, Craig *(Univ. of Michigan)*; Gryak, Jonathan *(Univ. of Michigan)*; Najarian, Kayvan *(Univ. of Michigan – Ann Arbor)*; Ward, Kevin *(Univ. of Michigan)*; Tiba, Mohamad H. *(Univ. of Michigan)*

ThPOS-12: 18:00-19:30 Hall B
Image Visualization – Poster (Poster Session)

18:00-19:30 ThPOS-12.1
What Evidence Does Deep Learning Model use to Classify Skin Lesions?
Wu, Junyan* *(Cleerly)*; Li, Xiaoxiao *(Yale University)*; Chen, Eric Z. *(Dana-Farber Cancer Institution)*; Jiang, Hongda *(East China University of Science & Technology)*

18:00-19:30 ThPOS-12.2
Automatic Masseter Thickness Measurement and Ideal Point Localization for Botulinum Toxin Injection
Xia, Wenjin *(Shanghai Jiao Tong University)*; Han, Wenqing *(Shanghai Ninth People's Hospital, Shanghai Jiao Tong University)*; Zhang, Yan *(Shanghai Ninth People's Hospital, Shanghai Jiao Tong University)*; Wang, Lisheng *(Shanghai Jiao Tong University)*; Chai, Gang *(Shanghai Ninth People's Hospital, Shanghai Jiao Tong University)*; Huang, Yi-Jie* *(Shanghai Jiao Tong University)*

18:00-19:30 ThPOS-12.3
Retinal Thickness Analysis in High Myopia based on Medial Axis Transforms
Michikawa, Takashi* *(RIKEN)*; Wada, Satoshi *(RIKEN)*; Yokota, Hideo *(RIKEN Center for Advanced Photonics)*; An, Guangzhou *(RIKEN)*; Akiba, Masahiro *(Topcon Corp.)*; Omodaka, Kazuko *(Dept. of Ophthalmology, Tohoku Univ. Graduate School o)*; Nakazawa, Toru *(Tohoku Univ. Graduate School of Medicine)*

18:00-19:30 ThPOS-12.4
Deep Reinforcement Learning for Task-Based Feature Learning in Prosthetic Vision
White, Jack Andrew* *(Swinburne University of Technology)*; McCarthy, Chris *(Swinburne University of Technology)*; Kameneva, Tatiana *(Swinburne University of Technology)*

18:00-19:30 ThPOS-12.5
FPGA Implementation and Evaluation of an Approximate Hilbert Transform-Based Envelope Detector for Ultrasound Imaging using the DSP Builder Development Tool
Assef, Amauri Amorin* *(Federal Univ. of Technology-Parana (UTFPR))*; De Oliveira, Jonathan *(UTFPR, PPGSE)*; Maia, Joaquim Miguel *(Federal Univ. of Technology-Parana)*; Costa, Eduardo Tavares *(State Univ. of Campinas)*

ThPOS-13: 18:00-19:30 Hall B
Infra-Red Imaging – Poster (Poster Session)

18:00-19:30 ThPOS-13.1
The Association of Temperature of Diabetic Foot Ulcers with Chronic Kidney Disorder
Rani, Priya* *(RMIT University)*; Aliahmad, Behzad *(RMIT University)*; Kant Kumar, Dinesh *(RMIT University)*

18:00-19:30 ThPOS-13.2
Thermal Asymmetries and Mean Foot Temperature
Zolet, Cerise M. L. S. *(Graduate Program in Biomedical Engineering of the Federal Univer)*; Neves, Eduardo Borba *(Federal Technological University of Paraná (UTFPR))*; Romaneli, Eduardo F. R. *(UTFPR – Federal University of Technology – Paraná)*; Ulbricht, Leandra* *(UTFPR – Federal University of Technology – Paraná)*

ThPOS-14: 18:00-19:30 Hall B
Magnetic Resonance Imaging – Poster (Poster Session)

18:00-19:30 ThPOS-14.1
The Effect of the Number of Fibers in Tractography Reconstruction of White Matter Bundles
Román, Claudio* *(Universidad de Concepcion)*; Cárdenas, Nicolás *(Universidad de Concepción)*; Poupon, Cyril *(CEA I2BM NeuroSpin)*; Mangin, Jean-François *(CEA I2BM NeuroSpin)*; Guevara, Pamela *(Universidad de Concepción)*

18:00-19:30 ThPOS-14.2
Super-Resolution Diffusion Tensor Imaging using SRCNN: A Feasibility Study
Elsaid, Nahla M H* *(Indiana University School of Medicine)*; Wu, Yu-Chien *(Indiana University School of Medicine)*

18:00-19:30 ThPOS-14.3
Towards the Precise Microstructural Mapping. Testing New Anisotropic Phantoms with Layered and Capillary Geometries
Mazur, Weronika* *(AGH Univ. of Science & Technology)*; Krzyzak, Artur, Tadeusz *(AGH Univ. of Science & Technology, Faculty of Geology, G)*; Raszewski, Zbigniew *(Military Univ. of Technology, Faculty of Advanced Technolog)*

18:00-19:30 ThPOS-14.4
On Single-Image Super-Resolution in 3D Brain Magnetic Resonance Imaging
Bazzi, Farah* *(University of Toulouse 3, Paul Sabatier, IRIT)*; Mescam, Muriel *(CNRS – University of Toulouse 3)*; Basarab, Adrian *(Université de Toulouse)*; Kouamé, Denis *(Université de Toulouse III, IRIT UMR CNRS)*

18:00-19:30 ThPOS-14.5
Altered Cortical Morphometry in Pre-Manifest Huntington's Disease: Cross-Sectional Data from the IMAGE-HD Study
Shishegar, Rosita* *(Monash Univ.)*; Rajapakse, Sudeshna *(Monash Univ.)*; Georgiou-Karistianis, Nellie *(Monash Univ.)*

18:00-19:30 ThPOS-14.6
in-Vivo Cortical Thickness Estimation from High-Resolution T1w MRI Scans in Healthy and Mucopolysaccharidosis Affected Dogs
Labounek, Rene *(Univ. of Minnesota)*; Mai, Khoi *(Univ. of Minnesota)*; Mueller, Bryon *(Univ. of Minnesota)*; Ellinwood, Matthew *(Iowa State Univ.)*; Dickson, Patricia *(Harbor-UCLA Medical Center)*; Nestrasil, Igor* *(Univ. of Minnesota)*

ThPOS-15: 18:00-19:30 Hall B
Cell, Tissue, and Organ Modeling – Poster (Poster Session)

18:00-19:30 ThPOS-15.1
Development of a Physiologically-Based Mathematical Model for Quantifying Nanoparticle Distribution in Tumors
Dogra, Prashant *(Houston Methodist Research Institute)*; Chuang, Yao-Li *(University of New Mexico)*; Butner, Joseph *(University of New Mexico)*; Cristini, Vittorio *(University of New Mexico)*; Wang, Zhihui* *(Houston Methodist Research Institute)*

18:00-19:30 ThPOS-15.2
Pharmacotherapeutic Effects of Quinidine on Short QT Syndrome by using Purkinje-Ventricle Model: A Simulation Study
Luo, Cunjin* *(Key Lab of Medical Electrophysiology, Ministry of Education, Ins)*; Whittaker, Dominic G *(Univ. of Leeds)*; Liu, Tong *(Tianjin Medical Univ.)*; Wang, Kuanquan *(Harbin Institute of Technology)*; Li, Yacong *(Harbin Institute of Technology)*; He, Ying *(De Montfort Univ.)*; Zhang, Henggui *(Harbin Institute of Technology, School of Computer Science & T)*

18:00-19:30 ThPOS-15.3
Experimental Mechanical Examination of Artificial 3D Printed and Post Processed Vascular Silicone Models
Riedle, Hannah* *(Friedrich-Alexander-University of Erlangen-Nuremberg)*; Braunias, Kim *(Friedrich-Alexander-University of Erlangen-Nuremberg)*; Mukai, Barbara *(Friedrich-Alexander-University of Erlangen-Nuremberg)*; Franke, Jörg *(Friedrich-Alexander-University of Erlangen-Nuremberg)*

18:00-19:30 ThPOS-15.4
3D-Printed Whole Prostate Models with Tumor Hotspots using Dual-Extruder Printer
Liimatainen, Kaisa Maria* *(Tampere University of Technology)*; Latonen, Leena *(University of Tampere)*; Kartasalo, Kimmo *(Faculty of Medicine & Health Technology, Tampere University, F)*; Ruusuvuori, Pekka *(Tampere University of Technology)*

18:00-19:30 ThPOS-15.5
Optimizing Stimulation Strategies for Retinal Electrical Stimulation: A Modelling Study
Alqahtani, Abdulrahman* *(Univ. of New South Wales)*; Al Abed, Amr *(Univ. of New South Wales)*; Lovell, Nigel H. *(Univ. of New South Wales)*; Dokos, Socrates *(Univ. of New South Wales)*

18:00-19:30 ThPOS-15.6
A Soliton-Based Model Mimics the Arterial Pulse Propagation as Much as a Widely Used 1D Model
Manuel, Alfonso *(Buenos Aires Regional Faculty, National Technological Univ.)*; Gabaldon, Felipe *(Technical Univ. of Madrid)*; Cymberknop, Leandro Javier* *(Universidad Tecnológica Nacional)*; Armentano, Ricardo Luis *(Republic Univ.)*; Legnani, Walter *(Universidad Tecnologica Nacional)*

18:00-19:30 ThPOS-15.7
On a Novel, Simplified Model Framework Describing Ascorbic Acid Concentration Dynamics
Nygaard, Gerhard* *(Western Norway Univ. of Applied Sciences)*

18:00-19:30 ThPOS-15.8
A Numerical Study on the No-Touch Bipolar Radiofrequency Ablation
Yap, Shelley* *(Monash University Malaysia)*; Cheong, Jason Kin Kit *(Monash University Malaysia)*; Ooi, Ean Hin *(Monash University Malaysia)*; Liao, Iman Yi *(University of Nottingham Malaysia Campus)*; Foo, Ji Jinn *(Monash University Malaysia)*; Nair, Shalini R *(National Cancer Institute)*; Mohd Ali, Ahmad Faizal *(Universiti Malaysia Sarawak)*

18:00-19:30 ThPOS-15.9
Possibility of Acoustic Resonance in Hair Cells in Human's Auditory System
Hong, Wenjia *(Kansai University)*; Tamaki, Airi *(Kansai University)*; Kitamura, Toshiaki *(Kansai University)*; Horii, Yasushi* *(Kansai University)*

ThPOS-16: 18:00-19:30 Hall B
Model Construction: Algorithms, Parameters, and Sensitivity – Poster (Poster Session)

18:00-19:30 ThPOS-16.1
A Faster DiSH: Hardware Implementation of a Discrete Cell Signaling Simulator
Gilboy, Kevin *(University of Pittsburgh)*; Sayed, Khaled* *(University of Pittsburgh)*; Sundaram, Niteesh *(University of Pittsburgh)*; Bocan, Kara *(University of Pittsburgh)*; Miskov-Zivanov, Natasa *(University of Pittsburgh)*

18:00-19:30 ThPOS-16.2
A Simulated Environment for Early Development Stages of Reinforcement Learning Algorithms for Closed-Loop Deep Brain Stimulation
Castaño-Candamil, Sebastián* *(Univ. of Freiburg)*; Vaihinger, Mara *(Univ. of Freiburg)*; Tangermann, Michael *(Univ. of Freiburg)*

18:00-19:30 ThPOS-16.3
Identification of a Neural Mass Model of Burst Suppression
Jafarian, Amirhossein* *(Univ. Collage London)*; Freestone, Dean Robert *(The Univ. of Melbourne)*; Nesic, Dragan *(The Univ. of Melbourne)*; Grayden, David B. *(The Univ. of Melbourne)*

18:00-19:30 ThPOS-16.4
EEG Complexity and Functional Connectivity during Precise Timing Prediction
Meng, Jiayuan* *(Tianjin Univ.)*; Xu, Minpeng *(Tianjin Univ.)*; Zhou, Peng *(Tianjin Univ.)*; He, Feng *(Tianjin Univ.)*; Ming, Dong *(Tianjin Univ.)*

18:00-19:30 ThPOS-16.5
Sensitivity Analysis of a Model of Human Papillomavirus Late Promoter Regulation
Giaretta, Alberto* *(University of Padova, Dept. of Information Engineering)*; Toffolo, Gianna *(University of Padova)*

18:00-19:30 ThPOS-16.6
Influence of Anatomical Model and Skin Conductivity on the Electric Field Induced in the Head by Transcranial Magnetic Stimulation
Colella, Micol* *(Univ. of Rome "Sapienza")*; Paffi, Alessandra *(ICEmB@La Sapienza Univ. Rome)*; Fontana, Sara *(Dept. of Information Engineering, Electronics & Telecommu)*; Rossano, Federico *(Dept. of Information Engineering, Electronics & Telecommu)*; De Santis, Valerio *(Univ. of L'Aquila)*; Apollonio, Francesca *(ICEmB@La Sapienza Univ. Rome)*; Liberti, Micaela *(ICEmB at Sapienza Univ. of Rome)*

ThPOS-17: 18:00-19:30 Hall B
Systems Biology and Systems Biomedicine – Poster (Poster Session)

18:00-19:30 ThPOS-17.1
Influence of Tissue Anisotropy on Molecular Communication
Al-Zu'bi, Muneer *(University of Technology Sydney)*; Sanagavarapu, Ananda Mohan* *(University of Technology Sydney)*; Ling, Sai Ho, Steve *(University of Technology Sydney)*

18:00-19:30 ThPOS-17.2
Human Papillomavirus Early Promoter Regulatory Core as a Bistable Switch
Giaretta, Alberto* *(Univ. of Padova, Dept. of Information Eng.)*

18:00-19:30 ThPOS-17.3
Measurement and Analysis of Complex Permittivity of Breast Cancer in Microwave Band
Kuwahara, Yoshihiko* *(Shizuoka University)*; Nakada, Yuuji *(Shizuoka University)*; Nozaki, Akira *(Shizuoka University)*; Fujii, Kimihito *(Aichi Medical University)*

18:00-19:30 ThPOS-17.4
Continuous Prediction of Cognitive State using a Marked-Point Process Modeling Framework
Amidi, Yalda* *(Isfahan University of Technology)*; Paulk, Angelique C *(Massachusetts General Hospital)*; Dougherty, Darin *(Massachusetts General Hospital)*; Cash, Sydney *(Massachusetts General Hospital)*; Widge, Alik *(Massachusetts General Hospital)*; Eden, Uri *(Boston University)*; Yousefi, Ali *(Massachusetts General Hospital & Harvard Medical School)*

18:00-19:30 ThPOS-17.5
Modeling and Analysis of Gab1 Mediated Feedback Loops to Understand Gab's Role in Erk-Akt Signaling and Cancer
Arkun, Yaman* *(Koc University)*

18:00-19:30 ThPOS-17.6
Determining the Effects of Insulin Detemir on Endogenous Secretion of Insulin
Klenner, Jacob B. *(Univ. of Canterbury)*; Van Noorden, Benjamin A. *(Univ. of Canterbury)*; Knopp, Jennifer L.* *(Univ. of Canterbury)*; Holder Pearson, Lui R. *(Univ. of Canterbury)*; Hardy, Anna R. *(Univ. of Canterbury)*; Vergeer, Sarah L. *(Univ. of Canterbury)*; Shaw, Geoffrey M *(Christchurch Hospital)*; Chase, J. Geoffrey *(Univ. of Canterbury)*

18:00-19:30 ThPOS-17.7
Effect of Two Different Pose Estimation Approaches on Lower Extremity Biomechanics in Professional Dancers
Azevedo, Ana* *(George Mason Univ.)*; Wei, Qi *(George Mason Univ.)*; Oliveira, Raul *(Faculty of Human Kinetics)*; Vaz, Joao *(Universidade Europeia)*; Cortes, Nelson *(George Mason Univ.)*

18:00-19:30 ThPOS-17.8
State Analysis of Total Stressed Blood Volume and Arterial Elastance during Induced Sepsis
Murphy, Liam *(Univ. of Canterbury)*; Davidson, Shaun* *(Univ. of Oxford)*; Knopp, Jennifer L. *(Univ. of Canterbury)*; Chase, J. Geoffrey *(Univ. of Canterbury)*; Zhou, Tony *(Univ. of Canterbury)*; Desaive, Thomas *(Univ. of Liege)*

18:00-19:30 ThPOS-17.9
A Minimal-Model Approach to Analyze Neuronal Circuit Dynamics from Multifocal ERG (mERG)
Schröder, Pascal* *(Dept. of Human Sciences, University of Osnabrück, Osnabrück)*; Martinez-Canada, Pablo *(CITIC-UGR, University of Granada, Granada)*; Amorim, André *(Clinical & Experimental Optometry Research Lab-CEORLab, Center o)*; Fernandes, Paulo *(Clinical & Experimental Optometry Research Lab-CEORLab, Center o)*; Amorim-de-Sousa, Ana *(Clinical & Experimental Optometry Research Lab-CEORLab, Center o)*; González-Méijome, José Manuel *(Clinical & Experimental Optometry Research Lab-CEORLab, Center o)*

18:00-19:30 ThPOS-17.10
Alzheimer's Disease Brain Network Classification using Improved Transfer Feature Learning with Joint Distribution Adaptation
Wang, Binglin *(Huazhong University of Science & Technology)*; Li, Wei *(Huazhong University of Science & Technology)*; Fan, Wenliang *(Huazhong University of Science & Technology)*; Chen, Xi *(Hua Zhong University of Science & Technology)*; Wu, Dongrui* *(Huazhong University of Science & Technology)*

18:00-19:30 ThPOS-17.11
A Predictive Coding Model for Evoked and Spontaneous Pain Perception
Song, Yuru *(Univ. of Science & Technology of China)*; Kemprecos, Helen *(New York Univ.)*; Wang, Jing *(New York Univ. School of Medicine)*; Chen, Zhe* *(New York Univ. School of Medicine)*

18:00-19:30 ThPOS-17.12
Comprehensive Fully Automated Left-Ventricular Ejection and Contractility Analysis
Baldwin, Bryant* *(Univ. of South Alabama)*; Figarola, Maria *(Univ. of South Alabama)*; Kar, Julia *(Univ. of South Alabama)*

18:00-19:30 ThPOS-17.13
Estimation of Dispersive Properties of Encapsulation Tissue Surrounding Deep Brain Stimulation Electrodes in the Rat
Sridhar, Karthik* *(University College Dublin)*; Evers, Judith *(University College Dublin)*; Pereira Botelho, Diego *(University College Dublin)*; Lowery, Madeleine *(University College Dublin)*

18:00-19:30 ThPOS-17.14
Network Activity Due to Topographic Organization of Schaffer Collaterals in a Large-Scale Model of Rat CA1
Yu, Gene* *(University of Southern California)*; Feng, Zhicheng *(University of Southern California)*; Berger, Theodore *(USC)*

ThPOS-18: 18:00-19:30 Hall B
Brain Functional Imaging – Poster (Poster Session)

18:00-19:30 ThPOS-18.1
Lateralization of Processing Spectrally-Degraded Music in the Auditory Cortex: An fNIRS Study
Guo, Zengzhi *(Southern University of Science & Technology)*; Ma, Ting *(Harbin Institute of Technology at Shenzhen)*; Chen, Fei* *(Southern University of Science & Technology)*

18:00-19:30 ThPOS-18.2
Directed Connectivity in Large-Scale Brain Networks for Precision Grip Force Control
Lv, Yadong *(Shandong University)*; Wei, Na *(Qilu Hospital, Shandong University)*; Li, Ke* *(Shandong University)*

ThPOS-19: 18:00-19:30 Hall B
Brain Physiology and Modeling – Poster (Poster Session)

18:00-19:30 ThPOS-19.1
Identification of Midbrain Dopamine Neurons using Features from Spontaneous Spike Activity Patterns
Ishikawa, Tsuyoshi* *(Kwansei Gakuin Univ.)*; Miura, Keiji *(Kwansei Gakuin Univ.)*; Matsumoto, Hideyuki *(Osaka City Univ.)*

18:00-19:30 ThPOS-19.2
Deriving Functional Astrocytes from Mouse Embryonic Stem Cells with a Fast and Efficient Protocol
Juneja, Deppo *(Univ. of Reading)*; Nasuto, Slawomir *(Univ. of Reading)*; Delivopoulos, Evangelos* *(Univ. of Reading)*

18:00-19:30 ThPOS-19.3
Effect of Topology and Time Window on Probability Distribution Underlying Baclofen Induced Ca2+ Response in Hippocampal Neurons
Saxena, Abha* *(Indian Institute of Technology Hyderabad,)*; Dhyani, Vaibhav *(Indian Institute of Technology Hyderabad,)*; Gare, Suman *(Indian Institute of Technology Hyderabad)*; Giri, Lopamudra *(Indian Institute of Technology Hyderabad)*

18:00-19:30 ThPOS-19.4
Simulation Study of Intermittent Responses of Neuronal Populations to Axonal High-Frequency Stimulation
Zheng, Lvpiao *(Zhejiang Univ.)*; Feng, Zhouyan* *(Zhejiang Univ.)*; Guo, Zheshan *(Zhejiang Univ.)*; Huang, Lu *(Zhejiang Univ.)*

18:00-19:30 ThPOS-19.5
Implementation of an Advanced Frequency-Based Hebbian Spike Timing Dependent Plasticity
Antonietti, Alberto *(Politecnico di Milano)*; Orza, Vasco *(Politecnico di Milano)*; Casellato, Claudia *(Politecnico di Milano)*; D'Angelo, Egidio *(University of Pavia)*; Pedrocchi, Alessandra* *(Politecnico di Milano)*

18:00-19:30 ThPOS-19.6
Difference in Cortical Modulation of Walking between Persons with Multiple Sclerosis and Healthy Controls: An EEG Pilot Study
Hoxha, Armand *(Kessler Foundation)*; Glassen, Michael *(Kessler Foundation)*; DeLuca, John *(Kessler Foundation)*; Kwasnica, Marek *(Kessler Foundation)*; Yue, Guang *(Kessler Foundation)*; Saleh, Soha* *(Kessler Foundation)*

ThPOS-20: 18:00-19:30 Hall B
Brain-Computer Interface – Poster (Poster Session)

18:00-19:30 ThPOS-20.1
Reconstructing Degree of Forearm Rotation from Imagined Movements for BCI-Based Robot Hand Control
Yun, Yong-Deok *(Korea University)*; Jeong, Ji-Hoon *(Korea University)*; Cho, Jeong-Hyun *(Korea University)*; Kim, Dong-Joo *(Korea University)*; Lee, Seong-Whan* *(Korea University)*

18:00-19:30 ThPOS-20.2
Two Player Online Brain-Controlled Chess
Hübner, David *(Albert-Ludwigs Universität Freiburg)*; Schall, Albrecht *(University of Freiburg)*; Tangermann, Michael* *(University of Freiburg)*

18:00-19:30 ThPOS-20.3
A Cross-Subject SSVEP-BCI based on Task Related Component Analysis
Liu, Wentao* *(Tianjin Univ.)*; Ke, Yufeng *(Tianjin Univ.)*; Liu, Pengxiao *(Tianjin Univ.)*; Du, Jiale *(Tianjin Univ.)*; Kong, Linghan *(Tianjin Univ.)*; Liu, Shuang *(Tianjin Univ.)*; An, Xingwei *(Tianjin Univ.)*; Ming, Dong *(Tianjin Univ.)*

18:00-19:30 ThPOS-20.4
SLES: A Novel CNN-Based Method for Sensor Reduction in P300 Speller
Shan, Hongchang* *(Leiden Univ.)*; Stefanov, Todor *(Leiden Univ.)*

18:00-19:30 ThPOS-20.5
A Comparison of Classification Methods for Recognizing Single-Trial P300 in Brain-Computer Interfaces
Xiao, Xiaolin* *(Tianjin University)*; Xu, Minpeng *(Tianjin University)*; Wang, Yijun *(Institute of Semiconductors, Chinese Academy of Sciences)*; Jung, Tzyy-Ping *(University of California San Diego)*; Ming, Dong *(Tianjin University)*

18:00-19:30 ThPOS-20.6
Combining Frequency and Time-Domain EEG Features for Classification of Self-Paced Reach-and-Grasp Actions
Schwarz, Andreas* *(Graz, Univ. of Technology)*; Pereira, Joana *(Graz Univ. of Technology)*; Lindner, Lydia *(Graz Univ. of Technology)*; Müller-Putz, Gernot *(Graz Univ. of Technology)*

18:00-19:30 ThPOS-20.7
Study on Brain Computer Interface Combined Tactile Enhancement and Time-Varying Features
Zhang, Lei *(Tianjin University)*; Chen, Long *(Tianjin University)*; Wang, Zhongpeng *(Tianjin University)*; Liu, Shuang *(Tianjin University)*; Wang, Mengya *(Tianjin University)*; Chen, Shanguang *(China Astronaut Research & Training Center)*; Ming, Dong* *(Tianjin University)*

18:00-19:30 ThPOS-20.8
Classification and Transfer Learning of EEG during a Kinesthetic Motor Imagery Task using Deep Convolutional Neural Networks
Craik, Alexander *(Univ. of Houston)*; Contreras-Vidal, José *(Univ. of Houston)*; Kilicarslan, Atilla* *(Univ. of Houston)*

18:00-19:30 ThPOS-20.9
A Novel EEG-Based Four-Class Linguistic BCI
Jahangiri, Amir* *(University of Essex)*; Achanccaray, David *(Tohoku University)*; Sepulveda, Francisco *(University of Essex)*

18:00-19:30 ThPOS-20.10
Decoding with Calcium Signals from Layer 2/3 Motor Cortex during a Pressing Movement
Wang, Ruixue *(Qiushi Academy for Advanced Studies, Zhejiang Univ.,)*; Han, Jiawei *(Zhejiang Univ.)*; Chen, Jing *(Qiushi Academy of Advanced Studies & College of Biomedical Eng)*; Li, Mingkang *(Zhejiang Univ.)*; Feng, Linqing *(Korea Institute of Science & Technology)*; Zhang, Shaomin* *(Zhejiang Univ.)*

18:00-19:30 ThPOS-20.11
A Fast Brain Switch based on Multi-Class Code-Modulated VEPs
Zheng, Li *(Institute of Semiconductors, Chinese Academy of Sciences)*; Wang, Yijun* *(Institute of Semiconductors, Chinese Academy of Sciences)*; Pei, Weihua *(Institute of Semiconductors, CAS)*; Chen, Hongda *(Institute of Semiconductors, CAS)*

18:00-19:30 ThPOS-20.12
A P300-Based Brain Computer Interface using Stereo-Electroencephalography Signals
Huang, Weichen *(South China Univ. of Technology)*; Yu, Tianyou *(South China Univ. of Technology, Chinese)*; Jing, Xiao *(South China Univ. of Technology)*; Guo, Qiang *(Guangdong 999 Brain Hospital)*; Li, Yuanqing* *(South China Univ. of Technology)*

18:00-19:30 ThPOS-20.13
Stereoscopic Motion Perception Research based on Steady-State Visual Motion Evoked Potential
Han, Chengcheng *(Xi'an Jiao Tong Univ.)*; Xu, Guanghua* *(Xi'an Jiao Tong Univ.)*; Jiang, Yimin *(Xi'an Jiao Tong Univ.)*; Wang, Haochong *(Xi'an Jiao Tong Univ.)*; Chen, Xiaobi *(Xi'an Jiao Tong Univ.)*; Zhang, Kai *(Xi'an Jiao Tong Univ.)*; Xie, Jun *(Xi'an Jiao Tong Univ.)*; Liu, Fei *(Xi'an Jiao Tong Univ.)*

18:00-19:30 ThPOS-20.14
Multimodal Emotion Recognition from Eye Image, Eye Movement and EEG using Deep Neural Networks
Guo, Jiangjian *(Shanghai Jiao Tong Univ.)*; Zhou, Rong *(Shanghai Jiao Tong Univ.)*; Zhao, Li-Ming* *(Shanghai Jiao Tong Univ.)*; Lu, Bao-Liang *(Shanghai Jiao Tong Univ.)*

18:00-19:30 ThPOS-20.15
Improving the Performance of Motor Imagery based Brain Computer Interface using Phase Space Reconstruction
Bagh, Niraj* *(Indian Institute of Technology, Madras)*; M, Ramasubba Reddy *(Indian Institute of Technology Madras)*

18:00-19:30 ThPOS-20.16
Adaptive Learning in the Detection of Movement Related Cortical Potentials Improves usability of Associative Brain-Computer Interfaces
Colamarino, Emma* *(Sapienza University of Rome)*; Muceli, Silvia *(Imperial College London)*; Ibáñez, Jaime *(Institute of Neurology, University College London)*; Mrachacz-Kersting, Natalie *(the Center for Sensory-Motor Intraction, Dept. of Health Sc)*; Mattia, Donatella *(Fondazione Santa Lucia IRCCS)*; Cincotti, Febo *(Sapienza University of Rome)*; Farina, Dario *(Imperial College London)*

18:00-19:30 ThPOS-20.17
Motor Imagery Classification with Covariance Matrices and Non-Negative Matrix Factorization
Gurve, Dharmendra* *(Ryerson University)*; Delisle-Rodriguez, Denis *(Federal University of Espirito Santo, UFES)*; Bastos, Teodiano *(Universidade Federal do Espírito Santo)*; Krishnan, Sridhar *(Ryerson University)*

18:00-19:30 ThPOS-20.18
Deep Learning of Motor Imagery EEG Classification for Brain-Computer Interface Illiterate Subject
Zhang, Rui* *(Zhengzhou Univ.)*; Wang, Yinwang *(Zhengzhou Univ.)*; Li, Xianpeng *(Industrial Technology Research Institute, Zhengzhou Univ.,)*; Liu, Bo *(Zhengzhou Univ.)*; Zhang, Lipeng *(Zhengzhou Univ.)*; Chen, Mingming *(Zhengzhou Univ.)*; Hu, Yuxia *(Zhengzhou Univ.)*

18:00-19:30 ThPOS-20.19
Towards a Fully Spatially Coded Brain-Computer Interface: Simultaneous Decoding of Visual Eccentricity and Direction
Chen, Jingjing *(Tsinghua University)*; Hong, Bo *(Tsinghua University)*; Wang, Yijun *(Institute of Semiconductors, Chinese Academy of Sciences)*; Gao, Xiaorong *(Tsinghua University)*; Zhang, Dan* *(Tsinghua University)*

18:00-19:30 ThPOS-20.20
A Two-Step Idle-State Detection Method for SSVEP BCI
Du, Jiale* *(Tianjin University)*; Ke, Yufeng *(Tianjin University)*; Liu, Pengxiao *(Tianjin University)*; Liu, Wentao *(Tianjin University)*; Kong, Linghan *(Tianjin University)*; Wang, Ningci *(Tianjin University)*; Xu, Minpeng *(Tianjin University)*; An, Xingwei *(Tianjin University)*; Ming, Dong *(Tianjin University)*

18:00-19:30 ThPOS-20.21
Collaborative Brain-Computer Interfaces to Enhance Group Decisions in an Outpost Surveillance Task
Bhattacharyya, Saugat* *(University of Essex)*; Valeriani, Davide *(Massachusetts Eye & Ear, Harvard Medical School)*; Cinel, Caterina *(University of Essex)*; Citi, Luca *(University of Essex)*; Poli, Riccardo *(University of Essex)*

18:00-19:30 ThPOS-20.22
Decoding Mental Workload in Virtual Environments: A fNIRS Study using an Immersive N-Back Task
Putze, Felix* *(University of Bremen)*; Herff, Christian *(Maastricht University)*; Tremmel, Christoph *(Old Dominion University)*; Schultz, Tanja *(University of Bremen)*; Krusienski, Dean *(Virginia Commonwealth University)*

18:00-19:30 ThPOS-20.23
Classification of Movement Direction from Electroencephalogram during Working Memory Time
Fukuda, Naoki* *(Nagaoka University of Technology)*; Nambu, Isao *(Nagaoka University of Technology)*; Wada, Yasuhiro *(Nagaoka University of Technology)*

18:00-19:30 ThPOS-20.24
Towards Restoration of Articulatory Movements: Functional Electrical Stimulation of Orofacial Muscles
Schultz, Tanja* *(University of Bremen)*; Angrick, Miguel *(University of Bremen, Cognitive Systems Lab)*; Diener, Lorenz *(Universität Bremen)*; Küster, Dennis *(University of Bremen, Cognitive Systems Lab)*; Meier, Moritz *(University of Bremen, Cognitive Systems Lab)*; Krusienski, Dean *(Virginia Commonwealth University)*; Herff, Christian *(Maastricht University)*; Brumberg, Jonathan *(Boston University)*

ThPOS-21: 18:00-19:30 Hall B
Human Performance – Poster (Poster Session)

18:00-19:30 ThPOS-21.1
Two-Step Deep Learning for Estimating Human Sleep Pose Occluded by Bed Covers
Mahvash Mohammadi, Sara* *(University of Surrey)*; Kouchaki, Samaneh *(University of Oxford)*; Khan, Sofia *(University of Surrey)*; Dijk, Derk-Jan *(U Surrey)*; Hilton, Adrian *(University of Surrey)*; Wells, Kevin *(University of Surrey)*

18:00-19:30 ThPOS-21.2
The Effect of Perceived Sound Quality of Speech in Noisy Speech Perception by Normal Hearing and Hearing Impaired Listeners
Akbarzadeh, Sara* *(Univ. of Texas at Dallas)*; Lee, Sungmin *(Univ. of Texas at Dallas)*; Chen, Fei *(Southern Univ. of Science & Technology)*; Tan, Chin-Tuan *(Univ. of Texas, Dallas)*

18:00-19:30 ThPOS-21.3
Respiration Rate Change Induced by Controlling the Phasic Relationship between Melodic Sound and Respiration
Sato, G Takashi* *(NTT Communication Science Laboratories)*; Moriya, Takehiro *(NTT Communication Science Laboratories)*

18:00-19:30 ThPOS-21.4
Research of the Regulation Effect of Cooling Stimulation on Vigilance
Zhou, Linying *(School of Precision Instrument & Optoelectronics Engineering,)*; Cao, Hongbao *(NIH)*; An, Xingwei *(Tianjin University)*; Liu, Shuang *(Tianjin University)*; Qi, Hongzhi *(Tianjin University)*; Ming, Dong *(Tianjin University)*; Jiao, Xuejun *(China Astronaut Research & Training Center)*; Wu, Meng *(Tianjin University)*; Zhou, Peng* *(Tianjin University)*

18:00-19:30 ThPOS-21.5
Validation of a Low-Cost EEG Device in Detecting Neural Correlates of Social Conformity
Pierguidi, Lapu *(University of Florence)*; Guazzini, Andrea *(University of Florence)*; Imbimbo, Enrico *(University of Florence)*; Righi, Stefania *(University of Florence)*; Sorelli, Michele *(University of Florence)*; Bocchi, Leonardo* *(Università degli Studi di Firenze, Firenze, Italy)*

18:00-19:30 ThPOS-21.6
Correlation Between Gait Perception and Autistic Traits in the General Population: A Study on Event-Related Evoked Potentials
Ichikawa, Taichi* *(Tokyo Univ. of Science)*; Shigeta, Masahiro *(Tokyo Univ. of Science)*; Tomokazu, Urakawa *(Tokyo Univ. of Science)*; Sawatome, Akira *(Tokyo Univ. of Science)*; Tanaka, Motoyoshi *(Tokyo Univ. of Science)*; Kurita, Yuki *(Tokyo Univ. of Science)*; Araki, Osamu *(Tokyo Univ. of Science)*; Ichikawa, Hiroko *(Tokyo Univ. of Science)*; Takemura, Hiroshi *(Tokyo Univ. of Science)*

18:00-19:30 ThPOS-21.7
Using Passive BCI to Online Control the Air Conditioner for Obtaining the Individual Specific Thermal Comfort
Wu, Meng* *(Tianjin University)*; Qi, Hongzhi *(Tianjin University)*

18:00-19:30 ThPOS-21.8
A Surface Electromyogram Evaluation of the Postural Freedom Effects in Laparoscopic Surgery
Pace-Bedetti, Horacio M. *(Univ. Politécnica de Valencia)*; Martinez-de-Juan, Jose Luis* *(Cntro de investigación e Innovación)*; Conejero, Andres *(Univ. Politécnica de Valencia)*; Prats-Boluda, Gema *(Univ. Politècnica de València)*

18:00-19:30 ThPOS-21.9
Evaluation of the Walking-Emotion Relationship for Applying to an Assistive Walking Device
Zhuang, Jyunrong* *(Waseda Univ.)*; Wu, Guanyu *(Waseda Univ.)*; Lee, Heehyol *(Waseda Univ.)*; Tanaka, Eiichiro *(Waseda Univ.)*

18:00-19:30 ThPOS-21.10
A Basic Study on Detection of Movement State in Stride by Artificial Neural Network for Estimating Stride Length of Hemiplegic Gait using IMU
Nozaki, Yoshitaka* *(Tohoku University)*; Watanabe, Takashi *(Tohoku University)*

18:00-19:30 ThPOS-21.11
Quantifying Functional Difference in Centre of Pressure Post Achilles Tendon Rupture using Sensor Insoles
Walsh, Lorcan* *(Novartis)*; Muaremi, Amir *(Novartis)*; Stanton, Tom *(Novartis)*; Blauth, Michael *(Dept. for Trauma Surgery, Medical Univ. Innsbruck)*; Clay, Ieuan *(Novartis Institutes for Biomedical Research)*; Schieker, Matthias *(Novartis Institutes for Biomedical Research)*; Laurent, Didier *(Novartis Institutes for Biomedical Research)*

18:00-19:30 ThPOS-21.12
Fractal Analysis of Motor Control in Knee Arthroplasty Patients
Mengarelli, Alessandro* *(Università Politecnica delle Marche)*; Cardarelli, Stefano *(Università Politecnica delle Marche)*; Tigrini, Andrea *(Università Politecnica delle Marche)*; Strazza, Annachiara *(Università Politecnica delle Marche)*; Di Nardo, Francesco *(Polytechnic University of Marche)*; Marchesini, Lorenzo *(Dept. of Information Engineering, Università Politecnica de)*; Fioretti, Sandro *(Università Politecnica delle Marche)*; Verdini, Federica *(Università Politecnica delle Marche)*

18:00-19:30 ThPOS-21.13
Gaze Fixation Comparisons between Amputees and Able-Bodied Individuals in Approaching Stairs and Level-Ground Transitions: A Pilot Study
Li, Minhan *(North Carolina State Univ. & Univ. of North Carolina)*; Zhong, Boxuan *(North Carolina State Univ.)*; Liu, Ziwei *(NC State Univ.)*; Lee, I-Chieh *(UNC/NCSU Joint Dept. of Biomedical Engineering)*; Fylstra, Bretta *(North Carolina State Univ. & Univ. of North Carolina)*; Lobaton, Edgar *(North Carolina State Univ.)*; Huang, He* *(North Carolina State Univ. & Univ. of North Carolina)*

18:00-19:30 ThPOS-21.14
Studying the Effect of Carrier Type on the Perception of Vocoded Stimuli via Mismatch Negativity
Xu, Danying *(Southern University of Science & Technology)*; Zheng, Dingchang *(Anglia Ruskin University)*; Chen, Fei* *(Southern University of Science & Technology)*

18:00-19:30 ThPOS-21.15
Development of a Quantitative Measurement System for Three-Dimensional Analysis of Foot Morphology using a Smartphone
Yamashita, Kazuhiko* *(Ryotokuji Univ.)*; Yamashita, Tomoko *(Takase Clinic)*; Sato, Mitsuru *(Showa Univ.)*; Masashi, Kawasumi *(Tokyo Denki Univ.)*; Yoshimasa, Takase *(Takase Clinic)*

18:00-19:30 ThPOS-21.16
A Case Study Comparing Running Metrics Determined from Unshod and Various Shod Running Events
Petroff, Neil* *(Tarleton State University)*

ThPOS-22: 18:00-19:30 Hall B
Non-Contact Monitoring – Poster (Poster Session)

18:00-19:30 ThPOS-22.1
Pulse Decomposition Analysis in Camera-Based Photoplethysmography
Sorelli, Michele *(University of Florence)*; Kopietz, Carlotta *(TU Dresden)*; Zaunseder, Sebastian *(Dortmund University of Applied Sciences & Arts)*; Bocchi, Leonardo* *(Università degli Studi di Firenze, Firenze, Italy)*

18:00-19:30 ThPOS-22.2
Infection Screening System using Thermography and CCD Camera with Good Stability and Swiftness for Non-Contact Vital-Signs Measurement by Feature Matching and MUSIC Algorithm
Negishi, Toshiaki* *(The Univ. of Electro-Communications)*; Sun, Guanghao *(The Univ. of Electro-Communications)*; Sato, Shohei *(Huawei Technologies Japan K.K.)*; Liu, He *(Harbin Univ. of Science & Technology)*; Matsui, Takemi *(Tokyo Metropolitan Univ.)*; Abe, Shigeto *(Takasaka Clinic)*; Nishimura, Hidekazu *(Virus Research Center, Sendai Medical Center)*; Kirimoto, Tetsuo *(The Univ. of Electro-Communications)*

18:00-19:30 ThPOS-22.3
Use of Wearable Technology to Quantify Fall Risk in Psychogeriatric Environments: A Feasibility Study
Mertens, Marc* *(Thomas More Univ. College, Geel, Belgium)*; Raepsaet, Julie *(OPZ Geel, Belgium)*; Debard, Glen *(Thomas More Kempen)*; Mondelaers, Mieke *(OPZ Geel, Belgium)*; Vanrumste, Bart *(Katholieke Universiteit Leuven)*; Davis, Jesse *(KU Leuven, Dept. of Computer Sciences, Leuven, Belgium)*

18:00-19:30 ThPOS-22.4
Microwave Radar for Breast Screening: Initial Clinical Data with Suspicious-Lesion Patients
Kranold, Lena *(McGill Univ.)*; Quintyne, Collin *(McGill Univ.)*; Coates, Mark *(McGill Univ.)*; Popovich, Milica* *(McGill Univ.)*

18:00-19:30 ThPOS-22.5
On-Site Evaluation of Rehabilitation Patients Monitoring System using Distributed Wireless Gateways
Matsunaga, Kenichi* *(NTT Corporation)*; Ogasawara, Takayuki *(NTT Device Innovation Center)*; Kodate, Junichi *(NTT Device Innovation Center)*; Mukaino, Masahiko *(Asahikawa Medical University)*; Saitoh, Eiichi *(Fujita Health University)*

ThPOS-23: 18:00-19:30 Hall B
Optical and Photonic Sensors – Poster (Poster Session)

18:00-19:30 ThPOS-23.1
Optoelectronic Sensor-Based Shape Sensing Approach for Flexible Manipulators
Koh, Jia Han Benjamin *(King's College London)*; Jeong, Taegyun *(Imperial College London)*; Han, Sangjin *(Texas A&M Univ.)*; Li, Wanlin *(Queen Mary Univ. of London)*; Rhode, Kawal *(King's College London)*; Noh, Yohan* *(King's College London)*

18:00-19:30 ThPOS-23.2
A Pulsatile Optical Tissue Phantom for the Investigation of Light-Tissue Interaction in Reflectance Photoplethysmography
Nomoni, Michelle* *(City, Univ. of London)*; May, James *(City, Univ. of London)*; Kyriacou, Panayiotis *(City Univ. London)*

18:00-19:30 ThPOS-23.3
Bed-Exit Prediction Applying Neural Network Combining Bed Position Detection and Patient Posture Estimation
Inoue, Madoka* *(Aiphone Co., Ltd.)*; Taguchi, Ryo *(Nagoya Institute of Tech.)*; Umezaki, Taizo *(Nagoya Institute of Tech.)*

18:00-19:30 ThPOS-23.4
Dual-Stiffness Force-Sensing Cannulation Tool for Retinal Microsurgery
He, Changyan* *(Johns Hopkins Univ.)*; Yang, Emily *(The Johns Hopkins Univ.)*; Iordachita, Iulian *(Johns Hopkins Univ.)*

18:00-19:30 ThPOS-23.5
The Sensing Endotracheal Tube
May, James* *(City, Univ. of London)*; Phillips, Justin *(City Univ. London)*; Kyriacou, Panayiotis *(City Univ. London)*

18:00-19:30 ThPOS-23.6
Wearable Fiber Optic Sensors for Biomechanical Sensing via Joint Angle Detection
D'Mello, Yannick* *(McGill University)*; Skoric, James *(McGill University)*; Moukarzel, Lea *(McGill University)*; Hakim, Siddiqui *(McGill University)*; Plant, David *(McGill University)*

18:00-19:30 ThPOS-23.7
Sleep/Wake Classification via Remote PPG Signals
Zhang, Yawen *(Hong Kong Univ. of Science & Tech.)*; Tsujikawa, Masanori* *(NEC Corp.)*; Onishi, Yoshifumi *(NEC Corp.)*

18:00-19:30 ThPOS-23.8
Nine Degree of Freedom Motion Estimation for Wrist PPG Heart Rate Measurements
Vazquez Galvez, Arturo* *(The University of Manchester)*; Casson, Alexander James *(The University of Manchester)*

ThPOS-24: 18:00-19:30 Hall B
Physiological Monitoring – Poster (Poster Session)

18:00-19:30 ThPOS-24.1
A Multilayer Monte Carlo Model for the Investigation of Optical Path and Penetration Depth at Different Perfusion States of the Colon
Patel, Zaibaa* *(City, University of London)*; Chatterjee, Subhasri *(Research Assistant)*; Thaha, Mohamed *(The Royal London Hospital, Bart's Health NHS Trust)*; Kyriacou, Panayiotis *(City University London)*

18:00-19:30 ThPOS-24.2
Comparison of a Genetic Algorithm Variable Selection and Interval Partial Least Squares for Quantitative Analysis of Lactate in Phosphate Buffer Solution
Mamouei, MohammadHossein* *(City, University of London)*; Qassem, Meha *(City University London)*; Budidha, Karthik *(City, University of London)*; Baishya, Nystha *(City, University of London)*; Vadgama, Pankaj *(Queen Mary University of London)*; Kyriacou, Panayiotis *(City University London)*

18:00-19:30 ThPOS-24.3
Biovitals: A Personalized Multivariate Physiology Analytics using Continuous Mobile Biosensors
Chen, Jin *(Biofourmis)*; Yan, Minghao *(Biofourmis)*; Howe, Robin Low Chin *(Singapore Aeromedical Centre)*; Tong, Ng Wee *(Singapore Aeromedical Centre)*; Chan, Soon Chee *(Biofourmis)*; Niu, Wendou *(Biofourmis)*; Rajput, Kuldeep Singh* *(Biofourmis)*; Majmudar, Maulik *(Massachusetts General Hospital)*; Chen, Gengbo *(Biofourmis)*

18:00-19:30 ThPOS-24.4
Is There an Optimal Localization of Cardio-Microphone Sensors for Phonocardiogram Analysis?
Fontecave-Jallon, Julie* *(Univ. Grenoble Alpes, CNRS, CHU Grenoble Alpes, Grenoble INP)*; Fojtik, Karel *(Univ. Grenoble Alpes, CNRS, CHU Grenoble Alpes, Grenoble INP)*; Rivet, Bertrand *(Grenoble Universities)*

18:00-19:30 ThPOS-24.5
Heart Rate Estimation using PPG Signal during Treadmill Exercise
Kong, Youngsun* *(University of Connecticut)*; Chon, Ki *(University of Connecticut)*

18:00-19:30 ThPOS-24.6
Noise Reduction for Efficient In-Vehicle Respiration Monitoring with Accelerometers
Warnecke, Joana Maureen* *(TU Braunschweig & Hannover Medical School)*; Wang, Ju *(TU Braunschweig)*; Deserno, Thomas *(RWTH Aachen University)*

18:00-19:30 ThPOS-24.7
A Comparison of SVM and CNN-LSTM based Approach for Detecting Smoke Inhalations from Respiratory Signal
Senyürek, Volkan *(The Univ. of Alabama)*; Imtiaz, Masudul Haider *(Univ. of Alabama)*; Belsare, Prajakta *(The Univ. of Alabama)*; Tiffany, Stephen *(State Univ. of New York at Buffalo)*; Sazonov, Edward* *(Univ. of Alabama)*

18:00-19:30 ThPOS-24.8
Low-Power BPSK Inductive Data Link for an Implanted Intracortical Visual Prosthesis
Omisakin, Adedayo* *(Eindhoven University of Technology)*; Mestrom, Rob *(Eindhoven University of Technology)*; Bentum, Mark *(Eindhoven University of Technology)*

18:00-19:30 ThPOS-24.9
A High-Resolution Wireless Power Transfer and Data Communication System for Studying Gastric Slow Waves
Javan-Khoshkholgh, Amir *(New York Institute of Technology)*; Alrofati, Wahib *(New York Institute of Technology)*; Miller, Larry *(Northwell)*; Vegesna, Anil *(Northwell)*; Kiani, Mehdi *(Pennsylvania State University)*; Farajidavar, Aydin* *(New York Institute of Technology)*

ThPOS-25**:** 18:00-19:30 Hall B
Sensing Technologies for Biomechanical Analysis – Poster (Poster Session)

18:00-19:30 ThPOS-25.1
Measurement of Camptocormia Trunk Flexion using a Dual-Sensor Measurement Setup
Wolframm, Henrik* *(Kiel Univ.)*; Margraf, Nils *(Univ. of Kiel, Dept. of Neurology)*; Gunther, Deuschl *(Dept. of Neurology)*; Wolke, Robin *(Kiel Univ.)*; Rieger, Robert *(Kiel Univ.)*

18:00-19:30 ThPOS-25.2
On Smartphone Sensability of Bi-Phasic User Intoxication Levels from Diverse Walk Types in Standardized Field Sobriety Tests
Li, Ruojun *(Worcester Polytechnic Institute)*; Balakrishnan, Ganesh *(Worcester Polytechnic Institute)*; Nie, Jiaming *(Worcester Polytechnic Institute)*; Li, Yu *(Worcester Polytechnic Institute)*; Agu, Emmanuel* *(Worcester Polytechnic Institute)*; Stein, Michael *(Butler Hospital)*; Abrantes, Ana *(Butler Hospital)*; Herman, Debra *(Butler Hospital)*; Grimone, Kristin *(Butler Hospital)*

18:00-19:30 ThPOS-25.3
Agreement between Opal and G-Walk Wearable Inertial Systems in Gait Analysis on Normal and Pathological Subjects
D'Addio, Giovanni *(ICS Maugeri Institute of Care & Scientific Research of Telese)*; Donisi, Leandro* *(Dept. of Advanced Biomedical Sciences, University Hospital)*; Pagano, Gaetano *(ICS Maugeri Institute of Care & Scientific Research of Telese)*; Improta, Giovanni *(Dept. of Dept. of Public Health, University Hospital ")*; Biancardi, Arcangelo *(ICS Maugeri Institute of Care & Scientific Research of Telese)*; Cesarelli, Mario *(University "Federico II", Naples, Italy.)*

18:00-19:30 ThPOS-25.4
PI-Sole: A Low-Cost Solution for Gait Monitoring using Off-the-Shelf Piezoelectric Sensors and IMU
Chandel, Vivek *(TCS Research & Innovation)*; Singhal, Shivam* *(TCS Research & Innovation)*; Sharma, Varsha *(TCS Research & Innovation Kolkata)*; Ahmed, Nasimuddin *(TCS Research & Innovation, Kolkata)*; Ghose, Avik *(TCS Research & Innovation)*

18:00-19:30 ThPOS-25.5
A Wearable System to Analyze the Human Arm for Predicting Injuries Due to Throwing
Hettiarachchi, Chirath Yudara* *(Univ. of Moratuwa)*; Kodithuwakku, Janith *(Univ. of Moratuwa)*; Manamperi, Buddhi Shan *(Univ. of Moratuwa)*; Ifham, Ahamed *(Univ. of Moratuwa)*; Silva, Pujitha *(Univ. of Moratuwa, Kairos Sensing)*

18:00-19:30 ThPOS-25.6
Lower Limb Muscle Activity Control by using Jamming Footwear
Sasagawa, Mana* *(NTT Corporation)*; Niijima, Arinobu *(NTT Service Evolution Laboratories, NTT Corporation)*; Eguchi, Kana *(NTT Corporation)*; Aoki, Ryosuke *(NTT Corporation)*; Isezaki, Takashi *(NTT Service Evolution Laboratories)*; Kimura, Toshitaka *(NTT)*; Watanabe, Tomoki *(NTT Corporation)*

18:00-19:30 ThPOS-25.7
Wearable Kinesthetic I/O Device for Sharing Wrist Joint Stiffness
Nishida, Jun* *(University of Chicago)*; Yagi, Keisuke *(Ibaraki University)*; Hassan, Modar *(University of Tsukuba)*; Suzuki, Kenji *(University of Tsukuba)*

18:00-19:30 ThPOS-25.8
Quantifying the Influence of DBS Surgery in Patients with Parkinson's Disease during the Perioperative Period by using Wearable Sensors
Wang, Jingying *(Fudan University)*; Gong, Dawei *(Nanjing Brain Hospital)*; Zhang, Wenbin *(Nanjing Medical University)*; Zhang, Han *(Fudan University)*; Wang, Shouyan* *(Fudan University)*

18:00-19:30 ThPOS-25.9
An Automatic Navigation and Pressure Monitoring for Guided Insertion Procedure
Alsunaydih, Fahad Nasser* *(Monash University)*; Arefin, Md Shamsul *(Monash University)*; Redouté, Jean-Michel *(Monash University)*; Yuce, Mehmet *(Monash University)*

18:00-19:30 ThPOS-25.10
GLOS: GLOve for Speech Recognition
Crocioni, Giulia *(University of Illinois at Chicago)*; Di Vece, Chiara* *(University of Illinois at Chicago)*; Esmailbeigi, Hananeh *(University of Illinois at Chicago (UIC))*

18:00-19:30 ThPOS-25.11
Cuff-Less and Calibration-Free Blood Pressure Estimation using Convolutional Autoencoder with Unsupervised Feature Extraction
Zhang, Jialun *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Wu, Dan* *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Li, Ye *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*

ThPOS-26: 18:00-19:30 Hall B
Wearable Technology – Poster (Poster Session)

18:00-19:30 ThPOS-26.1
Wearable Lab on Body: Combining Sensing of Biochemical and Digital Markers in a Wearable Device
Pataranutaporn, Pat* *(MIT)*; Jain, Abhinandan *(MIT)*; Johnson, Casey *(MIT)*; Shah, Pratik *(Massachusetts Institute of Technology (MIT))*; Maes, Pattie *(MIT Media Lab)*

18:00-19:30 ThPOS-26.2
Design and Simulation Analysis of a 17 Element Spiral Antenna Array for Brain Imaging
Khan, Muhammad Saad* *(RheinMain Univ. of Applied Sciences, Ruesselsheim)*; Rose, Georg *(Otto-von-Guericke Univ., Magdeburg)*; Schweizer, Bernd *(RheinMain Univ. of Applied Sciences, Ruesselsheim)*; Brensing, Andreas *(RheinMain Univ. of Applied Sciences, Ruesselsheim)*

18:00-19:30 ThPOS-26.3
An Investigation of Heartrate Sensing Accuracy by Wrist-Worn Fitness Tracking Devices
Turki, Ahmad Fawzi *(University of Texas at Arlington/ King AbdulAziz University)*; Jani, Mahrshi *(University of Texas At Arlington)*; Ding, Kan *(The University of Texas Southwestern Medical Center)*; Zhang, Rong *(University of Texas Southwestern Medical Center at Dallas)*; Behbehani, Khosrow* *(University of Texas at Arlington)*

18:00-19:30 ThPOS-26.4
REWARD: Design, Optimization, and Evaluation of a Real-Time Relative-Energy Wearable R-Peak Detection Algorithm
Orlandic, Lara* *(Georgia Tech)*; De Giovanni, Elisabetta *(Ecole Polytechnique Fédérale de Lausanne (EPFL))*; Arza Valdés, Adriana *(École Polytechnique Fédérale de Lausanne EPFL)*; Yazdani, Sasan *(SmartCardia S.A.)*; Vesin, Jean-Marc *(EPFL)*; Atienza, David *(EPFL)*

18:00-19:30 ThPOS-26.5
Lower-Body Posture Estimation with a Wireless Smart Insole
Tam, Wing Kin* *(University of Minnesota Twin Cities)*; Wang, Alan *(University of Minnesota)*; Wang, Baitong *(National University of Singapore)*; Yang, Zhi *(University of Minnesota)*

18:00-19:30 ThPOS-26.6
First Evaluation of a Transcutaneous Carbon Dioxide Monitoring Wristband Device during a Cardiopulmonary Exercise Test
Grangeat, Pierre* *(Univ. Grenoble, Alpes, CEA, LETI, MINATEC CAMPUS)*; Gharbi, Sadok *(CEA/LETI/MINATEC)*; Accensi, Marc *(Univ. Grenoble Alpes, CEA, LETI, Minatec Campus)*; Grateau, Henri *(Univ. Grenoble Alpes, CEA, LETI, Minatec Campus)*

18:00-19:30 ThPOS-26.7
Feasibility Study for a Real Time Notification System Promoting Self Awareness for People with Body-Rocking Behavior
da Silva, Rafael Luiz *(North Carolina State University)*; Lobaton, Edgar* *(North Carolina State University)*; Stone, Emily *(Governor Morehead School)*

18:00-19:30 ThPOS-26.8
Obstacle Recognition using Computer Vision and Convolutional Neural Networks for Powered Prosthetic Leg Applications
Novo-Torres, Luis* *(University of Guanajuato)*; Ramirez-Paredes, Juan-Pablo *(University of Guanajuato)*; Villarreal, Dario Jose *(Southern Methodist University)*

18:00-19:30 ThPOS-26.9
Design and Development of a Sitting Posture Recognition System
Fragkiadakis, Emmanouil *(National Technical Univ. of Athens)*; Dalakleidi, Kalliopi* *(National Technical Univ. of Athens)*; Nikita, Konstantina *(National Technical Univ. of Athens)*

18:00-19:30 ThPOS-26.10
Categorizing Sleep in Older Adults with Wireless Activity Monitors using LSTM Neural Networks
Yildiz, Selda *(Oregon Health & Science Univ.)*; Elliott, Jonathan *(VA Portland Health Care System, Oregon Health & Science Univ.)*; Opel, Ryan *(VA Portland Health Care System)*; Kaye, Jeffrey A. *(Oregon Health & Science Univ.)*; Cao, Hung* *(Univ. of California, Irvine)*; Lim, Miranda *(VA Portland Health Care System, Oregon Health & Science Univ.)*

ThPOS-27: 18:00-19:30 Hall B
General, Theoretical and Imaging Informatics – Poster (Poster Session)

18:00-19:30 ThPOS-27.1
Graph Theoretical Analysis of Cortical Networks based on Conscious Experience
Lee, Minji *(Korea Univ.)*; Baird, Benjamin *(Univ. of Wisconsin)*; Gosseries, Olivia *(Univ. & Univ. Hospital of Liege)*; Nieminen, Jaakko *(Aalto Univ. School of Science)*; Boly, Melanie *(Univ. of Wisconsin)*; Tononi, Giulio *(Univ. of Wisconsin)*; Lee, Seong-Whan* *(Korea Univ.)*

18:00-19:30 ThPOS-27.2
PROVenance Patterns in Numerical Modelling and Finite Element Simulation Processes of Bio-Electric Systems
Schröder, Max* *(Univ. of Rostock)*; Raben, Hendrikje *(Institute of General Electrical Engineering, Univ. of Rosto)*; Krüger, Frank *(Institute of Communications Engineering, Univ. of Rostock)*; Ruscheinski, Andreas *(Institute of Computer Science, Univ. of Rostock)*; van Rienen, Ursula *(Univ. of Rostock)*; Uhrmacher, Adelinde *(Institute of Computer Science, Univ. of Rostock)*; Spors, Sascha *(Institute of Communications Engineering, Univ. of Rostock)*

18:00-19:30 ThPOS-27.3
Rapid Establishment Method of a Personalized Thermal Comfort Prediction Model
Wu, Jianhong *(Shanghai Jiao Tong University)*; Shan, Chengcheng *(Shanghai Jiao Tong University)*; Hu, Jiawen *(Shanghai Jiao Tong University)*; Sun, Jianqi *(Shanghai Jiao Tong University)*; Zhang, Aili* *(Shanghai Jiao Tong University)*

18:00-19:30 ThPOS-27.4
Automated Process Incorporating Machine Learning Segmentation and Correlation of Oral Diseases with Systemic Health
Yauney, Gregory *(Massachusetts Institute of Technology)*; Rana, Aman *(Massachusetts Institute of Technology)*; Wong, Lawrence *(Tufts University School of Dental Medicine)*; Javia, Perikumar *(Massachusetts Institute of Technology)*; Muftu, Ali *(Tufts University School of Dental Medicine)*; Shah, Pratik* *(Massachusetts Institute of Technology (MIT))*

18:00-19:30 ThPOS-27.5
Representation Learning of 3D Brain Angiograms, an Application for Cerebral Vasospasm Prediction
Capoglu, Seymanur* *(UT-Health Sciences at Houston)*; Savarraj, Jude *(University of Texas Health Science Center at Houston)*; Sheth, Sunil *(University of Texas Health Science Center at Houston)*; Choi, H. Alex *(University of Texas Health Science Center at Houston)*; Giancardo, Luca *(University of Texas Health Science Center at Houston)*

18:00-19:30 ThPOS-27.6
Evaluation of Facial Pulse Signals using Deep Neural Net Models
Ruminski, Jacek* *(Gdansk Univ. of Technology)*; Kwasniewska, Alicja *(Gdansk Univ. of Technology)*; Szankin, Maciej *(Intel Corporation)*; Kocejko, Tomasz *(Gdansk Univ. of Technology)*; Mazur-Milecka, Magdalena *(Gdańsk Univ. of Technology)*

ThPOS-28: 18:00-19:30 Hall B
Health Informatics for Gait and Balance Assessment and Neuromusculoskeletal Disorders – Poster (Poster Session)

18:00-19:30 ThPOS-28.1
Machine Learning based Physical Human-Robot Interaction for Walking Support of Frail People
Coviello, Luigi *(The Biorobotics Institute, Scuola Superiore Sant'Anna)*; Cavallo, Filippo *(Scuola Superiore Sant'Anna)*; Limosani, Raffaele *(The Biorobotics Institute, Scuola Superiore Sant'Anna)*; Rovini, Erika *(Scuola Superiore Sant'Anna)*; Fiorini, Laura* *(Scuola Superiore Sant'Anna)*

18:00-19:30 ThPOS-28.2
Improving Automatic Tremor and Movement Motor Disorder Severity Assessment for Parkinson's Disease with Deep Joint Training
Chang, Chun-Min *(National Tsing Hua University)*; Huang, Yu-Lin *(Dept. of Electrical Engineering, National Tsing Hua Univers)*; Chen, Jui-Cheng *(Dept. of Neurology, China Medical University)*; Lee, Chi-Chun* *(National Tsing Hua University)*

18:00-19:30 ThPOS-28.3
New Insights into Parkinson's Disease through Statistical Analysis of Standard Clinical Scales Quantifying Symptom Severity
Tsanas, Athanasios* *(University of Edinburgh)*

18:00-19:30 ThPOS-28.4
An Exploratory Study on the use of Virtual Reality in Balance Rehabilitation
Andreikanich, Anna *(Univ. de Aveiro, DETI)*; Sousa Santos, Beatriz* *(Aveiro Univ.)*; Amorim, Paula *(Rovisco Pais Rehab. Center)*; Zagalo, Helder *(Univ. de Aveiro, DETI/IEETA)*; Marques, Bernardo *(Univ. de Aveiro, DETI/IEETA)*; Margalho, Paulo *(Rovisco Pais Rehab. Center)*; Lains, Jorge *(Rovisco Pais Rehab. Center)*; Faim, Fátima *(Rovisco Pais Rehab. Center)*; Coelho, Margarida *(Rovisco Pais Rehab. Center)*; Cardoso, Teresa *(Rovisco Pais Rehab. Center)*; Dias, Paulo *(Univ. de Aveiro, DETI/IEETA)*

18:00-19:30 ThPOS-28.5
Utilizing Key Item Method to Manage Musculoskeletal Disorders in the Hospital Workplace
Koklonis, Kyriakos *(Biomedical Engineering Laboratory National Technical Univ.)*; Anastasiou, Athanasios *(Biomedical Engineering Laboratory, National Technical Univ.)*; Petropoulou, Ourania *(National Technical Univ. of Athens)*; Pitoglou, Stavros* *(Research & Development Dpt. Computer Solutions SA,Biomedical Eng)*; Iliopoulou, Dimitra *(National Technical Univ. of Athens)*; Koutsouris, Dimitrios *(Biomedical Engineering Laboratory, School of Electrical & Comp)*

18:00-19:30 ThPOS-28.6
Gait Speed Measurement using a Doppler Radar Sensor for In-Home Functional Capacity Tests
Alshama, Daniel *(University of Technology of Troyes)*; Chkeir, Aly *(University of Technology of Troyes)*; Soubra, Racha* *(Université de Technologie de Troyes)*

ThPOS-29: 18:00-19:30 Hall B
Predictive Analytics for Health – Poster (Poster Session)

18:00-19:30 ThPOS-29.1
Predictive Modeling using Intensive Care Unit Data: Considerations for Data Pre-Processing and Analysis
Chan, Brandon* *(Queen's University)*; Sedghi, Alireza *(Queen's University)*; Laird, Philip *(Queen's University)*; Maslove, David M *(Queen's University)*; Mousavi, Parvin *(Queen's University)*

18:00-19:30 ThPOS-29.2
Implant Failure Prediction using Discriminant Analysis
Jeong, In Cheol *(Icahn School of Medicine at Mount Sinai)*; Papapanou, Panos N. *(Columbia University)*; Finkelstein, Joseph* *(Icahn School of Medicine at Mount Sinai)*

18:00-19:30 ThPOS-29.3
Sparse Embedding for Interpretable Hospital Admission Prediction
Huo, Zepeng* *(Texas A&M Univ.)*; Sundararajhan, Harinath *(Texas A&M Univ.)*; Hurley, Nate *(Texas A&M Univ.)*; Haimovich, Adrian *(Yale Univ.)*; Taylor, Richard Andrew *(Yale Univ.)*; Mortazavi, Bobak *(Texas A&M Univ.)*

18:00-19:30 ThPOS-29.4
Probabilistic Prediction of Epileptic Seizures using SVM
Abbaszadeh, Behrooz* *(Univ. of Ottawa)*; Haddad, Tahar *(Univ. of Quebec Outaouais)*; Yagoub, Mustapha *(Univ. of Ottawa)*

18:00-19:30 ThPOS-29.5
Class Imbalance Impact on the Prediction of Complications during Home Hospitalization: A Comparative Study
Calvo, Mireia* *(Institute for Bioengineering of Catalonia (IBEC))*; Cano, Isaac *(Hospital Clínic de Barcelona)*; Herández, Carme *(Hospital Clínic de Barcelona)*; Ribas, Vicent *(Eurecat)*; Miralles, Felip *(Eurecat)*; Roca, Josep *(Hospital Clínic de Barcelona)*; Jané, Raimon *(Institut de Bioenginyeria de Catalunya (IBEC))*

ThPOS-30: 18:00-19:30 Hall B
Security, Cloud Computing, and Interoperability in Health Informatics – Poster (Poster Session)

18:00-19:30 ThPOS-30.1
Secure Stream Processing for Medical Data
Segarra, Carlos *(CSEM)*; Muntané Calvo, Enric *(CSEM)*; Lemay, Mathieu *(CSEM)*; Schiavoni, Valerio *(Université de Neuchâtel)*; Delgado-Gonzalo, Ricard* *(CSEM)*

18:00-19:30 ThPOS-30.2
Security Defense Strategy for Intelligent Medical Diagnosis Systems (IMDS)
Luo, Cunjin* *(Key Lab of Medical Electrophysiology, Ministry of Education, Ins)*; Soygazi, Hasan *(De Montfort Univ.)*; Janicke, Helge *(De Montfort Univ.)*; He, Ying *(De Montfort Univ.)*

18:00-19:30 ThPOS-30.3
QRStream: A Secure and Convenient Method for Text Healthcare Data Transferring
Mao, Huajian *(Academy of Military Medical Sciences of Chinese PLA)*; Chi, Chenyang *(Academy of Military Medical Sciences of Chinese PLA)*; Yu, Jinghui *(Academy of Military Medical Sciences)*; Yang, Peixiang *(Academy of Military Medical Sciences of Chinese PLA)*; Qian, Cheng *(Academy of Military Medical Sciences of Chinese PLA)*; Zhao, Dongsheng* *(Institute of Health Service & Medical Information, Academy of)*

18:00-19:30 ThPOS-30.4
A Client/Server based Online Environment for the Calculation of Medical Segmentation Scores
Weber, Maximilian* *(TU Graz)*; Wild, Daniel *(TU Graz)*; Wallner, Jürgen *(Medical University of Graz)*; Egger, Jan *(Graz University of Technology)*

18:00-19:30 ThPOS-30.5
Real-Time Integration of Emotion Analysis into Homecare Platforms
Andreas, Menychtas *(Greece & Univ. of Piraeus)*; Galliakis, Michael *(Univ. of Piraeus)*; Tsanakas, Panayiotis *(National Technical Univ. of Athens)*; Maglogiannis, Ilias* *(Univ. of Piraeus)*

18:00-19:30 ThPOS-30.6
Adaptive API for Real-Time Streaming Analytics as a Service
Inibhunu, Catherine* *(Univ. of Ontario Institute of Technology)*; Jalali, Roozbeh *(Univ. of Ontario Institute of Technology)*; Doyle, Ian *(Univ. of Ontario Institute of Technology)*; Gates, Aaron *(Univ. of Ontario Institute of Technology)*; Madill, John *(Univ. of Ontario Institute of Technology)*; McGregor, Carolyn *(Univ. of Ontario Inst of Technology)*

18:00-19:30 ThPOS-30.7
CHDC: Common Hospital Data Connector for Exchanging Medical Information
Kim, Min Gyu *(Kyungpook National Univ.)*; Lee, Ah Ra *(KyungPook National Univ.)*; Kim, Il Kon* *(Kyungpook National Univ.)*

ThPOS-31: 18:00-19:30 Hall B
Sensor Informatics and Physiological Monitoring – Poster (Poster Session)

18:00-19:30 ThPOS-31.1
Skin Conductance Response to Gradual-Increasing Experimental Pain
Syrjälä, Elise* *(University of Turku)*; Jiang, Mingzhe *(University of Turku)*; Pahikkala, Tapio *(University of Turku, Dept. of Future Technologies)*; Salanterä, Sanna *(Dept. of Nursing Science, University of Turku & Turku Uni)*; Liljeberg, Pasi *(Dept. of Information Technology, University of Turku)*

18:00-19:30 ThPOS-31.2
A New Fracture Liaison Service using the Mobile Application and IoT Sensor
Kim, Sung Woo* *(Yonsei University College of Medicine)*; Won, Young-Jun *(Division of Endocrinology & Metabolism, Dept. of Internal)*; Chae, Dong-Sik *(Dept. of Orthopedic surgery, Catholic Kwandong University C)*; Chang, Hyuk-Jae *(Yonsei University College of Medicine)*

18:00-19:30 ThPOS-31.3
Photoplethysmographic Waveform in Hyperbaric Environment
Peláez Coca, María Dolores* *(Centro Universitario de la Defensa)*; Hernando, Alberto *(BSICoS Group, CIBER-BBN)*; Sanchez, Carlos *(Defense University Centre, University of Zaragoza)*; Lozano Albalate, María Teresa *(Centro Universitario de la Defensa)*; Izquierdo, David *(Centro Universitario de la Defensa)*; Gil, Eduardo *(Zaragoza University & CIBER-BBN)*

18:00-19:30 ThPOS-31.4
The Feasibility of Arrhythmias Detection from a Capacitive ECG Measurement using Convolutional Neural Network
Kido, Koshiro *(Nara Institute of Science & Technology)*; Ono, Naoaki *(Nara Institute of Science & Technology)*; Altaf-Ul-Amin, MD. *(Nara Institute of Science & Technology)*; Kanaya, Shigehiko *(Nara Institute of Science & Technology)*; Huang, Ming* *(Nara Institute of Science & Technology)*

18:00-19:30 ThPOS-31.5
Smart Sound Sensor to Detect the Number of People in a Room
Boutamine, Sami* *(UTC)*; Istrate, Dan *(UTC)*; Boudy, Jerome *(it-sudparis)*; Tannous, Halim *(Univ. de Technologie de Compiègne)*

18:00-19:30 ThPOS-31.6
Ictal Autonomic Activity Recorded via Wearable-Sensors Plus Machine Learning can Discriminate Epileptic and Psychogenic Nonepileptic Seizures
Zsom, Andras* *(Data Science Practice, CIS, Brown University)*; LaFrance Jr, W Curt *(Rhode Island Hospital / Brown Univer)*; Blum, Andrew *(Brown Medical School)*; Li, Paula *(Brown University)*; Abdel-Wahed, Lama *(Rhode Island Hospital (RIH))*; Shaikh, Muhammad Ateeb *(Rhode Island Hospital (RIH))*; Sharma, Gaurav *(Rhode Island Hospital (RIH))*; Ranieri, Rebecca *(Rhode Island Hospital (RIH))*; Zhang, Lynn *(Rhode Island Hospital (RIH) Neurology)*; Tsekhan, Shawn *(Rhode Island Hospital (RIH) Neurology)*; Hamid, Tariq *(Rhode Island Hospital (RIH) Neurology)*; Levin, Jay *(Rhode Island Hospital (RIH) Neurology)*; Truccolo, Wilson *(Brown University)*

18:00-19:30 ThPOS-31.7
Impact of Exercise Intervention in Parkinson's Disease can be Quantified using Inertial Sensor Data and Clinical Tests
McManus, Kllian* *(Kinesis Health Technologies)*; McGrath, Denise *(Univ. College Dublin)*; Greene, Barry R. *(Kinesis Health Technologies)*; Lennon, Olive *(Univ. College Dublin)*; McMahon, Laura *(Univ. College Dublin)*; Caulfield, Brian *(UCD)*

ThPOS-32: 18:00-19:30 Hall B
Research-Poster-1-Page Th A (Poster Session)

18:00-19:30 ThPOS-32.1
A Novel Integrated Deep Learning Prognosis Prediction Framework based on Whole Slide Images
Liu, Yu *(University of Science & Technology of China)*; Wang, Minghui* *(University of Science & Technology of China)*; Li, Ao *(University of Science & Technology of China)*

18:00-19:30 ThPOS-32.2
Cell Membrane Extraction in Unstained Histological Sections using Deep Learning
Yamami, Satoshi* *(Graduate School of Engineering & Science, Shibaura Institute o)*; Sugimoto, Keita *(Graduate School of Engineering & Science, Shibaura Institute o)*; Takahashi, Masanobu *(Shibaura Institute of Technology)*; Nakano, Masayuki *(Shonan Fujisawa Tokushukai Hospital)*

18:00-19:30 ThPOS-32.3
Deep Convolutional Features for Breast Cancer Histopathological Image Classification
Guan, Wenkai *(Marquette Univ.)*; Lu, Tongtong *(Marquette Univ.)*; Bhat, Bindu *(Marquette Univ.)*; Ye, Dong Hye* *(Marquette Univ.)*

18:00-19:30 ThPOS-32.4
Make Pain Estimation Transparent: A Roadmap to Fuse Bayesian Deep Learning and Inductive Logic Programming
Rieger, Ines* *(Fraunhofer Institute for Integrated Circuits IIS)*; Finzel, Bettina *(University of Bamberg)*; Seuß, Dominik *(Fraunhofer Institute for Integrated Circuits IIS)*; Wittenberg, Thomas *(Fraunhofer Institute for Integrated Circuits (IIS))*; Schmid, Ute *(University of Bamberg)*

18:00-19:30 ThPOS-32.5
AI-Based Melanoma Diagnosis Support System using a Hyperspectral Imaging Technique
Nagaoka, Takashi* *(Kindai University)*

18:00-19:30 ThPOS-32.6
Automatic Diagnosis of Melanoma using Machine Learning
Hirano, Ginji* *(Kindai Univ.)*; Nagaoka, Takashi *(Kindai Univ.)*

18:00-19:30 ThPOS-32.7
Automated Melanoma Diagnosis using Transfer Learning
Kato, Kana* *(Kindai Univ.)*; Nagaoka, Takashi *(Kindai Univ.)*

18:00-19:30 ThPOS-32.8
Diagnostic Evaluation of Dystrophinopathies from Thigh Muscle MRI with Deep Learning
Yang, Mei *(Peking Univ.)*; Zheng, Yiming *(Peking Univ. First Hospital)*; Xie, Zhiying *(Peking Univ. First Hospital)*; Wang, Zhaoxia *(Peking Univ. First Hospital)*; Zhang, Jue* *(Peking Univ.)*; Yuan, Yun *(Peking Univ. First Hospital)*

18:00-19:30 ThPOS-32.9
Building Automatic Nail Psoriasis Severity Index System by Applying Mask R-CNN
Chen, Hung-Yi *(National Chiao Tung Univ.)*; Hsieh, Kuan Yu *(National Chiao Tung Univ.)*; Tsai, Han-Chun *(National Chiao Tung Univ.)*; Cheng, Sheng-Jen *(National Chiao Tung Univ.)*; Chen, Guan-Yu* *(National Chiao Tung Univ.)*

18:00-19:30 ThPOS-32.10
3D Cell Nuclei Detection in Unstained Thick Histological Sections using Optical Microscope
Yamami, Satoshi* *(Graduate School of Engineering & Science, Shibaura Institute o)*; Takahashi, Masanobu *(Shibaura Institute of Technology)*; Nakano, Masayuki *(Shonan Fujisawa Tokushukai Hospital)*

18:00-19:30 ThPOS-32.11
Automated Classification of Coronary Angiograms using Deep Convolutional Neural Networks
Moon, Jong Hak* *(Samsung Medical Center / Sungkyunkwan University)*; Lee, Ji Won *(Samsung Medical Center)*; Hur, Su Jeong *(Sungkyunkwan University)*; Cha, Won Chul *(Samsung Medical Center)*; Chung, Myung Jin *(Samsung Medical Center)*; Lee, Kyu-Sung *(Samsung Medical Center)*; Choi, Jin Ho *(Samsung Medical Center)*; Cho, Baek Hwan *(Samsung Medical Center / Sungkyunkwan University)*

18:00-19:30 ThPOS-32.12
A Convolutional Neural Networks based Scheme for Mass Detection in Mammograms using Data Augmentation and Mammograms Synthesis
Yemini, Mor* *(Ben Gurion University of the Negev)*; Lederman, Dror *(Holon Institute of Technology)*; Zigel, Yaniv *(Ben-Gurion University of the Negev)*

18:00-19:30 ThPOS-32.13
Qualitative Analysis of Feature Extraction on Medical Images of a Pre-Trained Neural Network
Wachter, Andreas* *(Karlsruhe Institute of Technology)*; Nahm, Werner *(Karlsruhe Institute of Technology)*

18:00-19:30 ThPOS-32.14
Comprehensive Comparison of 2D vs. 3D Resource Usage in Large Volumetric Medical Image Segmentation
Agris, Jacob* *(Bayer)*; Gao, Xiangzhen *(Bayer)*; Ghamari, Sedigh *(Bayer)*

18:00-19:30 ThPOS-32.15
Combination of RCNN and KCF for Landmark Tracking in 2D Ultrasound Sequence of Liver
Lee, Jeungyoon* *(LG Electronics)*; Chung, Euisuk *(Sogang Univ.)*; Song, Tai-Kyong *(Sogang University)*

18:00-19:30 ThPOS-32.16
Prediction of Embryo Implantation by Machine Learning based on Multi-Modal Uterine Acquisitions
Sammali, Federica *(Eindhoven Univ. of Technology)*; Blank, Celine *(Ghent Univ. Hospital)*; Bakkes, Tom Hendricus Gerardus Franciscus *(Eindhoven Univ. of Technology)*; Rabotti, Chiara *(Eindhoven Univ. of Technology)*; Schoot, Benedictus Christiaan *(Catharina Hospital Eindhoven)*; Mischi, Massimo* *(Eindhoven Univ. of Technology)*

18:00-19:30 ThPOS-32.17
Privacy Preserved Posture Recognition from Thermal Image
Gochoo, Munkhjargal *(National Taiwan Ocean University)*; Tan, Tan-Hsu *(National Taipei University of Technology)*; Hsieh, Jun-Wei* *(National Taiwan Ocean University)*

18:00-19:30 ThPOS-32.18
Automatic Grading of Fundus Images for Diabetic Retinopathy and Diabetic Macular Edema using an Ensemble of CNNs
Harangi, Balazs* *(Univ. of Debrecen)*; Baran, Agnes *(Faculty of Informatics, Univ. of Debrecen)*; Toth, Janos *(Univ. of Debrecen, Faculty of Informatics)*; Hajdu, Andras *(Univ. of Debrecen)*

18:00-19:30 ThPOS-32.19
Stroke Risk Stratification using Transfer Learning
Panayides, Andreas *(Univ. of Cyprus)*; Kyriacou, Efthyvoulos* *(Frederick Univ. Cyprus)*; Nicolaides, Andrew *(Imperial College)*; Pattichis, Constantinos *(Univ. of Cyprus)*

18:00-19:30 ThPOS-32.20
Trainable Windowing Method for Medical Image Analysis
Kwon, Jangho *(Korea Institute of Science & Technology)*; Kim, Laehyun *(Korea Institute of Science & Technology)*; Kim, Youngjae *(Korea Institute of Science & Technology)*; Choi, Kihwan* *(Korea Institute of Science & Technology)*

18:00-19:30 ThPOS-32.21
Automated Diagnosis of Melanoma using Three Wavelengths
Tamura, Yudai* *(Kindai Univ.)*; Nagaoka, Takashi *(Kindai Univ.)*

18:00-19:30 ThPOS-32.22
Skin Translation Evaluation System based on Image Processing
Ezaki, Kodai* *(Keio University)*

18:00-19:30 ThPOS-32.23
Automatic Counting of Erythrocytes using Image Processing
de Souza Costa, Priscila Caroline *(Federal Univ. Rio Grande do Norte)*; Ribeiro, Anna Giselle *(Univ. Federal do Rio Grande do Norte)*; Antônio Freire Teixeira, Marcos* *(Univ. Federal do Rio Grande do Norte)*; Diniz, Anthony *(Federal Univ. of Rio Grande do Norte)*; D. Vilar Wanderley, Caroline *(Univ. Federal do Rio Grande do Norte (UFRN))*; Bezerra Soares, Heliana *(Federal Univ. of Rio Grande do Norte)*

18:00-19:30 ThPOS-32.24
Delay-Multiply-and-Sum based Nonlinear Compounding for High-Contrast Ultrafast Ultrasound Imaging
Kang, Jinbum* *(Sogang University)*; Go, Dooyoung *(Sogang University)*; Yoo, Yangmo *(Sogang University)*

18:00-19:30 ThPOS-32.25
Automatic Extraction of the Cardiothoracic Index in Cardiomegaly Identification using Image Processing
L. C. Batista, Joao* *(UFRN)*; M. Araujo, Natalia *(UFRN)*; R. B. Souza, Sintia *(UFRN)*; V. Oliveira, Beatriz *(UFRN)*; B. S. Campelo, Rebecca *(UFRN)*; Diniz, Anthony *(Federal Univ. of Rio Grande do Norte)*; Ribeiro, Anna Giselle *(Univ. Federal do Rio Grande do Norte)*; D. Vilar Wanderley, Caroline *(Univ. Federal do Rio Grande do Norte (UFRN))*; Bezerra Soares, Heliana *(Federal Univ. of Rio Grande do Norte)*

18:00-19:30 ThPOS-32.26
Non-Supervised Algorithm for the Automatic Segmentation of Blood Vessels in Retinography Images
Santana Costa, Mateus *(UFRN)*; L. C. Batista, Joao* *(UFRN)*; Ribeiro, Anna Giselle *(Universidade Federal do Rio Grande do Norte)*; D. Vilar Wanderley, Caroline *(Universidade Federal do Rio Grande do Norte (UFRN))*; Diniz, Anthony *(Federal University of Rio Grande do Norte)*; Bezerra Soares, Heliana *(Federal University of Rio Grande do Norte)*

18:00-19:30 ThPOS-32.27
Evaluating Radar-Based Breast Imaging Performance using Patient-Specific Properties Estimation
O'Loughlin, Declan* *(National University of Ireland Galway)*; Oliveira, Bárbara L. *(National University of Ireland Galway)*; Glavin, Martin *(National University of Ireland)*; Jones, Edward *(National University of Ireland Galway)*; O'Halloran, Martin *(National University of Ireland, Galway)*

18:00-19:30 ThPOS-32.28
Generation of High-Resolution Lung Computed Tomography Images using Adversarial Model
Tsai, Han-Chun *(National Chiao Tung Univ.)*; Hsieh, Kuan Yu *(National Chiao Tung Univ.)*; Cheng, Sheng-Jen *(National Chiao Tung Univ.)*; Chen, Hung-Yi *(National Chiao Tung Univ.)*; Chen, Guan-Yu* *(National Chiao Tung Univ.)*

18:00-19:30 ThPOS-32.29
Visualization of 3D Computed Tomography Image on Web Browser: An Interlacing Approach
Wang, Zihuan* *(Seoul National Univ.)*; Yoo, Sunyoung *(Seoul National Univ.)*; Won, Taebin *(Seoul National Univ. Hospital)*; Kim, Jung *(Korea Advanced Institute of Science & Technology)*; Seo, Jong Mo *(Seoul National Univ., School of Engineering)*

18:00-19:30 ThPOS-32.30
Glioma Tumor Segmentation using Simplified V-Net
Kwon, Junmo *(Sungkyunkwan University)*; Park, Hyunjin* *(Sungkyunkwan University)*

18:00-19:30 ThPOS-32.31
Automatic and High-Accurate Detection System for Individual Life-Event of Drosophila
Kang, Siu* *(Yamagata Univ.)*; Seong, Ki-Hyeon *(RIKEN Tsukuba Institute)*; Matsumura, Taishi *(Yamagata Univ.)*; Yuasa, Tetsuya *(Yamagata Univ.)*

18:00-19:30 ThPOS-32.32
Automated Detection of Lymph Nodes in Pelvic Region by using Diffusion-Weighted Images
Sugimoto, Chika* *(Yokohama National University)*; Hagiwara, Hiroaki *(Yokohama City University)*

18:00-19:30 ThPOS-32.33
Development of a Lesion Size Measurement System during Colonoscopy
Kim, Chan-Il *(Keimyung University)*; Park, Eun-Bin *(Keimyung University)*; Hwang, Seokmin *(Keimyoung)*; Lee, Jong-Ha* *(Keimyung University, School of Medicine)*

18:00-19:30 ThPOS-32.34
Automated Segmentation of Surface Muscle in Whole-Body CT Images using 2D U-Net: Preliminary Study
Oshima, Ami* *(Aichi Prefectural University, Graduate School of Information Sci)*; Kamiya, Naoki *(Aichi Prefectural University)*; Zhou, Xiangrong *(Gifu University)*; Hara, Takeshi *(Gifu Univ. Graduate Sch of Medicine)*; Fujita, Hiroshi *(Gifu University)*

18:00-19:30 ThPOS-32.35
Bone Segmentation in Whole-Body CT Images using 2D U-Net
Wakamatsu, Yuichi* *(Aichi Prefectural University)*; Kamiya, Naoki *(Aichi Prefectural University)*; Zhou, Xiangrong *(Gifu University)*; Hara, Takeshi *(Gifu Univ. Graduate Sch of Medicine)*; Fujita, Hiroshi *(Gifu University)*

18:00-19:30 ThPOS-32.36
Automatic Detection and Classification of Breast Micro-Calcifications in Digital Mammograms using Temporal Subtraction
Loizidou, Kosmia* *(Univ. of Cyprus)*; Skouroumouni, Galateia *(Nicosia General Hospital)*; Nikolaou, Christos *(Limassol General Hospital)*; Pitris, Costas *(Univ. of Cyprus)*

18:00-19:30 ThPOS-32.37
Hybrid U-Net – Adversarial Network Architecture to Segment Left Ventricle from Cine Cardiac MRI
Upendra, Roshan Reddy* *(Rochester Institute of Technology)*; Linte, Cristian A. *(Rochester Institute of Technology)*; Dangi, Shusil *(Rochester Institute of Technology)*

18:00-19:30 ThPOS-32.38
Neural Networks Enable Superior Particle Detection in Synchrotron X-Ray Images for Automated Mucociliary Transport Measurement
Gardner, Mark* *(Adelaide University)*; McCarron, Alexandra *(Adelaide University)*; Cmielewski, Patricia Lucia *(Adelaide University)*; Morgan, Kaye *(Monash University)*; Parsons, David *(Women's & Children's Hospital)*; Donnelley, Martin *(University of Adelaide, Women's & Children's Hospital)*

18:00-19:30 ThPOS-32.39
Automatic Segmentation of Spinal Discs and Cord and Visualization in Virtual Reality
Xhoxhaj, Festim* *(Anhalt University of Applied Sciences)*; Bracio, Boris Romanus *(University of Applied Science Anhalt)*; Mathew James, Nisanth *(Anhalt University of Applied Sciences)*

18:00-19:30 ThPOS-32.40
Feature Extraction from Radiographic Images for Bone Age Identification
F. de Souza, Thalles M. *(UFRN)*; P. Vieira, Matheus *(UFRN)*; A. P. Soares, Giovanna *(UFRN)*; B. e Silva, Ana Luíza *(UFRN)*; Antônio Freire Teixeira, Marcos* *(Universidade Federal do Rio Grande do Norte)*; D. Vilar Wanderley, Caroline *(Universidade Federal do Rio Grande do Norte (UFRN))*; Ribeiro, Anna Giselle *(Universidade Federal do Rio Grande do Norte)*; Bezerra Soares, Heliana *(Federal University of Rio Grande do Norte)*

18:00-19:30 ThPOS-32.41
Efficient Multimodal MRI Brain Tumor Segmentation using Improved U-Net Architecture
Li, Haichun *(University of Science & Technology of China)*; Li, Ao* *(University of Science & Technology of China)*; Wang, Minghui *(University of Science & Technology of China)*

18:00-19:30 ThPOS-32.42
The Creative Diagnosis System Concerning Deviated Nasal Septum with Thermal Imaging
Yoo, HyunJong *(SoonChunHyang University)*; Lee, Onseok* *(SoonChunHyang University)*

18:00-19:30 ThPOS-32.43
A U-Net based Automatic Segmentation of Body Morphometry on Abdominal CT Image
Jun, Hong Young *(Wonkwang Univ. Hospital)*; Kim, SeungJin *(Wonkwang Univ.)*; Jonghyun, Ryu *(Wonkwang Univ. Hospital)*; Kim, Tae-Hoon *(Wonkwang Univ.)*; Lee, Chung Sub *(Wonkwang Univ.)*; Noh, SiHyeong *(Wonkwang Univ.)*; Kim, Ji Eon *(Wonkwang Univ.)*; Lee, Gi Taek *(Wonkwang Univ.)*; Jeong, Chang Won* *(Wonkwang Univ.)*

18:00-19:30 ThPOS-32.44
Deep Learning based Respiration Rate Estimation using Depth Camera
Oh, Kyeong Taek *(Yonsei University)*; Kim, Byeongnam *(Yonsei University)*; Yoo, Sun K.* *(Yonsei University Health System)*

18:00-19:30 ThPOS-32.45
Automated Generation of Nine-Gaze Photograph from Video Clip for the Evaluation of Strabismus
Kim, Jeffrey* *(Seoul National Univ.)*; Lee, Ho Jin *(Seoul National Univ.)*; Seo, Jong Mo *(Seoul National Univ., School of Engineering)*

18:00-19:30 ThPOS-32.46
Segmentation Applied to the Identification of the Pancreas in Computed Tomography
E. C. Silva, Samuel* *(UFRN)*; F. M. L. de Queiroz, Erik F. M. L. de Queiroz *(UFRN)*; T. Carvalho, Maria *(UFRN)*; M. D. Junior, Geovanny *(UFRN)*; Farias de Oliveira, Flávia *(UFRN)*; D. Vilar Wanderley, Caroline *(Universidade Federal do Rio Grande do Norte (UFRN))*; G. de Moura, Camila *(UFRN)*; Bezerra Soares, Heliana *(Federal University of Rio Grande do Norte)*

18:00-19:30 ThPOS-32.47
Dual Attention-Based Deep Learning Method for Nailfold Capillary Segmentation
Hariyani, Yuli Sun *(Kwangwoon University)*; Eom, Heesang *(Kwangwoon Univ.)*; Park, Cheolsoo* *(Kwangwoon University)*

ThPOS-33**:** 18:00-19:30 Hall B
Research-Poster-1-Page Th B (Poster Session)

18:00-19:30 ThPOS-33.1
Development of an Actuated Transrectal Biopsy System for Diagnosing Prostate Cancer: Preliminary Design and Prototype
Ashraf, Monib *(Texas A&M Univ. – Qatar)*; Velazco Garcia, Jose Daniel *(Univ. of Houston)*; Balakrishnan, Shidin *(Hamad Medical Corporation)*; Abinahed, Julien *(Hamad Medical Corporation)*; El Ansari, Walid *(Hamad Medical Corporation)*; Al-Rumaihi, Khalid *(Hamad Medical Corporation)*; Darweesh, Adham *(Hamad Medical Corporation)*; Al-Ansari, Abdulla *(Hamad Medical Corporation)*; Tsekos, Nikolaos *(Univ. of Houston)*; Karkoub, Mansour *(Texas A&M Univ. – Qatar)*; Navkar, Nikhil V.* *(Hamad Medical Corporation)*

18:00-19:30 ThPOS-33.2
Ex-Vivo Animal Tissue Discrimination by Diffuse Reflectance Spectroscopy
Fanjul-Vélez, Félix *(University of Cantabria)*; Arce-Diego, José L.* *(University of Cantabria)*

18:00-19:30 ThPOS-33.3
Development of High Intensity Focused Ultrasound System with 3-D Temperature Measurement Function from Ultrasound Images
Sakakibara, Ryosuke* *(Meiji Univ.)*; Kato, Kazuo *(Meiji Univ.)*

18:00-19:30 ThPOS-33.4
Heating Characteristics of Non-Contact Rectangular Resonant Cavity Applicator with Ultrasound Temperature Measurement System
Takamatsu, Tomokage* *(Meiji University)*; Kato, Kazuo *(Meiji University)*; Shindo, Yasuhiro *(Toyo University)*; Iseki, Yuya *(National Institute of Technology (KOSEN), Hachinohe College)*

18:00-19:30 ThPOS-33.5
Early Detection of Mild Cognitive Impairment Patients via CNN: A fNIRS Study
Yang, Dalin *(Pusan National Univ.)*; Yoo, So-Hyeon *(Pusan National Univ.)*; Hong, Keum-Shik* *(Pusan National Univ.)*

18:00-19:30 ThPOS-33.6
A Sutureless Cuff Electrode Device for Neural Signal Recording from Guinea Pig's Sciatic Nerve
Moon, Hyunmin* *(DGIST)*; Park, Byung Wook *(Daegu Gyeongbuk Institute of Science & Technology (DGIST))*; Park, Ki-Su *(Kyungpook National Univ. Hospital)*; Park, Juyoung *(Daegu-Gyungbuk Medical Innovation Foundation (DGMIF))*; Lee, Eun-Hee *(DGMIF, Daegu-Gyeongbuk Medical Innovation Foundation)*; Kim, Sohee *(Daegu Gyeongbuk Institute of Science & Technology (DGIST))*

18:00-19:30 ThPOS-33.7
Electrical Stimulation for Nerve Regeneration from Implantable Sensors using NFC
Kifle, Yonatan* *(Linköping University)*; Wikner, Jacob *(Linköping University)*; Zötterman, Johan *(Linköpings Universitet)*; Farnebo, Simon *(Linköping University Hospital)*

18:00-19:30 ThPOS-33.8
Manufacturing Technologies for Electrical Treatment, Probing and Analysis Applications in Medicine and Life Science
Kaiser, Alexander* *(Cicor Reinhardt Microtech)*; Matej, Paul *(Cicor Reinhardt Microtech)*; Herbort, Christian *(Cicor Reinhardt Microtech)*; Ventruto, Reto *(Cicor Reinhardt Microtech)*; Ruess, Karin *(Cicor Reinhardt Microtech)*; Keim, Uwe *(Cicor Reinhardt Microtech)*

18:00-19:30 ThPOS-33.9
ASK Demodulator based on Dynamic Reference Scheme for Bioimplantable Applications
Abdullah Zawawi, Ruhaifi *(Dept. of Health Sciences & Technology, GAIHST, Gachon Uni)*; Abbasi, Wajahat Habib *(Dept. of Health Sciences & Technology, GAIHST, Gachon Uni)*; Kang, Ho-Sung *(Korea University)*; Kim, Seong-Woo *(Korea University)*; Kim, Jungsuk* *(Gachon University)*

18:00-19:30 ThPOS-33.10
Transcutaneous Energy Transmission Coil with a Magnetic Body— Investigation of Magnetic Body Shape
Sato, Junya* *(Tokyo Polytechnic Univ.)*; Koshiji, Fukuro *(Tokyo Polytechnic Univ.)*; Koshiji, Kohji *(Tokyo Univ. of Science)*

18:00-19:30 ThPOS-33.11
Applying Secret Sharing for Home-Visit Nursing Records
Kodama, Kana* *(Osaka Univ.)*; Yamada, Kenji *(Osaka Univ.)*

18:00-19:30 ThPOS-33.12
Haptic based on Three-Dimensional Handwriting Analysis and Evaluation System
Kim, EunBin *(SoonChunHyang University)*; Kim, Eun Young *(Dept. of Occupational Therapy, SoonChunHyang University)*; Lee, Onseok* *(SoonChunHyang University)*

18:00-19:30 ThPOS-33.13
NefroAtlas – A Continuing Studying Platform for Physician and Residents
Goulart, Leonardo* *(Federal Univ. of Rio Grande do Norte)*; Guedes, Felipe *(Federal Univ. of Rio Grande do Norte)*; Silva, Gyl *(Federal Univ. of Maranhão)*; Junior, Jose *(Federal Univ. of Rio Grande do Norte)*; Bezerra Soares, Heliana *(Federal Univ. of Rio Grande do Norte)*; D. Vilar Wanderley, Caroline *(Univ. Federal do Rio Grande do Norte (UFRN))*; Ribeiro, Anna Giselle *(Univ. Federal do Rio Grande do Norte)*

18:00-19:30 ThPOS-33.14
Joint Angle Estimation using Kinematic Constraint Instead of Magnetometer Signals
Lee, Jung Keun* *(Hankyong National University)*; Jeon, Tae Hyeong *(Hankyong National University)*; Jung, Woo Chang *(Hankyong National University)*

18:00-19:30 ThPOS-33.15
Accuracy of Time-Varying Ankle Joint Impedance Estimation during Locomotion
Cavallo, Gaia* *(VUB)*; Lataire, John *(Vrije Universiteit Brussel)*

18:00-19:30 ThPOS-33.16
Fatigue Reduction in Jumping Motion using Kinesio Taping
Shinohara, Mai* *(Ritsumeikan Univ.)*; Toyoshi, Takuya *(Ritsumeikan Univ.)*; Shiozawa, Naruhiro *(Ritsumeikan Univ.)*

18:00-19:30 ThPOS-33.17
High Angular Resolution Diffusion Imaging Segmentation using 2nd Order Tensors Space
Kaushik, Sumit* *(Masaryk University)*; Slovak, Jan *(Masaryk University)*; Tsegaye, Temesgen *(Masaryk University)*; Bansal, Avinash *(GNIT, Mullana)*

18:00-19:30 ThPOS-33.18
Altered Intracellular Volume Fraction and Neurite Dispersion in People with Chromosome 22q11.2 Copy Number Variants
Villalon Reina, Julio Ernesto* *(Imaging Genetics Center)*; Nir, Talia M. *(Imaging Genetics Center, Univ. of Southern California)*; Jahanshad, Neda *(Imaging Genetic Center, Univ. of Southern California)*; Kushan, Leila *(Semel Institute for Neuroscience & Human Behavior & Dept.)*; Bearden, Carrie *(Semel Institute for Neuroscience & Human Behavior & Dept.)*; Thompson, Paul *(Univ. of Southern California)*

18:00-19:30 ThPOS-33.19
Characterization of Lenticulostriate Arteries using Arterial Spin Labeling and 3D Black-Blood MRI in Vascular Cognitive Impairment and Dementia
Ma, Samantha J.* *(University of Southern California)*; Jann, Kay *(University of Southern California)*; Barisano, Giuseppe *(University of Southern California)*; Shao, Xingfeng *(University of Southern California)*; Yan, Lirong *(University of Southern California)*; Casey, Marlene *(University of Southern California)*; D'Orazio, Lina *(University of Southern California)*; Ringman, John *(University of Southern California)*; Wang, Danny JJ *(University of Southern California)*

18:00-19:30 ThPOS-33.20
Classification of Typical Developing and Autism Spectrum Disorder using Connectivity Matrix and Support Vector Machine
A.R., Jac Fredo* *(Nanyang Technological University)*; Dauwels, Justin *(NTU)*; Langs, Georg *(Medical University Vienna)*

18:00-19:30 ThPOS-33.21
Development of Medical Image Quantification Software for the Assessment of Nodule in Abdominal Disease
Kim, Ji Eon *(Wonkwang University)*; Kim, SeungJin *(Wonkwang University)*; Noh, SiHyeong *(Wonkwang University)*; Jun, Hong Young *(Wonkwang University Hospital)*; Lee, Chung Sub *(Wonkwang University)*; Jonghyun, Ryu *(Wonkwang Univ. Hospital)*; Kim, Tae-Hoon *(Wonkwang University)*; Jeong, Chang Won* *(Wonkwang University)*

18:00-19:30 ThPOS-33.22
Towards a New Method of Synergy Analysis using Cine DENSE MRI
Cohen, Zoe* *(UC Berkeley)*; Ja čur, Miroslav *(University of California, Berkeley)*; Karasan, Ekin *(Massachusetts Institute of Technology)*; Bajcsy, Ruzena *(UC Berkeley, CITRIS)*

18:00-19:30 ThPOS-33.23
Design for the Image Acquisition Sequence of CEST MR Fingerprinting by the Cost-Based Algorithm
Kamba, Kazuho* *(Kyoto University)*; Imai, Hirohiko *(Kyoto University)*; Matsuda, Tetsuya *(Kyoto University)*

18:00-19:30 ThPOS-33.24
Enhancement of MR Thermometry by Single-Frequency Excitation Wideband MRI Technique
Wang, Tzu-Yi* *(Graduate Institute of Biomedical Electronics & Bioinformatics,)*; Cheng, Po-Wei *(Taiwan)*; Chen, Jyh-Horng *(National Taiwan University)*; Chiueh, Tzi-Dar *(National Taiwan University)*

18:00-19:30 ThPOS-33.25
A Magnetographic Camera based on Microfabricated Optically-Pumped Magnetometers
Krzyzewski, Sean *(University of Colorado)*; Romanov, Gleb *(University of Colorado)*; Korenko, Branislav *(University of Colorado)*; Gerginov, Vladislav *(University of Colorado)*; Alem, Orang *(University of Colorado)*; Hughes, Jeramy *(University of Colorado)*; Knappe, Svenja* *(University of Colorado)*

18:00-19:30 ThPOS-33.26

Magnetometer for Laparoscopic Detection of Magnetic Nanoparticles in Sentinel Lymph Nodes for Gastric Cancer Patients

Kuwahata, Akihiro* *(The University of Tokyo)*; Tanaka, Ryo *(The University of Tokyo)*; Matsuda, Sachiko *(Keio University)*; Amada, En *(Keio University School of Medicine)*; Irino, Tomoyuki *(Keio University School of Medicine)*; Mayanagi, Shuhei *(Keio University School of Medicine)*; Isaka, Sena *(The University of Tokyo)*; Chikaki, Shinichi *(The University of Tokyo)*; Saito, Itsuro *(The University of Tokyo)*; Tanabe, Norio *(The University of Tokyo)*; Kawakubo, Hirofumi *(Keio University School of Medicine)*; Takeuchi, Hiroya *(Hamamatsu University School of Medicine)*; Kitagawa, Yuko *(Keio University School of Medicine)*; Kusakabe, Moriaki *(The University of Tokyo)*; Sekino, Masaki *(The University of Tokyo)*

18:00-19:30 ThPOS-33.27

Three-Dimensional Measurement of a Foot Trajectory during Gait using Inertia Sensor without Alignment

Michihiko, Fukunaga* *(Oita Univ.)*; Yusuke, Monden *(Oita Univ.)*

18:00-19:30 ThPOS-33.28

Amplification Effect of Fingerprint-Like Pattern for Applanation Tonometry Sensor

Kang, Sehong *(POSTECH)*; Ju, Chanyang *(POSTECH)*; Kim, Sehyeon *(POSTECH)*; Park, Sung-Min* *(POSTECH)*

18:00-19:30 ThPOS-33.29

Analysis of Fingertip-Based Features during Pick and Grasp Manipulation

Yamashita, Tatsuya* *(Kyoto University)*; Nakao, Megumi *(Kyoto University)*; Matsuda, Tetsuya *(Kyoto University)*

18:00-19:30 ThPOS-33.30

Development of Medical Simulator for Neonatal Cardio-Pulmonary Resuscitation Training

Ooi, Sho* *(Ritsumeikan University)*; Matsumura, Kohei *(Ritsumeikan University)*; Noma, Haruo *(Ritsumeikan University)*; Iwanaga, Kogoro *(Kyoto University Hospital)*; Hanaoka, Shintaro *(Kyoto University Hospital)*; Tomotaki, Seiichi *(Kyoto University Hospital)*

18:00-19:30 ThPOS-33.31

Continuous Separation and Capture of Single Circulating Tumor Cells from Whole Blood using an Integrated Microfluidic Device

Yang, Heewon *(Hanyang University)*; Lee, Jusin *(Hanyang University)*; Sul, Onejae *(Hanyang University)*; Lee, Seung-Beck* *(Hanyang University)*

18:00-19:30 ThPOS-33.32

Neuro-Motor Index: Designing an EMG Control Scheme Robust to Lower-Limb Disorder

Charafeddine, Jinan *(EndiCAP – Hopital Raymond Poincare)*; Chevallier, Sylvain* *(Laboratoire d'Ingénierie des Systèmes de Versailles (LISV))*; Khalil, Mohamad *(Lebanese University, Doctoral school for sciences andtechnology,)*; Pradon, Didier *(EndiCAP U1179 – APHP – UVSQ)*; Al-Fayad, Samer *(Laboratoire d'Ingénierie des Systèmes de Versailles – UVSQ)*

18:00-19:30 ThPOS-33.33

The Angle of Spine and Pelvis of Transtibial Amputee in Gait

Song, Liang* *(National Research Center for Rehabilitation Technical Aids)*; Guo, JunChao *(National Research Center for Rehabilitation Technical Aids)*; Yang, Jiemeng *(National Research Center for Rehabilitation Technical Aids)*; Wang, Zhenze *(National Research Center for Rehabilitation Technical Aids)*

18:00-19:30 ThPOS-33.34

Spherical Coulomb Friction Analysis of Ground Contact Forces during Lower Limb Maximum Vertical Countermovement

Rodrigues, Carlos M. B.* *(INESCTEC – Technology & Science Associate Laboratory)*; Correia, Miguel *(Universidade do Porto, Faculdade de Engenharia)*; Abrantes, João M. C. S. *(MovLab – ULHT)*; Rodrigues, Marco Aurélio Benedetti *(Federal Univ. of Pernambuco)*; Nadal, Jurandir *(Federal Univ. of Rio de Janeiro)*

18:00-19:30 ThPOS-33.35

Pineal Region Tumour Resection using a Magnetically-Driven Surgical Tool: A Feasibility Study in a Silicone Brain

Lim, Andrew* *(University of Toronto)*; Schonewille, Adam *(University of Toronto)*; Looi, Thomas *(CIGITI, Hospital for Sick Children)*; Drake, James *(University of Toronto, CIGITI, Hospital for Sick Children)*; Diller, Eric *(University of Toronto)*

18:00-19:30 ThPOS-33.36

Patient Specific 3D Printing for Chest Wall Reconstruction in Thoracic Surgery

Pontiki, Antonia, A* *(King's College London)*; Darwish, Raef *(King's College London)*; Farid, Mehajabeen *(King's College London)*; Lim, Sarah Man Lin *(King's College London)*; Bille, Andrea *(Guy's & St Thomas' NHS Foundation Trust)*; Rhode, Kawal *(King's College London)*

18:00-19:30 ThPOS-33.37

Body Pressure Dispersion Analysis towards Interactive Bed System

Ito, Jun* *(Tokyo Univ. of Tech.)*; Usuki, Shin *(Shizuoka Univ.)*

18:00-19:30 ThPOS-33.38

Concomitant Limb Cryocompression and Scalp Cooling to Reduce Paclitaxel-Induced Neuropathy and Alopecia

Magarajah, Gayathiri *(National Univ. of Singapore)*; Santhanakrishnan, Priyadharshini *(National Univ. of Singapore)*; Low, Hui Ying Jessalyn *(Agency for Science, Technology & Research)*; Ong, Xin Ee *(National Univ. Health System)*; Ng, Nicholas Zhi Hao *(National Univ. Health System)*; Chan, Kim Chuan Casey *(Singapore Institute of Neurotechnology (SINAPSE))*; Ow, Samuel GW *(National Univ. Cancer Institute, Singapore)*; Chan, Gloria *(National Univ. Health System)*; Choo, Joan *(National Univ. Health System)*; Eng, Lim Siew *(National Univ. Health System)*; Wong, Andrea *(National Univ. Health System)*; Vijayan, Joy *(National Univ. Health System)*; Hairom, Zarinah *(National Univ. Health System)*; Ang, Emily *(National Univ. Health System)*; Lee, Soo Chin *(National Univ. Hospital)*; He, Wei *(Singapore Institute of Manufacturing Technology, A*STAR)*; Wilder-Smith, Einar P V *(National Univ. of Singapore, National Univ. Hospital);* Sundar, Raghav *(National Univ. Health System)*; Bandla, Aishwarya* *(National Univ. of Singapore)*; Thakor, Nitish *(National Univ. of Singapore)*

18:00-19:30 ThPOS-33.39

Design of an Electrically Driven Actuator using a System of Antagonistic SMAs

Teymoori, Morteza *(Bogazici University)*; Kocaturk, Ozgur *(Boğaziçi University)*; Tatarlar, Efecan* *(Boğaziçi University)*

18:00-19:30 ThPOS-33.40

A System Dynamics Model for Evaluating the Impact of Public Investments in a Data-Driven Precision Medicine Ecosystem

Lähteenmäki, Jaakko *(VTT Technical Research Centre of Finland)*; Ruutu, Sampsa *(Gofore)*; Ylen, Peter *(VTT)*; van Gils, Mark* *(VTT Tech Research Centre of Finland Ltd.)*

18:00-19:30 ThPOS-33.41

Face and Content Validity of a Physically-Based Simulator for Urethral Transection during Robot-Assisted Radical Prostatectomy

Abinahed, Julien *(Hamad Medical Corporation)*; Younes, Georges *(Hamad Medical Corporation)*; Balakrishnan, Shidin *(Hamad Medical Corporation)*; Alfayad, Abdulrahman *(Hamad Medical Corporation)*; Palliyali, Waseem *(Hamad Medical Corporation)*; Ohannessian, Gorune *(American University of Beirut)*; Pan, Zherong *(University of North Carolina)*; Manocha, Dinesh *(University of Maryland)*; Turkiyyah, George *(American University of Beirut)*; Al-Ansari, Abdulla *(Hamad Medical Corporation)*; Navkar, Nikhil V.* *(Hamad Medical Corporation)*

18:00-19:30 ThPOS-33.42

Design and Development of a Training Simulator for Adult ECMO

Mehta, Iti *(Univ. of Illinois Urbana Champaign)*; Muralidharan, Anusha *(PUP)*; Kesavadas, Thenkurussi* *(UIUC/HCESC)*; Chembrammel, Pramod *(Univ. of Illinois at Urbana-Champaign,)*

18:00-19:30 ThPOS-33.44
A Real-Time Visualized, Quantitatively Evaluated Simulator in Dilation and Curettage
Wu, Junjie* *(Peking Univ.)*; Zheng, Yijia *(Peking Univ.)*; Lu, Qun *(Peking Univ. People's Hospital)*; Wang, Jianliu *(Peking Univ. People's Hospital)*; Zhang, Jue *(Peking Univ.)*

18:00-19:30 ThPOS-33.45
Design of a Simulator for Surgical Training in Tracheostomy and Advanced Open Airway Surgery
Deonarain, Ashley* *(University of Toronto, Hospital for Sick Children)*; Wee, Justin W. *(University of Toronto, Hospital for Sick Children, CIGITI)*; Looi, Thomas *(CIGITI, Hospital for Sick Children)*; Gordon, Karen *(University of Toronto, Hospital for Sick Children)*; Harrison, Robert *(University of Toronto, Hospital for Sick Children)*; Agur, Anne *(University of Toronto)*; Drake, James *(University of Toronto, CIGITI, Hospital for Sick Children)*; Wolter, Nikolaus Ernst *(Hospital for Sick Children)*; Propst, Evan *(Hospital for Sick Children, University of Toronto)*

18:00-19:30 ThPOS-33.46
Magnetic Nasal Delivery to Transport Drug, Heat, and Neural Stimulating Agents to the Brain
Jafari, Sahar* *(Weinberg Medical Physics, Inc)*; Weinberg, Irving *(Weinberg Medical Physics, Inc.)*; Mair, Lamar *(Weinberg Medical Physics LLC)*; Shimoji, Mika *(Weinberg Medical Physics)*; Ropp, Chad *(WMP)*; Stepanov, Pavel *(Weinberg Medical Physics LLC)*; Hale, Olivia *(WMP)*; Sun, Danica *(WMP)*

18:00-19:30 ThPOS-33.47
Label Free Detection of Fibrinogen in Human Plasma using GaN HEMT
Varghese, Arathy *(Malaviya National Institute of Technology)*; Periasamy, Chinnamuthan *(Malaviya National Institute of Technology, Jaipur)*; Bhargava, Lava *(Malaviya National Institute of Technology, Jaipur)*; Pancholi, Sidharth* *(Malaviya National Institute of Technology)*

ThPOS-34**:** 18:00-19:30 Hall B
Research-Poster-1-Page Th C (Poster Session)

18:00-19:30 ThPOS-34.1
Liquid Metal Nanoparticles Mediated Near-Infrared Photothermal Therapy
Sun, Xuyang *(Technical Institute of Physics & Chemistry, Chinese Academy of)*; Liu, Jing* *(Tsinghua University)*

18:00-19:30 ThPOS-34.2
Fabrication of Gold Nanorod Arrays on Cylindrical Surface of Optical Fibers by using In-Situ Electrodeposition
Dang, Jie* *(Peking University)*; Liu, Zhengxin *(Peking University)*; Zhang, Jue *(Peking University)*

18:00-19:30 ThPOS-34.3
Bioimpedance and Electrochemistry for Neural Stem Cell Characterization and Detection of Dopamine Release
Schuelke, Christin* *(Univ. of Oslo)*; Cunha, André *(Univ. of Oslo)*; Heiskanen, Arto *(DTU Technical Univ. of Denmark)*; Asif, Afia *(DTU Technical Univ. of Denmark)*; Keller, Stephan Sylvest *(DTU Technical Univ. of Denmark)*; Kalvoy, Haavard *(Rikshospitalet)*; Martínez-Serrano, Alberto *(Universidad Autónoma de Madrid)*; Emnéus, Jenny *(DTU Technical Univ. of Denmark)*; Martinsen, Ørjan G *(Univ. of Oslo)*

18:00-19:30 ThPOS-34.4
Understanding the Biological Basis of Alternating Electric Field Therapy on Breast Cancer Metastasis
Zhang, Meihui* *(The Ohio State Univ.)*; Garg, Ayush *(The Ohio State Univ.)*; Jones, Travis *(The Ohio State Univ.)*; Lee, Tse-Ang *(Academia Sinica)*; Subramaniam, Vishwanath *(The Ohio State Univ.)*; Song, Jonathan *(The Ohio State Univ.)*

18:00-19:30 ThPOS-34.5
Asymmetrical Porous and Stretchable Membrane with Electrical Conductivity and Biocompatibility by Layer-by-Layer Assembly
Jeon, Sohui *(Inha Univ.)*; Shim, Bong Sup* *(Inha Univ.)*

18:00-19:30 ThPOS-34.6
CACI-IMPACT: High-Throughput Microfluidic 3D Cytotoxicity Assay
Park, Dohyun *(Seoul National University)*; Jeon, Noo Li* *(Seoul National University)*

18:00-19:30 ThPOS-34.7
Microfluidic System: Distinguish Circulating Tumor Microemboli from Circulating Tumor Cells for Accurate Cancer Detection
Chung, Chung- Min *(National Chiao Tung Univ.)*; Hsieh, Kuan Yu *(National Chiao Tung Univ.)*; Cheng, Sheng-Jen *(National Chiao Tung Univ.)*; Chen, Shiue-Luen *(National Chiao Tung Univ.)*; Chen, Chong-You *(National Chiao Tung Univ.)*; Chen, Guan-Yu* *(National Chiao Tung Univ.)*

18:00-19:30 ThPOS-34.8
An Image Processing-Based Motion Tracking System for Real-Time Velocity Evaluation in Microfluidic Flow Monitoring
Chen, Szi-Wen* *(Chang Gung University)*; Lin, Yen-Heng *(Chang Gung University)*; Tu, Mingta *(Chang Gung University)*

18:00-19:30 ThPOS-34.9
A Microfluidic Device to Study Molecular Clocks Synchronization among Neuronal Populations
Giantomasi, Lidia* *(Istituto Italiano di Tecnologia)*; Malerba, Mario *(Fondazione Istituto Italiano di Tecnologia)*; Barca-Mayo, Olga *(Istituto Italiano di Tecnologia)*; Miele, Ermanno *(Italian Institute of Technology)*; De Pietri Tonelli, Davide *(Fondazione Istituto Italiano di Tecnologia)*; Berdondini, Luca *(Istituto Italiano di Tecnologia)*

18:00-19:30 ThPOS-34.10
Design and Simulation of Single Coaxial Microfluidic Device for Tubular Scaffold Formation
Nguyen, Trung* *(Univ. of Ulsan)*; Nguyen, Hang Phuong *(Univ. of Ulsan)*; Duong, Thuy *(Univ. of Ulsan)*; Phan, Huu Lam *(Ulsan Univ.)*; Le, Thi Huong *(Univ. of Ulsan)*; Son, Hyewon *(Univ. of Ulsan, Ulsan)*; Lee, HyoSeok *(Univ. of Ulsan)*; Oh, Seok *(Univ. of Ulsan)*; Lee, Suwon *(Univ. of Ulsan)*; Hwang, Changho *(Ulsan Univ. Hospital)*; Koo, Kyoin *(Univ. of Ulsan)*

18:00-19:30 ThPOS-34.11
Formation of 280 μm Diameter Centerflow with Coaxial Microfluidic Device using Computational Fluid Dynamics
Nguyen, Trung* *(University of Ulsan)*; Nguyen, Hang Phuong *(University of Ulsan)*; Duong, Thuy *(University of Ulsan)*; Phan, Huu Lam *(Ulsan University)*; Le, Thi Huong *(University of Ulsan)*; Son, Hyewon *(University of Ulsan, Ulsan)*; Lee, HyoSeok *(University of Ulsan)*; Oh, Seok *(University of Ulsan)*; Lee, Suwon *(University of Ulsan)*; Hwang, Changho *(Ulsan University Hospital)*; Koo, Kyoin *(University of Ulsan)*

18:00-19:30 ThPOS-34.12
Control of Neurite Outgrowth using Ultrasound Vibration
Fujiwara, Koji* *(Doshisha University)*; Koyama, Daisuke *(Doshisha University)*

18:00-19:30 ThPOS-34.13
The Center for Reproducible Biomedical Modeling
Rampadarath, Anand* *(Univ. of Auckland)*; Nickerson, David Phillip *(Univ. of Auckland)*; Blinov, Michael *(Univ. of Connecticut School of Medicine)*; Gennari, John H. *(Univ. of Washington)*; Goldberg, Arthur *(Icahn School of Medicine at Mount Sinai)*; Karr, Jonathan *(Icahn School of Medicine at Mount Sinai)*; Moraru, Ion *(Univ. of Connecticut School of Medicine)*; Sauro, Herbert *(Univ. of Washington)*

18:00-19:30 ThPOS-34.14
Visualization Tool for Simulations in Systems Medicine
Asai, Yoshiyuki* *(Yamaguchi University Graduate School of Medicine)*; Li, Li *(Intasect Communications Inc)*; Abe, Takeshi *(Yamaguchi University)*

18:00-19:30 ThPOS-34.15
Development of Emergency Level Prediction Algorithm based Bio-Signals
Lee, SeungJae *(Hanyang Univ.)*; Kang, DongHun *(Hanyang Univ.)*; Kim, Sun I. *(Osong Medical Innovation Foundation)*; Lee, Jong-Shill* *(Hanyang Univ.)*; Kim, In Young *(Hanyang Univ.)*

18:00-19:30 ThPOS-34.16
Physical Activity Patterns of Patients with Chronic Heart Failure
O'Donnell, Johanna* *(University of Oxford)*; Smith-Byrne, Karl *(University of Oxford)*; Velardo, Carmelo *(University of Oxford)*; Conrad, Nathalie *(Universty of Oxford)*; Khorshidi, Reza *(University of Oxford)*; Doherty, Aiden *(University of Oxford)*; Dwyer, Terence *(University of Oxford)*; Tarassenko, Lionel *(University of Oxford)*; Rahimi, Kazem *(University of Oxford)*

18:00-19:30 ThPOS-34.17
Muscle-Linkage Skill Tracker for Efficient and Stable Pedaling
Saisho, Osamu* *(NTT)*; Tsukada, Shingo *(NTT Basic Research Laboratories)*; Nakashima, Hiroshi *(Materials Science Research Laboratory, NTT Basic Research Labora)*; Imamura, Hiroshi *(NTT)*; Mihara, Atsunori *(NTT)*

18:00-19:30 ThPOS-34.18
Hand Position Recognition with Wearable Device for Intermittent Fasting Assistance
Lee, HyoSeok *(University of Ulsan)*; Son, Hyewon *(University of Ulsan, Ulsan)*; Phan, Huu Lam *(Ulsan University)*; Lee, Suwon *(University of Ulsan)*; Duong, Thuy *(University of Ulsan)*; Nguyen, Trung *(University of Ulsan)*; Nguyen, Hang Phuong *(University of Ulsan)*; Le, Thi Huong *(University of Ulsan)*; Oh, Seok *(University of Ulsan)*; Hwang, Changho *(Ulsan University Hospital)*; Koo, Kyoin* *(University of Ulsan)*

18:00-19:30 ThPOS-34.19
A Template-Based Walking Phase Detection Algorithm for Ambulatory Patients during Rehabilitation
Demkó, László* *(University Hospital Balgrist)*; Schneider, Sophie *(University Hospital Balgrist)*; Curt, Armin *(Spinal Cord Injury Centre, Balgrist University Hospital)*

18:00-19:30 ThPOS-34.20
Design of Strip-Type Force Sensor Interfacing Circuit for Body Movement during Sleep Study
Shin, Hangsik *(Chonnam National University)*; Lee, Deuk Yong *(Daelim University)*; Yun, Yonghyeon* *(Daelim University)*

18:00-19:30 ThPOS-34.21
Modeling of Metacarpophalangeal Joint Movement using Functional Electrical Stimulation by Controlling the Equilibrium-Point
Nagai, Miwa* *(Osaka University)*; Atsuumi, Keita *(Hiroshima City University)*; Taniguchi, Kazuhiro *(The University of Tokyo)*; Matsui, Kazuhiro *(Osaka University)*; Hirai, Hiroaki *(Osaka University)*; Nishikawa, Atsushi *(Osaka University)*

18:00-19:30 ThPOS-34.22
Discrete-Time Sliding Mode Control of an Antagonistic Muscle
Quy Thinh, Dao* *(Shibaura Institute of Technology)*; Yamamoto, Shin-ichiroh *(Shibaura Institute of Technology)*

18:00-19:30 ThPOS-34.23
Investigation of Interspinous Stabilization Devices for Lumbar Spinal Stenosis Treatment
Liu, Pao-Hsin *(I-Shou University)*; Tsai, Tung-Lin* *(Metal Industries Research & Development Center)*; Yang, Shih-Chieh *(E-Da Hospital)*; Hung, Hsiu-Ping *(I-Shou University)*; Chen, Pin-Hsuan *(I-Shou University)*

18:00-19:30 ThPOS-34.24
Time Ahead Foot Velocity Predictions during Human Gait Changes in a Terrestrial Environment via Evolving Takagi-Sugeno Fuzzy Logic
Vereshchaga, Yana* *(Johannes Kepler University)*; Doppelhammer, Nikolaus *(Johannes Kepler University)*; Baumgartner, Werner *(Johannes Kepler University Linz)*

18:00-19:30 ThPOS-34.25
The Mechanics of Tibialis Anterior Muscle during Swing Phase Ankle Dorsiflexion: Implications for Biomimetic Device Design
Bajelan, Soheil *(Victoria University, Melbourne)*; Sparrow, William *(Victoria University)*; Begg, Rezaul* *(Victoria University)*

18:00-19:30 ThPOS-34.26
Development of a Whole-Body Skeletal Model of a Rat based on Anatomical Landmarks for Detailed Motion Analysis
Shimane, Yuta *(Tokyo University of Science)*; Takemura, Hiroshi *(Tokyo University of Science)*; Kaneko, Hidekazu *(AIST)*; Ayusawa, Ko *(National Institute of Advanced Industrial Science & Technology)*; Tsujimura, Yuki *(RIKEN)*; Mochimaru, Masaaki *(National Institute of Advanced Industrial Science andTechnology)*; Yokota, Hideo *(RIKEN Center for Advanced Photonics)*; Oota, Satoshi* *(RIKEN)*

18:00-19:30 ThPOS-34.27
Influence of Different Boundary Conditions and Averaging Algorithms on Mechanical Behavior in FE Modeling of the Proximal Femur
Saemann, Michael* *(Univ. Medical Center Rostock)*; Kebbach, Märuan *(Dept. of Orthopaedics, Univ. Medicine Rostock)*; Sass, Jan-Oliver *(Univ. Medical Center Rostock)*; Mauck, Josephine *(Univ. Medical Center Rostock)*; Schulze, Christian *(Univ. Medical Center Rostock)*; Kluess, Daniel *(Rostock Univ. Medical Center, Dept. of Orthopaedics)*; Bader, Rainer *(Univ. Medicine of Rostock, Dept. of Orthopaedics)*

18:00-19:30 ThPOS-34.28
Investigating Motility and Pattern Formation in Pluripotent Stem Cells through Agent-Based Modelling
Wang, Minhong* *(University of Edinburgh)*; Tsanas, Athanasios *(University of Edinburgh)*; Blin, Guillaume *(University of Edinburgh)*; Robertson, Dave *(University of Edinburgh)*

18:00-19:30 ThPOS-34.29
Evaluation of Tissue Adhesion Strength Utilizing the Spontaneous Detachment from Micro Curvature
Matsuzawa, Ryosuke *(Keio Univ.)*; Kollmannsberger, Philip *(Center for Computational & Theoretical Biology, Univ. of)*; Sudo, Ryo *(Keio Univ.)*; Yamashita, Tadahiro* *(Keio Univ.)*

18:00-19:30 ThPOS-34.30
A Piezoelectric Strain-Adaptive Bone Remodeling Simulation
Bansod, Yogesh* *(University of Rostock)*; Kebbach, Märuan *(Dept. of Orthopaedics, University Medicine Rostock)*; Bader, Rainer *(University Medicine of Rostock, Dept. of Orthopaedics)*; van Rienen, Ursula *(University of Rostock)*

18:00-19:30 ThPOS-34.31
Effect of Mixing Saline Irrigation and Blood Flow in Numerical Model of Radiofrequency Ablation
Ahn, Jin Woo *(KBIO)*; Lee, Kang Moo* *(Osong Medical Innovation Foundation)*; Lee, Seung-A *(Osong Medical Innovation Foundation)*; Jung, Hachul *(KBIO)*; Roh, Younghoon *(Osong Medical Innovation Foundation)*; Kim, Young-Jin *(Osong Medical Innovation Foundation)*

18:00-19:30 ThPOS-34.32
Construction of Metabolic Agent Migration Model in Brain Tissue
Sasaki, Jun* *(Tokai Univ.)*; Utsuki, Tomohiko *(Tokai Univ.)*

18:00-19:30 ThPOS-34.33
Initiation and Maintenance of Re-Entrant Atrial Propagation: A Computational Vulnerability Study
Azzolin, Luca* *(Karlsruhe Institute of Technology)*; Sanchez Arciniegas, Jorge Patricio *(Karlsruhe Institute of Technology)*; Schuler, Steffen *(Karlsruhe Institute of Technology (KIT))*; Wachter, Andreas *(Karlsruhe Institute of Technology)*; Doessel, Olaf *(Karlsruhe Institute of Technology (KIT))*; Loewe, Axel *(Karlsruhe Institute of Technology (KIT))*

18:00-19:30 ThPOS-34.34
A Comprehensive Model for Airway Inert Gas Mixing
Rastar, Amir* *(The University of Auckland)*; Clark, Alys *(The University of Auckland)*; Burrowes, Kelly Suzanne *(The University of Auckland)*; Thompson, Bruce *(Immunology & Respiratory Medicine, The Alfred Hospital)*; Nilsen, Kris *(School of Health Sciences, Faculty of Health, Arts & Design,)*; Tawhai, Merryn *(The University of Auckland)*

18:00-19:30 ThPOS-34.35
Surrogate Modeling for Neuroprotective Focal Brain Cooling Device
Abe, Takuto* *(Kyoto Univ.)*; Inoue, Takao *(Yamaguchi Univ.)*; Fujiwara, Koichi *(Kyoto Univ.)*; Nomura, Sadahiro *(Yamaguchi Univ.)*; Imoto, Hirochika *(Yamaguchi Univ.)*; Suzuki, Michiyasu *(Yamaguchi Univ.)*; Kano, Manabu *(Kyoto Univ.)*

18:00-19:30 ThPOS-34.36
Preliminary Results for Monte Carlo Modeling in Optical Coherence Tomography
Quintanar, Kévin *(EUPI)*; Jupille, Hugo *(ENSSAT)*; Pham, Jérôme *(ENSSAT)*; Krewcun, Camille *(Institut Pascal)*; Sarry, Laurent *(Université d'Auvergne)*; Combaret, Nicolas *(Institut Pascal)*; Péry, Emilie* *(Université Clermont Auvergne)*

18:00-19:30 ThPOS-34.37
A Phantom Study: Evaluation of a Novel Three-Lumen Balloon Catheter for Treatment of Intractable Limb Ischemia
Tatarlar, Efecan* *(Boğaziçi University)*; Yusuf, Emir *(Boğaziçi University)*; Kocaturk, Ozgur *(Boğaziçi University)*

18:00-19:30 ThPOS-34.38
In Vitro Exposure System for Tumor Treating Fields
Berkelmann, Lukas* *(Leibniz Univ. Hannover)*; Bader, Almke *(Institute of Cell Biology & Biophysics, Dept. of Cell Phy)*; Meshksar, Saba *(Institute of Microwave & Wireless System, Leibniz Univ. H)*; Ngezahayo, Anaclet *(Institute of Cell Biology & Biophysics, Dept. of Cell Phy)*; Manteuffel, Dirk *(Institute of Microwave & Wireless System, Leibniz Univ. H)*

18:00-19:30 ThPOS-34.39
A Simple Method to Fabricate a Surface Brachytherapy Applicator for Beta Radiation Therapy of Superficial Skin Tumors
Pashazadeh, Ali* *(Otto-von-Guericke-Univ. of Magdeburg, Germany)*; Boese, Axel *(Dept. of Medical Engineering, Otto-von-Guericke-Univ.)*; Friebe, Michael *(Otto-von-Guericke-Univ.)*

18:00-19:30 ThPOS-34.40
Development of Slave Device of Teleoperation System for Catheterization that can Detect Collision Force
Osada, Keita* *(Shibaura institute of technology)*; Hanafusa, Akihiko *(Shibaura Institute of Technology)*

18:00-19:30 ThPOS-34.41
Towards Non-Assembly 3D Printed Medical Instruments
Culmone, Costanza* *(Delft University of Technology)*; Bazuin, Loes *(Delft University of Technology)*; Scali, Marta *(Delft University of Technology)*; Smit, Gerwin *(Delft University of Technology)*; Breedveld, Paul *(Delft University of Technology)*

18:00-19:30 ThPOS-34.42
Development of a New Tourniquet which Applied EHD Phenomenon
Takei, Yusuke* *(Tokyo Denki Univ.)*; Yamaguchi, Takashi *(Tokyo Denki Univ.)*; Maeda, Hiroyuki *(Juntendo Univ.)*; Iwase, Hideaki *(Juntendo Univ.)*; Morohashi, Itaru *(Juntendo Univ. ,Shizuoka medical research Center for disast)*; Kanda, Akio *(Juntendo Univ. ,Shizuoka medical research Center for disast)*; Kaneko, Kazuo *(Juntendo Univ. Tokyo)*; Maeda, Mutsuhiro *(Maeda Hospital)*; Terasaka, Sumitaka *(Sanyo Metal Industry Co. Ltd)*; Shimoohkawa, Takeharu *(Sanyo Metal Industry)*; Mitsui, Kazuyuki *(Tokyo Denki Univ.)*

18:00-19:30 ThPOS-34.43
Photosensitizer Tomographical Fluorescence Predictive Analysis for Dermatological Photodynamic Therapy Monitoring
Fanjul-Vélez, Félix *(University of Cantabria)*; Arce-Diego, José L.* *(University of Cantabria)*

18:00-19:30 ThPOS-34.44
Post-Stroke Changes in the Muscle Synergies of the Less-Affected Upper Limb
Lo, Michi WT *(The Chinese Univ. of Hong Kong)*; So, Lester KP *(The Chinese Univ. of Hong Kong)*; Rimini, Daniele *(Laboratory of Neurorehabilitation Technologies, IRCCS San Camill)*; Turolla, Andrea *(IRCCS San Camillo Hospital Foundation)*; Cheung, Vincent CK* *(The Chinese Univ. of Hong Kong)*

18:00-19:30 ThPOS-34.45
Development of Myoelectric Hand Orthosis using 3D Printing
Yoo, Hyun-Joon* *(Gwangju Institute of Science & Technology.)*; Lee, Sangbaek *(Gwangju Institute of Science & Technology)*; Kim, Jongheon *(Inha University)*; Lee, Boreom *(Gwangju Institute of Science & Technology (GIST))*

18:00-19:30 ThPOS-34.46
Automatic Clustering of Spinal Reflexes Evoked by Epidural Electrical Stimulation of the Cervical Spinal Cord in Non-Human Primates
Barra, Beatrice* *(University of Fribourg)*; Zhuang, Katie *(Université de Fribourg)*; Conti, Sara *(Université de Fribourg)*; Schiavone, Giuseppe *(Ecole Polytechnique Federale de Lausanne)*; Lacour, Stéphanie *(EPFL)*; Bloch, Jocelyne *(Centre Hospitalier Universitaire Vaudois, CHUV)*; Courtine, Gregoire *(EPFL)*; Capogrosso, Marco *(University of Fribourg)*

18:00-19:30 ThPOS-34.47
Exercise Induced Cardio Acceleration in Complete Cervical Injuries
Umbel, Calista* *(Tarleton State Univ., Stephenville, TX)*; Petroff, Neil *(Tarleton State Univ.)*; Wall, Nathan *(Tarleton State Univ.)*

18:00-19:30 ThPOS-34.48
Surface Electromyography Classification using Wavelet Packet Decomposition and Convolutional Neural Network
Park, Hyeong-jun* *(Gwangju Institute of Science & Tech.)*; Yoo, Hyun-Joon *(Gwangju Institute of Science & Tech..)*; Lee, Boreom *(Gwangju Institute of Science & Tech. (GIST))*

18:00-19:30 ThPOS-34.49
Application of Passive Robotic Hand Therapy in Chronic Stroke Rehabilitation
Tsai, Yuh-Show* *(Chung Yuan Christian University)*; Hsu, Chia-Yu *(Chung Yuan Christian University)*; Sahayam, Dravvy *(Chung Yuan Christian University)*

ThPOS-35**:** 18:00-19:30 Hall B
Research-Poster-1-Page Th D (Poster Session)

18:00-19:30 ThPOS-35.1
Multimodal Medical Image Fusion by Optimizing Learned Pixel Weights using Structural Similarity Index
Kumar, Nishant* *(TU Dresden)*; Hoffmann, Nico *(Helmholtz-Zentrum Dresden-Rossendorf)*; Oelschlägel, Martin *(Universitätsklinikum Carl Gustav Carus, Klinik und Poliklinik fü)*; Koch, Edmund *(Clinical Sensoring & Monitoring, Dept. of Anesthesiology)*; Matthias, Kirsch *(Asklepios Kliniken Schildautal Seesen, Abteilung für Neurochirur)*; Gumhold, Stefan *(TU Dresden)*

18:00-19:30 ThPOS-35.2
A Statistical Determination of the Energy Delivered to Muscular Tissue in Electrostimulation Protocols
Amador, Alejandro* *(Faculty of Science, UNAM)*; Legaria, Uriel *(National Autonomous University of Mexico)*; Vazquez, Fabian *(Physics Dept., Faculty of Science, UNAM)*

18:00-19:30 ThPOS-35.3
Signal-to-Noise Ratio Determination in a Hybrid System of Electrostimulation and Electromiography
Amador, Alejandro* *(Faculty of Science, UNAM)*; Legaria, Uriel *(National Autonomous University of Mexico)*; Vazquez, Fabian *(Physics Dept., Faculty of Science, UNAM)*

18:00-19:30 ThPOS-35.4
Determination of Frequency Components in Voluntary and Electrically Induced Contractions
Legaria, Uriel* *(National Autonomous University of Mexico)*; Amador, Alejandro *(Faculty of Science, UNAM)*; Vazquez, Fabian *(Physics Dept., Faculty of Science, UNAM)*

18:00-19:30 ThPOS-35.5
Analysis of Muscle Fatigue during Exercise and Exercise Combined with Electrostimulation
Amador, Alejandro* *(Faculty of Science, UNAM)*; Legaria, Uriel *(National Autonomous University of Mexico)*; Vazquez, Fabian *(Physics Dept., Faculty of Science, UNAM)*

18:00-19:30 ThPOS-35.6
Power Spectrum Analysis of the Effect of Electrostimulation Over the Muscle with and without Exercise
Legaria, Uriel* *(National Autonomous University of Mexico)*; Amador, Alejandro *(Faculty of Science, UNAM)*; Vazquez, Fabian *(Physics Dept., Faculty of Science, UNAM)*

18:00-19:30 ThPOS-35.7
Surface Modified Rare Earth Doped Nanoparticles with Increased Cell Internalization for Infrared Imaging at High Sensitivities
Zhao, Zhenghuan *(Southwest Univ., College of Pharmaceutical Sciences, Chongq)*; Yuan, Jun *(National Univ. of Singapore)*; Bandla, Aishwarya *(National Univ. of Singapore)*; Thakor, Nitish *(National Univ. of Singapore)*; Tan, Mei Chee* *(Singapore Univ. of Technology & Design)*

18:00-19:30 ThPOS-35.8
Multi-Functional Nanostructured Biocomposites for Implantable, Biocompatible, and Biodegradable Electronics
Shim, Bong Sup* *(Inha University)*

18:00-19:30 ThPOS-35.9
Apoptotic Anticancer Activity of Multifunctional Magnetic Nanoparticles for Biomedical Theragnostics
Nam, Ki Chang *(Dongguk University College of Medicine)*; Park, Bong Joo* *(Kwangwoon University)*

18:00-19:30 ThPOS-35.10
Soft and Durable Neural Micro-Electrode Coating by Synthesis of PEDOT: PSS / Graphene Composites
Lee, Seunghyeon *(Inha University)*; Eom, Taesik *(Inha University)*; Shim, Bong Sup* *(Inha University)*

18:00-19:30 ThPOS-35.12
Fast Neural Electrical Impedance Tomography of Peripheral Nerves: Validation with Micro Computed Tomography and Neural Tracers
Ravagli, Enrico* *(University College London)*; Mastitskaya, Svetlana *(University College London)*; Thompson, Nicole *(University College London)*; Aristovich, Kirill *(University College London)*; Holder, David *(University College London)*

18:00-19:30 ThPOS-35.13
A Tactile Presentation System for Myoelectric Arm User Configured using the Disk Vibrator
Nakata, Kodai* *(Tokai Univ.)*; Magatani, Kazushige *(Tokai Univ.)*

18:00-19:30 ThPOS-35.14
Regulating Calcium Ion Channel TRPV1 by Electrical Stimulation and Magnetic Field of Neuronal Cells
Lin, You-Rong *(National Chiao Tung University)*; Chen, Nelson *(National Chiao Tung University)*; Chen, Li-Reng *(National Chiao Tung University, Institute of Biomedical Engineer)*; Lin, Shien-Fong *(National Chiao Tung University)*; Chen, Guan-Yu* *(National Chiao Tung University)*

18:00-19:30 ThPOS-35.15
AirRay: Soft High-Resolution Silicone-Platinum Electrodes
Schuettler, Martin* *(CorTec GmbH)*; Rickert, Joern *(CorTec GmbH)*; Henle, Christian *(Cortec GmbH)*; Stieglitz, Thomas *(University of Freiburg)*; Kohler, Fabian *(CorTec GmbH)*

18:00-19:30 ThPOS-35.16
An In-Vitro Study of Subretinal Stimulation using Three-Dimensional Flexible Microelectrodes
Seo, Hee Won* *(Daegu Gyeongbuk Institute of Science & Tech. (DGIST))*; Kim, Namju *(Daegu Gyeongbuk Institute of Science of Tech.)*; Ahn, Jungryul *(Chungbuk National Univ.)*; Cha, Seongkwang *(Chungbuk National Univ.)*; Goo, Yong Sook *(Chungbuk Nati Univ. School of Medicine)*; Kim, Sohee *(Daegu Gyeongbuk Institute of Science & Tech. (DGIST))*

18:00-19:30 ThPOS-35.17
The MANTArray – A Multisite Active Neuro-Technology Array for High Density Recordings and Stimulation
Boehler, Christian* *(Univ. of Freiburg)*; Vomero, Maria *(Univ. of Freiburg)*; Liljemalm, Rickard *(Univ. of Freiburg, Dept. of Microsystems Engineering-IMS)*; Stieglitz, Thomas *(Univ. of Freiburg)*; Asplund, Maria *(Univ. of Freiburg)*

18:00-19:30 ThPOS-35.18
Towards Reliable Shape Encoding in Artificial Retinal Stimulation
Lee, Meng-Jung* *(Natural & Medical Sciences Institute at The Univ. of Tübi)*; Corna, Andrea *(NMI Natural & Medical Sciences Institute at the Univ. of)*; Jetter, Florian *(NMI Natural & Medical Sciences Institute at the Univ. of)*; Zeck, Günther *(Natural & Medical Sciences Institute at The Univ. of Tübi)*

18:00-19:30 ThPOS-35.19
Benchtop Characterization of Rat Epiretinal Stimulation Array for Artificial Vision Prostheses
Yoon, Eugene* *(University of Southern California)*; Wong, Janeline *(University of Southern California)*; Koo, Beomseo *(University of Michigan)*; Weiland, James *(University of Michigan)*; Meng, Ellis *(University of Southern California)*

18:00-19:30 ThPOS-35.20
Effect of Nerve Growth Factor on Axonal Regeneration of Motor Neurons Cultured in the Microfluidic Platform
Jeong, Hee Soo *(Ewha Womans University)*; Yoo, Hyun Ji *(Ewha Womans University)*; Cho, Yoon Kyung *(Ewha Womans University)*; Min, Kyou Sik *(Seoul National Uniersity)*; Jun, Sang Beom* *(Ewha Womans University)*

18:00-19:30 ThPOS-35.21
Electrochemical Characterization of Electrode Materials for Retinal Stimulation
Kim, Namju* *(Daegu Gyeongbuk Institute of Science of Technology)*; Seo, Hee Won *(Daegu Gyeongbuk Institute of Science & Technology (DGIST))*; Kim, Ji Hwan *(Gwangju Institute of Science & Technology)*; Yoon, Myung-Han *(Gwangju Institute of Science & Technology)*; Kim, Sohee *(Daegu Gyeongbuk Institute of Science & Technology (DGIST))*

18:00-19:30 ThPOS-35.22
Validation of Test-Retest Reliability of Multimodal Biosignal-Based Craving Detection in Young Adults with Internet Gaming Disorder
Kim, Hodam *(Hanyang University)*; Chae, Younsoo *(Hanyang University)*; Im, Chang-Hwan* *(Hanyang University)*

18:00-19:30 ThPOS-35.23
Using Artificial Neural Network with Waveform Features of Photoplethysmography for Noninvasive Blood Pressure Estimation
Lee, Tsung-Chieh *(Yuanpei Univ. of Medical Technology)*; Kao, Shin-Yu *(Taipei medical Univ.)*; Lee, Man-Hua *(Taipei Medical Univ.)*; Chiu, Hung-Wen* *(Taipei Medical Univ.)*

18:00-19:30 ThPOS-35.24
Development of Human Biosignals-Based Insider Detection Technology
Kim, Jung Hwan* *(Korea Advanced Institute of Science & Technology)*; Kim, Chulmin *(KAIST)*; Yim, Man-Sung *(Korea Advanced Institute of Science & Technology)*

18:00-19:30 ThPOS-35.25
Deep-Channel: An Ion Channel Event Detector using a Recurrent Convolutional Neural Network
Celik, Numan* *(University of Liverpool)*; O'Brien, Fiona *(University of Liverpool)*; Zheng, Yalin *(University of Liverpool)*; Coenen, Frans *(Dept. of Computer Science, University of Liverpool)*; Barrett-Jolley, Richard *(University of Liverpool)*

18:00-19:30 ThPOS-35.26
Voice Conversion System for Dysarthric Speakers based on Convolutional Neural Network Approach
Lee, Chen Kai *(National Yang-Ming Univ.)*; Chen, Ko-Chiang *(National Yang-Ming Univ.)*; Jhang, Sin-Hua *(National Yang-Ming Univ.)*; Lai, Ying-Hui* *(National Yang-Ming Univ.)*

18:00-19:30 ThPOS-35.27
A Neural Network for Posture Recognition in College Dorm Rooms for Disabled Students
Guerra, Bruna Maria Vittoria* *(Università degli Studi di Pavia)*; Ramat, Stefano *(Università di Pavia)*; Beltrami, Giorgio *(Università degli Studi di Pavia)*; Schmid, Micaela *(Università degli Studi di Pavia)*

18:00-19:30 ThPOS-35.28
DBS Electrode Selection in Deep Brain Stimulation Surgery using a Neural Network Model
Khosravi, Mahsa* *(Univ. of Western Ontario)*; Atashzar, Seyed Farokh *(ECE Dept. at Western Univ. (UWO), & Canadian Surgica)*; Gilmore, Greydon *(Univ. of Western Ontario)*; Jog, Mandar *(Univ. of Western Ontario – London Health Sciences Centre)*; Patel, Rajni *(London Health Sciences Centre)*

18:00-19:30 ThPOS-35.29
Unsupervised Learning of Subject-Specific Heart Rate Variability Time-Frequency Characteristics
Wachowiak, Mark Paul* *(Nipissing University)*; Moggridge, Jason *(Nipissing University)*; Smolikova-Wachowiak, Renata *(Nipissing University)*

18:00-19:30 ThPOS-35.30
A Basic Study on Objective Evaluation of Emotion with EEG in Image Presentation by Recurrent Neural Network
Oyama, Kento* *(Tokyo City University)*; Tatsuta, Masahiro *(Tokyo City University)*; Minemura, Kohei *(Tokyo City University)*; Kyoso, Masaki *(Tokyo City University)*

18:00-19:30 ThPOS-35.31
1-Year Mortality Prediction Model for Heart Failure Patients: Data from the Korean Acute Heart Failure (KorAHF) Registry
Shin, Heean *(Seoul National Univ.)*; Choi, Dong-Ju *(Seoul National Univ. Bundang Hospital)*; Park, Jin-Joo *(Seoul National Univ. Bundang Hospital)*; Kim, Hee Chan *(Seoul National Univ.)*; Yoon, Hyung-Jin* *(Seoul National Univ.)*

18:00-19:30 ThPOS-35.32
Blood Pressure Estimation based on Convolutional Neural Network using ECG, PPG and BCG
Eom, Heesang *(Kwangwoon Univ.)*; Han, Seungwoo *(Kwangwoon Univ.)*; Lee, Dongseok *(Seoul National Univ.)*; Park, Kwang S. *(Seoul National Univ.)*; Park, Cheolsoo* *(Kwangwoon Univ.)*

18:00-19:30 ThPOS-35.33
Classification of Motor Imagery Tasks using Priority of Principal Components Defined by Reinforcement Learning
Cho, Taeheum *(Kwangwoon Univ.)*; Seok, Woojoon *(Kwangwoon Univ.)*; Park, Cheolsoo* *(Kwangwoon Univ.)*

18:00-19:30 ThPOS-35.34
Epileptic Intracranial Electroencephalogram Signal Detection using Linear and Non-Linear Classifiers
Hadipour, Sarah* *(Northeastern Univ.)*; Tokhmpash, Ala *(Northeastern Univ.)*; Shafai, Bahram *(Northeastern Univ.)*

18:00-19:30 ThPOS-35.35
Detecting Abnormal Period in Epileptic EEG using Deep Neural Networks
Shoji, Taku *(Tokyo Univ. of Agriculture & Technology)*; Yoshida, Noboru *(Juntendo Univ. Nerima Hospital)*; Fukumori, Kosuke *(Tokyo Univ. of Agriculture & Technology)*; Tanaka, Toshihisa* *(Tokyo Univ. of Agriculture & Technology)*

18:00-19:30 ThPOS-35.36
Ballistocardiogram-Based Sleep Stage Classification using Long Short-Term Memory Networks
Choi, Sang Ho *(Seoul National Univ.)*; Kwon, Hyunbin *(Seoul National Univ.)*; Jin, Hyungwon *(Seoul National Univ.)*; Lee, Mi Hyun *(Seoul National Univ. Hospital)*; Lee, Yujin *(Seoul National Univ. Hospital)*; Park, Kwang S.* *(Seoul National Univ.)*

18:00-19:30 ThPOS-35.37
Using EEG to Determine Response Certainty during a Spatial Knowledge Acquisition Training Protocol
Kenny, Bret* *(Memorial University)*; Veitch, Brian *(Memorial University)*; Power, Sarah *(Memorial University)*

18:00-19:30 ThPOS-35.38
Unsupervised Clustering of Wakefulness Levels with Autoencoder Networks and Gaussian Mixture Models on EEG Single-Trial Data
Finke, Andrea* *(Bielefeld University, Bielefeld, Germany)*; Lang, Martin *(Bielefeld University)*; Steppacher, Inga *(Bielefeld University)*; Kissler, Johanna *(Bielefeld University)*; Ritter, Helge *(CITEC, CoR-Lab, Bielefeld University, Bielefeld, Germany)*

ThPOS-36: 18:00-19:30 Hall B
Research-Poster-1-Page Th E (Poster Session)

18:00-19:30 ThPOS-36.1
The Comparison between Cuff Electrode and Microelectrode Array in Peripheral Nerve Electrical Stimulation
Zhang, Peng* *(Huazhong University of Science & Technology)*; Li, Qiang *(Huazhong University of Science & Technology)*

18:00-19:30 ThPOS-36.2
Evaluating the Effects of Intracortical Microstimulation in Anaesthetized and Awake Behaving Rats
Averna, Alberto* *(Istituto Italiano di Tecnologia)*; Guggenmos, David *(Dept. of Physical Medicine & Rehabilitation University of)*; Buccelli, Stefano *(Istituto Italiano di Tecnologia, Genova, Italy)*; Semprini, Marianna *(Italian Institute of Technology)*; Nudo, Randolph *(University of Kansas Medical Center)*; Chiappalone, Michela *(Istituto Italiano di Tecnologia)*

18:00-19:30 ThPOS-36.3
Modulation of Brain Networks by Repetitive Theta Burst Stimulation in Mal De Debarquement Syndrome
Chen, Yafen *(University of Oklahoma)*; Urbano, Diamond *(Laureate Institute for Brain Research)*; Doudican, Benjamin *(Laureate Institute of Brain Research)*; Ding, Lei *(University of Oklahoma)*; Cha, Yoon-Hee *(Laureate Institute of Brain Research)*; Yuan, Han* *(University of Oklahoma)*

18:00-19:30 ThPOS-36.4
Changes in Spontaneous Electroencephalography by Transcranial Direct Current Stimulation during a Motor Task
Choi, Ga-Young *(Kumoh National Institute of Technology)*; Choi, Soo-In *(Kumoh National Institute of Technology)*; Hwang, Han-Jeong* *(Kumoh National Institute of Technology)*

18:00-19:30 ThPOS-36.5
Preferentially Stimulating Retinal Ganglion Cells using Clinically-Relevant Electrode Size and Stimulation Duration
Guo, Tianruo *(Univ. of New South Wales)*; Tsai, David *(Columbia Univ.)*; Shivdasani, Mohit N. *(Univ. of New South Wales)*; Wu, Tianzhun *(Shenzhen Institutes of Advanced Technology (SIAT), Chinese Acade)*; Dokos, Socrates *(Univ. of New South Wales)*; Lovell, Nigel H.* *(Univ. of New South Wales)*

18:00-19:30 ThPOS-36.6
Quantitatively Controlling Functionally-Distinct Retinal Ganglion Cells using Electrical Stimulation
Muralidharan, Madhuvanthi *(GSBME UNSW)*; Guo, Tianruo *(University of New South Wales)*; Shivdasani, Mohit N. *(University of New South Wales)*; Tsai, David *(Columbia University)*; Dokos, Socrates *(University of New South Wales)*; Morley, John William *(University of Western Sydney)*; Lovell, Nigel H.* *(University of New South Wales)*

18:00-19:30 ThPOS-36.7
Automatic Search of Optimal Transcranial Magnetic Stimulation Parameters
Tervo, Aino* *(Aalto University)*; Metsomaa, Johanna *(Aalto University)*; Nieminen, Jaakko *(Aalto University School of Science)*; Sarvas, Jukka *(Aalto University)*; Ilmoniemi, Risto *(Aalto University School of Science)*

18:00-19:30 ThPOS-36.8
Relationship between Neuromuscular Electrical Stimulation Patterns and Knee Angle during Induced Fatigue Protocol in Spinal Cord Injury Subjects
Rinaldin, Carla Daniele* *(Pontifical Catholic Univ. of Paraná)*; Papcke, Caluê *(Pontifícia Univ. Católica do Paraná)*; Krueger, Eddy *(State Univ. of Londrina)*; Nogueira-Neto, Guilherme *(Pontificia Univ. Catolica do Parana)*; Nohama, Percy *(Pontifícia Univ. Católica do Paraná)*; Scheeren, Eduardo Mendonça *(Federal Technological Univ. of Paraná)*

18:00-19:30 ThPOS-36.9
Cortical Brain Activation Difference by the Skill Level of Cognitive Sequential Rhythm Task
Lee, Gihyoun *(Samsung Medical Center)*; Jeong, Seonyun *(DGIST)*; Lee, Seung Hyun *(Kyungpook National University)*; Jung, YoungJin* *(Dongseo University)*

18:00-19:30 ThPOS-36.10
An Experiment Study of Bending and Torsion Fractures Morphology of Deep Brain Stimulation Leads
Li, Linze *(Tsinghua Univ.)*; Jiang, Changqing *(Tsinghua Univ.)*; Wang, Hanchen *(Beihang Univ.)*; Li, Luming* *(Tsinghua Univ.)*

18:00-19:30 ThPOS-36.11
Significant Differences in Neuronal Responses to High-Frequency Pulse Stimulation with Constant and Varying Inter-Pulse-Intervals
Hu, Hanhan *(Zhejiang Univ.)*; Feng, Zhouyan* *(Zhejiang Univ.)*; Zheng, Lvpiao *(Zhejiang Univ.)*; Yuan, Yue *(Zhejiang Univ.)*

18:00-19:30 ThPOS-36.12
Axonal Stimulations with High-Frequency Pulses Alter Firing Patterns of Neurons in the Downstream Region
Huang, Lu *(Zhejiang University)*; Feng, Zhouyan* *(Zhejiang University)*; Wang, Zhaoxiang *(Zhejiang University)*

18:00-19:30 ThPOS-36.13
Improvement Maps for Deep Brain Stimulation in Parkinson's Disease
Nordin, Teresa* *(Linköping University)*; Stenmark P., Rasmus *(Umeå University)*; Blomstedt, Patric *(Umeå University)*; Wardell, Karin *(Linköping University)*

18:00-19:30 ThPOS-36.14
Intraoperative Current and Voltage Measurement of Deep Brain Stimulation in a 6-OHDA Hemi Parkinson Rat Model
Kober, Maria* *(Medical University Center Rostock)*; Badstübner-Meeske, Kathrin *(Medial University Center Rostock, Dept. of Neurology)*; Bernsdorff, Felix *(University Medical Center Rostock, Dept. of Neurology)*; Storch, Alexander *(University Medical Center)*; Bahls, Christian Rüdiger *(University of Rostock, Institute of General Electrical Engineeri)*

18:00-19:30 ThPOS-36.15
High Rate Pulsatile Stimuli Can Improve Information Transmission of Sub-Threshold Stimuli in a Hippocampal CA1 Neural Network Model
Mori, Ryosuke *(Kanto Gakuin Univ.)*; Mino, Hiroyuki* *(Kanto Gakuin Univ.)*; Durand, Dominique *(Case Western Reserve Univ.)*

18:00-19:30 ThPOS-36.16
Spiking Network Model of Basal Ganglia for Movement Disorders
Dutta, Abhishek* *(University of Connecticut)*

18:00-19:30 ThPOS-36.17
Development of Diagnostic System for Upper Limb Paralysis Patients by Motion Recognition Tracking
Kim, SuBok *(SoonChunHyang University)*; Lee, Onseok* *(SoonChunHyang University)*

18:00-19:30 ThPOS-36.18
Dynamic Spiking Network Model Learning Trauma Conditioning
Dutta, Abhishek* *(University of Connecticut)*

18:00-19:30 ThPOS-36.19
The Clinical Feasibility of the Re-Link Trainer in Acute Stroke Rehabilitation: Preliminary Results
Ward, Sarah *(Univ. College Dublin)*; Wiedemann, Lukas *(Univ. of Auckland)*; McDaid, Andrew* *(The Univ. of Auckland)*

18:00-19:30 ThPOS-36.20
The System That Feedback Grip Power to the Prosthetic Hand User
Kimura, Shunsuke* *(Tokai University)*; Magatani, Kazushige *(Tokai University)*

18:00-19:30 ThPOS-36.21
Impedance Responses Simulated with Optimal and Constant Bandwidths for Optimization of Fast Neural EIT
Tarotin, Ilya* *(Univ. College London)*; Aristovich, Kirill *(Univ. College London)*; Holder, David *(Univ. College London)*

18:00-19:30 ThPOS-36.22
Gait Speed Control of Lower Limb Exoskeleton using Soleus Electromyogram Signals
Lee, Jong Min* *(Korea Institute of Science & Technology)*; Choi, Junho *(Korea Institute of Science & Technology)*; Youn, Inchan *(Korea Institute of Science & Technology)*; Kim, Seung-Jong *(Korea Univ.)*

18:00-19:30 ThPOS-36.23
Towards the Improvement of Algorithms used in Robot-Assisted Therapies
Arantes, Ana Paula Bittar Britto* *(University of New Brunswick)*; Bressan, Nadja *(University of Prince Edward Island)*; McGibbon, Chris *(University of New Brunswick)*

18:00-19:30 ThPOS-36.24
Repetitively Forced use of the Paretic Leg Induced by Constraint Force Applied to the Non-Paretic Leg during Walking May Induce Motor Learning in Individuals Post-Stroke
Wu, Ming* *(Shirley Ryan Abilitylab (Formerly Rehabilitation Institute of Ch)*; Hsu, Chao-Jung *(Shirley Ryan AbilityLab)*; Kim, Janis *(Rehabilitation Institute of Chicago)*

18:00-19:30 ThPOS-36.25
Human Motion Tracking for Rehabilitation Basing on the 3D Image Features: A Pilot Study
Zhou, Yi-Shu *(National Yang-Ming Univ.)*; Zheng, Wei-Zhong *(National Yang Ming Univ.)*; Tang, Shih-Tsang *(Ming Chuan Univ.)*; Lai, Ying-Hui* *(National Yang-Ming Univ.)*

18:00-19:30 ThPOS-36.26
Sensorized Assistive Device to Hand Recovery
Mercado, Federico Gustavo *(Universidad Nacional de San Juan)*; Rodrigo Yanadel, H. Alejandro *(Universidad Nacional de San Juan)*; Oñas, Priscila *(Universidad Nacional de San Juan Facultad de Ingenieria)*; Perez Berenguer, Maria Elisa *(UNSJ)*; López, Natalia M* *(Universidad Nacional de San Juan)*

18:00-19:30 ThPOS-36.27
Development of Wrist Rehabilitation 3D System Applying Mirror Therapy Principle for Acute Stroke Patients
Phan, Huu Lam* *(Ulsan Univ.)*; Jang, Hojeong *(Dept. of Biomedical Engineering, Univ. of Ulsan, Ulsan)*; Son, Hyewon *(Univ. of Ulsan, Ulsan)*; Duong, Thuy *(Univ. of Ulsan)*; Nguyen, Trung *(Univ. of Ulsan)*; Nguyen, Hang Phuong *(Univ. of Ulsan)*; Le, Thi Huong *(Univ. of Ulsan)*; Lee, Suwon *(Univ. of Ulsan)*; Lee, HyoSeok *(Univ. of Ulsan)*; Oh, Seok *(Univ. of Ulsan)*; Hwang, Changho *(Ulsan Univ. Hospital)*; Koo, Kyoin *(Univ. of Ulsan)*

18:00-19:30 ThPOS-36.28
EEG Coherence of Mu Rhythm in Virtual Reality Mirror Therapy
Lim, Hyunmi *(Keimyung University)*; lim, Seungeui *(Keimyung University)*; Ku, Jeonghun* *(Keimyung University)*

18:00-19:30 ThPOS-36.29
Loss of Fascicle Gearing in Leg Muscles of Chronic Stroke Survivors
Son, Jongsang* *(Shirley Ryan AbilityLab (formerly Rehab. Inst. of Ch)*; Rymer, William Zev *(Northwest. & Rehab Inst of Chicago)*

18:00-19:30 ThPOS-36.30
Titration of Drug Molecules with p53/MDM2 Fusion Protein by Monitoring Conformational Change using Solid-State Nanopores
Chae, Hongsik *(Seoul National Univ.)*; Kwak, Dong-Kyu *(Korea Research Institute of Bioscience & Biotechnology)*; Lee, Mi-Kyung *(Korea Research Institute of Bioscience & Biotechnology)*; Chi, Seung-Wook *(Korea Research Institute of Bioscience & Biotechnology, KRIBB)*; Kim, Ki-Bum* *(Seoul National Univ.)*

18:00-19:30 ThPOS-36.31
A Novel Trellis-Based Heart Rate Estimation Technique
Shimazaki, Takunori *(Osaka City University)*; Hara, Shinsuke* *(Osaka City University)*

18:00-19:30 ThPOS-36.32

Pulse Wave Measurement by Piezo Film Attached to Fingernail Surface

Ishii, Kohei* *(National Institute of Technology, Kagawa College)*; Fujii, Junya *(Electro-Mechanical Systems Engineering Course, Faculty of Advanc)*; Nakai, Shizuki *(Electro-Mechanical Systems Engineering Course, Faculty of Advanc)*; Iima, Sota *(Electro-Mechanical Systems Engineering Course, Faculty of Advanc)*; Saito, Itsuro *(The University of Tokyo)*; Hiraoka, Nobuaki *(National Institute of Technology, Kagawa College)*

18:00-19:30 ThPOS-36.33

Towards the Development of an Optrode Biopotential Sensor: Characterization using in Vitro Cardiac Tissue Recordings

Revol, Emilie *(École Polytechnique Fédérale de Lausanne)*; Al Abed, Amr* *(University of New South Wales)*; Silvestri, Leonardo *(The University of New South Wales)*; Wei, Yuan *(The University of New South Wales)*; Wang, Han *(The University of New South Wales)*; Xinyue, Lei *(The University of New South Wales)*; Firth, Josiah *(The University of New South Wales)*; Lehmann, Torsten *(University of New South Wales)*; Ladouceur, Francois *(University of New South Wales)*; Lovell, Nigel H. *(University of New South Wales)*

18:00-19:30 ThPOS-36.34

Continuous Nocturnal Blood Pressure Tracking through Unobtrusively Sensing Pulse Transit Time

Carek, Andrew *(Georgia Institute of Technology)*; Holz, Christian* *(Microsoft Research)*

18:00-19:30 ThPOS-36.35

The Changes of Trunk Dynamics in Response to Unpredictable Trip Perturbation in Older Adults

Yoo, Dongyual* *(University of Houston)*; An, Junmo *(University of Houston)*; Kap-Ho, Seo *(Korea Institute of Robot & Convergence)*; Lee, Beom-Chan *(University of Houston)*

18:00-19:30 ThPOS-36.36

Arm Fixation Device with Laminar Jamming Structure

Lee, Chaedong *(Korea Univ.)*; Hong, Daehie* *(Korea Univ.)*

18:00-19:30 ThPOS-36.37

The Effectiveness Validation of a Modularized Fixation System Providing Standardized Micromotion for Animal Study

QI, Weichen *(The University of Hong Kong)*; Feng, Xiaoreng *(Dept. of Orthopaedics & Traumatology, Queen Mary Hospital)*; Zhang, Teng* *(The University of Hong Kong, Queen Marry Hospital)*; Leung, Frankie Ka-Li *(The University of Hong Kong)*

18:00-19:30 ThPOS-36.38

Measurement of Strain using Ultrasound Speckle Tracking in Uniaxial Tensile Testing

Liu, Chih-Chia *(Dept. of Biomedical Engineering, National Cheng Kung Univer)*; Hu, Jin-Jia* *(National Cheng Kung Univ.)*

18:00-19:30 ThPOS-36.39

Virtual Trajectory in Human Walking and Running: Dynamic Patterns Depended on Gait Speed

Fujihara, Ryo* *(Univ.)*; Hirai, Hiroaki *(Osaka Univ.)*; Kozasa, Kohei *(Osaka Univ.)*; Watanabe, Eichi *(Osaka Univ.)*; Nishikawa, Atsushi *(Osaka Univ.)*; Kogawa, Daisuke *(Mizuno Corporation)*; Nagao, Hiroshi *(Mizuno Corporation)*; Kaneko, Yasunori *(Mizuno Corporation)*; Krebs, Hermano Igo *(MIT)*

18:00-19:30 ThPOS-36.40

Prediction of Gait Events from Lower Limb Kinematics during Loaded Marching using Deep Learning

Zaroug, Abdelrahman *(Victoria University, iHeS)*; Mudie, Kurt Laurence *(Victoria University)*; Lai, Tze Huei, Daniel *(Victoria University)*; Billing, Daniel *(Defence Science & Technology Group)*; Begg, Rezaul* *(Victoria University)*

18:00-19:30 ThPOS-36.41

Tracking the 3D Shape of Steerable Catheters with Helical Markers

Yang, Anne En-Tzu* *(Sorbonne Université)*; Szewczyk, Jerome *(Université Pierre et Marie Curie – Paris 6)*

Friday, 26 July 2019

FrA01: 08:30-10:00 Hall A6+A7 – Level 1
Neurological Disorders (I) (Oral Session)
Chair: Jones, Richard D. *(New Zealand Brain Research Institute)*

08:30-08:45 FrA01.1
Classification of Major Depressive Disorder from Resting-State fMRI
Sen, Bhaskar *(University of Minnesota)*; Mueller, Bryon *(University of Minnesota)*; Klimes-Dougan, Bonnie *(University of Minnesota)*; Cullen, Kathryn R. *(University of Minnesota)*; Parhi, Keshab* *(University of Minnesota)*

08:45-09:00 FrA01.2
A Practical Method for Creating Targeted Focal Ischemic Stroke in the Cortex of Nonhuman Primates
Khateeb, Karam *(Univ. of Washington)*; Yao, Zhaojie *(Univ. of Washington, Seattle)*; Kharazia, Viktor *(UCSF)*; Burunova, Evelena *(Univ. of Washington)*; Song, Shaozhen *(Univ. of Washington)*; Wang, Ruikang *(Oregon Health & Science Univ.)*; Yazdan-Shahmorad, Azadeh* *(Univ. of Washington)*

09:00-09:15 FrA01.3
A Study of the Midbrain Network for Covert Attentional Orienting in Cervical Dystonia Patients using Dynamic Causal Modelling
Duggan, Oisin* *(Trinity College Dublin)*; Narasimham, Shruti *(Trinity College Dublin)*; McGovern, Eavan *(St. Vincent's University Hospital)*; Killian, Owen *(Trinity College Dublin)*; O'Riordan, Sean *(St. Vincent's University Hospital Dublin)*; Hutchinson, Michael *(St. Vincent's University Hospital Dublin)*; Reilly, Richard *(Trinity College Dublin)*

09:15-09:30 FrA01.4
Normalized Mutual Information of Phonetic Sound to Distinguish the Speech of Parkinson's Disease
Puzhavakkathu Madom Viswanathan, Rekha *(RMIT)*; Bingham, Adrian *(RMIT Univ. Melbourne)*; Raghav, Sanjay *(RMIT Univ.)*; Poosapadi Arjunan, Sridhar* *(SRM Institute of Science & Technology)*; Jelfs, Beth *(RMIT Univ.)*; Kempster, Peter *(Monash Health)*; Kant Kumar, Dinesh *(RMIT Univ.)*

09:30-09:45 FrA01.5
Complexity Measures of Postural Control in Type-2 Diabetic Subjects
Mengarelli, Alessandro* *(Univ. Politecnica delle Marche)*; Verdini, Federica *(Univ. Politecnica delle Marche)*; Cardarelli, Stefano *(Univ. Politecnica delle Marche)*; Tigrini, Andrea *(Univ. Politecnica delle Marche)*; Strazza, Annachiara *(Univ. Politecnica delle Marche)*; Di Nardo, Francesco *(Polytechnic Univ. of Marche)*; Rabini, Rosa Anna *(Diabetology Dept., INRCA Geriatric Hospital)*; Mercante, Oriano *(Posture & Movement Analysis Laboratory, INRCA Geriatric Hospital)*; Fioretti, Sandro *(Univ. Politecnica delle Marche)*

09:45-10:00 FrA01.6
A 3D Deep Residual Convolutional Neural Network for Differential Diagnosis of Parkinsonian Syndromes on 18F-FDG PET Images
Zhao, Yu* *(Technische Universität München)*; Menze, Bjoern *(TU Munich)*; Shi, Kuangyu *(University of Bern)*

FrA02: 08:30-10:00 Hall A8 – Level 1
Neural Networks and Support Vector Machines for Biosignal Processing (Oral Session)
Chair: Wang, Yiwen *(Hong Kong Univ. of Science and Technology)*
Co-Chair: Klosterman, Samantha *(Ball Aerospace Technologies Corp.)*

08:30-08:45 FrA02.1
Early Parkinson's Disease Detection via Touchscreen Typing Analysis using Convolutional Neural Networks
Iakovakis, Dimitrios* *(Aristotle Univ. of Thessaloniki)*; Hadjidimitriou, Stelios *(AUTH)*; Charisis, Vasileios *(Aristotle Univ. of Thessaloniki)*; Bostanjopoulou, Sevasti *(Dept. of Neurology, Hippokration Hospital, Thessalonik)*; Katsarou, Zoe *(Dept. of Neurology, Hippokration Hospital Thessaloniki, Gre)*; Klingelhoefer, Lisa *(Dept. of Neurology Technical Univ. Dresden, Dresden, G)*; Simone, Mayer *(Dept. of Neurology Technical Univ. Dresden, Dresden, G)*; Reichmann, Heinz *(Dept. of Neurology Technical Univ. Dresden, Dresden, G)*; Dias, Sofia Balula *(Faculdade de Motricidade Humana Univ. de Lisboa)*; Diniz, José Alves *(Faculdade de Motricidade Humana Univ. de Lisboa)*; Trivredi, Dhaval *(International Parkinson Excellence Research Centre, King's Colle)*; Chaudhuri, Ray *(International Parkinson Excellence Research Centre, King's Colle)*; Hadjileontiadis, Leontios *(Aristotle Univ. of Thessaloniki)*

08:45-09:00 FrA02.2
Classification of TMS Evoked Potentials using ERP Time Signatures and SVM versus Deep Learning
Naze, Sebastien* *(IBM Research)*; Caggiano, Vittorio *(IBM Research)*; Sun, Yinming *(Stanford School of Medicine)*; Lucas, Molly *(Stanford School of Medicine)*; Etkin, Amit *(Stanford University)*; Kozloski, James *(IBM Research)*

09:00-09:15 FrA02.3
Investigating Ensemble Learning and Classifier Generalization in a Hybrid, Passive Brain-Computer Interface for Assessing Cognitive Workload
Klosterman, Samantha* *(Ball Aerospace Technologies Corp.)*; Estepp, Justin Ronald *(Air Force Research Laboratory)*

09:15-09:30 FrA02.4
A Weight Transfer Mechanism for Kernel Reinforcement Learning Decoding in Brain-Machine Interfaces
Zhang, Xiang* *(The Hong Kong Univ. of Science & Technology)*; Wang, Yiwen *(Hong Kong Univ. of Science & Technology)*

09:30-09:45 FrA02.5
Optimal ELM-RBF Model and SERS Analysis of Saliva for Classification of NS1
Othman, N. H. *(Univ. Teknologi MARA)*; Lee, Yoot* *(Univ. Teknologi MARA)*; Mohd Radzol, Afaf Rozan *(Univ. Teknologi MARA)*; Mansor, Wahidah *(Univ. Teknologi MARA)*

09:45-10:00 FrA02.6
Convolutional Neural Networks to Detect Pediatric Apnea-Hypopnea Events from Oximetry
Vaquerizo-Villar, Fernando* *(Biomedical Engineering Group, Univ. of Valladolid, CIF Q471)*; Álvarez González, Daniel *(Río Hortega Univ. Hospital)*; Kheirandish-Gozal, Leila *(Section of Sleep Medicine, Dept. of Pediatrics, Pritzker Sc)*; Gutierrez, Gonzalo Cesar *(Univ. of Valladolid)*; Barroso-García, Verónica *(Univ. of Valladolid)*; del Campo, Félix *(Hospital del Río Hortega. Univ. De Valladolid)*; Gozal, David *(Section of Sleep Medicine, Dept. of Pediatrics, Pritzker Sc)*; Hornero, Roberto *(Univ. of Valladolid)*

FrA03: 08:30-10:00 Hall A3 – Level 1
The Future of Optical Health Monitoring – Measuring Vital signs and Brain Activity Non-Invasively (Invited Session)
Chair: Wang, Wenjin *(Philips Research)*

08:30-08:45 FrA03.1
Time-Domain Non-Contact Functional Optical Brain Imaging
Wabnitz, Heidrun* *(Physikalisch-Technische Bundesanstalt (PTB))*; Mazurenka, Mikhail *(Physikalisch-Technische Bundesanstalt (PTB))*; Di Sieno, Laura *(Politecnico di Milano)*; Contini, Davide *(Politecnico di Milano)*; Dalla Mora, Alberto *(Politecnico di Milano)*; Macdonald, Rainer *(Physikalisch-Technische Bundesanstalt (PTB))*; Pifferi, Antonio *(Politecnico di Milano)*

08:45-09:00 FrA03.2
Advances in using Infrared Thermography for Vital Sign Monitoring
Leonhardt, Steffen* *(RWTH Aachen University)*

09:00-09:15 FrA03.3
Smart Integrated-in-Package Optode for Seizure Localization and Subsequent Detection
Saha, Sreenil *(Ecole Polytechnique de Montreal)*; Lesage, Frederic *(Polytechnique Montreal)*; Sawan, Mohamad* *(Westlake Univ.)*

09:15-09:30 FrA03.4
Accuracy of Pulse Oximetry in Relation to Light Penetration Depths
Verkruysse, Wim* *(Philips Innovation Group, Philips Research, Eindhoven)*

09:30-09:45 FrA03.5
Computational Intelligence for Robust Personalized Vital Sign Inference
Colopy, Glen Wright* *(University of Oxford)*

FrA04: 08:30-10:00 Hall A1 – Level 1
Advances in Physiological Monitoring (Oral Session)
Chair: Sazonov, Edward *(University of Alabama)*

08:30-08:45 FrA04.1
Tidal Volume via Circumferences of the Upper Body: A Pilot Study
Laufer, Bernhard* *(Furtwangen University)*; Krueger-Ziolek, Sabine *(Furtwangen University)*; Docherty, Paul David *(University of Canterbury)*; Hoeflinger, Fabian *(Albert-Ludwigs-Universität Freiburg)*; Reindl, Leonhard *(Albert-Ludwigs-Universität Freiburg)*; Moeller, Knut *(Furtwangen University)*

08:45-09:00 FrA04.2
Objective Detection of Cigarette Smoking from Physiological Sensor Signals
Imtiaz, Masudul Haider *(Univ. of Alabama)*; Senyürek, Volkan *(The Univ. of Alabama)*; Belsare, Prajakta *(The Univ. of Alabama)*; Tiffany, Stephen *(State Univ. of New York at Buffalo)*; Sazonov, Edward* *(Univ. of Alabama)*

09:00-09:15 FrA04.3
Respiratory Rate on Exercise Measured by Nanoparticle-Based Humidity Sensor
Kano, Shinya* *(National Institute of Advanced Industrial Science & Technology)*; Yamamoto, Akio *(Kobe Univ.)*; Ishikawa, Akira *(Kobe Univ.)*; Fujii, Minoru *(Kobe Univ.)*

09:15-09:30 FrA04.4
Ejection Wave Segmentation for Contact-Free Heart Rate Estimation from Ballistocardiographic Signals
Pröll, Samuel Martin* *(UMIT)*; Hofbauer, Stefan *(Dept. of Anesthesiology & Critical Care Medicine, Univers)*; Kolbitsch, Christian *(Dept. of Anaesthesia & Intenive Care Medicine, Medical Un)*; Schubert, Rainer *(UMIT)*; Fritscher, Karl *(UMIT)*

09:30-09:45 FrA04.5
Biosignal-Based Multimodal Emotion Recognition in a Valence-ArousalAffective Framework Applied to Immersive Video Visualization
Pinto, Joana *(Instituto Superior Tecnico, Universidade de Lisboa)*; Fred, Ana *(IT – Instituto de Telecomunicações)*; Plácido da Silva, Hugo* *(IT – Instituto de Telecomunicações)*

09:45-10:00 FrA04.6
A Wearable System Developed to Monitor People Suffering from Vasovagal Syncope
Pietrewicz, Michal *(Gdansk Univ. of Technology)*; Polinski, Artur *(Gdansk Univ. of Technology)*; Kocejko, Tomasz* *(Gdansk Univ. of Technology)*; Wtorek, Jerzy *(Gdansk Univ. of Technology)*

FrA05: 08:30-10:00 Hall A2 – Level 1
Challenges and Advances of Signal and Image Processing in Epilepsy 1: Brain Networks (Minisymposium)
Chair: Schiecke, Karin *(Jena University Hospital. Friedrich Schiller University Jena)*
Co-Chair: Iasemidis, Leonidas *(Louisiana Tech University)*

08:30-08:45 FrA05.1
Insights into Diagnosis and Treatment of Epilepsy by Network Analysis of Brain Dynamics
Alamoudi, Omar* *(Louisiana Tech U. & King Abdulaziz U.)*; Hutson, Timothy *(Louisiana Tech University)*; Pati, Sandipan *(University of Alabama School of Medicine)*; Iasemidis, Leon *(Louisiana Tech University)*

08:45-09:00 FrA05.2
Endogenous and Externally-Cued Multi-Day Cycles of Brain Activity in Epilepsy
Baud, Maxime* *(Inselspital)*; Rao, Vikram *(UCSF)*

09:00-09:15 FrA05.3
Automated EEG Source Imaging and Functional Brain Connectivity in Epilepsy
van Mierlo, Pieter* *(Ghent University, Epilog NV)*

09:15-09:30 FrA05.4
Brain Networks in Epilepsy: Insights from Simultaneous Recordings of MEG and Intracerebral EEG
Bénar, Christian G.* *(INSERM)*; Chen, sophie *(Aix Marseille Univ, INSERM, INS, Inst Neurosci Syst, Marseille,)*; Badier, Jean-Michel *(Aix Marseille Université)*

FrA06: 08:30-10:00 Hall A5 – Level 1
Advances in Understanding of Human Motor Control Mechanisms (Invited Session)
Chair: Zenzeri, Jacopo *(Istituto Italiano di Tecnologia)*
Co-Chair: Suzuki, Yasuyuki *(Osaka University)*

08:30-08:45 FrA06.1
A Method for Examining the Intermittent and the Stiffness Postural Control Models using Data Assimilation with Bayesian Inference
Nomura, Taishin* *(Osaka Univ.)*; Suzuki, Yasuyuki *(Osaka Univ.)*; Nakamura, Akihiro *(Osaka Univ.)*; Kondo, Kazuya *(Osaka Univ.)*; Morasso, Pietro *(Italian Institute of Technology)*

08:45-09:00 FrA06.2
Sensorimotor Adaptation to Alteration of Postural Dynamics Induced by a Closed-Loop Perturbation System
Nozaki, Daichi* *(The University of Tokyo)*; Azat, Anvar *(University of Tokyo)*; Nakazawa, Yosuke *(Graduate School of Education, The University of Tokyo)*; Hagio, Shota *(Graduate School of Education, The University of Tokyo)*

09:00-09:15 FrA06.3
Tool Cognition and Control: By Humans, for Machines
Gowrishankar, Ganesh* *(CNRS)*; Li, Jun *(Institute for Infocomm research)*; Tee, Keng Peng *(Institute for Infocomm Research)*

09:15-09:30 FrA06.4
Mechanisms of Feedforward and Feedback Adaptation in Human Motor Control
Franklin, David W.* *(Technical University of Munich)*

09:30-09:45 FrA06.5
Is Intermittent Control the Source of the 0.5-2 Hz Non-Linear Oscillatory Component in Human Balance Control
Loram, Ian David* *(Manchester Metropolitan University)*

09:45-10:00 FrA06.6
Motor Control Mechanisms in Multi Strategies and Multi Goals Tasks
Zenzeri, Jacopo* *(Istituto Italiano di Tecnologia)*; Cherif, Amel *(Istituto Italiano di Tecnologia)*; Belgiovine, Giulia *(Istituto Italiano di Tecnologia)*; Morasso, Pietro *(Italian Institute of Technology)*

FrA07: 08:30-10:00 Hall A4 – Level 1
Physical Triggers and Nano-Biomaterials for Tissue Regeneration (Minisymposium)
Chair: Ricotti, Leonardo *(Scuola Superiore Sant'Anna)*
Co-Chair: Ferreira, Lino *(Center of Neurosciences and Cell Biology)*

08:30-08:45 FrA07.1
Magnetic Nanomaterials for Mechanotransduction and Cell Fate Regulation
Cheng, Yu* *(Tongji University)*

08:45-09:00 FrA07.2
Magnetically Driven Ferroelectric Micromachines for Delivery and Remote Electrical Stimulation of Neuronal Cells
Chen, Xiang-Zhong *(ETH Zürich)*; Mushtaq, Fajer *(ETH Zürich)*; Torlakcik, Harun *(ETH Zürich)*; Nelson, Bradley *(ETH Zurich)*; Pané Vidal, Salvador* *(ETH Zürich)*

09:00-09:15 FrA07.3
Iron Oxide Nanoparticles as the Magneto-Mechanical and Hyperthermia Responders on Eradication of Cancer Cells
Wu, Jiaojiao *(Tongji University)*; Cheng, Yu* *(Tongji University)*

09:15-09:30 FrA07.4
Light-Triggered Nanomaterials to Modulate Cell/Tissue Functions
Ferreira, Lino* *(Center of Neurosciences & Cell Biology)*

09:30-09:45 FrA07.5
Piezoelectric Nanomaterials and Ultrasound for Tissue Regeneration
Ricotti, Leonardo* *(Scuola Superiore Sant'Anna)*

FrA08: 08:30-10:00 M8 – Level 3
Health Informatics – Behavioral Health Informatics (Oral Session)

08:30-08:45 FrA08.1
Agitation Detection in People Living with Dementia using Multimodal Sensors
Khan, Shehroz* *(Toronto Rehabilitation Institute)*; Spasojevic, Sofija *(Toronto Rehabilitation Institute)*; Mihailidis, Alex *(Univ. of Toronto)*; Ye, Bing *(Univ. of Toronto)*; Iaboni, Andrea *(Univ. Health Network)*; Newman, Kristine *(Ryerson Univ.)*; Wang, Angel He *(Ryerson Univ.)*; Martin, Lori Schindel *(Ryerson Univ.)*; Nogas, Jacob *(Univ. of Toronto)*

08:45-09:00 FrA08.2
Teaching Machines to Know Your Depressive State: On Physical Activity in Health and Major Depressive Disorder
Qian, Kun* *(The Univ. of Tokyo)*; Kuromiya, Hiroyuki *(The Univ. of Tokyo)*; Zhang, Zixing *(Imperial College London)*; Kim, Jinhyuk *(Shizuoka Univ.)*; Nakamura, Toru *(Osaka Univ.)*; Yoshiuchi, Kazuhiro *(Dept. of Stress Sciences & Psychosomatic Medicine, Gradua)*; Schuller, Bjoern *(Imperial College London)*; Yamamoto, Yoshiharu *(The Univ. of Tokyo)*

09:00-09:15 FrA08.3
Behaviour Profiles for Evidence-Based Policies against Obesity
Sarafis, Ioannis* *(Aristotle University of Thessaloniki)*; Diou, Christos *(Aristotle University of Thessaloniki)*; Delopoulos, Anastasios *(Aristotle University of Thessaloniki)*

09:15-09:30 FrA08.4
Evaluation of the Impact of Extrinsic Rewards on User Engagement in a Health Promotion Context
Nuijten, Raoul Ceasar Yannic *(Eindhoven University of Technology)*; Van Gorp, Pieter* *(Eindhoven University of Technology)*; Kaymak, Uzay *(Eindhoven Techniche University)*; Simons, Monique *(Wageningen University)*; Astrid Kemperman, Astrid D.A.M. *(Eindhoven University of Technology)*; Van den Berg, Pauline E.W. *(Eindhoven University of Technology)*

09:30-09:45 FrA08.5
Detecting Emotional Valence using Time-Domain Analysis of Speech Signals
Deshpande, Gauri* *(Tata Research Development & Design Center, Tata Consultancy Se)*; Viraraghavan, Venkata Subramanian *(Tata Consultancy Services Limited)*; Duggirala, Mayuri *(Tata Research Development & Design Center, Tata Consultancy Se)*; Patel, Sachin *(Tata Research Development & Design Center, Tata Consultancy Se)*

09:45-10:00 FrA08.6
Reinforcement Learning-Based Adaptive Insulin Advisor for Individuals with Type 1 Diabetes Patients under Multiple Daily Injections Therapy
Sun, Qingnan* *(Univ. of Bern)*; Jankovic, Marko *(Bern Univ. Hospital "Inselspital")*; Mougiakakou, Stavroula *(Univ. of Bern)*

FrA09: 08:30-10:00 M1 – Level 3
Regulatory Applications in Human Phantoms for Computational Electromagnetics (Invited Session)
Chair: Noetscher, Gregory *(Worcester Polytechnic Institute)*
Co-Chair: Horner, Marc *(ANSYS, Inc.)*

08:30-08:45 FrA09.1
Skull-Remodeling with Tumor Treating Fields. The Role of Finite Element Methods in Surgery Planning and Treatment Evaluation
Korshoej, Anders R.* *(Aarhus University Hospital)*; Bicalho Saturnino, Guilherme *(Technical University of Denmark)*; Mikic, Nikola *(Aarhus University Hospital, Dept. of Neurosurgery)*; Thielscher, Axel *(Copenhagen University Hospital Hvidovre, Denmark & Biomedical En)*; Bomzon, Ze'ev *(Novocure)*

08:45-09:00 FrA09.2
Cloud-Based Platforms to Enable use of M&S Tools in Healthcare
Lucano, Elena *(University of Rome "Sapienza",)*; Carbone, Vincenzo *(InSilicoTrials)*; Serano, Peter *(Athinoula A. Martinos Center for Biomedical Imaging, Dept.)*; Pathmanathan, Pras *(US Food & Drug Administration)*; Angelone, Leonardo M. *(US Food & Drug Administration, Center for Devices & Radiolog)*; Emili, Luca *(InSilicoTrials)*; Horner, Marc* *(ANSYS, Inc.)*

09:00-09:15 FrA09.3
Development of a Framework for Tumor Treating Fields Dosimetry and Treatment Planning using Computational Phantoms
Bomzon, Ze'ev* *(Novocure)*; Urman, Noa *(Novocure)*; Levi, Shay *(Novocure ltd.)*; Lavy-Shahaf, Gitit *(Novocure ltd)*; Toms, Steven *(Warren Alpert Medical School of Brown University & Lifespan He)*; Ballo, Matthew *(West Cancer Center, Memphis Tennessee)*

09:15-09:30 FrA09.4
Using Computational Human Models to Calculate RF-Induced Unintended Stimulation for Implantable Medical Devices in MRI
Brown, James* *(MSEI)*; Qiang, Rui *(Micro System Engineering Inc. (Biotronik))*; Stadnik, Paul *(Micro Systems Engineering, Inc.)*; Stotts, Larry *(Biotronik)*; Von Arx, Jeffrey *(Micro Systems Engineering, Inc.)*

09:30-09:45 FrA09.5
Evaluation of Safety Metrics using the Coupled FMM-BEM Simulation Algorithm
Noetscher, Gregory* *(Worcester Polytechnic Institute)*; Pham, Dung *(Worcester Polytechnic Institute)*; Makarov, Sergey *(Electrical & Computer Engineering, Worcester Polytechnic Institute)*

09:45-10:00 FrA09.6
Modeling Electromagnetic Exposure of a Computational Human Model in a 3T MRI Coil
Kozlov, Mikhail* *(Max Planck Institute for Human Cognitive & Brain Sciences)*; Horner, Marc *(ANSYS, Inc.)*; Kainz, Wolfgang *(Food & Drug Administration)*; Weiskopf, Nikolaus *(Max Planck Institute for Human Cognitive & Brain Sciences)*; Möller, Harald *(Max Planck Institute for Human Cognitive & Brain Sciences)*

FrA10: 08:30-10:00 M2 – Level 3
Progress in Noninvasive Fetal Screening Techniques (Invited Session)
Chair: Khandoker, Ahsan H. *(Khalifa University of Science, Technology and Research)*

08:30-08:45 FrA10.1
Detection of End of T-Wave in Fetal ECG using Recurrence Plot
Widatalla, Namareq* *(Tohoku Univ.)*; Khandoker, Ahsan H *(Khalifa Univ. of Science, Technology & Research)*; Kasahara, Yoshiyuki *(Tohoku Univ.)*; Kimura, Yoshitaka *(Tohoku Univ.)*

08:45-09:00 FrA10.2
Fetal Cardiac Timing Events Estimation from Doppler Ultrasound Signal using Cepstrum Analysis
Al Nuaimi, Saeed* *(Khalifa University)*; Jimaa, Shihab *(Khalifa University of Science & Technology)*; Hadjileontiadis, Leontios *(Aristotle University of Thessaloniki)*; Khandoker, Ahsan H *(Khalifa University of Science, Technology & Research)*

09:00-09:15 FrA10.3
Comparison of Current Methods of Minimally Invasive Fetal Cardiac Monitoring
Krishnan, Anita* *(Children's National Medical Center)*; Govindan, Rathinaswamy *(Children's National Health System)*

09:15-09:30 FrA10.4
Fetal Heart Sounds Classification using Fetal Phonocardiogram Signals and Deep Learning Techniques
Koutsiana, Elisavet *(Lab. of Medical Informatics, The Medical School, Aristotle Unive)*; Kosvyra, Alexandra *(Aristotle Univ. of Thessaoniki)*; Hadjileontiadis, Leontios *(Aristotle Univ. of Thessaloniki)*; Khandoker, Ahsan H *(Khalifa Univ. of Science, Technology & Research)*; Chouvarda, Ioanna* *(Aristotle Univ.)*

FrA11: 08:30-10:00 M4 – Level 3
State-of-the-Art Advances in Sleep Health Science and Technology: Session 1 – Novel Technologies for Sleep Quantification (Minisymposium)
Chair: Khoo, Michael *(University of Southern California)*
Co-Chair: Penzel, Thomas *(Charité Universitätsmedizin Berlin)*

08:30-08:45 FrA11.1
Tracheal Sound Sensors for Sleep Studies: From Acoustic Signals to Physiological Information
Sabil, AbdelKebir* *(Philips Sleep & Respiratory Care)*; Glos, Martin *(Charité-Universitaetsmedizin Berlin)*; Penzel, Thomas *(Charité Universitätsmedizin Berlin)*

08:45-09:00 FrA11.2
Detection of Sleepiness through Infrared-Based Analysis of Eyelids and Pupil Parameters with Drowsimeter
Francois, Clementine* *(Phasya)*; Wertz, Jerome *(Phasya)*

09:00-09:15 FrA11.3
Somnograph – Development of a New Self-Administered EEG-Based Sleep Sensor
Glos, Martin* *(Charité-Universitaetsmedizin Berlin)*; Veauthier, Christian *(Charité-Universitätsmedizin Berlin)*; Wiegner, Arnim *(SOMNOmedics GmbH)*; Penzel, Thomas *(Charité Universitätsmedizin Berlin)*

09:15-09:30 FrA11.4
3D-Video during the Night: A New Contactless Diagnostic Tool for Detecting Sleep Apnea and Periodic Leg Movements
Veauthier, Christian *(Charité-Universitätsmedizin Berlin)*; Ryczewski, Juliane *(Charité – Universitätsmedizin Berlin, Germany)*; Mansow-Model, Sebastian *(Motognosis GmbH)*; Otte, Karen *(Motognosis GmbH)*; Kayser, Bastian* *(Motognosis GmbH)*; Glos, Martin *(Charité-Universitaetsmedizin Berlin)*; Schoebel, Christoph *(Charité Universitaetsmedizin Berlin)*; Paul, Friedemann *(Charité – Universitätsmedizin Berlin, Germany)*; Brandt, Alexander *(Charité – Universitätsmedizin Berlin, Germany)*; Penzel, Thomas *(Charité Universitätsmedizin Berlin)*

FrA12: 08:30-10:00 M6 – Level 3
Recent Advances and Challenges in 4D Flow MRI (Invited Session)
Chair: Zhong, Liang *(National Heart Centre Singapore, Duke-NUS Medical School, National University of Singapore)*
Co-Chair: van der Geest, Rob *(Leiden University Medical Center)*

08:30-08:45 FrA12.1
4D Flow MRI-Derived Arterial Vortical Flow Associates with Bi-Ventricular Function in Pulmonary Hypertension Patients
Elbaz, Mohammed S.M.* *(Northwestern University)*

08:45-09:00 FrA12.2
Hemodynamic Forces in the Left and Right Ventricle
Töger, Johannes* *(Clinical Physiology, Dept. of Clinical Sciences, Lund Univ.)*

09:00-09:15 FrA12.3
Wall Shear Stress Mapping in the Aorta from 4D Flow MRI
van Ooij, Pim *(Amsterdam University Medical Centers Location AMC)*; Michael, Markl *(Northwestern University)*; Zhong, Liang* *(Duke-Duke Medical School, National University of Singapore)*; Nederveen, Aart *(Amsterdam University Medical Centers, AMC)*; Barker, Alex *(Northwestern University)*

FrA13: 08:30-10:00 R2 – Level 3
Deep Learning Methods in Sensors and Wearable Systems (Oral Session)
Co-Chair: Potluri, Sasanka *(Institute III/Dept. Sport Science, Otto-von-Guericke University Magdeburg)*

08:30-08:45 FrA13.1
Deep Learning based Gait Abnormality Detection using Wearable Sensor System
Potluri, Sasanka* *(Otto-von-Guericke University Magdeburg, Institute for Automation)*; Ravuri, Srinivas *(Otto-von-Guericke University Magdeburg, Institute for Automation)*; Diedrich, Christian *(Otto-von-Guericke University Magdeburg, Institute for Automation)*; Schega, Lutz *(Otto-von-Guericke University Magdeburg, Institute for Sport Scie)*

08:45-09:00 FrA13.2
Recurrent Neural Network as Estimator for a Virtual sEMG Channel
Machado, Juliano* *(Instituto Federal Sul-Riograndense (IFSul))*; Cene, Vinicius H. *(Univ. Federal do Rio Grande do Sul)*; Balbinot, Alexandre *(Federal Univ. of Rio Grande do Sul (UFRGS))*

09:00-09:15 FrA13.3
Deep Neural Network-Based Gait Classification using Wearable Inertial Sensor Data
Jung, Dawoon *(Korea Institute of Science & Technology)*; Nguyen, Mau Dung *(Korean Institute of Science & Technology)*; Han, Jooin *(Korean Institute of Science & Technology)*; Park, Mina *(Korean Institute of Science & Technology)*; Lee, Kwanhoon *(Korean Institute of Science & Technology)*; Yoo, Seonggeun *(Seoul National Univ. of Science & Technology)*; Kim, Jinwook *(Korean Institute of Science & Technology)*; Mun, Kyung-Ryoul* *(Korean Institute of Science & Technology)*

09:15-09:30 FrA13.4
Prediction of the Plantar Force during Gait using Wearable Sensors and Deep Neural Networks
Nagashima, Mikihisa* *(Nara Institute of Science & Tech.)*; Cho, Sung-Gwi *(Nara institute of Science & Tech.)*; Ding, Ming *(Nara Institute of Science & Tech.)*; Garcia Ricardez, Gustavo Alfonso *(Nara Institute of Science & Tech.)*; Takamatsu, Jun *(Nara Institute of Science & Tech.)*; Ogasawara, Tsukasa *(Nara Institute of Science & Tech.)*

09:30-09:45 FrA13.5
Feasibility Study of Deep Neural Network for Heart Rate Estimation from Wearable Photoplethysmography and Acceleration Signals
Chung, Heewon *(Wonkwang University School of Medicine)*; Ko, Hoon *(Wonkwang University School of Medicine)*; Lee, Hooseok *(Wonkwang University School of Medicine)*; Lee, Jinseok* *(Wonkwang University School of Medicine)*

09:45-10:00 FrA13.6
Eyelid Movement Command Classification using Machine Learning
Graybill, Philip *(Penn State University)*; Kiani, Mehdi* *(Pennsylvania State University)*

FrA14: 08:30-10:00 R3 – Level 3
Signal Processing and Classification in Sleep Studies (I) (Oral Session)
Chair: Penzel, Thomas *(Charité Universitätsmedizin Berlin)*
Co-Chair: Bianchi, Anna Maria *(Politecnico di Milano)*

08:30-08:45 FrA14.1
A Transition Probability based Classification Model for Enhanced N1 Sleep Stage Identification during Automatic Sleep Stage Scoring
Davies, Harry* *(Imperial College London)*; Nakamura, Takashi *(Imperial College London)*; Mandic, Danilo *(Imperial College)*

08:45-09:00 FrA14.2
A Point Process Framework for the Characterization of Sleep States in Early Infancy
Pini, Nicolò* *(Politecnico di Milano)*; Lucchini, Maristella *(Politecnico di Milano)*; Fifer, William P. *(Dept. of Psychiatry & Pediatrics, Columbia Univ. Col)*; Signorini, Maria G. *(Politecnico di Milano)*; Barbieri, Riccardo *(Politecnico di Milano)*

09:00-09:15 FrA14.3
A Clinically Applicable Interactive Micro and Macro-Sleep Staging Algorithm for Elderly and Patients with Neurodegeneration
Cesari, Matteo* *(Technical University of Denmark)*; Christensen, Julie Anja Engelhard *(Technical University of Denmark)*; Sixel-Döring, Friederike *(Paracelsus-Elena Klinik, Kassel)*; Muntean, Maria-Lucia *(Paracelsus-Elena Klinik, Kassel)*; Mollenhauer, Brit *(Paracelsus-Elena Klinik, Kassel)*; Trenkwalder, Claudia *(Paracelsus-Elena Klinik, Kassel)*; Jennum, Poul *(University of Copenhagen, Denmark)*; Sorensen, Helge B D *(Technical University of Denmark)*

09:15-09:30 FrA14.4
Snoring – An Acoustic Definition
Janott, Christoph* *(Technical University of Munich)*; Rohrmeier, Christian *(Faculty of Medicine, University of Regensburg, Regensburg)*; Schmitt, Maximilian *(University of Augsburg)*; Hemmert, Werner *(Technical University of Munich)*; Schuller, Bjoern *(University of Augsburg / Imperial College London)*

09:30-09:45 FrA14.5
Sleep Arousal and Sudden Changes in Cardiac QT Interval
Salari Shahrbabaki, Sobhan* *(University of Adelaide)*; Baumert, Mathias *(The University of Adelaide)*

09:45-10:00 FrA14.6
Classification Algorithm for Nocturnal Hypoxemia using Nocturnal Pulse Oximetry
Izumi, Shintaro* *(Kobe University)*; Nagano, Tatsuya *(Kobe University)*; Yoshizaki, Asuka *(Kobe University)*; Nishimura, Yoshihiro *(Kobe University)*

FrA15: 08:30-10:00 M3 – Level 3
Image Analysis and Classification – Machine Learning Approaches (IV) (Oral Session)
Chair: Antani, Sameer *(National Library of Medicine)*

08:30-08:45 FrA15.1
CLPNet: Cleft Lip and Palate Surgery Support with Deep Learning
Li, Yizhou *(Sichuan Univ.)*; Cheng, Junhao *(Sichuan Univ.)*; Mei, Hongxiang *(Sichuan Univ.)*; Ma, Huangshui *(Sichuan Univ.)*; Chen, Zhuojun *(Baidu Inc)*; Li, Yang* *(Sichuan Univ.)*

08:45-09:00 FrA15.2
Assessment of Laboratory Mouse Activity in Video Recordings using Deep Learning Methods
Kopaczka, Marcin* *(RWTH Aachen Univ.)*; Tillmann, Daniel *(RWTH Aachen Univ.)*; Ernst, Lisa *(RWTH Aachen Univ.)*; Justus, Schock *(RWTH Aachen Univ.)*; Tolba, Rene *(RWTH Aachen Univ.)*; Merhof, Dorit *(RWTH Aachen Univ.)*

09:00-09:15 FrA15.3
Automatic PAP Mask Sizing with a Error Correcting Autoencoder
Johnston, Benjamin* *(University of Sydney)*; de Chazal, Philip *(University of Sydney)*

09:15-09:30 FrA15.4
Endoscopic Image Clustering with Temporal Ordering Information based on Dynamic Programming
Harada, Shota* *(Kyushu University)*; Hayashi, Hideaki *(Kyushu University)*; Bise, Ryoma *(Kyushu University)*; Tanaka, Kiyohito *(Kyoto Second Red Cross Hospital)*; Meng, Qier *(Research Center for Medical Big data, National Institute of Info)*; Uchida, Seiichi *(Kyushu University)*

09:30-09:45 FrA15.5
Deep Multi-Modality Collaborative Learning for Distant Metastases Predication in PET-CT Soft-Tissue Sarcoma Studies
Peng, Yige *(The University of Sydney)*; Bi, Lei *(University of Sydney)*; Guo, Yuyu *(School of Biomedical Engineering, Shanghai Jiao Tong University)*; Feng, Dagan *(The University of Sydney)*; Fulham, Michael *(Royal Prince Alfred Hospital)*; Kim, Jinman* *(University of Sydney)*

09:45-10:00 FrA15.6
Assessment of an Ensemble of Machine Learning Models Toward Abnormality Detection in Chest Radiographs
Rajaraman, Sivaramakrishnan* *(National Library of Medicine)*; Sornapudi, Sudhir *(Missouri Univ. of Science & Technology)*; Kohli, Marc *(Dept. of Radiology & Biomedical Imaging, Univ. of Ca)*; Antani, Sameer *(National Library of Medicine)*

FrA16: 08:30-10:00 M5 – Level 3
Micro- and Nano-Biorobotics (Oral Session)
Chair: Piovesan, Davide *(Gannon University)*
Co-Chair: Schostek, Sebastian *(Ovesco Endoscopy AG)*

08:30-08:45 FrA16.1
Conducting Polymer Microtubes for Bioactuators
Eslamian, Mohammadjavad *(Univ. of Houston)*; Mirab, Fereshtehsadat *(Univ. of Houston)*; Majd, Sheereen *(Univ. of Houston)*; Abidian, Mohammad Reza* *(Univ. of Houston)*

08:45-09:00 FrA16.2
Predictive Tilt Compensation for Robot Assisted Magnetic Capsule Endoscope
Mahmood, Salman* *(Ovesco Endoscopy AG)*; Schurr, Marc O. *(Ovesco Endoscopy AG)*; Schostek, Sebastian *(Ovesco Endoscopy AG)*

09:00-09:15 FrA16.3
Taxonomy of Two Dimensional Bio-Inspired Locomotion Systems
Kehoe, Matthew *(Gannon Univ.)*; Piovesan, Davide* *(Gannon Univ.)*

09:15-09:30 FrA16.4
Investigation of Current Control for a New Bi-Directional Linear Capsule Robot
Wu, Linlin* *(Aalborg University)*; Lu, Kaiyuan *(Aalborg University)*; Xia, Yongming *(Aalborg University)*

09:30-09:45 FrA16.5
A Miniaturized Capsule Endoscope Equipped a Marking Module for Intestinal Tumor Localization
Hoang, Manh Cuong* *(Chonnam National Univ.)*; Choi, Eunpyo *(Chonnam National Univ.)*; Kang, Byungjeon *(Robot Research Initiative, Chonnam National Univ.)*; Kim, Chang-Sei *(Chonnam National Univ.)*; Park, Jongoh *(Chonnam National Univ.)*

09:45-10:00 FrA16.6
Soft Phantom for the Training of Renal Calculi Diagnostics and Lithotripsy
Li, Dandan *(Max Planck Institute for Intelligent Systems)*; Suarez-Ibarrola, Rodrigo *(Univ. Medical Centre Freiburg)*; Choi, Eunjin *(Max Planck Institute for Intelligent Systems)*; Jeong, Moonkwang *(Max Planck Institute for Intelligent Systems)*; Gratzke, Christian *(Univ. Medical Centre Freiburg)*; Miernik, Arkadiusz *(Univ. Medical Centre Freiburg)*; Fischer, Peer *(Max Planck Institute for Intelligent Systems)*; Qiu, Tian* *(Max Planck Institute for Intelligent Systems)*

FrA17: 08:30-10:00 R12 – Level 3
Point of Care – Global Health Challenges (Oral Session)
Co-Chair: Bhatti, Pamela *(Georgia Institute of Technology)*

08:30-08:45 FrA17.1
Contactless Respiration and Heartbeat Monitoring of Multiple People using a 2-D Imaging Radar
Walterscheid, Ingo *(Fraunhofer FHR)*; Biallawons, Oliver* *(Fraunhofer FHR)*; Berens, Patrick *(Fraunhofer FHR)*

08:45-09:00 FrA17.2
Assessment of Feeding Teats: An Experimental Study
Chericoni, Assia* *(Università Campus Biomedico di Roma)*; Tosi, Jacopo *(Università Campus Bio-Medico di Roma)*; Anna Maria, Visco *(Neonatal Care Unit of Santa Maria Goretti Hospital)*; Lubrano, Riccardo *(Università degli Studi di Roma La Sapienza)*; Taffoni, Fabrizio *(Campus Bio-Medico University)*

09:00-09:15 FrA17.3
Co-Design Open-Source Medical Devices: How to Minimize the Human Error using UBORA E-Infrastructure
Di Pietro, Licia* *(University of Pisa)*; De Maria, Carmelo *(Research Center E. Piaggio – University of Pisa)*; Ravizza, Alice *(PGG Scientific)*; Ahluwalia, Arti *(Pisa University)*

09:15-09:30 FrA17.4
A Novel, Efficient 3D-Printing based Manufacturing Process for Custom Ocular Prostheses
Beiruti, Sally *(Massachusetts Institute of Tech.)*; Chandar, Arjun *(Massachusetts Institute of Tech.)*; Gee, Kaitlyn *(Massachusetts Institute of Tech.)*; Jones, Alexus *(Massachusetts Institute of Tech.)*; Le Henaff, Anne Claire* *(Massachusetts Institute of Tech.)*; Zhang, Zhengyang *(Massachusetts Institute of Tech.)*; Narain, Jaya *(Massachusetts Institute of Tech.)*; Winter, Amos *(MIT)*

09:30-09:45 FrA17.5
Reliability of the Balance Quality Tester (BQT) for Balance Quality Measurement
Rahal, Mohamad *(University of Technology of Troyes (UTT), Troyes, France)*; Chkeir, Aly *(University of Technology of Troyes)*; Nassereddine, Mohamad *(Lebanese University – Faculty of Sciences, Beirut Lebanon)*; Atieh, Mirna *(Lebanese University – Faculty of Economic Sciences & administr)*; Soubra, Racha* *(Université de Technologie de Troyes)*

09:45-10:00 FrA17.6
Design Considerations for Artefact-Free Optoelectronic Systems
Firfilionis, Dimitris* *(Newcastle Univ.)*; Luo, Jun-Wen *(Newcastle Univ.)*; Ramezani, Reza *(Newcastle Univ.)*; Escobedo Cousin, Enrique *(Newcastle Univ.)*; Bailey, Richard Geoffrey *(Newcastle Univ.)*; O'Neill, Anthony *(Newcastle Univ.)*; Degenaar, Patrick *(Newcastle Univ.)*

FrA18: 08:30-10:00 R13 – Level 3
Neural Interfaces (Oral Session)

08:30-08:45 FrA18.1
Enhanced ICMR Amplifier for High CMRR Biopotential Recordings
Oreggioni, Julian* *(IIE, Facultad de Ingenieria, Universidad de la Republica)*; Castro-Lisboa, Pablo *(Universidad de la República)*; Silveira, Fernando *(Universidad de la Republica)*

08:45-09:00 FrA18.2
Fabrication of a Self-Curling Cuff with a Soft, Ionically Conducting Neural Interface
Thakur, Raviraj *(John's Hopkins Univ.)*; Nair, Ankitha Rajagopalan *(John's Hopkins Univ.)*; Jin, Andrew *(John's Hopkins Univ.)*; Fridman, Gene* *(Johns Hopkins Univ.)*

09:00-09:15 FrA18.3
A Feasibility Study on Optically Transparent Encapsulation for Implantable Neural Prostheses
Shim, Shinyong* *(Seoul National University)*; Kim, Sung June *(Seoul National University)*

09:15-09:30 FrA18.4
A System for Combined Laser Doppler Flowmetry and Microelectrode Recording during Deep Brain Stimulation Implantation
Wardell, Karin* *(Linköping University)*; Zsigmond, Peter *(Linköping University)*; Hemm, Simone *(University of Applied Sciences & Arts Northwestern Switzerland)*

09:30-09:45 FrA18.5
Electrochemical Stability of Thin-Film Platinum as Suitable Material for Neural Stimulation Electrodes
Pfau, Jennifer* *(Univ. of Freiburg, Dept. of Microsystems Engineering I)*; Ganatra, Dev *(Univ. of Freiburg)*; Weltin, Andreas *(Univ. of Freiburg)*; Urban, Gerald A. *(Univ. of Freiburg)*; Kieninger, Jochen *(Univ. of Freiburg)*; Stieglitz, Thomas *(Univ. of Freiburg)*

09:45-10:00 FrA18.6
In Vitro Reactive-Accelerated-Aging Assessment of Anisotropic Conductive Adhesive and Back-End Packaging for Electronic Neural Interfaces
Kuliasha, Cary *(Univ. of Florida)*; Judy, Jack* *(Univ. of Florida)*

FrA19: 08:30-10:00 R4 – Level 3
Sensor Informatics – Physiological Monitoring (Oral Session)
Chair: Chen, Ying *(University of Aizu)*

08:30-08:45 FrA19.1
Evaluation of Pulse Arrival Times during Lower Body Negative Pressure Test for the Non-Invasive Detection of Hypovolemia
Tigges, Timo* *(Technical Univ. Berlin)*; Feldheiser, Aarne *(Charité – Univ. Berlin, Campus Virchow-Klinikum)*; Pielmus, Alexandru Gabriel *(Technische Univ. Berlin)*; Klum, Michael *(Technische Univ. Berlin)*; Wiegank, Ludwig *(Charité – Univ. Berlin)*; Orglmeister, Reinhold *(Technische Univ. Berlin)*

08:45-09:00 FrA19.2
Cuff-Less Blood Pressure Measurement based on Deep Convolutional Neural Network
Liu, Zengding *(Shenzhen Institutes of Advanced Tech., Chinese Academy of Sc)*; Miao, Fen *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Wang, Ruxin *(Shenzhen Institutes of Advanced Tech., Chinese Academy of Sc)*; Liu, Jikui *(Shenzhen Institutes of Advanced Tech. Chinese Academy of Sc)*; Wen, Bo *(SIAT, CAS)*; Li, Ye* *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*

09:00-09:15 FrA19.3
Real-Time Cognitive Workload Monitoring based on Machine Learning using Physiological Signals in Rescue Missions
Momeni, Niloofar* *(Swiss Federal Institute of Technology Lausanne)*; Dell'Agnola, Fabio *(Ecole Polythechique Fédérale de Lausanne (EPFL))*; Arza Valdés, Adriana *(École Polytechnique Fédérale de Lausanne EPFL)*; Atienza, David *(EPFL)*

09:15-09:30 FrA19.4
Effect of Different ECG Leads on Estimated R-R Intervals and Heart Rate Variability Parameters
Jeyhani, Vala* *(GE Healthcare)*; Mäntysalo, Matti *(Tampere University)*; Noponen, Kai *(University of Oulu)*; Seppänen, Tapio *(University of Oulu)*; Vehkaoja, Antti *(Tampere University)*

09:45-10:00 FrA19.6
Real-Time Respiration Measurement during Sleep using a Microwave Sensor
Chen, Ying* *(University of Aizu)*; Kaneko, Masahiko *(Simplex Quantum Inc.)*; Hirose, Shinichi *(Simplex Quantum Inc.)*; Chen, Wenxi *(University of Aizu)*

FrA20: 08:30-10:00 R5 – Level 3
Motor Neuroprostheses (Oral Session)

08:30-08:45 FrA20.1
Comparative Study of Intraspinal Microstimulation and Epidural Spinal Cord Stimulation
Tao, Chunling *(Nantong Univ.)*; Shen, Xiaoyan* *(Nantong Univ.)*; Ma, Lei *(Nantong Univ.)*; Shen, Jiahuan *(Nantong Univ.)*; Li, Zhiling *(Nantong Univ.)*; Wang, Zhigong *(Southeast Univ.)*; Lü, Xiaoying *(Southeast Univ.)*

08:45-09:00 FrA20.2
A Tool to Select FES Parameters for Chronic SCI
Meneghel, Maykon Christian *(Pontifical Catholic University of Paraná, Graduate Program on He)*; Manffra, Elisangela F.* *(Pontificia Universidade Católica do Paraná)*; Nogueira-Neto, Guilherme *(Pontificia Universidade Catolica do Parana)*

09:00-09:15 FrA20.3
A Performance Comparison of Neuromuscular Electrical Stimulation Protocols for Isolated Quadriceps Contraction versus Co-Contraction of Quadriceps and Hamstrings
Duignan, Ciara *(University College Dublin)*; Minogue, Conor M *(Biomedical Research Ltd)*; Caulfield, Brian* *(UCD)*

09:15-09:30 FrA20.4
A Physics-Based Virtual Reality Environment to Quantify Functional Performance of Upper-Limb Prostheses
Katy, Odette *(University of Central Florida)*; Fu, Qiushi* *(University of Central Florida)*

09:30-09:45 FrA20.5
Simulation of the Assistance of Passive Knee Orthoses in FES Cycling
Cardoso de Sousa, Ana Carolina* *(University of Brasília)*; Shimabuko Cascás Sousa, Felipe *(Universidade de Brasília)*; Padilha Lanari Bó, Antônio *(Universidade de Brasília)*

09:45-10:00 FrA20.6
Design of a Wireless, Modular and Programmable Neuromuscular Electrical Stimulator
Cerone, Giacinto Luigi* *(Politecnico di Torino)*; Vieira, Taian *(Politecnico di Torino)*; Botter, Alberto *(Politecnico di Torino)*; Gazzoni, Marco *(Politecnico di Torino)*

FrA21: 08:30-10:00 R8 – level 3
Smart Implants (Oral Session)
Co-Chair: Hoffmann, Klaus-Peter *(Fraunhofer Institut für Biomedizinische Technik)*

08:30-08:45 FrA21.1
Integrated Force Sensor in a Cochlear Implant for Hearing Preservation Surgery
N Vadivelu, Arvind Kumar* *(The University of Melbourne)*; Liu, Zhengyong *(Hong Kong Polytechnic University)*; Gunawardena, Dinusha Serandi *(Hong Kong Polytechnic University)*; Chen, Bernard *(The University of Melbourne)*; Tam, Hwa-Yaw *(Hong Kong Polytechnic University)*; O'Leary, Stephen *(The University of Melbourne)*; Oetomo, Denny *(The University of Melbourne)*

08:45-09:00 FrA21.2
Miniaturized Multi Sensor Implant for Monitoring of Hemodynamic Parameters
Dogan, Özgü* *(Fraunhofer Institute for Microelectronic Circuits & Systems IM)*; Schierbaum, Nicolas *(Fraunhofer Institute for Microelectronic Circuits & Systems IM)*; Weidenmueller, Jens *(Fraunhofer IMS)*; Baum, Mario *(Fraunhofer ENAS)*; Schroeder, Tim *(Fraunhofer ENAS)*; Wuensch, Dirk *(Fraunhofer ENAS)*; Goertz, Michael *(Fraunhofer Institute of Microelectronic Systems & Circuits)*; Seidl, Karsten *(Univ. of Duisburg-Essen)*

09:00-09:15 FrA21.3
Multi-Ring Ultrasonic Transducer on a Single Piezoelectric Disk for Powering Biomedical Implants
Hosseini, Seyedsina* *(Aarhus Univ.)*; Laursen, Kjeld *(Aarhus Univ.)*; Rashidi, Amin *(Aarhus Univ.)*; Moradi, Farshad *(Integrated Circuits & Electronics Laboratory, Dept. of En)*

09:15-09:30 FrA21.4
Frequency and Phase Synchronization in Distributed (Implantable-Transcutaneous) Neural Interfaces
Toth, Robert* *(University of Oxford)*; Holt, Abbey *(University of Oxford)*; Benjaber, Moaad *(University of Oxford)*; Sharott, Andrew *(University of Oxford)*; Denison, Timothy *(Medtronic)*

09:30-09:45 FrA21.5
An Energy-Efficient Implantable-Neural-Stimulator System with Wireless Charging and Dynamic Voltage Output
Fu, Xingyu *(Institute of Microelectronics, Tsinghua Univ.)*; Mai, Songping* *(Graduate School at Shenzhen, Tsinghua Univ.)*; Wang, Zhihua *(Dept. of Electronic Eng., Tsinghua Univ. Beijing, P.)*

09:45-10:00 FrA21.6
Effect of Signals on the Encapsulation Performance of Parylene Coated Platinum Tracks for Active Medical Implants
Nanbakhsh, Kambiz* *(Delft University of Technology)*; Kluba, Marta Maria *(Delft University of Technology)*; Pahl, Barbara *(Fraunhofer Institute for Reliability & Micro-integration IZM)*; Bourgeois, Florian *(Comelec)*; Dekker, Ronald *(TU Delft)*; Serdijn, Wouter A. *(Delft University of Technology)*; Giagka, Vasiliki *(Bioelectronics, TU Delft)*

FrB01: 10:30-12:00 Hall A6+A7 – Level 1
Neurological Disorders (II) (Oral Session)

10:30-10:45 FrB01.1
EMG-Based Indicators of Muscular Co-Activation during Gait in Children with Duchenne Muscular Dystrophy
Rinaldi, Martina *(Roma Tre University)*; Petrarca, Maurizio *(Pediatric Hospital Bambino Gesù)*; Romano, Alberto *(Ospedale Pediatrico Bambino Gesù)*; Vasco, Gessica *(Bambino Gesù Children's Hospital)*; D'Anna, Carmen *(Roma TRE University – Engineering Dept.)*; Schmid, Maurizio* *(Roma Tre University)*; Castelli, Enrico *(Pediatric Hospital Bambino Gesù)*; Conforto, Silvia *(University Roma TRE)*

10:45-11:00 FrB01.2
Effect of Temporal Lobe Epilepsy on Auditory-Motor Integration for Vocal Pitch Regulation: Evidence from Brain Functional Network Analysis
Wang, Tianqi *(Shenzhen Institute of Advanced Technology)*; Liu, Hanjun *(The First Affiliated Hospital, Sun Yat-Sen University)*; Wang, Lan *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Ng, Manwa, L. *(Speech Science Laboratory, Division of Speech & Hearing Scienc)*; Li, Hua *(The Second People's Hospital of Shenzhen, The First Affiliated H)*; Yan, Nan* *(Shenzhen Institute of Advanced Integration Technology, Chinese A)*

11:00-11:15 FrB01.3
Optimization of the Cortical Traveling Wave Analysis Framework for Feasibility in Stereo-Electroencephalography
Coelli, Stefania* *(Dept. of Electronics, Information & Bioengineering, Polit)*; Nobili, Lino *(Center for Sleep Medicine at Niguarda Ca' Granda Hospital, Milan)*; Boly, Melanie *(University of Wisconsin)*; Riedner, Brady *(University of Wisconsin)*; Bianchi, Anna Maria *(Politecnico di Milano)*

11:15-11:30 FrB01.4
Estimating Intracranial EEG Signals at Missing Electrodes in Epileptic Networks
Gunnarsdottir, Kristin* *(Johns Hopkins University)*; Bulacio, Juan *(Cleveland Clinic)*; Gonzalez-Martinez, Jorge *(Cleveland Clinic)*; Sarma, Sridevi V. *(Johns Hopkins University)*

11:30-11:45 FrB01.5
A Characterization of Epileptogenesis Presented in Hippocampal Neural Activity in a Rat Tetanus Toxin Model
Park, Sang-Eon *(Georgia Institute of Technology)*; Connolly, Mark* *(Emory University)*; Gross, Robert *(Emory University)*

11:45-12:00 FrB01.6
Evaluating Invasive EEG Implantations in Medically Refractory Epilepsy with Functional Scalp EEG Recordings and Structural Imaging Data
Palepu, Anil *(Johns Hopkins Univ.)*; Li, Adam* *(Neuromedical Control Systems Laboratory)*; Fitzgerald, Zachary *(Cleveland Clinic)*; Hu, Katherine *(Johns Hopkins Univ.)*; Costacurta, Julia *(Johns Hopkins Univ.)*; Bulacio, Juan *(Cleveland Clinic)*; Martinez-Gonzalez, Jorge *(Cleveland Clinic)*; Sarma, Sridevi V. *(Johns Hopkins Univ.)*

FrB02: 10:30-12:00 Hall A8 – Level 1
Independent and Principal Component Analysis (Oral Session)
Chair: Van Huffel, Sabine *(KU Leuven)*
Co-Chair: de Chazal, Philip *(University of Sydney)*

10:30-10:45 FrB02.1
Comparing Different Methods of Hand-Crafted HRV, EDR and CPC Features for Sleep Apnoea Detection
Sadr, Nadi* *(Univ. of Sydney)*; de Chazal, Philip *(Univ. of Sydney)*

10:45-11:00 FrB02.2
Properties of Motor Units of Elbow and Ankle Muscles Decomposed using High-Density Surface EMG
Hassan, Altamash* *(Northwestern Univ.)*; Kim, Edward *(Northwestern Univ.)*; Khurram, Obaid *(Northwestern Univ.)*; Cummings, Mark *(Northwestern Univ.)*; Thompson, Christopher *(Temple Univ.)*; McPherson, Laura Miller *(Florida Intl. Univ.)*; Heckman, CJ *(Feinberg School of Medicine, Northwestern Univ.)*; Dewald, Julius P. A. *(Northwestern Univ.)*; Negro, Francesco *(Univ. Medical Center Göttingen, Bernstein Center for Comput)*

11:00-11:15 FrB02.3
Tensor based Blind Source Separation in Longitudinal Magnetic Resonance Imaging Analysis
Stamile, Claudio *(CREATIS, Université Lyon 1)*; Cotton, François *(Hospices Civils de Lyon – CREATIS)*; Sappey-Marinier, Dominique *(Université Claude Bernard – Lyon1)*; Van Huffel, Sabine* *(KU Leuven)*

11:15-11:30 FrB02.4
Preliminary Fusion of EEG and MRI with Phenotypic Scores in Children with Epilepsy based on the Canonical Polyadic Decomposition
Dron, Noramon* *(University of Edinburgh)*; Kinney-Lang, Eli *(University of Edinburgh)*; Chin, Richard *(The University of Edinburgh)*; Escudero, Javier *(University of Edinburgh)*

11:30-11:45 FrB02.5
Mining EEG Scalp Maps of Independent Components Related to HCT Tasks
Teixeira, Ana Rita *(Universidade de Aveiro)*; Santos, Isabel *(Universidade de Aveiro)*; Lang, Elmar W. *(University of Regensburg)*; Tome, Ana Maria* *(Universidade de Aveiro)*

11:45-12:00 FrB02.6
PCA-Driven Detection and Enhancement of Microchanges in Video Data Associated with Heart Rate
Gauci, Lucianne* *(Univ. of Malta)*; Falzon, Owen *(Univ. of Malta)*; Camilleri, Kenneth Patrick *(Univ. of Malta)*

FrB03: 10:30-12:00 Hall A3 – Level 1
Optical Imaging (Oral Session)

10:30-10:45 FrB03.1
Illumination Robust Heart-Rate Extraction from Single-Wavelength Infrared Camera using Spatial-Channel Expansion
Hu, Jingjing *(Hunan University)*; He, Yunze *(Hunan University)*; Liu, Jie *(Hunan University)*; He, Min *(Hunan University)*; Wang, Wenjin* *(Eindhoven University of Technology)*

10:45-11:00 FrB03.2
3D Reconstruction of Whole Stomach from Endoscope Video using Structure-From-Motion
Widya, Aji Resindra* *(Tokyo Institute of Technology)*; Monno, Yusuke *(Tokyo Institute of Technology)*; Imahori, Kosuke *(Tokyo Institute of Technology)*; Okutomi, Masatoshi *(Tokyo Institute of Technology)*; Suzuki, Sho *(Nihon University School of Medicine)*; Gotoda, Takuji *(Nihon University School of Medicine)*; Miki, Kenji *(Tsujinaka Hospital Kashiwanoha)*

11:00-11:15 FrB03.3
Light Field Image Dataset of Skin Lesions
Faria, Sergio* *(Instituto de Telecomunicações)*; Filipe, Jose *(Instituto de Telecomunicacoes)*; Assuncao, Pedro *(Instituto de Telecomunicações)*; Santos, Miguel *(Instituto de Telecomunicacoes)*; Fonseca-Pinto, Rui *(Instituto de Telecomunicações)*; Pereira, Pedro *(Instituto de Telecomunicações)*; Tavora, Luis *(ESTG, Polytechnic Institute of Leiria, Portugal)*; Santiago, Felicidade *(Centro Hospitalar de Leiria)*; Dominguez, Victoria *(Centro Hospitalar de Leiria)*; Henrique, Martinha *(Centro Hospitalar de Leiria)*

11:15-11:30 FrB03.4
Towards Non-Invasive Patient Tracking: Optical Image Analysis for Spine Tracking during Spinal Surgery Procedures
Manni, Francesca* *(Eindhoven Univ. of Technology)*; Liu, Xin *(Eindhoven Univ. of Technology)*; Holthuizen, Ronaldus Frederik Johannes *(Philips Healthcare)*; Zinger, Svitlana *(Eindhoven Univ. of Technology)*; van der Sommen, Fons *(Eindhoven Univ. of Technology)*; Shan, Caifeng *(Philips Research)*; Mamprin, Marco *(Eindhoven Univ. of Technology)*; Burström, Gustav *(Karolinska Intitutet, Dept of Clinical Neuroscience)*; Elmi Terander, Adrian *(Karolinska Univ. Hospital)*; Edstrom, Erik *(Karolinska Univ. Hospital)*; de With, Peter *(Eindhoven Univ. of Technology)*

11:30-11:45 FrB03.5
Using a Motion Capture System as Reference for Motion Tracking in Photoplethysmography Imaging
Yu, Xinchi* *(RWTH Aachen Univ.)*; Cruz, Sónia *(RWTH Aachen Univ.)*; Batista, Joao *(RWTH Aachen Univ. Hospital)*; Bollheimer, Cornelius *(RWTH Aachen Univ. Hospital)*; Leonhardt, Steffen *(RWTH Aachen Univ.)*; Hoog Antink, Christoph *(RWTH Aachen Univ., Aachen, Germany)*

11:45-12:00 FrB03.6
A Portable Laser Speckle Imager based on Embedded Graphics Processing Unit Platform
Chen, Heping *(Shanghai Jiao Tong University)*; Miao, Peng *(Shanghai University)*; Bo, Bin *(Shanghai Jiao Tong University)*; Li, Yuanqi *(Shanghai Jiao Tong University)*; Tong, Shanbao* *(Shanghai Jiao Tong University)*

FrB05: 10:30-12:00 Hall A2 – Level 1
Challenges and Advances of Signal and Image Processing in Epilepsy 2: Brain-Heart Interactions (Minisymposium)
Chair: Schiecke, Karin *(Jena University Hospital. Friedrich Schiller University Jena)*
Co-Chair: Iasemidis, Leonidas *(Louisiana Tech University)*

10:30-10:45 FrB05.1
Improving Heart Rate-Based Epileptic Seizure Detection using Efficient Personalization
De Cooman, Thomas* *(KU Leuven, Dept. of Electrical Engineering-ESAT, STADIUS)*; Varon, Carolina *(Katholieke Universiteit Leuven)*; Van Paesschen, Wim *(Katholieke Universiteit Leuven)*; Lagae, Lieven *(University Hospital of Leuven)*; Van Huffel, Sabine *(KU Leuven)*

10:45-11:00 FrB05.2
Brain-Heart Interactions in Epilepsy: Signal-Adaptive Approaches to Quantify Specific Time and Frequency Patterns
Schiecke, Karin* *(Jena University Hospital. Friedrich Schiller University Jena)*; Leistritz, Lutz *(Jena University Hospital, Friedrich Schiller University Jena)*; Feucht, Martha *(Epilepsy Monitoring Unit, Dept. of Child & Adolescent Neu)*; Pati, Sandipan *(University of Alabama School of Medicine)*; Iasemidis, Leonidas *(Louisiana Tech University)*

11:00-11:15 FrB05.3
Partial Information Decomposition of Brain-Heart Interactions in Temporal Lobe Epilepsy in the Childhood
Faes, Luca* *(University of Palermo)*; Pernice, Riccardo *(University of Palermo)*; Feucht, Martha *(Epilepsy Monitoring Unit, Dept. of Child & Adolescent Neu)*; Schiecke, Karin *(Jena University Hospital. Friedrich Schiller University Jena)*

11:15-11:30 FrB05.4
Brain-Heart Interactions in SUDEP
Hutson, Timothy* *(Louisiana Tech University)*; Alamoudi, Omar *(Louisiana Tech U. & King Abdulaziz U.)*; Glasscock, Edward *(Louisiana State University Health Sciences Center)*; Iasemidis, Leon *(Louisiana Tech University)*

FrB06: 10:30-12:00 Hall A5 – Level 1
Neural Coding and Rehabilitation using Brain-Machine Interfaces (Invited Session)
Chair: Jiang, Ning *(Univ. of Waterloo)*
Co-Chair: Wang, Yiwen *(Hong Kong Univ. of Science and Tech.)*

10:30-10:45 FrB06.1
A Novel Brain-Computer Interface based on Action Observation
Zhang, Xin *(Xi'an Jiao Tong Univ.)*; Xu, Guanghua *(Xi'an Jiao Tong Univ.)*; Ravi, Aravind *(Univ. of Waterloo)*; Pearce, Sarah *(Univ. of Waterloo)*; Jiang, Ning* *(Univ. of Waterloo)*

10:45-11:00 FrB06.2
Combining Haptic Stimulation and Mirror Visual Feedback for Improving Perception of Embodiment
Li, Ding *(HuaShan Hospital, Fudan University)*; He, Jiayuan *(University of Waterloo)*; Auguste, Koh *(University of Waterloo)*; Jia, Jie* *(HuaShan Hospital Fudan University)*

11:00-11:15 FrB06.3
Input-Output Modeling of the Hippocampus for Developing Memory Prostheses
Song, Dong* *(University of Southern California)*; She, Xiwei *(University of Southern California)*; Hampson, Robert *(Wake Forest School of Medicine)*; Deadwyler, Sam *(Wake Forest University)*; Berger, Theodore *(USC)*

11:15-11:30 FrB06.4
A Kernel Reinforcement Learning Algorithm with Weight Transfer in Brain-Machine Interfaces
Zhang, Xiang *(The Hong Kong University of Science & Technology)*; Principe, Jose *(University of Florida)*; Wang, Yiwen* *(Hong Kong University of Science & Technology)*

11:30-11:45 FrB06.5
Brain-State Dependent Stimulation to Boost Functional Recovery in Stroke Patients
Mrachacz-Kersting, Natalie* *(Aalborg Univ.)*; Jiang, Ning *(Univ. of Waterloo)*; Farina, Dario *(Imperial College London)*

FrB07: 10:30-12:00 Hall A4 – Level 1
Biomaterials (Oral Session)
Chair: Bucher, Volker *(Furtwangen University)*
Co-Chair: Doll, Patrick W. *(Karlsruhe Institute of Technology (KIT), Institute of Microstructure Technology (IMT))*

10:30-10:45 FrB07.1
Electrochemical Characterization and Surface Analysis of Activated Glassy Carbon Neural Electrodes
Vomero, Maria* *(Univ. of Freiburg)*; Mondragon, Norma Carolina *(Institute of Microsystem Technology (IMTEK), Laboratory for Biome)*; Stieglitz, Thomas *(Univ. of Freiburg)*

10:45-11:00 FrB07.2
Characterization of Biostable Atomic Layer Deposited (ALD) Multilayer Passivation Coatings for Active Implants
Westerhausen, Markus *(Hochschule Furtwangen)*; Metzger, Michael *(Hochschule Furtwangen University)*; Blendinger, Felix *(Furtwangen University)*; Levermann, Anja *(Furtwangen University)*; Fleischer, Monika *(Eberhard Karls University of Tübingen)*; Hofmann, Boris *(Aesculap AG)*; Bucher, Volker* *(Furtwangen University)*

11:00-11:15 FrB07.3
Integration of Micro-Patterned Carbon Fiber Mats into Polyimide for the Development of Flexible Implantable Neural Devices
Gueli, Calogero* *(University of Freiburg)*; Vomero, Maria *(University of Freiburg)*; Sharma, Swati *(Karlsruhe Institute of Technology)*; Stieglitz, Thomas *(University of Freiburg)*

11:15-11:30 FrB07.4
Preparation of Gel-Liposome Nanoparticles for Drug Delivery Applications
Mirab, Fereshtehsadat *(University of Houston)*; Wang, Yifei *(University of Houston)*; Farhadi, Hanieh *(University of Houston)*; Majd, Sheereen* *(University of Houston)*

11:30-11:45 FrB07.5
Reactive Nitrogen Species Releasing Hydrogel for Enhanced Wound Healing
Zahid, Alap Ali *(Qatar Univ.)*; Ahmed, Rashid *(Qatar Univ.)*; Raza ur Rehman, Syed *(Qatar Univ.)*; Augustine, Robin *(Qatar Univ., Doha)*; Anwarul, Hasan* *(Qatar Univ., Doha)*

11:45-12:00 FrB07.6
Graphene Oxide Loaded Gelatin Methacrylate Hydrogel for Enhanced Wound Healing in Diabetic Patients
Raza ur Rehman, Syed *(Qatar Univ.)*; Augustine, Robin *(Qatar Univ., Doha)*; Zahid, Alap Ali *(Qatar Univ.)*; Ahmed, Rashid *(Qatar Univ.)*; Anwarul, Hasan* *(Qatar Univ., Doha)*

FrB08: 10:30-12:00 M8 – Level 3
Health Informatics – Computer-Aided Decision Making (Oral Session)
Chair: Picard, Rosalind *(Massachusetts Institute of Technology)*
Co-Chair: Seepold, Ralf *(HTWG Konstanz)*

10:30-10:45 FrB08.1
Latent States Extraction through Kalman Filter for the Prediction of Heart Failure Decompensation Events
Nunes, Diogo *(University of Coimbra)*; Rocha, Teresa *(Inst Superior de Eng de Coimbra)*; Traver, Vicente *(ITACA – Universitat Politècnica de València)*; Teixeira, César *(University of Coimbra)*; Ruano, M. Graça *(FCT, University of Algarve & CISUC-University of Coimbra)*; Paredes, Simao *(Instituto Politécnico de Coimbra)*; de Carvalho, Paulo* *(University of Coimbra)*; Henriques, Jorge *(University of Coimbra)*

10:45-11:00 FrB08.2
Ecological Momentary Assessment based Differences between Android and iOS Users of the TrackYourHearing mHealth Crowdsensing Platform
Pryss, Rüdiger* *(Ulm Univ.)*; Schlee, Winfried *(Univ. Hospital Regensburg)*; Reichert, Manfred *(Ulm Univ., Institute of Databases & Information Systems)*; Kurthen, Ira *(Developmental Psychology: Infancy & Childhood, Dept. of P)*; Giroud, Nathalie *(Cognition, Aging, & Psychophysiology Laboratory, Dept. of)*; Jagoda, Laura *(Division of Neuropsychology, Dept. of Psychology, Univ.)*; Neuschwander, Pia *(Division of Neuropsychology, Dept. of Psychology, Univ.)*; Meyer, Martin *(Division of Neuropsychology, Dept. of Psychology, Univ.)*; Neff, Patrick *(Univ. Hospital Regensburg)*; Schobel, Johannes *(Ulm Univ.)*; Hoppenstedt, Burkhard *(Ulm Univ.)*; Spiliopoulou, Myra *(Univ. of Magdeburg)*; Langguth, Berthold *(Univ. Hospital Regensburg)*; Probst, Thomas *(Donau Univ. Krems)*

11:00-11:15 FrB08.3
Homogeneous and Heterogeneous Ensemble Classification Methods in Diabetes Disease: A Review
Fernandez Aleman, Jose Luis *(University of Murcia)*; Carrillo de Gea, Juan Manuel* *(University of Murcia)*; Hosni, Mohamed *(ENSIAS, Mohammed V University)*; Idri, Ali *(Mohammed V University Rabat)*; García-Mateos, Ginés *(University of Murcia)*

11:15-11:30 FrB08.4
Deep Reinforcement Learning for Optimal Critical Care Pain Management with Morphine using Dueling Double-Deep Q Networks
Lopez-Martinez, Daniel* *(Massachusetts Institute of Technology)*; Eschenfeldt, Patrick *(Massachusetts General Hospital)*; Ostvar, Sassan *(Columbia University)*; Ingram, Myles *(Columbia University)*; Hur, Chin *(Columbia University)*; Picard, Rosalind *(Massachusetts Institute of Technology)*

11:30-11:45 FrB08.5
Development of a Sleep Apnea Detection Algorithm using Long Short-Term Memory and Heart Rate Variability
Iwasaki, Ayako* *(Kyoto Univ.)*; Nakayama, Chikao *(Kyoto Univ.)*; Fujiwara, Koichi *(Kyoto Univ.)*; Sumi, Yukiyoshi *(Shiga Univ. of Medical Science)*; Matsuo, Masahiro *(Shiga Univ. of Medical Science)*; Kano, Manabu *(Kyoto Univ.)*; Kadotani, Hiroshi *(Shiga Univ. of Medical Science)*

11:45-12:00 FrB08.6
Automatic Classification and Monitoring of Denovo Parkinson's Disease by Learning Demographic and Clinical Features
Soltaninejad, Sara* *(University of Alberta)*; Basu, Anup *(University of Alberta)*; Cheng, Irene *(University of Alberta)*

FrB09: 10:30-12:00 M1 – Level 3
Models of Organs and Medical Devices (Oral Session)
Co-Chair: Zhang, Henggui *(Harbin Institute of Technology, School of Computer Science and Technology)*

10:30-10:45 FrB09.1
Surface Potential Simulation for Robust Electrode Placement by MRI based Human Phantom with FEM based Quasi-Static Solver for Bioimpedance Measurement
Urban, Mike* *(Technische Universität Berlin)*; Orglmeister, Reinhold *(Technische Universität Berlin)*

10:45-11:00 FrB09.2
Evaluation of Electrode Setups by MRI based Human Phantom with FEM based Quasi-Static Solver for Bioimpedance Measurement
Urban, Mike* *(Technische Universität Berlin)*; Orglmeister, Reinhold *(Technische Universität Berlin)*

11:00-11:15 FrB09.3
Estimating Local Therapeutic Hypothermia in Case of Ischemic Stroke using a 1D Hemodynamics Model and an Energetic Temperature Model
Lutz, Yannick* *(Karlsruhe Institute of Technology (KIT))*; Daschner, Rosa *(Karlsruhe Institute of Technology (KIT))*; Krames, Lorena *(Karlsruhe Institute of Technology (KIT))*; Loewe, Axel *(Karlsruhe Institute of Technology (KIT))*; Doessel, Olaf *(Karlsruhe Institute of Technology (KIT))*; Cattaneo, Giorgio *(Adceris GmbH & Co KG, Pforzheim)*

11:15-11:30 FrB09.4
Ultra-Focal Magnetic Stimulation using a µTMS Coil: A Computational Study
Colella, Micol* *(Univ. of Rome "Sapienza")*; Laher, Rebecca *(Berenson-Allen Center for Noninvasive Brain Stimulation, Divisio)*; Press, Daniel *(Berenson-Allen Center for Noninvasive Brain Stimulation, Divisio)*; McIlduff, Courtney *(Berenson-Allen Center for Noninvasive Brain Stimulation, Divisio)*; Rutkove, Seward *(Harvard Medical School)*; Pascual-Leone, Alvaro *(Harvard Medical School)*; Apollonio, Francesca *(ICEmB@La Sapienza Univ. Rome)*; Liberti, Micaela *(ICEmB at Sapienza Univ. of Rome)*; Bonmassar, Giorgio *(A. A. Martinos Ctr. for Biomedical Imaging)*

11:30-11:45 FrB09.5
An in-Vivo Coil Setup for AC Magnetic Field-Mediated Magnetic Nanoparticle Heating Experiments
Miaskowski, Arkadiusz *(University of Life Sciences, Lublin)*; Balakrishnan, Preethiya *(Faraday-Fleming Laboratory)*; Subramanian, Mahendran* *(Imperial College London)*; Hovorka, Ondrej *(University of Southampton)*

11:45-12:00 FrB09.6
Role of If Density on Electrical Action Potential of Bio-Engineered Cardiac Pacemaker: A Simulation Study
Li, Yacong *(Harbin Institute of Tech.)*; Wang, Kuanquan *(Harbin Institute of Tech.)*; Li, Qince *(Harbin Institute of Tech.)*; Luo, Cunjin* *(Key Lab of Medical Electrophysiology, Ministry of Education, Ins)*; Zhang, Henggui *(Harbin Institute of Tech., School of Computer Science & T)*

FrB10: 10:30-12:00 M2 – Level 3
Hearing4All – Innovations for Diagnosis .... (Minisymposium)
Chair: Nogueira, Waldo *(Leibniz Universität Hannover)*
Co-Chair: Büchner, Andreas *(Hannover Medical School)*

10:30-10:45 FrB10.1
Cognitive-Driven Binaural Speech Enhancement System for Hearing Aid Applications
Aroudi, Ali* *(University of Oldenburg, Dept. of Medical Physics & Acoustics)*; Doclo, Simon *(University of Oldenburg)*

10:45-11:00 FrB10.2
Individualized Electrical Stimulation Patterns with Auditory Prostheses and Closed-Loop Systems
Bahmer, Andreas* *(University Clinic Würzburg)*

11:00-11:15 FrB10.3
From Surgery to Sound Perception – Signal Processing in Cochlear Implants
Koning, Raphael* *(Advanced Bionics)*; Litvak, Leonid *(Advanced Bionics)*; Hamacher, Volkmar *(Advanced Bionics)*

11:15-11:30 FrB10.4
Future Trends in Hearing Implants
Nopp, Peter* *(MED-EL Elektromedizinische Geraete Gesellschaft m.b.H.)*

11:30-11:45 FrB10.5
Developing Behind-the-Ear EEG Sensing for Hearing Devices
Bleichner, Martin G.* *(University of Oldenburg)*; Debener, Stefan *(University of Oldenburg)*

11:45-12:00 FrB10.6
Electrochemical Protocols Upgrade Conventional Noble Metal Electrodes to Long-Term Stable Sensors at the Tissue/Electrode Interface
Weltin, Andreas* *(Univ. of Freiburg)*; Ganatra, Dev *(Univ. of Freiburg)*; Durisin, Martin *(Hannover Medical School)*; Urban, Gerald A. *(Univ. of Freiburg)*; Kieninger, Jochen *(Univ. of Freiburg)*

11:45-12:00 FrB10.7
Next Generation Cochlear Implants Require Microsecond Binaural Synchronization
Rosskothen-Kuhl, Nicole* *(Univ. Medical Center Freiburg,)*; Hofmann, Ulrich G. *(Univ. of Freiburg)*; Rotter, Stefan *(Univ. of Freiburg, Bernstein Center Freiburg & Faculty of B)*; Kral, Andrej *(Hannover Medical School, Institute of AudioNeuro Technology & D)*; Hubka, Peter *(Hannover Medical School, Institute of AudioNeuro Technology & D)*; Schnupp, Jan W. *(City Univ. of Hong Kong, Dept. of Biomedical Science)*

11:45-12:00 FrB10.8
New Electrical and Ultrasound Stimulation Technologies for Treating Hearing Disorders and Tinnitus
Lim, Hubert* *(University of Minnesota)*

FrB11: 10:30-12:00 M4 – Level 3
State-of-the-Art Advances in Sleep Health Science and Technology: Session 2 – New Developments in Sleep Apnea Diagnostics and Therapeutics (Minisymposium)
Chair: Khoo, Michael *(University of Southern California)*
Co-Chair: Penzel, Thomas *(Charité Universitätsmedizin Berlin)*

10:30-10:45 FrB11.1
Advanced Signal Processing Techniques for Sleep-Disordered Breathing (SDB) Detection using Emfit Mattress Sensor
Perez-Macias, Jose Maria* *(Tampere Univ. of Technology)*; Tenhunen, Mirja *(Dept. of Clinical Neurophysiology, Pirkanmaa Hospital Distr)*; Värri, Alpo *(Tampere Univ. of Technology)*; Himanen, Sari-Leena *(irkanmaa Hospital District)*; Viik, Jari *(Tampere Univ. of Technology)*

10:45-11:00 FrB11.2
Digital Health Applications in the Treatment of Sleep and Respiratory Disorders
Armitstead, Jeffrey Peter* *(ResMed Ltd., Univ. of Sydney)*; Javed, Faizan *(Univ. of New South Wales)*; Malouf, Gordon Joseph *(ResMed)*

11:00-11:15 FrB11.3
Continuous Monitoring of Hypoventilation using Tidal Volume Signal Extracted from EIT Images
Woo, Eung Je* *(Kyung Hee Univ.)*; Oh, Tong In *(Kyunghee Univ.)*; Jang, Geuk Young *(Dept. of Biomedical Engineering, Graduate School, Kyung Hee)*; Wi, Hun *(KyungHee Univ.)*

11:15-11:30 FrB11.4
Enablers for Precision Medicine Approaches to Managing Sleep Disordered Breathing
de Chazal, Philip* *(University of Sydney)*; Sadr, Nadi *(University of Sydney)*; Sebastian, Arun *(University of Sydney)*; Johnston, Benjamin *(University of Sydney)*

FrB12: 10:30-12:00 M6 – Level 3
MRI – Cardiac Imaging (Oral Session)

10:30-10:45 FrB12.1
Functional LGE Imaging: Cardiac Phase-Resolved Assessment of Focal Fibrosis
Weingärtner, Sebastian* *(Stanford University)*; Demirel, Omer Burak *(University of Minnesota)*; Shenoy, Chetan *(University of Minnesota)*; Schad, Lothar R. *(Heidelberg University)*; Schulz-Menger, Jeanette *(Charité-Medical University Berlin)*; Akcakaya, Mehmet *(University of Minnesota)*

10:45-11:00 FrB12.2
Temporal Resolution Enhancement of Dynamic MRI Sequences within a Motion-Based Framework
Makki, Karim* *(IMT Atlantique)*; Borotikar, Bhushan *(University of Western Brittany)*; Garetier, Marc *(Latim)*; Brochard, Sylvain *(CHRU Brest)*; Ben Salem, Douraied *(CHRU Brest)*; Rousseau, François *(Telecom Bretagne)*

11:00-11:15 FrB12.3
Free-Breathing Three-Dimensional T1 Mapping of the Heart using Subspace-Based Data Acquisition and Image Reconstruction
Han, Paul *(Massachusetts General Hospital)*; Horng, Debra *(Massachusetts General Hospital, Harvard Medical School)*; Marin, Thibault *(Illinois Institute of Technology)*; Petibon, Yoann *(Massachusetts General Hospital)*; Ouyang, Jinsong *(Massachusetts General Hospital, Harvard Medical School)*; El Fakhri, Georges *(Harvard Medical School, Massachusetts General Hospital)*; Ma, Chao* *(Harvard Medical School)*

11:15-11:30 FrB12.4
Feasibility of in-Vivo Estimation of the Brachial Artery Area-Pressure Relation from CINE and Real-Time MRI during Upper Arm Cuff Inflations
Bresch, Erik* *(Philips)*; Bogatu, Laura *(Philips Research, Eindhoven University of Technology)*; Smink, Jouke *(Philips)*; Muehlsteff, Jens *(Philips)*

11:30-11:45 FrB12.5
A Multi-Channel Deep Learning Approach for Segmentation of the Left Ventricular Endocardium from Cardiac Images
Yang, Xulei *(Institute for Infocomm Research, A*STAT)*; Tjio, Gabriel *(A*STAR)*; Yang, Feng *(Institute of High Performance Computing, A*Star, Singapore)*; Ding, Jie *(Agency for Science, Technology & Research (A*STAR))*; Selvaraj, Senthil Kumar *(Institute of High Performance Computing)*; Leng, Shuang *(National Heart Centre Singapore)*; Zhao, Xiaodan *(National Heart Centre Singapore)*; Tan, Ru-San *(National Heart Centre Singapore)*; Zhong, Liang* *(National Heart Centre Singapore, Duke-NUS Medical School, Nation)*; Su, Yi *(Institute of High Performance Computing)*

11:45-12:00 FrB12.6
Right Ventricular Segmentation from MRI using Deep Convolutional Neural Networks
Purmehdi, Hakimeh *(University of Alberta)*; Rakkunedeth Hareendranathan, Abhilash *(University of Alberta)*; Noga, Michelle *(University of Alberta)*; Punithakumar, Kumaradevan* *(University of Alberta)*

FrB13: 10:30-12:00 R2 – Level 3
Human Body Communication (Oral Session)

10:30-10:45 FrB13.1
Wireless Ultrasonic Communication for Biomedical Injectable Implantable Device
Rasool, Banafsaj* *(Newcastle Univ.)*; Soltan, Ahmed *(Newcastle Univ., School of Engineering)*; Neasham, Jeff *(Newcastle Univ.)*; Degenaar, Patrick *(Newcastle Univ.)*

10:45-11:00 FrB13.2
Development of a High-Hydrous Gel Phantom for Human Body Communication based on Electrical Anisotropy
Yamamoto, Takahiko* *(Tokyo Univ. of Science)*; Ikeda, Ryutaro *(Tokyo Univ. of Science)*; Yamada, Daisuke *(Tokyo Univ. of Science)*; Saitoh, Akiyoshi *(Tokyo Univ. of Science)*; Koshiji, Kohji *(Tokyo Univ. of Science)*

11:00-11:15 FrB13.3
A Stochastic Channel Model for Ultra Wideband In-Body Communication
Brumm, Jan-Christoph* *(Hamburg University of Technology)*; Strohm, Hannah *(Hamburg University of Technology)*; Bauch, Gerhard *(Hamburg University of Technology)*

11:15-11:30 FrB13.4
A Self-Synchronizing, Low-Power, Low-Complexity Transceiver for Body-Coupled Communication
Muzaffar, Shahzad *(Khalifa University)*; Elfadel, Ibrahim (Abe)* *(Masdar Institute of Science & Technology)*

11:30-11:45 FrB13.5
A Simulation Platform to Study the Human Body Communication Channel
Krhac, Katjana *(University of Zagreb, Faculty of Electrical Engineering & Comp)*; Sayrafian, Kamran* *(NIST)*; Noetscher, Gregory *(Worcester Polytechnic Institute)*; Simunic, Dina *(University of Zagreb)*

11:45-12:00 FrB13.6
Investigating on the Interferences on Human Body Communication System Induced by Other Wearable Devices
Mao, Jingna* *(Chinese Academy of Sciences)*

FrB14: 10:30-12:00 R3 – Level 3
Signal Processing and Classification in Sleep Studies (II) (Oral Session)
Chair: Sassi, Roberto *(Università degli Studi di Milano)*

10:30-10:45 FrB14.1
Cross-Channel Phase-Amplitude Transfer Entropy Conceptualize Long-Range Transmission in Sleep: A Case Study
Shi, Wenbin* *(Beijing Institute of Technology)*; Yeh, Chien-Hung *(Univ. of Oxford)*; An, Jianping *(Beijing Institute of Technology)*

10:45-11:00 FrB14.2
Hybrid In-Phase and Continuous Auditory Stimulation Significantly Enhances Slow Wave Activity during Sleep
Garcia-Molina, Gary Nelson* *(Philips Research North America)*; Tsoneva, Tsvetomira *(Philips Research)*; Bresch, Erik *(Philips)*; Pastoor, Sander *(Philips Research)*

11:00-11:15 FrB14.3
Effectiveness of Sleep Apnea Detection based on One vs. Two Symmetrical EEG Channels
Prucnal, Monika A.* *(Wrocław Univ. of Science & Technology)*; Polak, Adam G. *(Wroclaw Univ. of Science & Technology)*

11:15-11:30 FrB14.4
EEG-Based Classification of Microsleep by Means of Feature Selection: An Application in Aviation
Guragain, Bijay *(Univ. of North Dakota)*; Rad, Ali Bahrami *(Aalto Univ.)*; Wang, Chunwu *(Jilin Normal Univ.)*; Verma, Ajay Kumar *(Univ. of North Dakota)*; Archer, Lewis *(Univ. of North Dakota)*; Wilson, Nicholas *(Univ. of North Dakota)*; Tavakolian, Kouhyar* *(Univ. of North Dakota)*

11:30-11:45 FrB14.5
Advanced Network Neuroscience Approaches in Sleep Neurobiology on Extreme Environments
Frantzidis, Christos* *(Aristotle Univ. of Thessaloniki)*; Christiane, Nday *(Univ.)*; Chriskos, Panteleimon *(Aristotle Univ. of Thessaloniki)*; Gkivogkli, Polyxeni *(Aristotle Univ. of Thessaloniki)*; Bamidis, Panagiotis *(Aristotle Univ. of Thessaloniki)*; Kourtidou-Papadeli, Chrysoula *(Greek Aerospace Medical Association)*

FrB15: 10:30-12:00 M3 – Level 3
Image Classification (Oral Session)
Chair: Jiang, Xiaoyi *(University of Münster)*

10:30-10:45 FrB15.1
New Methods for Morphological Erythrocytes Classification
Herold-Garcia, Silena *(Universidad de Oriente)*; Fernandes, Leandro A. F.* *(Universidade Federal Fluminense)*

10:45-11:00 FrB15.2
A Novel Real-Time Automatic Angioectasia Detection Method in Wireless Capsule Endoscopy Video Feed
Vezakis, Ioannis* *(National Technical University of Athens)*; Toumpaniaris, Petros *(National Technical University of Athens)*; Polydorou, Andreas *(National & Kapodistrian University of Athens, Medical School)*; Koutsouris, Dimitrios *(Biomedical Engineering Laboratory, School of Electrical & Comp)*

11:00-11:15 FrB15.3
Deep Feature Learning from a Hospital-Scale Chest X-Ray Dataset with Application to TB Detection on a Small-Scale Dataset
Gozes, Ophir *(Tel Aviv University)*; Greenspan, Hayit K.* *(Tel Aviv University)*

11:15-11:30 FrB15.4
Classification and Assessment of Hand Arthritis Stage using Support Vector Machine
Akhbardeh, Farhad* *(University)*; Vasefi, Fartash *(Simon Fraser University)*; Mackinnon, Nick *(etreatMD)*; Amini, Mohammad *(eTreat)*; Akhbardeh, Alireza *(Johns Hopkins University)*; Tavakolian, Kouhyar *(Educational)*

11:30-11:45 FrB15.5
Diagnostic and Prognostic Classification of Brain Disorders using Residual Learning on Structural MRI Data
Abrol, Anees* *(Georgia State Univ., The Mind Research Network)*; Rokham, Hooman *(Univ. of New Mexico)*; Calhoun, Vince *(The Mind Research Network/Univ. of New Mexico)*

11:45-12:00 FrB15.6
Predicting Male vs. Female from Task-fMRI Brain Connectivity
Sen, Bhaskar *(University of Minnesota)*; Parhi, Keshab* *(University of Minnesota)*

FrB16: 10:30-12:00 M5 – Level 3
Modeling and Simulation in Musculoskeletal Biomechanics (Oral Session)
Co-Chair: Fey, Nicholas *(The University of Texas at Dallas)*

10:30-10:45 FrB16.1
Simulation of Exoskeleton Alignment and Its Effect on the Knee Extensor and Flexor Muscles
MajidiRad, AmirHossein *(Wichita State University)*; Yihun, Yimesker *(Wichita State University)*; Desai, Jaydip* *(Wichita State University)*; Hakansson, Nils A. *(Wichita State University)*

10:45-11:00 FrB16.2
Simple Spline Representation for Identifying Sit-to-Stand Strategies
Matthew, Robert Peter* *(UC Berkeley)*; Seko, Sarah *(UC Berkeley)*; Bailey, Jeannie *(Univ. of California at San Francisco)*; Bajcsy, Ruzena *(UC Berkeley, CITRIS)*; Lotz, Jeffrey *(Orthopaedic Surgery, Univ. of California at Berkeley)*

11:00-11:15 FrB16.3
Model-Based Estimation of Ankle Joint Stiffness during Dynamic Tasks: A Validation-Based Approach
Cop, Christopher P.* *(Univ. of Twente)*; Durandau, Guillaume *(Univ. of Twente)*; Moya Esteban, Alejandro *(Univ. of Twente)*; van 't Veld, Ronald C. *(Univ. of Twente)*; Schouten, Alfred C. *(Delft Univ. of Technology)*; Sartori, Massimo *(Univ. of Twente)*

11:15-11:30 FrB16.4
Musculoskeletal Modeling to Predict and Reduce Antetrior Cruciate Ligament Injury during Single Leg Drop Jump Activity: Synergistic Muscle Co-Activation Approach
Mazumder, Oishee* *(Tata Consultancy Services)*; Chakravarty, Kingshuk *(Tata Consultancy Services Ltd.)*; Chatterjee, Debatri *(TCS Innovation Lab)*; Sinha, Aniruddha *(Tata Consultancy Services Ltd.)*; Poduval, Murali *(Tata Consultancy Services)*

11:30-11:45 FrB16.5
Description of Postural Strategies through a Variable Structure Control
Tigrini, Andrea* *(Università Politecnica delle Marche)*; Mengarelli, Alessandro *(Università Politecnica delle Marche)*; Cardarelli, Stefano *(Università Politecnica delle Marche)*; Strazza, Annachiara *(Università Politecnica delle Marche)*; Di Nardo, Francesco *(Polytechnic University of Marche)*; Fioretti, Sandro *(Università Politecnica delle Marche)*; Verdini, Federica *(Università Politecnica delle Marche)*

11:45-12:00 FrB16.6
Experimental Estimation of a Second Order, Double Inverted Pendulum Parameters for the Study of Human Balancing
Cerda-Lugo, Angel *(Univ. Autonoma de San Luis Potosi)*; Gonzalez, Alejandro* *(CONACYT-Univ. Autónoma de San Luis Potosí)*; Cárdenas, Antonio *(Univ. Autonoma de San Luis Potosi)*; Piovesan, Davide *(Gannon Univ.)*

FrB17: 10:30-12:00 R12 – Level 3
Empowering Individual Healthcare Decisions through Technology (Oral Session)
Chair: Tridandapani, Srini *(Emory University)*
Co-Chair: Pino, Esteban J. *(Universidad de Concepcion)*

10:30-10:45 FrB17.1
New Wearable Heart Rate Monitor for Contact Sports and Its Potential to Change Training Load Management
Higuchi, Yuichi* *(NTT Device Innovation Center, NTT Corp.)*; Saijo, Naoki *(NTT Communication Science Laboratories)*; Ishihara, Takako *(NTT Device Innovation Center, NTT Corp.)*; Usui, Tomohiro *(Waseda Univ. Rugby Football club)*; Murakami, Takahiro *(Waseda Univ. Rugby Football club)*; Miyata, Makoto *(EUPHORIA)*; Ono, Kazuyoshi *(Nippon Telegraph & Telephone Corp.)*; Usui, Souichiro *(Nippon Telegraph & Telephone Corp.)*; Togo, Hiroyoshi *(NTT Device Innovation Center)*

10:45-11:00 FrB17.2
Suitability of an Inter-Burst Detection Method for Grading Hypoxic-Ischemic Encephalopathy in Newborn EEG
Raurale, Sumit Arun* *(University College Cork)*; Nalband, Saif *(University College Cork)*; Boylan, Geraldine *(University College Cork)*; Lightbody, Gordon *(University College Cork)*; O'Toole, John M. *(University College Cork)*

11:00-11:15 FrB17.3
The Effect of Landmark Variability on Automated PAP Mask Sizing
Johnston, Benjamin* *(University of Sydney)*; de Chazal, Philip *(University of Sydney)*

11:15-11:30 FrB17.4
In-Silico Study to Develop Continuous Glucose Monitoring based Algorithm to Trigger Effective Preventive Hypotreatments in the Daily Management of Type 1 Diabetes
Camerlingo, Nunzio* *(Dept. of Information Engineering – Univ. of Padova)*; Vettoretti, Martina *(Univ. of Padova)*; Del Favero, Simone *(Univ. of Padova, Padova, Italy)*; Cappon, Giacomo *(Univ. of Padova)*; Sparacino, Giovanni *(Univ. of Padova)*; Facchinetti, Andrea *(Univ. of Padova)*

11:30-11:45 FrB17.5
Three-Dimensional Hollow Elastic Models for Intracranial Aneurysm Clipping Election – A Case Study
Leal, André Giacomelli *(Graduate Program on Health Technology (PPGTS), Pontifical Cathol)*; Mori, Ivy Tiemi *(Federal University of Technology Parana)*; Nohama, Percy *(Pontifícia Universidade Católica do Paraná)*; Abreu de Souza, Mauren* *(Pontifical Catholic University of Paraná – PUCPR)*

11:45-12:00 FrB17.6
How Long after Compliance Do You Benefit from Regulation? An Empirical Study on Diagnostic Imaging Equipment Requirements
Duarte, Carlos Henrique* *(Brazilian Development Bank (BNDES))*

FrB18: 10:30-12:00 R13 – Level 3
Neural Signal Processing (Oral Session)
Chair: James, Christopher *(University of Warwick)*
Co-Chair: Al-Jumaily, Adel *(University of Technology Sydney)*

10:30-10:45 FrB18.1
Real-Time Tracking of Magnetoencephalographic Neuromarkers during a Dynamic Attention-Switching Task
Presacco, Alessandro* *(University of Maryland, College Park)*; Miran, Sina *(University of Maryland, College Park)*; Babadi, Behtash *(University of Maryland)*; Simon, Jonathan Z. *(University of Maryland, College Park)*

10:45-11:00 FrB18.2
Deep Learning with Convolutional Neural Network for Detecting Microsleep States from EEG: A Comparison between the Oversampling Technique and Cost-Based Learning
Krishnamoorthy, Venkatasubramanian* *(Univ. of Otago)*; Shoorangiz, Reza *(Univ. of Canterbury)*; Weddell, Stephen J. *(Univ. of Canterbury)*; Beckert, Lutz *(Univ. of Otago)*; Jones, Richard D. *(New Zealand Brain Research Institute)*

11:00-11:15 FrB18.3
Analysis of the Inter-Joints Synergistic Patterns of Limbs in Infant Crawling
Zhang, Li *(Chongqing Univ.)*; Deng, Chunfeng *(Chongqing Univ.)*; Hou, Wensheng* *(Bioengineering Inst of Chongqing Univ)*

11:15-11:30 FrB18.4
3D Convolutional Neural Networks for Event-Related Potential Detection
Cecotti, Hubert* *(California State University Fresno)*; Jha, Ganesh *(Fresno State)*

11:30-11:45 FrB18.5
Detection of Subthalamic Nucleus using Time-Frequency Features of Microelectrode Recordings and Random Forest Classifier
Periyamolapalayam Allimuthu, Karthick* *(National Institute of Technology Trichirappalli)*; Wan, Kai Rui *(National Neuroscience Institute)*; Rajamanickam, Yuvaraj *(Nanyang Technological Univ.)*; See, Angela An Qi *(National Neuroscience Institute Singapore)*; King, Nicolas Kon Kam *(National Neuroscience Institute Singapore)*; Dauwels, Justin *(NTU)*

11:45-12:00 FrB18.6
Coding of Electrical Stimulation Patterns for Binaural Sound Coding Strategies for Cochlear Implants
Hinrichs, Reemt* *(Universität Hannover)*; Gajecki, Tom *(Medical University Hannover)*; Ostermann, Jörn *(Universität Hannover)*; Nogueira, Waldo *(Medical University Hannover)*

FrB19: 10:30-12:00 R4 – Level 3
New Trends in Perinatal and Pediatric Imaging (Invited Session)
Chair: Linguraru, Marius George *(Children's National Health System)*

10:30-10:45 FrB19.1
Quantifying Perinatal Brain Maturation using Anatomical MRI
Auzias, Guillaume* *(Aix Marseille Univ, CNRS)*; Rousseau, François *(Telecom Bretagne)*; Takerkart, Sylvain *(CNRS, France)*; Girard, Nadine *(CRMBM UMR 7339, Aix Marseille Université, CNRS & APHM, Hôpital)*; Deruelle, Christine *(INT UMR 7289, Aix Marseille Université, CNRS.)*; Coulon, Olivier *(Aix-Marseille University)*; Lefevre, Julien *(Institut de Neurosciences de la Timone)*

10:45-11:00 FrB19.2
Surface-Based Cerebellar Abnormalities in Preterm Neonates
Dong, Qunxi *(Arizona State University)*; Wang, Yalin* *(Arizona State University)*; Paquette, Natacha *(Children's Hospital Los Angeles)*; Reynolds III, William Thomas *(Children's Hospital of Pittsburgh UPMC)*; Ceschin, Rafeal *(University of Pittsburgh Medical Center)*; Hernáiz Driever, Pablo *(Charité-Universitätsmedizin Berlin)*; Nelson, Marvin *(University of Southern California & Keck School of Medicine, c)*; Panigraphy, Ashok *(Children's Hospital Los Angeles)*; Lepore, Natasha *(USC / Children's Hospital Los Angeles)*

11:00-11:15 FrB19.3
Mapping of Cognitive and Motor Deficits in Pediatric Cerebellar Brain Tumor Survivors into the New SUIT Cerebellar White Matter Atlas
Grosse, Frederik *(Charité-Universitätsmedizin Berlin)*; Rueckriegel, Stefan *(Universitätsklinik Würzburg)*; Tietze, Anna *(Charité-Universitätsmedizin Berlin)*; Thomale, Ulrich-Wilhelm *(Charité-Universitätsmedizin Berlin)*; Timmann-Braun, Dagmar *(Universitätsklinikum Essen)*; Hernáiz Driever, Pablo* *(Charité-Universitätsmedizin Berlin)*

11:15-11:30 FrB19.4
Recent Advances in Intelligent Fetal Imaging
Schnabel, Julia* *(King's College London)*

11:30-11:45 FrB19.5
Prediction of Outcome in Pediatric Hydronephrosis from Quantitative Image and Signal Analysis
Porras, Antonio R. *(Children's National Medical Center)*; Roshanitabrizi, Pooneh *(Children's National Health System)*; Cerrolaza, Juan J. *(Imperial College London)*; Emily, Blum *(Georgia urology)*; Bruce, Sprague *(Children's National Health System)*; Jago, James *(Philips Healthcare)*; Safdar, Nabile *(Sheikh Zayed Institute for Pediatric Surgical Innovation – Child)*; Peters, Craig A. *(Sheikh Zayed Institute for Pediatric Surgical Innovation – Child)*; Zember, Jonathan *(Children's National Health System)*; Dorothy, Bulas *(Children's National Health System)*; Pohl, Hans G. *(Children's National Health System)*; Linguraru, Marius George* *(Children's National Health System)*

FrB20: 10:30-12:00 R5 – Level 3
Education and Simulation (Oral Session)
Chair: Kant Kumar, Dinesh *(RMIT University)*
Co-Chair: Ricci, Serena *(University of Genova)*

10:30-10:45 FrB20.1
Evaluation of a Developed Multichannel R-R Interval Telemeter and Garment-Type Electrode
Chihara, Yuma* *(Kumamoto University)*; Yamakawa, Toshitaka *(Kumamoto University)*

10:45-11:00 FrB20.2
Construction of Automatic Scoring System to Support Objective Evaluation of Clinical Skills in Medical Education
Sugamiya, Yurina* *(Waseda University)*; Otani, Takuya *(Waseda University)*; Nakadate, Ryu *(Kyushu University)*; Takanishi, Atsuo *(Waseda University)*

11:00-11:15 FrB20.3
Design and Implementation of a Low-Cost Birth Simulator
Ricci, Serena* *(Univ. of Genova)*; Marcutti, Simone *(DIBRIS Univ. of Genova)*; Pani, Andrea *(DIBRIS Univ. of Genova)*; Cordone, Massimo *(SIMAV, Univ. of Genova)*; Torre, Giancarlo *(SIMAV, Univ. of Genova)*; Vercelli, Gianni *(DIBRIS Univ. of Genova)*; Casadio, Maura *(Univ. of Genova)*

11:15-11:30 FrB20.4
Conceptualization of an ICU Infrastructure for Simulation based Education in Medical Engineering and EHealth
Forjan, Mathias* *(Univ. of Applied Sciences Technikum Wien)*; David, Veronika *(Univ. of Applied Sciences Technikum Wien)*; Wagner, Michael *(Pediatric Intensive Care & Neuropediatrics, Dept. of Pedi)*; Dolesch, Lukas *(gsm Gesellschaft für Sicherheit in der Medizintechnik GmbH)*; Lechner, Manuel *(gsm Gesellschaft für Sicherheit in der Medizintechnik GmbH)*; Sauermann, Stefan *(Univ. of Applied Sciences Technikum Wien)*

11:30-11:45 FrB20.5
Comparison of Instructor and Student-Based Assessment in Biomedical Engineering Project based Learning using ANOVA
Setiawan, Agung Wahyu* *(School of Electrical Engineering & Informatics, Institut Tekno)*

11:45-12:00 FrB20.6
Teaching While Surrounded by Smartphones
Kant Kumar, Dinesh* *(RMIT Univ.)*; Radcliffe, Pj *(RMIT Univ.)*

FrB21: 10:30-12:00 R8 – level 3
Smart Interactive Implants in a Network (Minisymposium)
Chair: Hoffmann, Klaus-Peter *(Fraunhofer Institut für Biomedizinische Technik)*
Co-Chair: Rupp, Rüdiger *(Heidelberg University Hospital)*

10:30-10:45 FrB21.1
Interactive Implants – Artificial Intelligence and Aspects of German Liability Law
Droste, Wiebke* *(Institute for German, European & International Medical Law, Pu)*

10:45-11:00 FrB21.2
Innovative Power Solution for Micro-Implants
Gottschalk, Michael* *(VARTA Microbattery GmbH)*

11:00-11:15 FrB21.3
Minimally Invasive and Conventionally Open Gastrointestinal Electrophysiological Measurements with Multilocular Electrical Stimulation
Schiemer, Jonas* *(Univ. Mainz)*; Somerlik-Fuchs, Karin H *(Albert-Ludwigs-Univ. Freiburg)*; Hoffmann, Klaus-Peter *(Fraunhofer Institut für Biomedizinische Technik)*; Lang, Hauke *(AVTC Unimedizin Mainz)*; Kneist, Werner *(AVTC Unimedizin Mainz)*

11:15-11:30 FrB21.4
Restoration of an Impaired Grasping Function with a Network of Smart Interactive Implants
Rupp, Rüdiger* *(Heidelberg University Hospital)*; Kogut, Andreas *(Spinal Cord Injury Center, Heidelberg University Hospital)*; Ruff, Roman *(Fraunhofer Institut für Biomedizinische Technik)*; Hoffmann, Klaus-Peter *(Fraunhofer Institut für Biomedizinische Technik)*

11:30-11:45 FrB21.5
Interactive Implants: Experimental Medical Device Platform to Translate Developments into Products
Krueger, Thilo B* *(inomed Medizintechnik GmbH)*; Somerlik-Fuchs, Karin H *(Albert-Ludwigs-University Freiburg)*

11:45-12:00 FrB21.6
Suppression of Tinnitus using Electrical Stimulation
Olze, Heidi* *(Charité Univ. Berlin)*; Szczepek, Agnieszka J. *(Charité Univ. Berlin)*; Reich, Uta *(Charité Univ. Berlin)*; Vater, Jana *(Charité Univ. Berlin)*; Gräbel, Stefan *(Charité Univ. Berlin)*; Uecker, Florian Cornelius *(Charité Univ. Berlin)*

FrC01: 14:00-15:30 Hall A6+A7 – Level 1
Neurological Disorders (III) (Oral Session)
Chair: Bianchi, Anna Maria *(Politecnico di Milano)*

14:00-14:15 FrC01.1
A Functional Analysis-Based Approach to Quantify Upper Limb Impairment Level in Chronic Stroke Patients: A Pilot Study
Schwarz, Anne* *(Univ. of Zurich)*; Averta, Giuseppe *(Univ. of Pisa)*; Veerbeek, Janne M. *(Univ. of Zurich)*; Luft, Andreas *(Univ. of Zurich)*; Held, Jeremia P.O. *(Univ. of Zurich)*; Valenza, Gaetano *(Univ. of Pisa)*; Bicchi, Antonio *(Univ. of Pisa)*; Bianchi, Matteo *(Univ. of Pisa)*

14:15-14:30 FrC01.2
Measurement of Interhemispheric Correlation Coefficient in Rodent Model of Middle Cerebral Artery Occlusion using Near Infrared Spectroscopy
Wu, Chun-Wei *(National Cheng Kung Univ.)*; Yuen, Chun-Man *(Division of Neurosurgery, Dept. of Surgery, Kaohsiung Chang)*; Shao, Wen-Chen *(Dept. of Biomedical Engineering, National Cheng Kung Univ.)*; Lee, Hsiao-Yu *(Dept. of Digital Media Design, Far East Univ.)*; Chung, Yueh-Jen *(Dept. of Medicine, China Medical Univ.)*; Chen, Jia-Jin Jason* *(Dept. of Biomedical Engineering, National Cheng Kung Univ.)*

14:30-14:45 FrC01.3
Neuroprotection of Glibenclamide against Brain Injury after Cardiac Arrest via Modulation of NLRP3 Inflammasome
Yang, Xiuli *(Univ. of Maryland School of Medicine)*; Wang, Zhuoran *(Univ. of Maryland School of Medicine)*; Jia, Xiaofeng* *(Univ. of Maryland School of Medicine, Johns Hopkins Univ.)*

14:45-15:00 FrC01.4
Intracerebroventricular Administration of Neural Stem Cells after Cardiac Arrest
Wang, Zhuoran *(Univ. of Maryland School of Medicine)*; Yang, Xiuli *(Univ. of Maryland School of Medicine)*; He, Junyun *(Univ. of Maryland)*; Du, Jian *(Univ. of Maryland School of Medicine)*; Liu, Shaolin *(Howard Univ.)*; Jia, Xiaofeng* *(Univ. of Maryland School of Medicine, Johns Hopkins Univ.)*

15:00-15:15 FrC01.5
Exploring Characteristic Features in Gait Patterns for Predicting Multiple Sclerosis
Kaur, Rachneet *(University of Illinois at Urbana Champaign)*; Menon, Sanjana *(University of Illinois at Urbana Champaign)*; Zhang, Xiaomiao *(University of Illinois at Urbana Champaign)*; Sowers, Richard *(University of Illinois at Urbana-Champaign)*; Hernandez, Manuel* *(University of Illinois)*

15:15-15:30 FrC01.6
Grouping Neuronal Spiking Patterns in the Subthalamic Nucleus of Parkinsonian Patients
Kaku, Heet* *(Univ. of Houston)*; Ozturk, Musa *(Univ. of Houston)*; Viswanathan, Ashwin *(Dept. of Neurology, Baylor College of Medicine)*; Shahed, Joohi *(Dept. of Neurology, Baylor College of Medicine)*; Sheth, Sameer *(Columbia Univ. Medical Center)*; Ince, Nuri Firat *(Univ. of Houston)*

FrC02: 14:00-15:30 Hall A8 – Level 1
Signal Processing and Classification for Wearable Systems and Smartphones (Oral Session)
Chair: Mainardi, Luca *(Politecnico di Milano)*
Co-Chair: Kyritsis, Konstantinos *(Aristotle Univ. of Thessaloniki)*

14:00-14:15 FrC02.1
Automatic Stroke Screening on Mobile Application: Features of Gyroscope and Accelerometer for Arm Factor in FAST
Phienphanich, Phongphan *(Thammasat Univ.)*; Tankongchamruskul, Nattakit *(Ruamrudee International School)*; Akarathanawat, Wasan *(Chulalongkorn Univ.)*; Chutinet, Aurauma *(Chulalongkorn Univ.)*; Nimnual, Rossukon *(Chulalongkorn Univ.)*; Tantibundhit, Charturong* *(Thammasat Univ.)*; Charnnarong Suwanwela, Nijasri *(Chulalongkorn Univ.)*

14:15-14:30 FrC02.2
Detecting Meals in the Wild using the Inertial Data of a Typical Smartwatch
Kyritsis, Konstantinos* *(Aristotle University of Thessaloniki)*; Diou, Christos *(Aristotle University of Thessaloniki)*; Delopoulos, Anastasios *(Aristotle University of Thessaloniki)*

14:30-14:45 FrC02.3
Smart Phone based Snoring Sound Analysis to Identify Upper Airway Obstructions
Markandeya, Mrunal* *(University of Queensland)*; Abeyratne, Udantha R *(University of Queensland)*

14:45-15:00 FrC02.4
Smartphone PPG: Signal Processing, Quality Assessment, and Impact on HRV Parameters
Tyapochkin, Konstantin* *(Welltory)*; Smorodnikova, Evgeniya *(Welltory)*; Pravdin, Pavel *(Welltory)*

15:00-15:15 FrC02.5
BioTranslator: Inferring R-Peaks from Ambulatory Wrist-Worn PPG Signal
Everson, Luke *(University of Minnesota)*; Biswas, Dwaipayan* *(imec)*; Verhoef, Bram-Ernst *(imec)*; Kim, Chris H. *(University of Minnesota)*; Van Hoof, Chris *(imec)*; Konijnenburg, Mario *(imec)*; Van Helleputte, Nick *(imec)*

15:15-15:30 FrC02.6
Freezing-of-Gait Detection using Wearable Sensor Technology and Possibilistic K-Nearest-Neighbor Algorithm
Tahafchi, Parisa *(Univ. of Florida)*; Judy, Jack* *(Univ. of Florida)*

FrC03: 14:00-15:30 Hall A3 – Level 1
Advanced Techniques and Applications in Optical Coherence Tomography for Biomedical Imaging (Minisymposium)
Chair: Wong, Damon *(Institute of Health Technologies, Nanyang Technological University)*
Co-Chair: Liu, Jiang *(Ningbo Institute of Materials Technology and Engineering, CAS)*

14:00-14:15 FrC03.1
Dynamic Optical Coherence Elastography for Mechanical Characterization of Skeletal and Cardiac Muscles
Larin, Kirill* *(University of Houston)*

14:15-14:30 FrC03.2
Multi-Channel Optical Coherence Tomography
Hitzenberger, Christoph* *(Medical University of Vienna)*

14:30-14:45 FrC03.3
Optical Coherence Tomography Image Analysis in Dermatology
Yow, Ai Ping* *(Nanyang Technological Univ.)*; Srivastava, Ruchir *(Institute for Infocomm Research)*; Cheng, Jun *(Institute of Biomedical Eng., Chinese Academy of Sciences)*; Li, Annan *(Beijing Univ. of Aeronautics & Astronautics)*; Liu, Jiang *(Ningbo Institute of Materials Technology & Eng., CAS)*; Wong, Damon *(Institute of Health Technologies, Nanyang Technological Univ.)*; Schmetterer, Leopold *(Singapore Eye Research Institute)*; Tey, Hongliang *(National Skin Center, Singapore)*

14:45-15:00 FrC03.4
Fast Retina Optical Coherence Tomography Contrast Enhancement
Hu, Yan* *(Chinese Academy of Sciences)*; Yang, Jianlong *(Cixi Institute of Biomedical Engineering, Chinese Academy of Sci)*; Zhao, Yitian *(Chinese Academy of Sciences)*; Cheng, Jun *(Institute of Biomedical Engineering, Chinese Academy of Sciences)*; Liu, Jiang *(Ningbo Institute of Materials Technology & Engineering, CAS)*

15:00-15:15 FrC03.5
Assessing Vascular Function with Optical Coherence Tomography
Schmetterer, Leopold* *(Singapore Eye Research Institute)*

FrC04: 14:00-15:30 Hall A1 – Level 1
The Standardization of the Performance Evaluation for the Continuous Blood Pressure Measurement from Different Perspectives (Minisymposium)
Chair: Avolio, Alberto P. *(Macquarie University)*

14:00-14:15 FrC04.1
Current Development and Regulation of Continuous Blood Pressure Monitors in Japan
Tamura, Toshiyo* *(Waseda University)*

14:15-14:30 FrC04.2
Protocol Design and Evaluation Methodology for IEEE 1708
Park, Sung-Min* *(POSTECH)*; Kim, Youngsoo *(Samsung Electronics)*; Jang, Dae-Geun *(Samsung Advanced Institute of Tech.)*; Kim, Youn Ho *(Samsung Advanced Institute of Tech.)*

14:30-14:45 FrC04.3
Performance Standards for Non-Invasive Blood Pressure Monitors
Lowe, Andrew* *(Auckland University of Technology)*

14:45-15:00 FrC04.4
Hemodynamic and Vascular Factors Involved in Variation of Arterial Pressure: Implications for Accuracy of Continuous Measurement of Blood Pressure
Avolio, Alberto P* *(Macquarie Univ.)*; Shirbani, Fatemeh *(Macquarie Univ., Faculty of Medicine & Health Sciences)*; Tan, Isabella *(Macquarie Univ.)*; Butlin, Mark *(Macquarie Univ.)*

FrC05: 14:00-15:30 Hall A2 – Level 1
Signal Processing and Classification of Cardiovascular Signals (Oral Session)
Chair: Hernández, Alfredo I. *(Univ. of Rennes 1 and INSERM U199)*
Co-Chair: Magenes, Giovanni *(University of Pavia)*

14:00-14:15 FrC05.1
Quantification of Spatial Heterogeneity of Ventricular Repolarization during Early-Stage Cardiac Ischemia Induced by Coronary Angioplasty
Rivolta, Massimo Walter* *(Università degli Studi di Milano)*; Rocchetta, Filippo *(Università degli Studi di Milano)*; Mainardi, Luca *(Politecnico di Milano)*; Lombardi, Federico *(Università degli Studi di Milano & Fondazione IRCCS Ca' Granda)*; Sassi, Roberto *(Università degli Studi di Milano)*

14:15-14:30 FrC05.2
Beamforming-Inspired Spatial Filtering Technique for Intracardiac Electrograms
Saha, Simanto* *(The University of Adelaide)*; Linz, Dominik *(The Centre for Heart Rhythm Disorders, The University of Adelaid)*; Sanders, Prashanthan *(Centre for Heart Rhythm Disorders, South Australian Health & M)*; Baumert, Mathias *(The University of Adelaide)*

14:30-14:45 FrC05.3
A New Frequency Domain Measure of Causality based on Partial Spectral Decomposition of Autoregressive Processes and Its Application to Cardiovascular Interactions
Faes, Luca* *(Univ. of Palermo)*; Krohova, Jana *(Comenius Univ. in Bratislava)*; Pernice, Riccardo *(Univ. of Palermo)*; Busacca, Alessandro *(Univ. degli Studi di Palermo)*; Javorka, Michal *(Comenius Univ., Jessenius Faculty of Medicine)*

14:45-15:00 FrC05.4
Cardiovascular Disease Diagnosis using Cross-Domain Transfer Learning
Tadesse, Girmaw Abebe* *(Univ. of Oxford)*; Zhu, Tingting *(Univ. of Oxford)*; Liu, Yong *(Guangdong Academy of Medical Sciences)*; Zhou, Yingling *(Guangdong Provincial People's Hospital)*; Chen, Jiyan *(Guangdong provincial Key Laboratory of Coronary Heart Disease Pr)*; Tian, Maoyi *(The George Institute for Global Health)*; Clifton, David *(Univ. of Oxford)*

15:00-15:15 FrC05.5
A Novel Method for Calibration-Based Cuff-Less Blood Pressure Estimation
Li, Zhenqi* *(Guangzhou Shiyuan Electronics Co., Ltd)*; Yan, Cong *(Guangzhou Shiyuan Electronics Co., Ltd)*; Zhao, Wei *(Guangzhou Shiyuan Electronics Co., Ltd)*; Hu, Jing *(Guangzhou Shiyuan Electronic Technology Co., Ltd.)*; Jia, Dongya *(CVTE, Guangdong Province, China)*; Wang, Hongmei *(Guangzhou Shiyuan Electronics Co., Ltd)*; You, Tianyuan *(Guangzhou Shiyuan Electronics Co., Ltd.)*

15:15-15:30 FrC05.6
Pulse Wave Curve Fitting to Heterogeneous Noninvasive Plethysmographic Signals for Blood Pressure Tracking
Pielmus, Alexandru Gabriel* *(Technische Univ. Berlin)*; Klum, Michael *(Technische Univ. Berlin)*; Tigges, Timo *(Technical Univ. Berlin)*; Osterland, Dennis *(Technische Univ. Berlin)*; Orglmeister, Reinhold *(Technische Univ. Berlin)*

FrC06: 14:00-15:30 Hall A5 – Level 1
Recent Advances in In-Vitro Neural Interface Technology (Invited Session)
Chair: Nam, Yoonkey *(Korea Advanced Institute of Science and Tech.)*

14:00-14:15 FrC06.1
Planar MEA Technology History: From Printed Circuits to Brain-on-Chip to Very Large Scale
Wheeler, Bruce* *(University of Florida)*

14:15-14:30 FrC06.2
Multi-Well MEAs for High-Throughput Screening
Ross, James *(Axion BioSystems)*; De Filippi, Giovanna* *(Axion BioSystems)*

14:30-14:45 FrC06.3
Nanoplasmonic Microelectrode Arrays for Opto-Thermal Modulation of Neuronal Activity in Vitro
Nam, Yoonkey* *(Korea Advanced Institute of Science & Tech.)*

14:45-15:00 FrC06.4
Subcellular-Resolution Electrophysiology with Highly Integrated CMOS-Based Microelectrode Arrays
Hierlemann, Andreas* *(ETH Zurich)*

FrC07: 14:00-15:30 Hall A4 – Level 1
Micro/Nano-Sensing in Application Environment (Invited Session)
Chair: Lei, Kin Fong *(Chang Gung University)*

14:00-14:15 FrC07.1
A Hand-Held Whole-Cell Sensing Device for Detecting Antibiotics in Food Samples
Lu, Mei-Yi *(Academia Sinica Taiwan)*; Kao, Wei-Chen *(Academia Sinica Taiwan)*; Belkin, Shimshon *(Hebrew Univ. of Jerusalem)*; Cheng, Ji-Yen* *(Academia Sinica Taiwan)*

14:15-14:30 FrC07.2
Cancer Cell Migration in 3D Environment
Lei, Kin Fong* *(Chang Gung University)*

14:30-14:45 FrC07.3
Electrofluidic Pressure Sensor Embedded Microfluidic Devices for In-Plane Cellular Elasticity Measurements
Ko, Ping-Liang *(Academia Sinica)*; Wang, Chien-Kai *(Tamkang Univ.)*; Liao, Wei-Hao *(Academia Sinica)*; Tung, Yi-Chung* *(Academia Sinica)*

14:45-15:00 FrC07.4
Intelligent Gas Sensing System and Its Applications
Yao, Da-Jeng* *(National Tsing Hua University)*

15:00-15:15 FrC07.5
Accelerometer-Based Wearable Device Assisted Physical Activity Monitoring for Readmission Risk in COPD Patients
Verma, Vijay Kumar* *(Chang Gung Univ.)*; Lin, Wen-Yen *(Chang Gung Univ.)*; Lee, Ming-Yih *(Chang Gung Univ.)*

FrC08: 14:00-15:30 M8 – Level 3
Health Informatics – eHealth (Oral Session)
Chair: Vanrumste, Bart *(Katholieke Universiteit Leuven)*

14:00-14:15 FrC08.1
PREgDICT: Early Prediction of Gestational Weight Gain for Pregnancy Care
Puri, Chetanya* *(Marie Curie Fellow, Dept. of Electrical Engineering, KU Leu)*; Kooijman, Gerben *(Philips Research)*; Masculo, Felipe *(Philips Research)*; Van Sambeek, Shannon *(Philips Research)*; Den Boer, Sebastiaan *(Philips Research)*; Luca, Stijn *(KU Leuven Technology Campus Geel, AdvISe)*; Vanrumste, Bart *(Katholieke Universiteit Leuven)*

14:15-14:30 FrC08.2
Mobile Apps for Post Traumatic Stress Disorder
Drissi, Nidal *(ENSIAS, Mohammed V University)*; Ouhbi, Sofia* *(UAE University)*; Janati Idrissi, Mohammed Abdou *(ENSIAS, Mohammed V University)*; Ghogho, Mounir *(Université internationale de Rabat (UIR))*

14:30-14:45 FrC08.3
Recent Trends in Diabetes-Related Consumer Health Information Technology Research
Claiborne, John* *(VCU School of Medicine)*; Wellbeloved-Stone, Claire *(University of Virginia)*; Valdez, Rupa Sheth *(University of Virginia)*

14:45-15:00 FrC08.4
MHealth4Afrika – Co-Designing a Standards based Solution for use in Resource Constrained Primary Healthcare Facilities
Cunningham, Paul M.* *(IST-Africa Institute)*; Cunningham, Miriam *(IST-Africa Institute)*

15:00-15:15 FrC08.5
Detecting Undiagnosed Diabetes: Proof-of-Concept based on the Health-Information Exchange System of the Veneto Region (North-East Italy)
Longato, Enrico* *(University of Padova)*; Di Camillo, Barbara *(University of Padova)*; Sparacino, Giovanni *(University of Padova)*; Saccavini, Claudio *(Arsenàl.IT, Veneto's Research Centre for eHealth Innovation)*; Cocchiglia, Arianna *(Arsenàl.IT, Veneto's Research Centre for eHealth Innovation)*; Tramontan, Lara *(Arsenàl.IT)*; Fadini, Gian Paolo *(University of Padova)*

15:15-15:30 FrC08.6
A Portable Sensor Sheet for Measuring the Eating Pace in Meal Assistance Care
Watanabe, Takeharu* *(Univ. of Tsukuba)*; Shimokakimoto, Tomoya *(Univ. of Tsukuba)*; Jayatilake, Dushyantha *(PLIMES Inc)*; Inoue, Makoto *(Niigata Univ.)*; Suzuki, Kenji *(Univ. of Tsukuba)*

FrC09: 14:00-15:30 M1 – Level 3
Modeling and Simulation of Magnetic Nanoparticles for Biomedical Applications: From Physical Properties towards Therapeutic Behavior (Invited Session)
Chair: Baumgarten, Daniel *(UMIT – Private University for Health Sciences, Medical Informatics and Technology)*
Co-Chair: Leliaert, Jonathan *(Ghent University)*

14:00-14:15 FrC09.1
Modelling the Response of Magnetic Nanoparticles Inside Living Cells
Leliaert, Jonathan* *(Ghent University)*; Coene, Annelies *(Ghent University)*; Cabrera, David *(iMdea Nanociencia)*; Artés-Ibáñez, Emilio *(iMdea Nanociencia)*; Dupré, Luc *(Ghent University)*; Telling, Neil *(Institute for Science & Technology in Medicine, Keele Universi)*; Teran, Francisco *(iMdea Nanociencia)*

14:15-14:30 FrC09.2
Interstitial Dosage Limits for Nanoscale Medicines and Agents
Pankhurst, Quentin* *(University College London)*; Southern, Paul *(Resonant Circuits Limited)*; Baumgarten, Daniel *(UMIT – Private University for Health Sciences, Medical Informati)*

14:30-14:45 FrC09.3
In Silico Testing of Clinical Magnetic Hyperthermia: Nanothermometry Options and the Role of Tumour Vasculature
Ortega, Daniel* *(IMDEA Nanoscience)*; Rubia-Rodriguez, Irene *(IMDEA Nanoscience)*; Hernandez-Juarez, Beatriz *(Universidad Autonoma de Madrid)*; Teran, Francisco *(iMdea Nanociencia)*; Verdaguer, Helena *(Vall d'Hebron Institute of Oncology)*; Macarulla, Teresa *(Vall d'Hebron Institute of Oncology)*

14:45-15:00 FrC09.4
Numerical Simulation of Magnetic Drug Targeting into Tumor Tissue
Gonella, Veronica *(UMIT – Private University for Health Sciences, Medical Informati)*; Baumgarten, Daniel* *(UMIT – Private University for Health Sciences, Medical Informati)*

FrC10: 14:00-15:30 M2 – Level 3
Sensor Informatics – Sensors and Sensor Systems (Oral Session)
Chair: Chon, Ki *(University of Connecticut)*

14:00-14:15 FrC10.1
System for Monitoring User Engagement with Personalized Medical Devices to Improve use and Health Outcomes
Clements, Eileen* *(University of Texas at Arlington)*; Roane, Brandy *(University of North Texas Health Science Center)*; Alshabrawy, Hesham *(University of Texas at Arlington)*; Gopalakrishnan, Aishwarya *(University of Texas at Arlington)*; Balaji, Sripathy *(University of Texas at Arlington)*

14:15-14:30 FrC10.2
Smartwatch based Atrial Fibrillation Detection from Photoplethysmography Signals
Bashar, Syed Khairul* *(Univ. of Connecticut)*; Han, Dong *(Univ. of Connecticut)*; Ding, Eric *(Univ. of Massachusetts Medical School)*; Whitcomb, Cody *(Univ. of Massachusetts Medical School)*; McManus, David *(Univ. of Massachusetts Medical Center)*; Chon, Ki *(Univ. of Connecticut)*

14:30-14:45 FrC10.3
Smartwatch PPG Peak Detection Method for Sinus Rhythm and Cardiac Arrhythmia
Han, Dong* *(University of Connecticut)*; Bashar, Syed Khairul *(University of Connecticut)*; Lázaro, Jesús *(University of Zaragoza)*; Ding, Eric *(University of Massachusetts Medical School)*; Whitcomb, Cody *(University of Massachusetts Medical School)*; McManus, David *(University of Massachusetts Medical Center)*; Chon, Ki *(University of Connecticut)*

14:45-15:00 FrC10.4
Feasibility of Long-Term Daily Life Electrocardiogram Monitoring based on a Wearable Armband Device
Lázaro, Jesús* *(University of Zaragoza)*; Reljin, Natasa *(University of Connecticut)*; Noh, Yeon Sik *(University of Massachusetts Amherst)*; Laguna, Pablo *(Zaragoza University & CIBER-BBN)*; Chon, Ki *(University of Connecticut)*

15:00-15:15 FrC10.5
Wearable Sensors for Prodromal Motor Assessment of Parkinson's Disease using Supervised Learning
Rovini, Erika* *(Scuola Superiore Sant'Anna)*; Moschetti, Alessandra *(Scuola Superiore Sant'Anna)*; Fiorini, Laura *(Scuola Superiore Sant'Anna)*; Esposito, Dario *(Scuola Superiore Sant'Anna)*; Maremmani, Carlo *(Azienda USL Toscana Nord-Ovest)*; Cavallo, Filippo *(Scuola Superiore Sant'Anna)*

15:15-15:30 FrC10.6
Automatic Detection of Atrial Fibrillation in Ballistocardiogram (BCG) using Wavelet Features and Machine Learning
Yu, Bin* *(Eindhoven University of Technology)*; Zhang, Biyong *(BOBO Technology Ltd.)*; Xu, Lisheng *(Northeastern University)*; Fang, Peng *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Hu, Jun *(Eindhoven University of Technology)*

FrC11: 14:00-15:30 M4 – Level 3
State-of-the-Art Advances in Sleep Health Science and Technology: Session 3 – Clinical Issues in Sleep Apnea (Minisymposium)
Chair: Khoo, Michael *(University of Southern California)*
Co-Chair: Penzel, Thomas *(Charité Universitätsmedizin Berlin)*

14:00-14:15 FrC11.1
Diagnosing Sleep Apnea Comorbidities
Penzel, Thomas* *(Charité Universitätsmedizin Berlin)*; Glos, Martin *(Charité-Universitaetsmedizin Berlin)*; Schoebel, Christoph *(Charité Universitaetsmedizin Berlin)*; Fietze, Ingo *(Charité-Universitaetsmedizin Berlin)*

14:15-14:30 FrC11.2
Autonomic Effects of Sleep-Disordered Breathing in Sickle Cell Disease: Is there a Link to Vaso-Occlusive Crisis?
Khoo, Michael* *(University of Southern California)*; Chalacheva, Patjanaporn *(University of Southern California)*; Ji, Yunhua *(University of Southern California)*; Coates, Thomas *(Childrens Hospital Los Angeles, USC Keck School of Medicine)*

14:30-14:45 FrC11.3
Phenotyping Sleep Apnea in Chronic Heart Failure: Effects of Angiotensin Receptor Neprilysin Inhibition (ARNi) on Loop Gain and Cycle Length of Cheyne-Stokes Respiration
Schoebel, Christoph* *(Charité Universitaetsmedizin Berlin)*; Fietze, Ingo *(Charité-Universitaetsmedizin Berlin)*; Penzel, Thomas *(Charité Universitätsmedizin Berlin)*

14:45-15:00 FrC11.4
Moderate Obstructive Sleep Apnoea: Decreased Cerebral Perfusion When Awake?
Jones, Richard D.* *(New Zealand Brain Research Institute)*; Innes, Carrie R. H. *(Canterbury District Health Board)*; Buckley, Russell *(New Zealand Brain Research Institute)*; Kelly, Paul *(Christchurch Hospital)*; Hlavac, Michael *(Christchurch Hospital)*; Beckert, Lutz *(University of Otago)*

FrC12: 14:00-15:30 M6 – Level 3
MRI – Neuroimaging (Oral Session)
Chair: Chan, Kevin C. *(New York University)*
Co-Chair: Barbieri, Riccardo *(Politecnico di Milano)*

14:00-14:15 FrC12.1
Perfusion Quantification using Arterial Spin Labeling Magnetic Resonance Imaging after Revascularization for Moyamoya Disease
Li, Liang *(Dept. of Electronic & Information Engineering, Harbin Ins)*; Lei, Yu *(Dept. of Neurosurgery, Shanghai HuaShan Hospital, Shanghai,)*; Su, JiaBin *(Dept. of Neurosurgery, Shanghai HuaShan Hospital, Shanghai,)*; PengZheng, Zhou *(Dept. of Electronic & Information Engineering, Harbin Ins)*; Lv, Haiyan *(Mindsgo Life Science Shenzhen Ltd.)*; Wang, Tong *(Harbin Institute of Technology, Shenzhen)*; Ma, Ting* *(Harbin Institute of Technology at Shenzhen)*

14:15-14:30 FrC12.2
Resting State Neural Correlates of Cardiac Sympathetic Dynamics in Healthy Subjects
Valenza, Gaetano* *(Univ. of Pisa)*; Duggento, Andrea *(Univ. of Rome "Tor Vergata")*; Passamonti, Luca *(Univ. of Cambridge)*; Toschi, Nicola *(Univ. of Rome "Tor Vergata", Faculty of Medicine)*; Barbieri, Riccardo *(Politecnico di Milano)*

14:30-14:45 FrC12.3
Resting-State Functional Connectivity in Popular Targets for Deep Brain Stimulation in the Treatment of Major Depression: An Application of a Graph Theory
Amiri, Saba *(Tehran Univ. of Medical Sciences)*; Arbabi, Mohammad *(TUMS)*; Kazemi, Kamran *(Univ. of Picardie Jules Verne)*; Parvaresh-Rizi, Mansor *(Iran Univ. of Medical Sciences)*; Mirbagheri, Mehdi* *(Northwestern Univ./TUMS)*

14:45-15:00 FrC12.4
Disruption of Brain Network Organization in Primary Open Angle Glaucoma
Minosse, Silvia* *(Univ. of Rome "Tor Vergata", Faculty of Medicine)*; Garaci, Francesco *(Univ. or Rome Tor Vergata)*; Martucci, Alessio *(Univ. of Rome "Tor Vergata")*; Lanzafame, Simona *(Univ. of Rome "Tor Vergata")*; Di Giuliano, Francesca *(Univ. of Rome Tor Vergata)*; Picchi, Eliseo *(Univ. of Rome Tor Vergata)*; Cesareo, Massimo *(Univ. of Rome "Tor Vergata")*; Mancino, Raffaele *(Univ. of Rome "Tor Vergata")*; Guerrisi, Maria *(Univ. of Rome "Tor Vergata")*; Floris, Roberto *(Univ. of Rome Tor Vergata)*; Nucci, Carlo *(Univ. of Rome "Tor Vergata")*; Toschi, Nicola *(Univ. of Rome "Tor Vergata", Faculty of Medicine)*

15:00-15:15 FrC12.5
Reduced Betweenness Centrality of a Sensory-Motor Vestibular Network in Subclinical Agoraphobia
Indovina, Iole *(Laboratory of Neuromotor Physiology, IRCCS Santa Lucia Foundatio)*; Conti, Allegra* *(IRCCS Santa Lucia Foundation)*; Lacquaniti, Francesco *(Dept. of Neuromotor Physiology Fondazione Santa Lucia IRCCS)*; Staab, Jeffrey P. *(Dept.s of Psychiatry & Psychology & Otorhinolaryngology)*; Passamonti, Luca *(University of Cambridge)*; Toschi, Nicola *(University of Rome "Tor Vergata", Faculty of Medicine)*

15:15-15:30 FrC12.6
Abnormal Interhemispheric Functional Interactions in Drug-Naïve Adult-Onset First Episode Psychosis Patients
Wang, Danni *(Shanghai Jiao Tong University)*; Zhuo, Kaiming *(Shanghai Mental Health Center, School of Medicine, Shanghai Jiao)*; Zhu, Yongjun *(Shanghai Mental Health Center, School of Medicine, Shanghai Jiao)*; Liu, Dengtang *(Shanghai Mental Health Center, School of Medicine, Shanghai Jiao)*; Li, Yao* *(Shanghai Jiao Tong University)*

FrC13: 14:00-15:30 R2 – Level 3
Implantable Sensors (Oral Session)
Chair: Hoffmann, Klaus-Peter *(Fraunhofer Institut für Biomedizinische Technik)*

14:00-14:15 FrC13.1
Micro Electrode Arrays Fabrication using Flexible Perfluoroalkoxy Alkane Films
Kim, Ji Sung* *(Seoul National Univ.)*; Jang, Ki-Hwan *(Seoul National Univ.)*; Ahn, Sung Hoon *(Seoul National Univ.)*; Seo, Jong Mo *(Seoul National Univ., School of Engineering)*

14:15-14:30 FrC13.2
Overvoltage Protection Circuits for Ultrasonically Powered Implantable Microsystems
Rashidi, Amin* *(Aarhus Univ.)*; Laursen, Kjeld *(Aarhus Univ.)*; Hosseini, Seyedsina *(Aarhus Univ.)*; Moradi, Farshad *(Integrated Circuits & Electronics Laboratory, Dept. of En)*

14:30-14:45 FrC13.3
NFC Powered Implantable Temperature Sensor
Kifle, Yonatan* *(Linköping Univ.)*; Wikner, Jacob *(Linköping Univ.)*; Zötterman, Johan *(Linköpings Univ.)*; Farnebo, Simon *(Linköping Univ. Hospital)*; Ryden, Louise *(Linköping Univ.)*

14:45-15:00 FrC13.4
Development of a Nanofabricated Sensor for Monitoring Intraocular Pressure via Ocular Tissue Strain
Lazkani, Naim *(California Baptist Univ.)*; Truitt, Seth *(California Baptist Univ.)*; Kawaguchi, Nathan *(California Baptist Univ.)*; DeWolf, Aaron *(California Baptist Univ.)*; Van Zant, Cody *(California Baptist Univ.)*; Villegas, James *(California Baptist Univ.)*; Hassel, Abbygail *(California Baptist Univ.)*; Park, Joshua *(California Baptist Univ.)*; Jones, Creed *(California Baptist Univ.)*; Butler, John *(California Baptist Univ.)*; Rickard, Matthew* *(California Baptist Univ.)*

15:00-15:15 FrC13.5
An Implantable, Low-Power Instrumentation for the Long Term Monitoring of the Sleep of Animals under Natural Conditions
Massot, Bertrand* *(INL, CNRS UMR 5270, INSA Lyon, University of Lyon)*; Rattenborg, Niels C. *(Max Planck Institute for Ornithology, Avian Sleep Group)*; Hedenstrom, Anders *(Dept. of Biology, Center for Animal Movement research, Lun)*; Susanne, Akesson *(Dept. of Biology, Center for Animal Movement research, Lun)*; Libourel, Paul-Antoine *(CRNL)*

15:15-15:30 FrC13.6
Intraoperative Cerebral Measurements using Implantable Cortical Multimodality Probe
Ishihara, Yuya* *(Kumamoto Univ.)*; Sakai, Shun *(Kumamoto Univ.)*; Yamakawa, Toshitaka *(Kumamoto Univ.)*; Inoue, Takao *(Yamaguchi Univ.)*; Suzuki, Michiyasu *(Yamaguchi Univ.)*

FrC14: 14:00-15:30 R3 – Level 3
Signal Processing and Classification of Neural Signals (Oral Session)
Chair: Wang, Yiwen *(Hong Kong Univ. of Science and Technology)*
Co-Chair: Bertrand, Alexander *(KU Leuven, Univ. of Leuven)*

14:00-14:15 FrC14.1
A Data-Driven Regularization Approach for Template Matching in Spike Sorting with High-Density Neural Probes
Wouters, Jasper* *(KU Leuven)*; Kloosterman, Fabian *(imec)*; Bertrand, Alexander *(KU Leuven, University of Leuven)*

14:15-14:30 FrC14.2
Stability of Stochastic Finite-Size Spiking-Neuron Networks: Comparing Mean-Field, 1-Loop Correction and Quasi-Renewal Approximations
Todorov, Dmitrii *(Brown Univ.)*; Truccolo, Wilson* *(Brown Univ.)*

14:30-14:45 FrC14.3
A K-Medoids based Point-Process Modeling on Neural Spike Transformation using Binless Kernel
Qian, Cunle *(Zhejiang University)*; Sun, Xuyun *(Zhejiang University)*; Yang, Zaiyue *(Southern University of Science & Technology)*; Pan, Gang *(ZheJiang University)*; Wang, Yiwen* *(Hong Kong University of Science & Technology)*

14:45-15:00 FrC14.4
Laminar Origin of Evoked ECoG High-Gamma Activity
Dougherty, Maximilian* *(LBNL)*; Nguyen, Anh *(The Univ. of Iowa)*; Baratham, Vyassa *(UC Berkeley)*; Bouchard, Kristofer E. *(LBNL)*

15:00-15:15 FrC14.5
Stochastic Point Process Models for Multi-Compartment Dendritic-Tree Input-Output Transformations in Spiking Neurons
Saha, Dipta *(Brown Univ.)*; Truccolo, Wilson* *(Brown Univ.)*

15:15-15:30 FrC14.6
Effects of Gastrin-Releasing Peptide on Hippocampal Neural Networks in Vascular Dementia Rats
Wang, Faqi* *(Tianjin Univ.)*; Yang, Jiajia *(Tianjin Univ.)*; Yang, Xuening *(Tianjin Univ.)*; Wang, Ling *(Tianjin Univ.)*; Zheng, Chenguang *(Tianjin Univ.)*; Ming, Dong *(Tianjin Univ.)*

FrC15: 14:00-15:30 M3 – Level 3
Image and Data Fusion (Oral Session)
Co-Chair: Chmelik, Jiri *(Brno University of Technology, Faculty of Electrical Engineering and Telecommunication)*

14:00-14:15 FrC15.1
Iterative Machine Learning based Rotational Alignment of Brain 3D CT Data
Chmelik, Jiri* *(Brno Univ. of Technology, Faculty of Electrical Engineering)*; Jakubicek, Roman *(Brno Univ. of Technology)*; Vicar, Tomas *(Brno Univ. of Technology, Faculty of Electrical Engineering)*; Walek, Petr *(Brno Univ. of Technology, Faculty of Electrical Engineering)*; Ourednicek, Petr *(Philips Nederland)*; Jan, Jiri *(Brno Univ. of Technology)*

14:15-14:30 FrC15.2
Multimodal Data Fusion of Deep Learning and Dynamic Functional Connectivity Features to Predict Alzheimer's Disease Progression
Abrol, Anees* *(Georgia State University, The Mind Research Network)*; Fu, Zening *(University of Hong Kong)*; Du, Yuhui *(The Mind Research Network)*; Calhoun, Vince *(The Mind Research Network/University of New Mexico)*

14:30-14:45 FrC15.3
Digital Reconstruction of Teeth using Near-Infrared Light
Angelino, Keith *(Massachusetts Institute of Technology)*; Yauney, Gregory *(Massachusetts Institute of Technology)*; Rana, Aman *(Massachusetts Institute of Technology)*; Edlund, David *(MIT)*; Shah, Pratik* *(Massachusetts Institute of Technology (MIT))*

14:45-15:00 FrC15.4
Markerless Tracking of Micro-Endoscope for Optical Biopsy in Stomach
Zenteno, Omar* *(Universite d'Orleans)*; Vantrung, Pham *(Universite d'Orleans)*; Treuillet, Sylvie *(Ecole Polytechnique de l'Université d'Orléans)*; Lucas, Yves *(Orleans University)*

15:00-15:15 FrC15.5
Design of Microscope Optics for the Acquisition of Multiple Wavelength Band Image
Lee, Youngro* *(Seoul National University)*; Kim, Jeffrey *(Seoul National University)*; Bae, So Hyun *(Hallym University)*; Seo, Jong Mo *(Seoul National University, School of Engineering)*

15:15-15:30 FrC15.6
Multimodal T2w and DWI Prostate Gland Automated Registration
De Santi, Bruno* *(Politecnico di Torino)*; Salvi, Massimo *(Politecnico di Torino)*; Giannini, Valentina *(University of Turin)*; Meiburger, Kristen M. *(Politecnico di Torino)*; Michielli, Nicola *(Politecnico di Torino)*; Seoni, Silvia *(Politecnico di Torino)*; Regge, Daniele *(Istitute for Cancer research & Treatment)*; Molinari, Filippo *(Politecnico di Torino)*

FrC16: 14:00-15:30 M5 – Level 3
Rehabilitation Robotics – Exoskeletons (Oral Session)
Chair: Dhaher, Yasin *(Northwestern University)*

14:00-14:15 FrC16.1
Upper-Limb Actuated Exoskeleton for Muscular Dystrophy Patients: Preliminary Results
Dalla Gasperina, Stefano *(Politecnico di Milano)*; Gandolla, Marta* *(Politecnico di Milano, NearLab, Dept. of Electronics, Infor)*; Manti, Alessandro *(Politecnico di Milano)*; Aquilante, Lorenzo *(Politecnico di Milano)*; Longatelli, Valeria *(Politecnico di Milano)*; D'Angelo, Maria Grazia *(Scientific Institute Eugenio Medea, Bosisio Parini)*; Molteni, F *(Hospital Valduce 'Villa Beretta')*; Biffi, Emilia *(Scientific Institute Eugenio Medea, Bosisio Parini)*; Rossini, Mauro *(Valduce Hospital, Villa Beretta, Rehabilitation Centre)*; Gfoehler, Margit *(TU Wien)*; Puchinger, Markus *(TU Wien)*; Braghin, Francesco *(Politecnico di Milano)*; Pedrocchi, Alessandra *(Politecnico di Milano)*

14:15-14:30 FrC16.2
Design of the Clutched Variable Parallel Elastic Actuator (CVPEA) for Lower Limb Exoskeletons
Li, Yinbo *(Tsinghua University)*; Li, Zhibin *(Tsinghua University)*; Penzlin, Bernhard *(Chair for Medical Information Technology, RWTH Aachen University)*; Tang, Zihan *(Tsinghua University)*; Liu, Yali *(Tsinghua University)*; Guan, Xinyu *(Tsinghua University)*; Ji, Linhong* *(Tsinghua University)*; Leonhardt, Steffen *(RWTH Aachen University)*

14:30-14:45 FrC16.3
Passive Knee Assistance Affects Whole-Body Biomechanics during Sit-to-Stand
Seko, Sarah* *(UC Berkeley)*; Matthew, Robert, P *(UC Berkeley)*; Riemer, Raziel *(Dept. of Industrial Engineering & Management Ben-Gurion Unive)*; Bajcsy, Ruzena *(UC Berkeley, CITRIS)*

14:45-15:00 FrC16.4
Effects of Robotic Exoskeleton Gait Training on an Adolescent with Brain Injury
Karunakaran, Kiran* *(NJIT, Kessler Foundation)*; Ehrenberg, Naphtaly *(NJIT)*; Cheng, JenFu *(Children's Specialized Hospital)*; Nolan, Karen J. *(Kessler Foundation)*

15:00-15:15 FrC16.5
How Height and Weight of Patients with Spinal Cord Injury Affect the Spring Locations of Unpowered Energy-Stored Exoskeleton
Guan, Xinyu *(Tsinghua Univ.)*; Kuai, Shengzheng *(Shenzhen Second People's Hospital)*; Song, Liang *(National Research Center for Rehabilitation Technical Aids)*; Li, Chong *(Tsinghua Univ.)*; Liu, Weifeng *(Tsinghua Univ.)*; Liu, Yali* *(Beijing Institute of Technology)*; Ji, Linhong *(Tsinghua Univ.)*; Wang, Rencheng *(Tsinghua Univ.)*; Zhang, Zhiqiang *(National Research Center for Rehabilitation Technical Aids)*

15:15-15:30 FrC16.6
Mobility and Cognitive Improvements Resulted from Overground Robotic Exoskeleton Gait-Training in Persons with MS
Androwis, Ghaith* *(Kessler Foundation, & New Jersey Institute of Technology)*; Kwasnica, Marek *(Kessler Foundation)*; Niewrzol, Peter *(Montclair State Univ.)*; Popok, Paula *(Montclair State Univ.)*; Fakhoury, Farris N *(Kessler Institute for Rehabilitation)*; Sandroff, Brian *(Univ. of Alabama)*; Yue, Guang *(Kessler Foundation)*; DeLuca, John *(Kessler Foundation)*

FrC17: 14:00-15:30 R12 – Level 3
Imaging Informatics – Image Analysis, Processing and Classification (Oral Session)
Chair: Mahmoudi, Babak *(Emory University)*

14:00-14:15 FrC17.1
Estimation of Absolute Blood Pressure using Video Images Captured at Different Heights from the Heart
Sugita, Norihiro* *(Tohoku University)*; Noro, Taihei *(Tohoku University)*; Yoshizawa, Makoto *(Tohoku University)*; Ichiji, Kei *(Tohoku University Graduate School of Medicine)*; Yamaki, Shunsuke *(Tohoku University)*; Homma, Noriyasu *(Tohoku University Graduate School of Medicine)*

14:15-14:30 FrC17.2
Cancer Image Quantification With and Without, Expensive Whole Slide Imaging Scanners
Tanveer, M. Asjid* *(National Univ. of Sciences & Technology)*; Nawaz, Wajahat *(National Univ. of Sciences & Technology)*; Rashid, Haroon *(National Univ. of Sciences & Technology)*; Kiyani, Amber *(Riphah International Univ., Islamabad, Pakistan)*; Khurram, Syed Ali *(Univ. of Sheffield)*; Khan, Hassan Aqeel *(National Univ. of Sciences & Technology)*

14:30-14:45 FrC17.3
A Cloud-Based Framework for Implementing Portable Machine Learning Pipelines for Neural Data Analysis
Ellis, Charles *(Georgia Institute of Technology)*; Gu, Ping *(Emory University)*; Eslampanah Sendi, Mohammad Sadegh *(Georgia Institute of Technology)*; Huddleston, Daniel *(Emory University)*; Sharma, Ashish *(Emory University)*; Mahmoudi, Babak* *(Emory University)*

14:45-15:00 FrC17.4
Hemodynamics Analysis of Patients with Mild Cognitive Impairment during Working Memory Tasks
Yoo, So-Hyeon *(Pusan National University)*; Hong, Keum-Shik* *(Pusan National University)*

15:00-15:15 FrC17.5
Automated Classification of Airborne Pollen using Neural Networks
Schiele, Julian* *(Univ. of Augsburg)*; Rabe, Fabian *(Univ. of Augsburg)*; Schmitt, Maximilian *(Univ. of Augsburg)*; Glaser, Manuel *(Univ. of Augsburg, UNIKA-T)*; Haering, Franziska *(Technical Univ. of Munich, UNIKA-T, Chair of Environmental)*; Brunner, Jens O. *(Univ. of Augsburg)*; Bauer, Bernhard *(Univ. of Augsburg)*; Schuller, Bjoern *(Univ. of Augsburg / Imperial College London)*; Traidl-Hoffmann, Claudia *(Technical Univ. of Munich, UNIKA-T, Chair of Environmental)*; Damialis, Athanasios *(Technical Univ. of Munich)*

15:15-15:30 FrC17.6
Deep Learning for Automating the Organization of Institutional Dermatology Image Stores
Wang, Michael* *(Mayo Clinic)*; Comfere, Nneka *(Mayo Clinic)*; Murphree, Dennis *(Mayo Clinic)*

FrC18: 14:00-15:30 R13 – Level 3
Image Reconstruction and Enhancement (Oral Session)
Co-Chair: Antani, Sameer *(National Library of Medicine)*

14:00-14:15 FrC18.1
A Network-Driven Prior Induced Bregman Model for Parallel MR Imaging
Li, Guanyu *(Nanchang Univ.)*; Liu, Yiling *(Nanchang Univ.)*; Zhang, Minghui *(Nanchang Univ.)*; Wang, Shanshan *(Shenzhen Institutes of Advanced Technology)*; Zhu, Yanjie *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Liu, Qiegen *(Dept. of Electronic Information Engineering, Nanchang Unive)*; Liang, Dong* *(Shenzhen Institutes of Advanced Technology)*

14:15-14:30 FrC18.2
Performance Evaluation of a Generative Adversarial Network for Deblurring Mobile-Phone Cervical Images
Ganesan, Prasanth *(Florida Atlantic University)*; Xue, Zhiyun *(National Library of Medicine)*; Singh, Sanjana *(National Library of Medicine)*; Long, L. Rodney *(National Library of Medicine)*; Ghoraani, Behnaz *(Florida Atlantic University)*; Antani, Sameer* *(National Library of Medicine)*

14:30-14:45 FrC18.3
Diffeomorphic Upsampling of Serially Acquired Sparse 2D Cross-Sections in Cardiac MRI
Lee, Brian C* *(Johns Hopkins Univ.)*; Tward, Daniel *(Johns Hopkins Univ.)*; Wei, Jinchi *(Johns Hopkins Univ.)*; Tipre, Dnyanesh *(Johns Hopkins Univ.)*; Weiss, Robert G. *(Johns Hopkins Medical Institutions)*; Miller, Michael *(Johns Hopkins Univ.)*; Ardekani, Siamak *(Johns Hopkins Univ.)*

14:45-15:00 FrC18.4
T1rho Fractional-Order Relaxation of Human Articular Cartilage
Zou, Lixian *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Wang, Haifeng *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Zhu, Yanjie *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Liu, Yuanyuan *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Cheng, Jing *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Jia, Sen *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Shi, Caiyun *(Shenzhen Institutes of Advanced Technology, Lauterbur Research C)*; Su, Shi *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Liu, Xin *(Shenzhen Institutes of Advanced Technology, Chinese Academy of Sc)*; Zheng, Hairong *(Shenzhen Inst of Advanced Tech)*; Liang, Dong* *(Shenzhen Institutes of Advanced Technology)*

15:00-15:15 FrC18.5
Fundus Image Enhancement Method based on CycleGAN
You, QiJing* *(Nanjing University of Aeronautics & Astronautics)*; Wan, Cheng *(Nanjing University of Aeronautics & Astronautics)*; Sun, Jing *(Nanjing University of Aeronautics & Astronautics)*; Shen, Jianxin *(Nanjing University of Aeronautics & Astronautics)*; Ye, Hui *(Jiangsu province hospital)*; Yu, Qiuli *(BenQ Hospital of Nanjing Medical University)*

15:15-15:30 FrC18.6
Examining the Effect of Noise on Biosignal Estimates Extracted through Spatio-Temporal Video Processing
Bennett, Stephanie Louise* *(Carleton Univ.)*; Goubran, Rafik A. *(Carleton Univ.)*; Knoefel, Frank-Dietrich *(Bruyere Continuing Care, Univ. of Ottawa, Carleton Univ.)*

FrC20: 14:00-15:30 R5 – Level 3
Ethical Design Considerations for MedTech Developments in an Exponential World with AI / Robotics / Blockchain / Tissue Engineering / 3D Printing / Genetics Engineering … (Minisymposium)
Chair: Friebe, Michael *(Otto-von-Guericke-Univ.)*
Co-Chair: Hutmacher, Dietmar W. *(Queensland Univ. of Technology)*

14:00-14:15 FrC20.1
MedTec Related Exponential Technologies Require Ethical Design Considerations and an Adapted Engineering Education
Friebe, Michael* *(Otto-von-Guericke-University)*; Herzog, Christian *(University Lübeck)*

14:15-14:30 FrC20.2
Ethics as an Essential Teaching Element for Innovative Medical Technology Engineering Education
Herzog, Christian* *(University Lübeck)*; Friebe, Michael *(Otto-von-Guericke-University)*

14:30-14:45 FrC20.3
Quo Vadis Immunotherapy Industry – A Porter's Five Forces Analysis
Maartens, Joachim *(Institute of Health & Biomedical Innovation)*; Hutmacher, Dietmar W.* *(Queensland Univ. of Technology)*

14:45-15:00 FrC20.4
Using Blockchain for Healthcare Applications: Foundations for Ethicaldesign Considerations
Bartling, Soenke* *(Humboldt Institute for Internet & Society)*; Friebe, Michael *(Otto-von-Guericke-University)*

15:00-15:15 FrC20.5
Ethical Design Considerations for MedTec: The Big Picture and Accompanying Concerns
Gomes Ataide, Elmer Jeto* *(Otto-von-Guericke Universität)*; Maartens, Joachim *(Institute of Health & Biomedical Innovation)*; Bartling, Soenke *(Humboldt Institute for Internet & Society)*; Hutmacher, Dietmar W. *(Queensland University of Technology)*; Herzog, Christian *(University Lübeck)*; Friebe, Michael *(Otto-von-Guericke-University)*

FrPOS-01: 18:00-19:30 Hall B
Signal Processing and Classification of Electrophysiological Signals – Poster (Poster Session)

18:00-19:30 FrPOS-01.1
Assessing tDCS Placebo Effects on EEG and Cognitive Tasks
Holmbæck Petersen, Tine* *(Technical University of Denmark)*; Puthusserypady, Sadasivan *(Technical University of Denmark)*

18:00-19:30 FrPOS-01.2
Comparison of Extreme Learning Machine and K-Nearest Neighbour Performance in Classifying EEG Signal of Normal, Poor and Capable Dyslexic Children
Ahmad Zainuddin, Ahmad Zuber *(Universiti Kuala Lumpur)*; Mansor, Wahidah* *(Universiti Teknologi MARA)*; Lee, Yoot *(Universiti Teknologi MARA)*; Mahmoodin, Zulkifli *(Universiti Kuala Lumpur British Malaysian Institute)*

18:00-19:30 FrPOS-01.3
Spectral Analysis versus Signal Complexity Methods for Assessing Attention Related Activity in Human EEG
Malinowska, Urszula* *(Nencki Institute of Experimental Biology)*; Wojciechowski, Jakub *(Bioimaging Research Center, World Hearing Center of Institute of)*; Waligóra, Marek *(Nencki Institute of Experimental Biology)*; Wrobel, Andrzej *(Institute of Philosophy, University of Warsaw)*; Niedbalski, Paweł *(Elmiko Biosignals Sp. z o.o.)*; Rogala, Jacek *(Nencki Institute of Experimental Biology)*

18:00-19:30 FrPOS-01.4
EEG Signals Classification using Machine Learning for the Identification and Diagnosis of Schizophrenia
Zhang, Lei* *(University of Regina)*

18:00-19:30 FrPOS-01.5
EEG Feature Analysis for Detecting the Fluctuation of Consciousness Level during Propofol Anesthesia
Zhang, Yun *(Xidian Univ.)*; Wang, Yubo *(Xidian Univ.)*; Cai, Suping *(Xidian Univ.)*; Li, Jun *(Xidian Univ.)*; Ren, Junchan *(Xidian Univ.)*; Wang, Qiang *(The First Affiliated Hospital of Xi'an Jiao Tong Univ.)*; Huang, Liyu* *(Xidian Univ.)*

18:00-19:30 FrPOS-01.6
Investigating the Optimal Baseline Positioning to Maximize Cognitive Experimental Outcome
Reali, Pierluigi* *(Politecnico di Milano)*; Lolatto, Riccardo *(Politecnico di Milano)*; De Stefano, Paola *(Politecnico di Milano)*; Cerutti, Sergio *(Politecnico di Milano)*; Bianchi, Anna Maria *(Politecnico di Milano)*

18:00-19:30 FrPOS-01.7
Temporally Adaptive Common Spatial Patterns with Deep Convolutional Neural Networks
Mousavi, Mahta* *(University of California, San Diego)*; de Sa, Virginia *(University of California, San Diego)*

18:00-19:30 FrPOS-01.8
Time Warping Solutions for Classifying Artifacts in EEG
Maruthachalam, Srihari* *(Indian Institute of Technology, Madras)*; Kumar, Mari Ganesh *(Indian Institute of Technology Madras)*; Murthy, Hema *(Indian Institute of Technology Madras)*

18:00-19:30 FrPOS-01.9
Analysis and Classification for Single-Trial EEG Induced by Sequential Finger Movements
Zhang, Shanshan* *(Tianjin Univ.)*; Wang, Kun *(Tianjin Univ.)*; Xu, Minpeng *(Tianjin Univ.)*; Wang, Zhongpeng *(Tianjin Univ.)*; Chen, Long *(Tianjin Univ.)*; Wang, Faqi *(Tianjin Univ.)*; Zhang, Lixin *(Tianjin Univ.)*; Ming, Dong *(Tianjin Univ.)*

18:00-19:30 FrPOS-01.10
Subspace Techniques for Task-Independent EEG Person Identification
Kumar, Mari Ganesh* *(Indian Institute of Tech. Madras)*; M S, Saranya *(Indian Institute of Tech. Madras)*; Narayanan, Shrikanth *(Univ. of Southern California)*; Sur, Mriganka *(MIT)*; Murthy, Hema *(Indian Institute of Tech. Madras)*

18:00-19:30 FrPOS-01.11
A Graph Signal Processing Approach to Study High Density EEG Signals in Patients with Disorders of Consciousness
Mortaheb, Sepehr* *(Univ. of Liege)*; Annen, Jitka *(Univ. of Liege)*; Chatelle, Camille *(Univ. of Liege)*; Cassol, Helena *(Univ. of Liege)*; Martens, Geraldine *(Univ. of Liege)*; Thibaut, Aurore *(Univ. of Liege)*; Gosseries, Olivia *(Univ. & Univ. Hospital of Liege)*; Laureys, Steven *(Cyclotron Research Center, Univ. of Liege in Belgium)*

18:00-19:30 FrPOS-01.12
Toward a Cooperation Index based on EEG-Workload Causality: Preliminary Findings on Aerospace-Like Tasks
Sciaraffa, Nicolina* *(Univ. of Rome Sapienza)*; Borghini, Gianluca *(Sapienza Univ. of Rome)*; Arico, Pietro *(Fondazione Santa Lucia)*; Di Flumeri, Gianluca *(Univ. of Rome Sapienza)*; Bonelli, Stefano *(deep blue)*; Drogoul, Fabrice *(Eurocontrol)*; Vozzi, Alessia *(BrainSigns srl)*; Ronca, Vincenzo *(BrainSigns srl)*; Bezerianos, Anastasios *(National Univ. of Singapore)*; Thakor, Nitish *(National Univ. of Singapore)*; Babiloni, Fabio *(Univ. of Rome)*

18:00-19:30 FrPOS-01.13
Bag of Patterns for Nearest Neighbour Neonatal EEG Recall
Murphy, Brian Michael *(Univ. College Cork)*; Boylan, Geraldine *(Univ. College Cork)*; Lightbody, Gordon *(Univ. College Cork)*; Marnane, William* *(Univ. College Cork)*

18:00-19:30 FrPOS-01.14
Power Spectrum and Cross Power Spectral Density based EEG Correlates of Intensive Care Delirium
Mikola, Annika *(North Estonia Medical Centre)*; Särkelä, Mika *(GE)*; Lipping, Tarmo* *(Tampere University)*

18:00-19:30 FrPOS-01.15
Comparison between a Passive and Active Response Task and their Effect on the Amplitude and Latency of the P300 Component for Visual Stimuli While using Low Fidelity Equipment
Schembri, Patrick* *(University of Greenwich)*; Pelc, Mariusz *(University of Greenwich)*; Ma, Jixin *(University of Greenwich)*

18:00-19:30 FrPOS-01.16
Neurophysiological Changes Associated with Training in Laparoscopic Surgery using EEG: A Pilot Study
Suárez-Revelo, Jazmín Ximena* *(Universidad de Antioquia)*; Ochoa, John Fredy *(University of Antioquia)*; Hernandez, Alher Mauricio *(University of Antioquia)*

18:00-19:30 FrPOS-01.17
EEG Movement Artifact Suppression in Interactive Virtual Reality
Tremmel, Christoph *(Old Dominion University)*; Herff, Christian *(Maastricht University)*; Krusienski, Dean* *(Virginia Commonwealth University)*

FrPOS-02: 18:00-19:30 Hall B
Signal Processing and Classification of Heart Rate Variability – Poster (Poster Session)

18:00-19:30 FrPOS-02.1
Usefulness of Spectral Analysis of Respiratory Rate Variability to Help in Pediatric Sleep Apnea-Hypopnea Syndrome Diagnosis
Barroso-García, Verónica* *(Univ. of Valladolid)*; Gutierrez, Gonzalo Cesar *(Univ. of Valladolid)*; Kheirandish-Gozal, Leila *(Section of Sleep Medicine, Dept. of Pediatrics, Pritzker Sc)*; Álvarez González, Daniel *(Río Hortega Univ. Hospital)*; Vaquerizo-Villar, Fernando *(Biomedical Engineering Group, Univ. of Valladolid, CIF Q471)*; del Campo, Félix *(Hospital del Río Hortega. Universidad De Valladolid)*; Gozal, David *(Section of Sleep Medicine, Dept. of Pediatrics, Pritzker Sc)*; Hornero, Roberto *(Univ. of Valladolid)*

18:00-19:30 FrPOS-02.2
Clustering Continuous Wavelet Transform Characteristics of Heart Rate Variability through Unsupervised Learning
Wachowiak, Mark Paul* *(Nipissing Univ.)*; Moggridge, Jason *(Nipissing Univ.)*; Smolikova-Wachowiak, Renata *(Nipissing Univ.)*

18:00-19:30 FrPOS-02.3
Entropy Profiling to Detect ST Change in Heart Rate Variability Signals
Udhayakumar, Radhagayathri* *(University of Melbourne)*; Karmakar, Chandan *(Deakin University)*; Palaniswami, Marimuthu *(The University of Melbourne)*

18:00-19:30 FrPOS-02.4
Pre-Surgery Stress Monitoring using Heart Rate Variability Measures
Sebastin, Amalan* *(Healthcare Tech. Innovation Centre)*; Balakarthikeyan, Vaishali *(Healthcare Tech. Innovation Centre)*; SP, Preejith *(Healthcare Tech. Innovation Center – IITMadras)*; Joseph, Jayaraj *(HTIC, Indian Institute of Tech. Madras)*; Sivaprakasam, Mohanasankar *(Indian Institute of Tech. Madras)*

FrPOS-03: 18:00-19:30 Hall B
Signal Processing and Classification of Movement-Related Signals – Poster (Poster Session)

18:00-19:30 FrPOS-03.1
Application of the Teagar-Kaiser Energy Operator and Wavelet Transform for Detection of Finger Tapping Contact and Release Times using Accelerometery
O'Callaghan, Ben* *(Univ. College Dublin)*; Flood, Matthew W. *(Univ. College Dublin)*; Lowery, Madeleine *(Univ. College Dublin)*

18:00-19:30 FrPOS-03.2
Quantitative Assessment of Ataxic Gait using Inertial Sensing at Different Walking Speeds
Phan, Dung* *(Deakin University)*; Nguyen, Nhan *(Deakin University)*; Pathirana, Pubudu N *(Deakin University)*; Horne, Malcolm *(Florey Institute of Neuroscience & Mental Health)*; Power, Laura *(Royal Victorian Eye & Ear Hospital)*; Szmulewicz, David *(Victorian Eye & Ear Hospital)*

18:00-19:30 FrPOS-03.3
Emotional Stimulation during Motor Exercise: An Integration to the Holistic Rehabilitation Framework
Kritikos, Jacob* *(National Technical University of Athens)*; Koutsouris, Dimitrios *(Biomedical Engineering Laboratory, School of Electrical & Comp)*; Caravas, Pamela *(Harvard Medical School Affiliate)*; Douloudi, Marilina *(National & Kapodistrian University of Athens)*; Tzannetos, Ioannis *(National Technical University of Athens)*

18:00-19:30 FrPOS-03.4
Fall Detection for the Elderly based on 3-Axis Accelerometer and Depth Sensor Fusion with Random Forest Classifier
Kim, Kijung *(Korea Institute of Science & Technology)*; Yun, Guhnoo *(Korea Institute of Science & Technology)*; Park, Sungkee *(Korea Institute of Science & Technology)*; Kim, Dong Hwan* *(Korea Institute of Science & Technology)*

18:00-19:30 FrPOS-03.5
Automatic Inference of Rat's Hindlimb Trajectory to Synchronize with Forelimb Gait Through Phase
Anopas, Dollaporn *(Nanyang Technological Univ.)*; Jatesiktat, Prayook *(NTU)*; Lim, Guan Ming* *(Nanyang Technological Univ.)*; Lin, Junquan *(Nanyang Technological Univ.)*; Wee, Seng Kwee *(Tan Tock Seng Hospital)*; Er, Tow Peh *(Tan Tock Seng Hospital)*; Chew, Sing Yian *(Nanyang Technological Univ.)*; Ang, Wei Tech *(Nanyang Technological Univ.)*

FrPOS-04: 18:00-19:30 Hall B
Signal Processing and Classification of Multivariate and Multimodal Biosignals – Poster (Poster Session)

18:00-19:30 FrPOS-04.1
A Framework for Spatiotemporal Analysis of Gastrointestinal Spike Burst Propagation
Kuruppu, Sachira* *(Univ. of Auckland)*; Cheng, Leo K *(The Univ. of Auckland)*; Angeli, Timothy Robert *(Auckland Bioengineering Institute, Univ. of Auckland)*; Avci, Recep *(Univ. of Auckland)*; Paskaranandavadivel, Niranchan *(The Univ. of Auckland)*

18:00-19:30 FrPOS-04.2
Estimation of Sparse VAR Models with Artificial Neural Networks for the Analysis of Biosignals
Schubert, Marvin* *(Technische Hochschule Mittelhessen (THM) – Univ. of Applied)*; Schanze, Thomas *(Technische Hochschule Mittelhessen (THM), FB LSE, IBMT)*

18:00-19:30 FrPOS-04.3
Cuff-Less Blood Pressure Measurement using Supplementary ECG and PPG Features Extracted through Wavelet Transformation
Singla, Muskan *(International Institute of Information & Technology, Hyderabad)*; Sistla, Prasad *(Care Foundation)*; Syed, Azeemuddin* *(International Institute of Information & Technology, Hyderabad)*

18:00-19:30 FrPOS-04.4
Analysis of Physiological and Activity Data Specific to Locations Obtained through Geographical Clustering
Wolschewski, Anastasia *(Institute for Applied Informatics at Univ. of Leipzig)*; Schreiber, Max *(Interdisciplinary Competence Center Biomedical Data Science, Ins)*; Handel, Till *(Institute for Applied Informatics (InfAI))*; Ivanova, Galina* *(Interdisciplinary Competence Center Biomedical Data Science, Ins)*

18:00-19:30 FrPOS-04.5
Liquid Gastroesophageal Reflux Characterization by Investigating Multichannel Intraluminal Impedance-pH Monitoring Data
Rabbani, Hossein* *(Isfahan Univ. of Medical Sciences)*

18:00-19:30 FrPOS-04.6
CHAMPS: Cardiac Health Hypergraph Analysis using Multimodal Physiological Signals
Dutta Choudhury, Anirban* *(Tata Consultancy Services Ltd.)*; Chowdhury, Ananda *(Jadavpur University)*

FrPOS-05: 18:00-19:30 Hall B
Signal Processing and Classification of Respiratory Signals – Poster (Poster Session)

18:00-19:30 FrPOS-05.1
Automatic Estimation of Respiratory Effort using Esophageal Pressure
Graßhoff, Jan* *(University of Luebeck)*; Petersen, Eike *(University of Lübeck)*; Becher, Tobias *(University Medical Center Schleswig-Holstein)*; Rostalski, Philipp *(Institute for Electrical Engineering in Medicine, University of)*

18:00-19:30 FrPOS-05.2
Noise Removal of Tracheal Sound Recorded during CPET to Determine Respiratory Rate
Zhang, Qi *(University of Toronto)*; de Oliveira Francisco, Cristina *(KITE, Toronto Rehabilitation Institute, University Health Networ)*; Kabir, Muammar Muhammad *(Toronto Rehabilitation Institute, University Health Network)*; Zhang, Jing *(University of Toronto)*; Montazeri Ghahjaverestan, Nasim *(Institute of Biomaterial & Biomedical Engineering, University of)*; Taati, Babak* *(Toronto Rehabilitation Institute & University of Toronto)*; Yadollahi, Azadeh *(University of Toronto)*

18:00-19:30 FrPOS-05.3
Reckoning Respiratory Signals to Effectively Decipher Mental State
Banerjee, Tanushree *(TCS Innovation Lab)*; Khasnobish, Anwesha* *(TCS)*; Chowdhury, Arijit *(TCS Innovation Lab)*; Chatterjee, Debatri *(TCS Innovation Lab)*

18:00-19:30 FrPOS-05.4
A Novel Stuttering Disfluency Classification System based on Respiratory Biosignals
Villegas, Bruno *(Pontificia Univ. Católica del Perú)*; Flores, Kevin M. *(Pontificia Univ. Católica del Perú)*; Acuña, Kevin José *(Pontifical Catholic Univ. of Peru)*; Pacheco-Barrios, Kevin *(Univ. San Ignacio de Loyola, Lima, Peru.)*; Elias, Dante* *(Pontifical Catholic Univ. of Peru)*

18:00-19:30 FrPOS-05.5
Photoplethysmography Response to Laryngeal Mask Airway Insertion during Propofol-Remifentanil Anethesia
Chen, Wanlin *(Zhejiang Univ.)*; Jiang, Feng *(Zhejiang Univ.)*; Chen, Xinzhong *(Zhejiang Univ.)*; Feng, Ying *(Zhejiang Univ.)*; Miao, Jiajun *(Zhejiang Univ.)*; Jiao, Cuicui *(Zhejiang Univ.)*; Chen, Shali *(Zhejiang Univ.)*; Chen, Hang* *(Zhejiang Univ.)*

FrPOS-06: 18:00-19:30 Hall B
Time-Frequency Analysis of Biosignals – Poster (Poster Session)

18:00-19:30 FrPOS-06.1
A New Efficient Algorithm for Prediction of Preterm Labor
Shahbakhti, Mohammad* *(Kaunas University of Technology)*; Beiramvand, Matin *(Islamic Azad University)*; Bavi, Mohammad Reza *(Mehr Private Hospital)*; Mohammadi Far, Somayeh *(Vytautas Magnus University)*

18:00-19:30 FrPOS-06.2
Spectral Parametrization of PPG, IPG and pAT Pulse Waves for Continuous Noninvasive Blood Pressure Estimation
Pielmus, Alexandru Gabriel* *(Technische Universität Berlin)*; Klum, Michael *(Technische Universität Berlin)*; Tigges, Timo *(Technical University Berlin)*; Orglmeister, Reinhold *(Technische Universität Berlin)*

18:00-19:30 FrPOS-06.3
Fetal Cardiac Timing Events Estimation from Doppler Ultrasound Signal Cepstrum Analysis
Al Nuaimi, Saeed* *(Khalifa University)*; Jimaa, Shihab *(Khalifa University of Science & Technology)*; Kimura, Yoshitaka *(Tohoku University)*; Hadjileontiadis, Leontios *(Aristotle University of Thessaloniki)*; Khandoker, Ahsan H *(Khalifa University of Science, Technology & Research)*

18:00-19:30 FrPOS-06.4
Cortical Pitch Response Components Correlate with the Pitch Salience of Resolved and Unresolved Components of Mandarin Tones
Peng, Fei *(Chongqing Univ.)*; Hou, Wensheng* *(Bioengineering Inst of Chongqing Univ)*; Zhang, Li *(Chongqing Univ.)*

18:00-19:30 FrPOS-06.5
Evaluation of Mel-Frequency Cepstrum for Wheeze Analysis
Pramono, Renard Xaviero Adhi* *(Imperial College London)*; Imtiaz, Syed Anas *(Imperial College London)*; Rodriguez-Villegas, Esther *(Imperial College London)*

18:00-19:30 FrPOS-06.6
A Dataset for Systematic Testing of Crackle Separation Techniques
Pal, Ravi* *(University of Southampton)*; Barney, Anna *(University of Southampton)*

18:00-19:30 FrPOS-06.7
Modulation of Mu Suppression during Visual Perspective Taking by Social Rejection
Peng, Suhao *(Southeast Univ.)*; Leng, Yue* *(Southeast Univ.)*; Ge, Sheng *(Southeast Univ.)*; Deng, Huihua *(Southeast Univ.)*

18:00-19:30 FrPOS-06.8
Analysis of EEG Frequency Components and an Examination of Electrodes Localization during Speech Imagery
Tsukahara, Akihiko* *(Tokyo Denki University)*; Yamada, Masayuki *(Tokyo Denki University)*; Tanaka, Keita *(Tokyo Denki University)*; Uchikawa, Yoshinori *(Tokyo Denki University)*

18:00-19:30 FrPOS-06.9
Effective EEG Channels for Emotion Identification Over the Brain Regions using Differential Evolution Algorithm
Al-Qazzaz, Noor* *(UKM)*; Sabir, Mohannad K. *(Baghdad Univ./Al-Khawarizmi Engineering College)*; Md Ali, Sawal Hamid *(National Univ. of Malaysia)*; Siti Anom, Ahmad *(Universiti Putra Malaysia)*; Grammer, Karl *(Univ. of vienna)*

18:00-19:30 FrPOS-06.10
The EEG Analysis of Actual Left/Right Lateral Bending Movements in Patient of Lumbar Disc Herniation
Li, Huihui* *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Du, Wenjing *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Ivanov, Kamen *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Yang, Yuchao *(Shenzhen Institutes of Advanced Tech., Chinese Academy)*; Zhan, Yang *(Shenzhen Institutes of Advanced Tech., Chinese Academy)*; Wang, Lei *(Shenzhen Institutes of Advanced Tech.)*

FrPOS-07**:** 18:00-19:30 Hall B
Ophthalmic Imaging and Analysis – Poster (Poster Session)

18:00-19:30 FrPOS-07.1
Automatic Parallel Detection of Neovascularization in Retinal Images using Ensemble of Extreme Learning Machine
Huang, He *(Northeastern Univ., China)*; Ma, He* *(Northeastern Univ.)*; Qian, Wei *(Univ. of Texas at El Paso)*

18:00-19:30 FrPOS-07.2
3D Reconstruction of the Optic Nerve Head of a Phantom Eye from Images Obtained using a Slit Lamp Fitted with Low Cost Add-Ons
Coghill, Ian* *(University of Strathclyde)*; Jordan, Kirsty Charlotte *(University of Strathclyde)*; Black, Richard Anthony *(University of Strathclyde)*; Livingstone, Iain *(NHS Greater Glasgow & Clyde)*; Giardini, Mario Ettore *(University of Strathclyde)*

18:00-19:30 FrPOS-07.3
Estimation of Time Delay between Artery and Vein Pulsation using Experimental Video-Ophthalmoscope
Valterova, Eva* *(Faculty of Electrical Engineering & Communication, Brno Univ.)*; Tornow, Ralf-Peter *(Univ. of Erlangen)*; Kolar, Radim *(Brno Univ. of Technology)*

18:00-19:30 FrPOS-07.4
Eye Movement Analysis using a Binocular Video-Ophthalmoscope
Kolar, Radim* *(Brno University of Technology)*; Odstrcilik, Jan *(Brno University of Technology)*; Labounkova, Ivana *(Brno University of Technology)*; Hracho, Michal *(Brno University of Technology)*; Tornow, Ralf-Peter *(University of Erlangen)*

18:00-19:30 FrPOS-07.5
Blind Source Separation of Different Retinal Pulsatile Patterns from Simultaneous Long-Term Binocular Ophthalmoscopic Video-Records
Labounkova, Ivana* *(Brno Univ. of Technology)*; Labounek, Rene *(Univ. of Minnesota)*; Odstrcilik, Jan *(Brno Univ. of Technology)*; Hracho, Michal *(Brno Univ. of Technology)*; Nestrasil, Igor *(Univ. of Minnesota)*; Tornow, Ralf-Peter *(Univ. of Erlangen)*; Kolar, Radim *(Brno Univ. of Technology)*

FrPOS-08**:** 18:00-19:30 Hall B
Optical Imaging – Poster (Poster Session)

18:00-19:30 FrPOS-08.1
Chromatic Properties of Blood during Coagulation
Razavi, Jahan* *(Monta Vista School)*; Arbabian, Amin *(Stanford University)*

18:00-19:30 FrPOS-08.2
PIV Analysis of Stented Haemodynamics in the Descending Aorta
Williamson, Petra Nicole *(University of Canterbury)*; Docherty, Paul David* *(University of Canterbury)*; Yazdi, Sina Ghafoorpoor *(University of Canterbury)*; Jermy, Mark *(University of Canterbury)*; Khanafer, Adib *(Canterbury District Health Board)*; Kabaliuk, Natalia *(University of Canterbury)*; Geoghegan, Patrick Henry *(Aston University)*

18:00-19:30 FrPOS-08.3
A Comprehensive Classification System for Breast Cancer Diagnosis based on Dynamic Optical Breast Imaging
Yang, Wenming* *(Dept. of Electronic Engineering, Graduate School at Shenzhe)*; Wang, Zirui *(Tsinghua University)*; Chen, Kaiquan *(Tsinghua University)*; Li, Zhide *(Tsinghua University)*; Liao, Qingmin *(Tsinghua University)*

18:00-19:30 FrPOS-08.4
Automated Iris Segmentation from Anterior Segment OCT Images with Occludable Angles via Local Phase Tensor
Shang, Qiaoling *(Shenyang Jianzhu Univ.)*; Zhao, Yitian* *(Chinese Academy of Sciences)*; Hao, Huaying *(Ningbo Univ.)*; Chen, Zhili *(Shenyang Jianzhu Univ.)*; Su, Pan *(Ningbo Institute of Industrial Technology, Chinese Academy of Sc)*; Li, Fei *(Zhongshan Ophthalmic Center, State Key Laboratory of Ophthalmolo)*; Zhang, Xiulan *(Zhongshan Ophthalmic Center, State Key Laboratory of Ophthalmolo)*; Liu, Jiang *(Ningbo Institute of Materials Technology & Engineering, CAS)*

18:00-19:30 FrPOS-08.5
A New Texture-Based Segmentation Method for Optical Coherence Tomography Images
Monemian, Maryam* *(Isfahan University of Medical Sciences)*; Rabbani, Hossein *(Isfahan Univ. of Medical Sciences)*

18:00-19:30 FrPOS-08.6
Convolutional Neural Network Approach to Classify Skin Lesions using Reflectance Confocal Microscopy
Wodzinski, Marek* *(AGH Univ. of Science & Technology)*; Skalski, Andrzej *(AGH Univ. of Science & Technology)*; Witkowski, Alexander *(Dept. of Dermatology, Univ. of Modena & Reggio Emili)*; Pellacani, Giovanni *(Dept. of Dermatology, Univ. of Modena & Reggio Emili)*; Łudzik, Joanna *(Dept. of Biostatistics & Telemedicine, Jagiellonian Univ.)*

18:00-19:30 FrPOS-08.7
Fast Hyperspectral Diffuse Optical Imaging Method with Joint Sparsity
Durgin, Natalie *(Spiceworks)*; Grotheer, Rachel* *(Goucher College)*; Huang, Chenxi *(Yale Univ.)*; Li, Shuang *(Colorado School of Mines)*; Ma, Anna *(Univ. of California, San Diego)*; Needell, Deanna *(UCLA)*; Qin, Jing *(Montana State Univ.)*

18:00-19:30 FrPOS-08.8
A Novel Hand-Held based Diffuse Optical Tomography Device for Breast Tumor Detection
Guo, Jia-Jiun *(National Chiao Tung Univ.)*; Wu, Wen-Jun *(National Chiao Tung Univ.)*; Fang, Wai-Chi* *(National Chiao Tung Univ.)*

18:00-19:30 FrPOS-08.9
MBLL with Weighted Partial Path Length for Multi-Distance Probe Configuration of fNIRS
Song, Xizi *(Tianjin Univ.)*; Chen, Xinrui* *(Tianjin Univ.)*; Wang, Zhongpeng *(Tianjin Univ.)*; An, Xingwei *(Tianjin Univ.)*; Ming, Dong *(Tianjin Univ.)*

18:00-19:30 FrPOS-08.10
Dual Layered Models of Light Scattering in the Near Infrared A: Optical Measurements and Simulation
Almajidy, Rand Kasim *(Univ. Medical Center, Freiburg Dept. of Neurosurgery)*; Rackebrandt, Klaas *(Unity AG, Hamburg)*; Gehring, Hartmut *(Dept. of Anaesthesiology, Univ. of Luebeck, Luebeck)*; Hofmann, Ulrich G.* *(Univ. of Freiburg)*

18:00-19:30 FrPOS-08.11
Dual Layered Models of Light Scattering in the Near Infrared B: Experimental Results with a Phantom
Almajidy, Rand Kasim *(Univ. Medical Center, Freiburg Dept. of Neurosurgery)*; Rackebrandt, Klaas *(Unity AG, Hamburg)*; Gehring, Hartmut *(Dept. of Anaesthesiology, Univ. of Luebeck, Luebeck)*; Hofmann, Ulrich G.* *(Univ. of Freiburg)*

18:00-19:30 FrPOS-08.12
Superficial Fluctuations in Functional Near-Infrared Spectroscopy
Zhang, Fan* *(Univ. of Oklahoma)*; Cheong, Daniel *(Univ. of Oklahoma)*; Chen, Yuxuan *(Univ. of Oklahoma)*; Khan, Ali Fahim *(Univ. of Oklahoma)*; Ding, Lei *(Univ. of Oklahoma)*; Yuan, Han *(Univ. of Oklahoma)*

18:00-19:30 FrPOS-08.13
Automatic Identification of Mixed Retinal Cells in Time-Lapse Fluorescent Microscopy Images using High-Dimensional DBSCAN
Appapogu, Divya Spoorthy *(IIT Hyderabad)*; Manne, Shanmukh Reddy* *(Indian Institute of Technology Hyderabad)*; Dhyani, Vaibhav *(Indian Institute of Technology Hyderabad,)*; Swain, Sarpras *(Indian Institute of Technology, Hyderabad)*; Shahulhameed, Shahna *(L V Prasad Eye Institute Hyderabad)*; Mishra, Siddhartha *(IIT Hyderabad)*; Kaur, Inderjeet *(L V Prasad Eye Institute Hyderabad)*; Giri, Lopamudra *(Indian Institute of Technology Hyderabad)*; Jana, Soumya *(Indian Institute of Technology Hyderabad)*

18:00-19:30 FrPOS-08.14
In Silico Modelling of Blood Vessel Segmentations for Estimation of Discretization Error in Spatial Measurement and its Impact on Quantitative Fluorescence Angiography
Naber, Ady* *(Karlsruhe Institute of Technology)*; Berwanger, Daniel *(Karlsruhe Institute of Technology)*; Nahm, Werner *(Karlsruhe Institute of Technology)*

FrPOS-09: 18:00-19:30 Hall B
Other and Novel Imaging Applications – Poster (Poster Session)

18:00-19:30 FrPOS-09.1
A Method for Multi-Day Tracking of Gastrointestinal Smooth Muscle Contractile Patterns in Organotypic Culture
Du, Peng* *(The Univ. of Auckland)*; Mazzone, Amelia *(Mayo Clinic)*; Calder, Stefan *(Auckland Bioengineering Institute, Univ. of Auckland)*; Qian, Anna *(The Univ. of Auckland)*; Gibbons, Simon J *(Mayo Clinic College of Medicine)*; Farrugia, Gianrico *(Mayo Clinic College of Medicine)*; Beyder, Arthur *(Mayo Clinic)*

18:00-19:30 FrPOS-09.2
Exploring the Supra Linear Relationship between PetCO2 and fMRI Signal Change with ICA
Callara, Alejandro Luis* *(Dipartimento di Ingegneria dell'Informazione, Univ. of Pisa)*; Morelli, Maria Sole *(Scuola Superiore Sant'Anna (Pisa))*; Cauzzo, Simone *(Scuola Superiore Sant'Anna, Institute of Life Science)*; Giannoni, Alberto *(Fondazione Gabriele Monasterio, Pisa)*; Hartwig, Valentina *(Univ. of Pisa)*; Montanaro, Domenico *(Fondazione Toscana "G. Monasterio", National Research Council, P)*; Landini, Luigi *(Univ. of Pisa)*; Passino, Claudio *(Fondazione Gabriele Monasterio, Pisa)*; Emdin, Michele *(Fondazione Gabriele Monasterio, Pisa)*; Vanello, Nicola *(Univ. of Pisa)*

18:00-19:30 FrPOS-09.3
3D Ultrasound Spine Image Selection using Convolution Learning-to-Rank Algorithm
Lyu, Juan *(Harbin Engineering Univ.)*; Ling, Sai Ho, Steve* *(Univ. of Technology Sydney)*; Banerjee, Sunetra *(Univ. of Technology Sydney)*; Zheng, Jenny *(Imperial College London)*; Lai, Ka Lee *(The Hong Kong Polytechnic Univ.)*; Yang, De *(The Hong Kong Polytechnic Univ.)*; Zheng, Yong-Ping *(The Hong Kong Polytechnic Univ.)*; Su, Steven Weidong *(Univ. of Technology, Sydney)*

18:00-19:30 FrPOS-09.4
A Novel Scanning Algorithm for MEG/EEG Imaging using Covariance Partitioning and Noise Learning
Cai, Chang *(University of California, San Francisco)*; Sekihara, Kensuke *(Tokyo Metropolitan University)*; Nagarajan, Srikantan S.* *(University of California, San Francisco)*

18:00-19:30 FrPOS-09.5
Towards Automatic Artifact Rejection in Resting-State MEG Recordings: Evaluating the Performance of the SOUND Algorithm
Rodríguez-González, Víctor *(Biomedical Engineering Group, University of Valladolid)*; Poza, Jesus* *(University of Valladolid)*; Núñez, Pablo *(University of Valladolid)*; Gomez, Carlos *(University of Valladolid)*; Garcia, Maria *(University of Valladolid)*; Shigihara, Yoshihito *(Precision Medicine Center, Hokuto Hospital)*; Hoshi, Hideyuki *(Precision Medicine Center, Hokuto Hospital)*; Santamaría, Eduardo *(University of Valladolid)*; Hornero, Roberto *(University of Valladolid)*

18:00-19:30 FrPOS-09.6
Bidimensional Fuzzy Entropy: Principle Analysis and Biomedical Applications
Hilal, Mirvana* *(University of Angers)*; Humeau-Heurtier, Anne *(University of Angers)*

18:00-19:30 FrPOS-09.7
Statistical Shape-Kinematics Models of the Skeletal Joints: Application to the Shoulder Complex
Foueface, Jean-Rassaire* *(Univ. of Cape Town)*; Alemneh, Tewodros *(Univ. of Cape Town)*; Borotikar, Bhushan *(Univ. of Western Brittany)*; Burdin, Valerie *(IMT Atlantique/Institut Mines Telecom)*; Douglas, Tania S *(Univ. of Cape Town)*; Mutsvangwa, Tinashe Ernest Muzvidzwa *(Univ. of Cape Town)*

18:00-19:30 FrPOS-09.8
Three-Dimensional Distorted Born Iterative Method Enhanced by Breast Boundary Extraction for Microwave Mammography
Noritake, Kazuki *(University of Electro-Communications)*; Kidera, Shouhei* *(University of Electro-Communications)*

18:00-19:30 FrPOS-09.9
Three Dimensional Positive Contrast Susceptibility Fast Spin Echo MR Imaging with Variable Excitation Pulses and PD Algorithm
Shi, Caiyun *(Shenzhen Institutes of Advanced Tech., Lauterbur Research C)*; Cheng, Jing *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Su, Shi *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Zou, Lixian *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*; Chen, Hanwei *(Guangzhou Panyu Central Hospital)*; Xie, Guoxi *(Shenzhen Institutes of Advanced Tech., Lauterbur Research C)*; Liang, Dong *(Shenzhen Institutes of Advanced Tech.)*; Liu, Xin *(Shenzhen Institutes of Advanced Tech., Chinese Academy of Sc)*; Wang, Haifeng* *(Shenzhen Institutes of Advanced Tech., Chinese Academy of S)*

18:00-19:30 FrPOS-09.10
Biomechanics of C2C12 Cells Observed with Cellular Resolution Scanning Acoustic Microscope Combined with Optical Microscope
Hirano, Ryo *(Tohoku Univ.)*; Kanzaki, Makoto *(Tohoku Univ.)*; Arakawa, Mototaka *(Tohoku Univ.)*; Hermawan, Norma *(Tohoku Univ.)*; Kobayashi, Kazuto *(Honda Electronics Co., Ltd.)*; Saijo, Yoshifumi* *(Tohoku Univ.)*

18:00-19:30 FrPOS-09.11
Effect of English Learning Experience on Young Children's Prefrontal Cortex Functioning for Attentional Control: An fNIRS Study
Li, Chuanjiang* *(Southeast Univ.)*; Zhang, Mingming *(Southeast Univ.)*; Ding, Keya *(Southeast Univ.)*; Zhou, Jing *(East China Normal Univ.)*; Yu, Dongchuan *(Southeast Univ.)*

FrPOS-10: 18:00-19:30 Hall B
PET and SPECT Imaging – Poster (Poster Session)

18:00-19:30 FrPOS-10.1
Timing Calibration for PET based on Low Rank Constraint
Chen, Huai* *(Zhejiang University, College of Optical Science & Engineering)*; Liu, Huafeng *(Zhejiang University)*

18:00-19:30 FrPOS-10.2
Direct 4D PET Reconstruction with Discrete Tissue Types
Scipioni, Michele* *(Dept. of Information Eng., Univ. of Pisa, Pisa)*

18:00-19:30 FrPOS-10.3
Localisation of the Lines of Response in a Continuous Cylindrical Shell PET Scanner
Wilson, Keenan John *(Univ. of Technology, Sydney)*; Alabd, Roumani *(Univ. of Technology, Sydney)*; Abolhasan, Mehran *(Univ. of Technology, Sydney)*; Safavi-Naeini, Mitra *(Australian Nuclear Science & Technology Organisation)*; Franklin, Daniel R* *(Univ. of Technology, Sydney)*

FrPOS-11: 18:00-19:30 Hall B
X-Ray Radiography and CT – Poster (Poster Session)

18:00-19:30 FrPOS-11.1
Attention-Guided Convolutional Neural Network for Detecting Pneumonia on Chest X-Rays
Li, Bingchuan *(Beijing University of Posts & Telecommunications)*; Kang, Guixia* *(Beijing University of Posts & Telecommunications)*; Cheng, Kai *(Beijing University of Posts & Telecommunications)*; Zhang, Ningbo *(Beijing University of Posts & Telecommunications)*

18:00-19:30 FrPOS-11.2
Morphological Area Gradient: System-Independent Dense Tissue Segmentation in Mammography Images
Torres, German* *(Tampere Univ.)*; Sassi, Antti *(Tampere Univ. Hospital)*; Otso, Arponen *(Tampere Univ. Hospital)*; Holli-Helenius, Kirsi *(Tampere Univ. Hospital)*; Laaperi, Anna-Leena *(Tampere Univ. Hospital)*; Rinta-Kiikka, Irina *(Tampere Univ. Hospital)*; Kamarainen, Joni *(Tampere Univ.)*; Pertuz, Said *(Universidad Industrial de Santander)*

18:00-19:30 FrPOS-11.3
Calibration of Stereo Radiography System for Radiostereometric Analysis Application
Allab, Amiel* *(Ecole de Technologie Supérieure)*; Vazquez, Carlos *(École de Technologie Supérieure)*; Cresson, Thierry *(Ecole de Technologie Supérieure)*; De Guise, Jacques *(Ecole de Technologie Supérieure)*

18:00-19:30 FrPOS-11.4
Do Mammographic Systems Affect the Performance of Computerized Parenchymal Analysis?
Pertuz, Said* *(Universidad Industrial de Santander)*; Sassi, Antti *(Tampere University Hospital)*; Holli-Helenius, Kirsi *(Tampere University Hospital)*; Otso, Arponen *(Tampere University Hospital)*; Laaperi, Anna-Leena *(Tampere University Hospital)*; Rinta-Kiikka, Irina *(Tampere University Hospital)*

18:00-19:30 FrPOS-11.5
Augmenting Soft Tissue Contrast using Edge-Enhancing Phase-Imaging Techniques in X-Ray Microtomography
Reunamo, Aino* *(Tampere Univ.)*; Hannula, Markus *(Tampere Univ.)*; Hyttinen, Jari *(Tampere Univ. of Technology)*

18:00-19:30 FrPOS-11.6
Automatic Segmentation of Coronary Artery Lumen via Anisotropic Graph-Cuts
Wan, Min *(Nanchang University)*; Ma, Libin *(Nanchang University)*; Zhao, Xiaodan *(National Heart Centre Singapore)*; Leng, Shuang *(National Heart Centre Singapore)*; Zhang, Jun-Mei *(National Heart Center)*; Tan, Ru-San *(National Heart Centre Singapore)*; Zhong, Liang* *(Duke-Duke Medical School, National University of Singapore)*

18:00-19:30 FrPOS-11.7
Hybrid Optimization Method (HOM) in Dual Energy Mammography Reconstruction
Komolafe, Temitope Emmanuel *(University of Science & Technology of China, Hefei)*; Zhang, Cheng* *(Suzhou Institute of Biomedical Engineering & Technology, Chine)*

18:00-19:30 FrPOS-11.8
Deep Learning-Based Radiomics Models for Early Recurrence Prediction of Hepatocellular Carcinoma with Multi-Phase CT Images and Clinical Data
Wang, Weibin *(Ritsumeikan Univ.)*; Chen, Yen-Wei* *(Ritsumeikan Univ.)*; Iwamoto, Yutaro *(Ritsumeikan Univ.)*; Han, Xian-Hua *(Ritsumeikan Univ.)*; Chen, Qingqing *(Sir Run Shaw Hospital, Zhejiang Univ.)*; Hu, Hongjie *(Sir Run Run Shaw Hospital)*; Lin, Lanfen *(Zhejiang Univ.)*; Zhang, Qiaowei *(Sir Run Run Shaw Hospital, Zhejiang Univ.)*

FrPOS-12: 18:00-19:30 Hall B
Cardiac Electrophysiology – Poster (Poster Session)

18:00-19:30 FrPOS-12.1
Predicting Electrical Storm using Episodes' Parameters from ICD Recorded Data
Shakibfar, Saeed* *(Univ. of Copenhagen)*; Yazdchi, Mohammadreza *(Isfahan Univ.)*; Aliakbaryhosseinabadi, Susan *(the Center for Sensory-Motor Intraction, Dept. of Health Sc)*

18:00-19:30 FrPOS-12.2
A Numerical Evaluation of Multi-Lead Subcutaneous Implantable Cardioverter Defibrillator for Low Energy and Less Damage in Swine
Lai, Dakun* *(Univ. of Electronic Science & Tech. of China)*; Fan, Xiaobiao *(Univ. of Electronic Science & Tech.)*; Chen, Qingquan *(Quxian County People's Hospital)*

18:00-19:30 FrPOS-12.3
A Robust Algorithm for Selecting Optimal Regularization Parameter based on Bilateral Accumulative Area
Chen, Riqing *(The Institute of Biomedical Engineering, Graduate School at Shen)*; Li, Jianning *(Tsinghua University)*; Wu, Jian* *(Tsinghua University)*

18:00-19:30 FrPOS-12.4
Convolutional Neural Network based Detection of Atrial Fibrillation Combing R-R Intervals and F-Wave Frequency Spectrum
Lai, Dakun* *(University of Electronic Science & Technology of China)*; Zhang, Xinshu *(University of Electronic Science & Technology of China)*; Zhang, Yifei *(University of Electronic Science & Technology of China)*; Heyat, Md Belal Bin Heyat *(University of Electronic Science & Technology of China)*

FrPOS-13: 18:00-19:30 Hall B
Cardiac Mechanics – Poster (Poster Session)

18:00-19:30 FrPOS-13.1
Improving in Vitro Evaluation Capabilities of Cardiac Assist Devices through a Validated Exercise Simulation
Pauls, Jo P* *(Griffith Univ., Southport, Australia)*; Roberts, Llion Roberts *(Griffith Univ.)*; Stephens, Andrew *(Innovative Cardiovascular Engineering & Technology Laboratory)*; Fraser, John F. *(Prince Charles Hospital, Brisbane, Queensland)*; Tansley, Geoff *(Griffith Univ., Queensland, Australia)*; Gregory, Shaun David *(Queensland Univ. of Technology)*

18:00-19:30 FrPOS-13.2
Reliability of Left Atrial Pressure Estimation from Left Ventricular Filling Measurement in a Total Artificial Heart
Diedrich, Mario* *(RWTH Aachen – Institute of Applied Medical Engineering)*; Steinseifer, Ulrich *(RWTH Aachen Univ.)*; Schmitz-Rode, Thomas *(RWTH Aachen Univ., Institute of Applied Medical Engineering)*; Risvanis, Fotios *(RWTH Aachen – Institute of Applied Medical Engineering)*; Arens, Jutta *(RWTH Aachen)*; Kirn, Borut *(Medical Faculty, Univ. of Ljubljana)*

18:00-19:30 FrPOS-13.3
Heart Failure Phenotypes Require Sex-Specific Criteria which are based on Ventricular Dimensions
Kerkhof, Peter LM* *(VU Univ. Medical Center)*; Heyndrickx, Guy R. *(Cardiovascular Center, OLV Clinic, Aalst)*; Handly, Neal *(Dept. Emergency Medicine, Drexel Univ. College of Medicine,)*

FrPOS-14: 18:00-19:30 Hall B
Cardiorespiratory Vibrations – Poster (Poster Session)

18:00-19:30 FrPOS-14.1
Influence of Empirical Mode Decomposition on Heart Rate Variability Indices Obtained from Smartphone Seismocardiograms
Siecinski, Szymon* *(Silesian University of Technology, Faculty of Biomedical Enginee)*; Kostka, Pawel Stanislaw *(Silesian University of Technology)*; Tkacz, Ewaryst *(Silesian Univ. of Tech, Faculty of Biomedical Engineering)*

18:00-19:30 FrPOS-14.2
Effect of Static Respiratory Volume on the Waveform of Cardiac-Induced Sternal Vibrations
Skoric, James* *(McGill University)*; D'Mello, Yannick *(McGill University)*; Lortie, Michel *(MacDonald, Dettwiler & Associates Corporation)*; Stephane, Gagnon *(MacDonald, Dettwiler & Associates Corporation)*; Plant, David *(McGill University)*

18:00-19:30 FrPOS-14.3
Monitoring Cardiac Function by Accelerometer – Detecting Start Systole from the Acceleration Signal makes Additional ECG Recordings for R-Peak Detection Redundant
Wajdan, Ali* *(The Intervention Centre, Oslo University Hospital & University)*; Krogh, Magnus Reinsfelt *(University of Oslo)*; Villegas-Martinez, Manuel *(University of Oslo)*; Halvorsen, Per Stainer *(Intervention Centre, University Hospital Oslo)*; Grymyr, Ole-Johannes Holm Nielsen *(University of Oslo, The Intervention Centre OUS Rikshospitalet)*; Elle, Ole Jacob *(The Intervention Centre, Oslo University Hospital & Dept.)*; Remme, Espen W. *(The Intervention Centre, Oslo University Hospital)*

18:00-19:30 FrPOS-14.4
A Novel Bimodal Stethoscope for Gastric Collection of Heart Sounds: Preliminary Results
Dopierala, Cindy* *(Univ. Grenoble Alpes, TIMC-IMAG Lab)*; Boucher, Francois *(Univ. Grenoble Alpes, TIMC – IMAG)*; Frikha, Mohamed-Ridha *(Univ. Grenoble Alpes, VetAgro Sup)*; Thiebault, Jean-Jacques *(Univ. Grenoble Alpes, VetAgro Sup)*; Defaye, Pascal *(Univ. Grenoble Alpes, CHUGA)*; Tuvignon, Patrick *(Univ. Grenoble Alpes, CHUGA)*; Fontecave-Jallon, Julie *(Univ. Grenoble Alpes, CNRS, CHU Grenoble Alpes, Grenoble INP)*; Cinquin, Philippe *(Joseph Fourier Univ. / CNRS)*; Gumery, Pierre-Yves *(Univ. Grenoble Alpes)*

18:00-19:30 FrPOS-14.5
Analysis of Tracheal and Pulmonary Continuous Adventitious Respiratory Sounds in Asthma
Lozano-García, Manuel* *(Institute for Bioengineering of Catalonia (IBEC), The Barcelona)*; Davidson, Clare Muireann *(Univ. College Dublin)*; Jané, Raimon *(Institut de Bioenginyeria de Catalunya (IBEC))*

FrPOS-15: 18:00-19:30 Hall B
Heart Rate and Blood Pressure Variability – Poster (Poster Session)

18:00-19:30 FrPOS-15.1
Quantification of Different Regulatory Pathways Contributing to Heartbeat Dynamics during Multiple Stimuli: A Proof of the Concept
Ghiasi, Shadi* *(Univ. of Pisa)*; Greco, Alberto *(Univ. of Pisa)*; Faes, Luca *(Univ. of Palermo)*; Javorka, Michal *(Comenius Univ., Jessenius Faculty of Medicine)*; Barbieri, Riccardo *(Politecnico di Milano)*; Scilingo, Enzo Pasquale *(Univ. of Pisa)*; Valenza, Gaetano *(Univ. of Pisa)*

18:00-19:30 FrPOS-15.2
The Role of Haptic Stimuli on Affective Reading: A Pilot Study
Ghiasi, Shadi* *(Univ. of Pisa)*; Valenza, Gaetano *(Univ. of Pisa)*; Morelli, Maria Sole *(Scuola Superiore Sant'Anna (Pisa))*; Bianchi, Matteo *(Univ. of Pisa)*; Scilingo, Enzo Pasquale *(Univ. of Pisa)*; Greco, Alberto *(Univ. of Pisa)*

18:00-19:30 FrPOS-15.3
Characterizing Autonomic Response to Arousing Visual-Auditory Multi-Modal Task in Autism Spectrum Disorder (ASD)
Cavinato, Lara* *(Politecnico di Milano)*; Cardinaux, Annie *(Massachusetts Institute of Technology)*; Jain, Kriti *(Massachusetts Institute of Technology)*; Jamal, Wasifa *(Univ. of Southampton)*; Kjelgaard, Margaret *(Marymount College)*; Sinha, Pawan *(mit.edu)*; Barbieri, Riccardo *(Politecnico di Milano)*

18:00-19:30 FrPOS-15.4
Robust Beat-to-Beat Interval from Wearable PPG using RLS and SSA
Bhattacharjee, Tanuka* *(Research & Innovation, TATA Consultancy Services, India)*; Dutta Choudhury, Anirban *(Tata Consultancy Services Ltd.)*; Pal, Arpan *(Tata Consultancy Services)*

18:00-19:30 FrPOS-15.5
Assessing Synergy/Redundancy of Baroreflex and Non-Baroreflex Components of the Cardiac Control during Sleep
Cairo, Beatrice* *(Univ. degli Studi di Milano)*; Bari, Vlasta *(IRCCS Policlinico San Donato)*; De Maria, Beatrice *(IRCCS Fondazione Salvatore Maugeri, Milano)*; Vaini, Emanuele *(IRCCS Policlinico San Donato)*; Guaraldi, Pietro *(IRCCS, Institute of Neurological Sciences of Bologna, Bologna, I)*; Lucini, Daniela *(Univ. degli studi di Milano)*; Pagani, Massimo *(Univ. degli studi di Milano)*; Provini, Federica *(Univ. of Bologna)*; Calandra Buonaura, Giovanna *(Dipartimento di Scienze Biomediche e Neuromotorie, Alma Mater St)*; Cortelli, Pietro *(Dipartimento di Scienze Biomediche e Neuromotorie, Alma Mater St)*; Porta, Alberto *(Univ. degli Studi di Milano)*

FrPOS-16: 18:00-19:30 Hall B
Respiratory and Pulmonary Systems (Poster Session)

18:00-19:30 FrPOS-16.1
Physical Fitness Contributes to Cardio-Respiratory Synchronization
Perry, Sean* *(University of Warwick)*; Khovanova, Natasha *(University of Warwick)*; Khovanov, Igor *(University of Warwick)*

18:00-19:30 FrPOS-16.2
Effects of Different Modes of Mechanical Ventilation on Aerodynamics of the Patient-Specific Airway: A Numerical Study
Zhu, Limin *(Shanghai Children's Medical Center (SCMC) Affiliated Shanghai Ji)*; Shen, Juanya *(Shanghai Children's Medical Center (SCMC) Affiliated Shanghai Ji)*; Gong, Xiaolei *(Shanghai Children's Medical Center (SCMC) Affiliated Shanghai Ji)*; Liu, Liping *(Shanghai Children's Medical Center (SCMC) Affiliated Shanghai Ji)*; Liu, Jinlong* *(Shanghai Children's Medical Center, Shanghai Jiao Tong Universit)*; Xu, Zhuoming *(Shanghai Children's Medical Center (SCMC) Affiliated Shanghai Ji)*

18:00-19:30 FrPOS-16.3
Efficacy of Continuous Positive Airway Pressure in Casualties Suffering from Primary Blast Lung Injury: A Modeling Study
Scott, Timothy *(Academic Dept. of Military Anaesthesia & Critical Care, R)*; Haque, Mainul *(Univ. of Nottingham)*; Das, Anup *(Univ. of Warwick)*; Cliff, Ian *(Univ. Hospital North Midlands, Stoke-On-Trent, UK.)*; Bates, Declan Gerard* *(Univ. of Warwick)*; Hardman, Jonathan G. *(Univ. of Nottingham)*

18:00-19:30 FrPOS-16.4
Changes of Particle Deposition Caused by Different Breathing Patterns during Active Lung Simulation
Pasteka, Richard* *(Univ. of Applied Sciences Technikum Wien)*; Forjan, Mathias *(Univ. of Applied Sciences Technikum Wien)*

18:00-19:30 FrPOS-16.5
Wave Reflection in an Anatomical Model of the Pulmonary Circulation in Local and Global Hypertensive Disease
Shaarbaf Ebrahimi, Behdad* *(Univ. of Auckland)*; Tawhai, Merryn *(The Univ. of Auckland)*; Kumar, Haribalan *(Univ. of Auckland)*; Clark, Alys *(The Univ. of Auckland)*

FrPOS-17: 18:00-19:30 Hall B
Sleep Apnea – Poster (Poster Session)

18:00-19:30 FrPOS-17.1
SnoreNet: Detecting Snore Events from Raw Sound Recordings
Sun, Jingpeng *(University of Chinese Academy of Sciences)*; Hu, Xiyuan* *(Institute of Automation, Chinese Academy of Sciences, University)*; Zhao, Yingying *(South Campus of Guanganmen Hospital, China Academy of Chinese Me)*; Sun, Shuchen *(Guanganmen Hospital, China Academy of Chinese Medical)*; Chen, Chen *(Chinese Academy of Sciences, University of Chinese Academy of Sc)*; Peng, Silong *(Institute of Automation, Chinese Academy of Sciences, University)*

18:00-19:30 FrPOS-17.2
Automatic Silence Events Detector from Smartphone Audio Signals: A Pilot mHealth System for Sleep Apnea Monitoring at Home
Castillo-Escario, Yolanda *(Institute for Bioengineering of Catalonia (IBEC))*; Ferrer-Lluis, Ignasi *(Institute for Bioengineering of Catalonia)*; Montserrat, Josep Maria *(Hospital Clínic de Barcelona. Universitat de Barcelona (UB))*; Jané, Raimon* *(Institut de Bioenginyeria de Catalunya (IBEC))*

18:00-19:30 FrPOS-17.3
Dynamic Estimation of Cerebral Blood Flow using Blood Pressure Signal in Sleep Apnea Patients
Jani, Mahrshi *(University of Texas At Arlington)*; Soltan Zadi, Armin *(University of Texas at Arlington)*; Alex, Raichel *(University of Texas Arlington)*; Zhang, Rong *(University of Texas Southwestern Medical Center at Dallas)*; Watenpaugh, Donald *(Sleep Consultants Inc.)*; Behbehani, Khosrow* *(University of Texas at Arlington)*

18:00-19:30 FrPOS-17.4
Automatic Event Detector from Smartphone Accelerometry: Pilot mHealth Study for Obstructive Sleep Apnea Monitoring at Home
Ferrer-Lluis, Ignasi* *(Institute for Bioengineering of Catalonia)*; Castillo-Escario, Yolanda *(Institute for Bioengineering of Catalonia (IBEC))*; Montserrat, Josep Maria *(Hospital Clínic de Barcelona. Universitat de Barcelona (UB))*; Jané, Raimon *(Institut de Bioenginyeria de Catalunya (IBEC))*

18:00-19:30 FrPOS-17.5
Non-Linear HRV Analysis to Quantify the Effects of Intermittent Hypoxia using an OSA Rat Model
Romero, Daniel* *(Institute for Bioengineering of Catalonia)*; Jané, Raimon *(Institut de Bioenginyeria de Catalunya (IBEC))*

18:00-19:30 FrPOS-17.6
Quantifying Long QT Syndrome in Obese Sleep Apnea Patients Undergoing Roux-En-Y Gastric Bypass Surgery
Al-Abed, Mohammad* *(Hashemite Univ.)*; Al-Bashir, Areen *(Jordan Univ. of Science & Technology)*; Obeidat, Nathir *(Univ. of Jordan)*; Alzyoud, Sukaina *(The Hashemite Univ.)*; Abu-Khalaf, Mahmoud *(Univ. of Jordan)*; Obeidat, Mohammad *(Univ. of Jordan)*; AlRyalat, Saif AlDeen *(Univ. of Jordan)*; Abu Khadra, Haya *(The Hashemite Univ.)*; Jalamneh, Mais *(The Hashemite Univ.)*; Al-Bluwi, Rania *(The Hashemite Univ.)*; Al-Omari, Wafaa *(The Hashemite Univ.)*

18:00-19:30 FrPOS-17.7
Pre-Diabetic Patients with Severe Obstructive Sleep Apnea: Novel Parameters of Hypoxia during Sleep Correlate with Insulin Resistance
Perantoni, Eleni* *(Aristotle Univ. of Thessaloniki, Greece)*; Chouvarda, Ioanna *(Aristotle Univ.)*; Filos, Dimitrios *(Aristotle Univ. o Thessaloniki)*; Steiropoulos, Paschalis *(Democritus Univ. of Thrace, Alexandroupoli)*; Archodogeorgis, Konstantinos *(Democritus Univ. of Thrace, Alexandroupoli)*

FrPOS-18: 18:00-19:30 Hall B
Vascular Hemodynamics – Poster (Poster Session)

18:00-19:30 FrPOS-18.1
The Effect of Error Propagation in the 3D Reconstruction of Coronary Segments using CTCA Images on Crucial Hemodynamic Parameters
Siogkas, Panagiotis *(Forth-IMBB)*; Sakellarios, Antonis* *(Forth-Biomedical Research Institute)*; Kyriakidis, Savvas *(Institute of Molecular Biology & Biotechnology, FORTH)*; Anagnostopoulos, Constantinos *(Biomedical Research Foundation, Academy of Athens)*; Pelosi, Gualtiero *(Institute of Clinical Physiology, National Research Council)*; Rocchiccioli, Silvia *(Institute of Clinical Physiology, National Research Council, Pis)*; Michalis, Lampros *(Univ. of Ioannina)*; Fotiadis, Dimitrios I. *(Univ. of Ioannina)*

18:00-19:30 FrPOS-18.2
A Computational Multi-Level Atherosclerotic Plaque Growth Model for Coronary Arteries
Pleouras, Dimitrios *(Dept. of Biomedical Research, Forth-IMBB, GR 45110 Ioannina, Gre)*; Sakellarios, Antonis* *(Forth-Biomedical Research Institute)*; Kyriakidis, Savvas *(Institute of Molecular Biology & Biotechnology, FORTH)*; Kigka, Vassiliki *(Univ. of Ioannina)*; Siogkas, Panagiotis *(Forth-IMBB)*; Tsompou, Panagiota *(Unit of Medical Technology & Intelligent Information Systems,)*; Tachos, Nikolaos *(Unit of Medical Technology & Intelligent Information Systems,)*; Georga, Eleni I. *(Univ. of Ioannina)*; Andrikos, Ioannis *(Univ. of Ioannina)*; Rocchiccioli, Silvia *(Institute of Clinical Physiology, National Research Council, Pis)*; Pelosi, Gualtiero *(Institute of Clinical Physiology, National Research Council)*; Michalis, Lampros *(Univ. of Ioannina)*; Fotiadis, Dimitrios I. *(Univ. of Ioannina)*

18:00-19:30 FrPOS-18.3
An in Vitro Flow Model for Cardiovascular Inflammation
Oweis, Ghanem F.* *(American University of Beirut)*

18:00-19:30 FrPOS-18.4
Two-Element Fractional-Order Windkessel Model to Assess the Arterial Input Impedance
Bahloul, Mohamed A. *(KAUST)*; Laleg, Taous-Meriem* *(King Abdullah University of Science & Technology (KAUST))*

18:00-19:30 FrPOS-18.5
Synthetic PPG Generation from Haemodynamic Model with Baroreflex Autoregulation: A Digital Twin of Cardiovascular System
Mazumder, Oishee* *(Tata Consultancy Services)*; Roy, Dibyendu *(TCS Research)*; Bhattacharya, Sakyajit *(TCS Innovation Labs)*; Sinha, Aniruddha *(Tata Consultancy Services Ltd.)*; Pal, Arpan *(Tata Consultancy Services)*

18:00-19:30 FrPOS-18.6
Beat to Beat Modulation of Arterial Pulse Wave Velocity Induced by Vascular Smooth Muscle Tone
Cymberknop, Leandro Javier *(Universidad Tecnológica Nacional)*; Gabaldon, Felipe *(Technical University of Madrid)*; Armentano, Ricardo Luis* *(Republic University)*

FrPOS-19: 18:00-19:30 Hall B
Vascular Monitoring – Poster (Poster Session)

18:00-19:30 FrPOS-19.1
Multimodal Image-Free Ultrasound Technique for Evaluation of Arterial Viscoelastic Properties: A Feasibility Study
V, Raj Kiran* *(IIT Madras)*; P M, Nabeel *(Indian Institute of Tech. Madras)*; Joseph, Jayaraj *(HTIC, Indian Institute of Tech. Madras)*; Frese, Hanna *(Healthcare Tech. Innovation Center)*; Sivaprakasam, Mohanasankar *(Indian Institute of Tech. Madras)*

18:00-19:30 FrPOS-19.2
Continuous Assessment of Carotid Diameter using an Accelerometer Patch Probe for Ambulatory Arterial Stiffness Monitoring
R, Arathy* *(Indian Institute of Technology Madras)*; P M, Nabeel *(Indian Institute of Technology Madras)*; Joseph, Jayaraj *(HTIC, Indian Institute of Technology Madras)*; V V, Abhidev *(Healthcare Technology Innovation Centre, IIT Madras)*; Sivaprakasam, Mohanasankar *(Indian Institute of Technology Madras)*

18:00-19:30 FrPOS-19.3
Cuffless Blood Pressure Estimation from Only the Waveform of Photoplethysmography using CNN
Shimazaki, Shota* *(Aichi Prefectural University)*; Kawanaka, Haruki *(Aichi Prefectural University)*; Ishikawa, Hiroki *(Murata Manufacturing Co., Ltd)*; Inoue, Koichi *(Murata Manufacturing Co., Ltd.)*; Oguri, Koji *(Aichi Prefectural University)*

18:00-19:30 FrPOS-19.4
Blood Pressure Estimation based on Pulse Arrival Time and Heart Rate: A Correlation Analysis for Critically Ill Patients
Dash, Ashutosh *(Indian Institute of Technology, Kharagpur)*; Jain, Karan *(Indian Institute of Technology, Kharagpur)*; Ghosh, Nirmalya *(Indian Institute of Technology (IIT), Kharagpur)*; Patra, Amit *(Indian Institute of Technology Kharagpur)*; Dutta Choudhury, Anirban* *(Tata Consultancy Services Ltd.)*

18:00-19:30 FrPOS-19.5
Image-Free Technique for Flow Mediated Dilation using ARTSENS® Pen
Joseph, Jayaraj *(HTIC, Indian Institute of Technology Madras)*; S Chandran, Dinu *(All India Institute of Medical Sciences, New Delhi)*; V, Raj Kiran* *(IIT Madras)*; V V, Abhidev *(Healthcare Technology Innovation Centre, IIT Madras)*; Sivaprakasam, Mohanasankar *(Indian Institute of Technology Madras)*

18:00-19:30 FrPOS-19.6
A Frequency-Domain Approach to Noninvasive Intracranial Pressure Estimation
Jaishankar, Rohan *(Massachusetts Institute of Technology)*; Fanelli, Andrea *(Massachusetts Institute of Technology)*; Filippidis, Aristotelis *(Boston Medical Center)*; Vu, Thai *(Boston Medical Center)*; Holsapple, James *(Boston Medical Center, Boston University School of Medicine)*; Heldt, Thomas* *(Massachusetts Institute of Technology)*

FrPOS-20: 18:00-19:30 Hall B
Neuromuscular Systems (Poster Session)

18:00-19:30 FrPOS-20.1
A Closed-Loop Method to Identify EMG-Torque Dynamics in Human Balance Control
Amiri, Pouya* *(PhD Candidate, Dept. of Biomedical Eng., McGill Univ)*; Kearney, Robert Edward *(McGill Univ.)*

18:00-19:30 FrPOS-20.2
Mediolateral Stability Index as a Biomarker for Parkinson's Disease Progression: A Graph Connectivity based Approach
Mazumder, Oishee *(Tata Consultancy Services)*; Gavas, Rahul* *(TCS Research & Innovation, Tata Consultancy Services Ltd.)*; Sinha, Aniruddha *(Tata Consultancy Services Ltd.)*

18:00-19:30 FrPOS-20.3
Controller Gains of an Inverted Pendulum are Influenced by the Visual Feedback Position
Cesonis, Justinas* *(Technical University of Munich)*; Leib, Raz *(Technical University of Munich)*; Franklin, Sae *(Institute for Cognitive Systems, Technical University of Munich)*; Franklin, David W. *(Technical University of Munich)*

18:00-19:30 FrPOS-20.4
A Computer Simulation Study on the Influences of Loss and Damage of Primary Muscle Spindle Afferents on Soleus Muscle Stretch Reflex
Crepaldi Rodrigues, Eliane* *(University of Campinas)*; Elias, Leonardo *(University of Campinas)*

18:00-19:30 FrPOS-20.5
A Simplified Estimation of Abnormal Reflex Torque Due to Elbow Spasticity using Neuro-Musculoskeletal Model
Sung, Joohwan *(Daegu Gyeongbuk Institute of Science & Tech. (DGIST))*; Choi, Seoyoung *(Daegu Gyeonbuk Institute of Science & Tech.)*; Kim, Junyoung *(Daegu Gyeongbuk Institute of Science & Tech. (DGIST))*; Kim, Jonghyun* *(DGIST)*

18:00-19:30 FrPOS-20.6
Anticipatory and Compensatory Postural Responses during Perturbed Standing in Individuals with Traumatic Brain Injury
Pilkar, Rakesh* *(Kessler Foundation)*; Ibironke, Oluwaseun *(Kessler Foundation)*; Ehrenberg, Naphtaly *(Kessler Foundation)*; Nolan, Karen J. *(Kessler Foundation)*

18:00-19:30 FrPOS-20.7
A Novel Time-Domain based Feature for EMG-PR Prosthetic and Rehabilitation Application
Pancholi, Sidharth* *(Malaviya National Institute of Technology)*; Jain, Prateek *(Malaviya National Institute of Technology)*; Varghese, Arathy *(Malaviya National Institute of Technology)*; Joshi, Amit M. *(Malaviya National Institute of Technology)*

18:00-19:30 FrPOS-20.8
A Recurrent Neural Network for Hand Gesture Recognition based on Accelerometer Data
Koch, Philipp* *(University of Lübeck)*; Dreier, Mark *(Universität zu Lübeck)*; Maaß, Marco *(University of Lübeck)*; Böhme, Martina *(University of Luebeck)*; Phan, Huy *(University of Kent)*; Mertins, Alfred *(University of Lübeck)*

18:00-19:30 FrPOS-20.9
Analysis of Standing Balance on Sloped Surfaces in Individuals with Lumbar Disc Herniation
Li, Jinping *(Shandong Univ.)*; Wei, Na *(Qilu Hospital, Shandong Univ.)*; Yue, Shouwei *(Dept. of Physical Medicine & Rehab., Qilu Hospital)*; Zhang, Yang *(Dept. of Physical Medicine & Rehab., Qilu Hospital)*; Li, Ke* *(Shandong Univ.)*

18:00-19:30 FrPOS-20.10
Effects of Somatosensory Information Provision to Fingertips for Mitigation of Postural Sway and Promotion of Muscle Coactivation in an Upright Posture
Mitani, Ryoma* *(Yokohama National University)*; Shimatani, Koji *(Prefectural University of Hiroshima)*; Sakata, Mami *(Yokohama National University)*; Mukaeda, Takayuki *(Graduate School of Engineering, Yokohama National University)*; Shima, Keisuke *(Yokohama National University)*

18:00-19:30 FrPOS-20.11
Preliminary Results of a Dual Balancing Task
Cherif, Amel* *(Istituto Italiano di Tecnologia)*; Zenzeri, Jacopo *(Istituto Italiano di Tecnologia)*; Morasso, Pietro *(Italian Institute of Technology)*

18:00-19:30 FrPOS-20.12
Strategy Preference in Complex Dynamical Tasks: Preliminary Results
Belgiovine, Giulia* *(Istituto Italiano di Tecnologia)*; Morasso, Pietro *(Italian Institute of Technology)*; Zenzeri, Jacopo *(Istituto Italiano di Tecnologia)*

18:00-19:30 FrPOS-20.13
Synergy-Based Myocontrol of a Multiple Degree-of-Freedom Humanoid Robot for Functional Tasks
Lunardini, Francesca *(Politecnico di Milano)*; Antonietti, Alberto *(Politecnico di Milano)*; Casellato, Claudia *(Politecnico di Milano)*; Pedrocchi, Alessandra* *(Politecnico di Milano)*

18:00-19:30 FrPOS-20.14
Onset Detection to Study Muscle Activity in Reaching and Grasping Movements in Rats
Castillo-Escario, Yolanda* *(Institute for Bioengineering of Catalonia (IBEC))*; Rodríguez-Cañón, María *(Universitat Autònoma de Barcelona / CIBERNED / Institute for Bio)*; Garcia-Alias, Guillermo *(Universitat Autonoma de Barcelona)*; Jané, Raimon *(Institut de Bioenginyeria de Catalunya (IBEC))*

18:00-19:30 FrPOS-20.15
Identification of Muscle Fasciculations from Surface EMG: Comparison with Ultrasound-Based Detection
Botter, Alberto* *(Politecnico di Torino)*; Carbonaro, Marco *(Politecnico di Torino)*; Vieira, Taian *(Politecnico di Torino)*; Hodson-Tole, Emma *(Manchester Metropolitan University)*

18:00-19:30 FrPOS-20.16
Increase in Muscle Activation during Physiotherapy with Electromyography Biofeedback for Patients with Acute Cervical Spinal Cord Injuries
Li, Guijin *(Shirley Ryan AbilityLab)*; Doman, Caitlin *(Shirley Ryan AbilityLab)*; Suresh, Nina* *(Shirley Ryan Ability Lab)*

FrPOS-21: 18:00-19:30 Hall B
Neural Interfaces – Poster (Poster Session)

18:00-19:30 FrPOS-21.1
Recessed Traces for Planarized Passivation of Chronic Neural Microelectrodes
Nolta, Nicholas *(Univ. of Connecticut)*; Ghelich, Pejman *(Univ. of Connecticut)*; Han, Martin* *(Univ. of Connecticut)*

18:00-19:30 FrPOS-21.2
Investigation of using Cyclic Olefin Copolymer as Neural Electrode
Baek, Changhoon* *(Seoul National University)*; Seo, Jong Mo *(Seoul National University, School of Engineering)*

FrPOS-22: 18:00-19:30 Hall B
Neural Signal Processing – Poster (Poster Session)

18:00-19:30 FrPOS-22.1
Automatic Detection of High Frequency Oscillations (80-500Hz) based on Convolutional Neural Network in Human Intracerebral Electroencephalogram
Ma, Kefei *(University of Electronic Science & Technology of China)*; Lai, Dakun* *(University of Electronic Science & Technology of China)*; Chen, Zichu *(University of Electronic Science & Technology of China)*; Zeng, Zhuoheng *(University of Electronic Science & Technology of China)*; Zhang, Xinyue *(University of Electronic Science & Technology of China)*; Chen, Wenjing *(West China Hospital of Sichuan University)*; Zhang, Heng *(West China Hospital of Sichuan University)*

18:00-19:30 FrPOS-22.2
Cross-Frequency Coupling Features of Postictal Generalized EEG Suppression State
Grigorovsky, Vasily* *(University of Toronto)*; del Campo, Martin *(University Health Network)*; Chinvarun, Yotin *(Director of Comprehensive Epilepsy Program & Neurology Unit, P)*; Carlen, Peter L. *(University of Toronto)*; Bardakjian, Berj Luther *(University of Toronto)*

18:00-19:30 FrPOS-22.3
Novel Metrics to Measure the Effect of Additive Inputs on the Activity of Sensory System Neurons
Hosseini, Maryam* *(Université de Sherbrooke)*; Rodriguez, Gerardo *(University of Minnesota)*; Guo, Hongsun *(University of Minnesota)*; Lim, Hubert *(University of Minnesota)*; Plourde, Eric *(Universite de Sherbrooke)*

18:00-19:30 FrPOS-22.4
Single Neuron Imaging Reveals Metabotropic Glutamate Receptor-Mediated Bursting and Delay in Calcium Oscillation in Hippocampal Neurons
Singh, Ranjana *(Indian Institute of Technology Hyderabad)*; Saxena, Abha* *(Indian Institute of Technology Hyderabad,)*; Giri, Lopamudra *(Indian Institute of Technology Hyderabad)*

18:00-19:30 FrPOS-22.5
HEAR to Remove Pops and Drifts: The High-Variance Electrode Artifact Removal (HEAR) Algorithm
Kobler, Reinmar Josef* *(Graz University of Technology)*; Sburlea, Andreea Ioana *(Graz University of Technology)*; Mondini, Valeria *(University of Bologna)*; Müller-Putz, Gernot *(Graz University of Technology)*

18:00-19:30 FrPOS-22.6
EEG based Analysis of Cortical Activity during Mirror Visual Feedback Target-Directed Movement
Rohafza, Maryam* *(New Jersey Institute of Technology)*; Saleh, Soha *(Kessler Foundation)*; Adamovich, Sergei *(New Jersey Institute of Technology)*

18:00-19:30 FrPOS-22.7
EEG-Based Classification of Olfactory Response to Pleasant Stimuli
Abbasi, Nida Itrat *(National Univ. of Singapore)*; Bose, Rohit *(National Univ. of Singapore)*; Bezerianos, Anastasios *(National Univ. of Singapore)*; Thakor, Nitish *(National Univ. of Singapore)*; Dragomir, Andrei* *(National Univ. of Singapore)*

18:00-19:30 FrPOS-22.8
A Preliminary Analysis on Impact of Additive Flicker Noise on Detection Sensitivity of Neural Spikes
Eisen, Erik Sul *(San Diego State University)*; Töreyin, Hakan* *(San Diego State University)*

18:00-19:30 FrPOS-22.9
Cortical Patterns for Prediction of Subjective Preference Induced by Chords
Yano, Hajime* *(Kobe University)*; Takiguchi, Tetsuya *(Kobe University)*; Nakagawa, Seiji *(Chiba University)*

18:00-19:30 FrPOS-22.10
Changes in Neuronal Entropy in a Network Model of the Cortico-Basal Ganglia during Deep Brain Stimulation
Fleming, John* *(University College Dublin)*; Lowery, Madeleine *(University College Dublin)*

18:00-19:30 FrPOS-22.11
Classification of Rehabilitation Participation in Elderly In-Patients with Mild Cognitive Impairments Utilising Physiological Responses
Kim, Jung-Yeon* *(ICT Convergence Rehabilitation Engineering Research Center, Soon)*; Nam, Yunyoung *(SoonChunHyang University)*; Lee, Seong-A *(SoonChunHyang University)*

18:00-19:30 FrPOS-22.12
A Priori Sample Size Determination for the Number of Subjects in an EEG Experiment
Guttmann-Flury, Eva* *(Shanghai Jiao Tong Univ.)*; Sheng, Xinjun *(Shanghai Jiao Tong Univ.)*; Zhang, Dingguo *(Shanghai Jiao Tong Univ.)*; Zhu, Xiangyang *(Shanghai Jiao Tong Univ.)*

FrPOS-23: 18:00-19:30 Hall B
Neural Stimulation – Poster (Poster Session)

18:00-19:30 FrPOS-23.1
Infrared Laser Pulses Excite Action Potentials in Primary Cortex Neurons in Vitro
Xia, Qingling *(Chongqing Univ.)*; Hou, Wensheng* *(Bioengineering Inst of Chongqing Univ)*; Nyberg, Tobias *(Royal Institute of Technology, Sweden)*; Zhang, Li *(Chongqing Univ.)*

18:00-19:30 FrPOS-23.2
Skull Impact on the Ultrasound Beam Profile of Transcranial Focused Ultrasound Stimulation
Tsai, Pin-Chien *(The Pennsylvania State University)*; Sadeghi Gougheri, Hesam *(Pennsylvania State University)*; Kiani, Mehdi* *(Pennsylvania State University)*

18:00-19:30 FrPOS-23.3
Modulation of Multiunit Spike Activity by Transcranial AC Stimulation (tACS) in the Rat Cerebellar Cortex
Asan, Ahmet *(New Jersey Institute of Technology)*; Sahin, Mesut* *(New Jersey Institute of Technology)*

18:00-19:30 FrPOS-23.4
Influence of Gender-Related Differences in Transcranial Direct Current Stimulation: A Computational Study
Thomas, Chris *(Soterix Medical, Inc.)*; Ghodratitoostani, Iman *(University of Sao Paulo)*; Delbem, Alexandre *(University of Sao Paulo)*; Ali, Afaq *(Soterix Medical, Inc.)*; Datta, Abhishek* *(Soterix Medical, Inc.)*

18:00-19:30 FrPOS-23.5
A Wireless Neurostimulator System with an Embedded ARM Microprocessor
Ersoz, Alpaslan *(Univ. of Connecticut)*; Phu, Helen *(Univ. of Connecticut)*; Kim, Insoo *(Univ. of Connecticut Health Center)*; Han, Martin* *(Univ. of Connecticut)*

18:00-19:30 FrPOS-23.6
Deep Brain Stimulation in the Globus Pallidus Modulates Pallidal and Subthalamic Neural Oscillations
Geng, Xinyi *(Fudan Univ.)*; Zhang, Ruili *(Fudan Univ., Institute of Science & Technology for Brain-)*; Shen, Lei *(Fudan Univ.; Institute of Science & Technology for Brain-)*; Wang, Jingying *(Fudan Univ.)*; Zhang, Jianguo *(Beijing Neurosurgical Institute, Capital Medical Univ.)*; Wang, Shouyan* *(Fudan Univ.)*

18:00-19:30 FrPOS-23.7
Identification of Effective Stimulation Parameters to Abort Epileptic Seizures in a Neural Mass Model
Arrais, Marouan* *(University of Rennes 1)*; Wendling, Fabrice *(INSERM – Université de Rennes 1)*; Modolo, Julien *(Univ. Rennes, INSERM, LTSI-U1099)*

18:00-19:30 FrPOS-23.8
Patient-Specific Simulations of Deep Brain Stimulation Electric Field with Aid of In-House Software ELMA
Johansson, Johannes* *(Linköping University)*; Alonso, Fabiola *(Linköping University)*; Wardell, Karin *(Linköping University)*

FrPOS-24: 18:00-19:30 Hall B
Neurological Disorders (Poster Session)

18:00-19:30 FrPOS-24.1
Quantifying Changes in Brain Function Following Injury via Network Measures
Salsabilian, Shiva *(Rutgers University)*; Bibineyshvili, Elena *(Rutgers University)*; Margolis, David *(Rutgers University)*; Najafizadeh, Laleh* *(Rutgers University)*

18:00-19:30 FrPOS-24.2
A Tendon Indentation Method to Quantify Velocity-Dependent Reflex Responses after Hemispheric Stroke
Afzal, Taimoor *(Shirley Ryan Ability Lab)*; Rymer, William Zev *(Northwest. & Rehab Inst of Chicago)*; Suresh, Nina* *(Shirley Ryan Ability Lab)*

18:00-19:30 FrPOS-24.3
Cortical Stroke Affects Activity and Stability of Theta/Delta States in Remote Hippocampal Regions
Ip, Zachary *(Univ. of Washington)*; Rabiller, Gratianne *(UCSF)*; He, Jiwei *(Univ. of California, San Francisco)*; Yao, Zhaojie *(Univ. of Washington, Seattle)*; Akamatsu, Yosuke *(Univ. of California San Francisco)*; Nishijimi, Yasuo *(Univ. of California San Francisco)*; Liu, Jialing *(UCSF)*; Yazdan-Shahmorad, Azadeh* *(Univ. of Washington)*

18:00-19:30 FrPOS-24.4
Post-Stroke Motor Deficits Are Most Evident at Frequencies Near 125 Hz in EMG Multivariate Probability Distributions
Aggarwal, Anu* *(Central Michigan University)*; Wright, Zachary *(University of Illinois at Chicago, Shirley Ryan AbilityLab)*; Huang, Felix *(Shirley Ryan AbilityLab)*; Patton, James *(U. Illinois at Chicago (UIC), & the Shirley Ryan Ability Lab (fo)*

FrPOS-25: 18:00-19:30 Hall B
Rehabilitation – Poster (Poster Session)

18:00-19:30 FrPOS-25.1
Using Virtual Reality to Examine the Neural and Physiological Responses to Height and Perturbations in Quiet Standing
Kaur, Rachneet *(University of Illinois at Urbana Champaign)*; Sun, Rongyi *(University of Illinois at Urbana-Champaign)*; Ziegelman, Liran *(University of Illinois at Urbana-Champaign)*; Sowers, Richard *(University of Illinois at Urbana-Champaign)*; Hernandez, Manuel* *(University of Illinois)*

18:00-19:30 FrPOS-25.2
Comparing Auditory Brainstem Responses Evoked by Click and Sweep-Tone in Normal-Hearing Adults
Jiang, Yanbing *(Shenzhen Institutes of Advanced Technology)*; Wang, Dan *(the CAS Key Laboratory of Human-Machine Intelligence-Synergy Sys)*; Liu, Zhenzhen *(the CAS Key Laboratory of Human-Machine Intelligence-Synergy Sys)*; Tan, Jingqian *(The Third Affiliated Hospital, Sun Yat-Sen Univ.)*; Samuel, Oluwarotimi Williams *(Shenzhen Institutes of Advanced Technology)*; Deng, Hanjie *(the CAS Key Laboratory of Human-Machine Intelligence-Synergy Sys)*; Wang, Xin *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Zhu, Mingxing *(ShenZhen Institutes of Advanced Technology Chinese Academy of Sc)*; Wang, Xiaochen *(the CAS Key Laboratory of Human-Machine Intelligence-Synergy Sys)*; Sun, Shurui *(the School of Pharmacy & Bioengineering, Chongqing Univ.)*; Li, Peng *(The Third Affiliated Hospital of Sun Yat-Sen Univ.)*; Chen, Shixiong* *(Shenzhen Institutes of Advanced Technology)*; Li, Guanglin *(Shenzhen Institutes of Advanced Technology)*

18:00-19:30 FrPOS-25.3
The Effects of Repetitive Transcranial Magnetic Stimulation (rTMS) on Balance Control in Children with Cerebral Palsy
Dadashi, Farnoosh *(Tehran Univ. of Medical Sciences)*; Shahrokhi, Amin *(Noorafshar Hospital, Tehran, Iran)*; Nourian, Ruhollah *(Sports Medicine Research Center, Tehran Univ. of Medical Sc)*; Irani, Ashkan *(Dept. of Occupational Therapy, Faculty of Rehabilitation, S)*; Molavi, Mohammad *(Dey Hospital & Pejvak Radiology Center, Tehran, Iran)*; Rafieenazari, Zahra *(Djavad Mowafaghian Research Center & Shahid Beheshti Univ.)*; Mirbagheri, Mehdi *(Northwestern Univ./TUMS)*; Mirbagheri, Alireza* *(Tehran Univ. of Medical Sciences (TUMS))*

18:00-19:30 FrPOS-25.4
Development of a Dynamic Oriented Rehabilitative Integrated System
Summa, Susanna* *(Bambino Gesù Children's Hospital, IRCCS)*; Gori, Riccardo *(Pegaso onlus)*; Castelli, Enrico *(Pediatric Hospital Bambino Gesù)*; Petrarca, Maurizio *(Pediatric Hospital Bambino Gesù)*

18:00-19:30 FrPOS-25.5
Kinematic Redundancy Analysis during Goal-Directed Motion for Trajectory Planning of an Upper-Limb Exoskeleton Robot
Wang, Chen *(Institute of Automation, Chinese Academy of Sciences)*; Peng, Liang *(Institute of Automation, Chinese Academy of Sciences)*; Hou, Zeng-Guang* *(Institute of Automation, Chinese Academy of Sciences)*; Li, Jingyue *(China Rehabilitation Research Center, Beijing Bo'ai Hospital)*; Luo, Lincong *(Institute of Automation, Chinese Academy of Sciences)*; Chen, Sheng *(Institute of Automation, Chinese Academy of Sciences)*; Wang, Weiqun *(Chinese Academy of Sciences)*

18:00-19:30 FrPOS-25.6
The Effects of Anti-Gravity Treadmill Training on Gait Characteristics in Children with Cerebral Palsy
Lotfian, Mahboube *(Tehran University of Medical Sciences)*; Dadashi, Farnoosh *(Tehran University of Medical Sciences)*; Rafieenazari, Zahra *(Djavad Mowafaghian Research Center & Shahid Beheshti Universit)*; Shahrokhi, Amin *(Noorafshar Hospital, Tehran, Iran)*; Rasteh, Mehrnaz *(Day Hospital, Tehran, Iran.)*; Molavi, Mohammad *(Dey Hospital & Pejvak Radiology Center, Tehran, Iran)*; Mirbagheri, Alireza *(Tehran University of Medical Sciences (TUMS))*; Mirbagheri, Mehdi* *(Northwestern University/TUMS)*

FrPOS-26: 18:00-19:30 Hall B
Sensory Neuroprostheses – Poster (Poster Session)

18:00-19:30 FrPOS-26.1
Modeling Fixational Eye Movement for the Vision Prosthesis
Rizzo, Rudy *(University of Padova)*; Seo, Jong Mo* *(Seoul National University, School of Engineering)*

18:00-19:30 FrPOS-26.2
A Preliminary Study on Virtual Electrode for Subretinal Prostheses by Computational Model
Wang, Ning *(Shanghai Jiao Tong University)*; Song, Xiaoyu *(Shanghai Jiao Tong University)*; Li, Tong *(Shanghai Jiao Tong University)*; Guo, Tianruo *(University of New South Wales)*; Li, Liming* *(Shanghai Jiao Tong University)*

18:00-19:30 FrPOS-26.3
Design of an Integrated Subretinal Implant using Cellular Neural Networks for Binary Image Generation in a 130 nm BiCMOS Process
Potschka, Julian* *(Friedrich-Alexander-Univ. Erlangen-Nuremberg)*; Soell, Christopher *(Friedrich-Alexander Univ. Erlangen-Nuremberg)*; Kirchner, Jens *(Univ. of Erlangen-Nuremberg)*; Mardin, Christian *(Friedrich-Alexander-Univ. Erlangen-Nuremberg)*; Stadelmayer, Markus *(Friedrich-Alexander-Univ. Erlangen-Nuremberg)*; Maiwald, Tim *(Friedrich-Alexander-Univ. Erlangen-Nuremberg)*; Breun, Sascha *(Friedrich-Alexander-Univ. Erlangen-Nuremberg)*; Kolb, Katharina *(Friedrich-Alexander-Univ. Erlangen-Nuremberg)*; Bauch, Andreas *(Friedrich-Alexander-Univ. Erlangen-Nuremberg)*; Dietz, Marco *(Friedrich-Alexander-Univ. Erlangen-Nuremberg)*; Beck, Christopher *(Friedrich-Alexander-Univ. Erlangen-Nuremberg)*; Matthias, Voelkel *(Friedrich-Alexander-Univ. Erlangen-Nuremberg)*; Hagelauer, Amelie *(Friedrich-Alexander-Universität Erlangen-Nürnberg)*; Weigel, Robert *(Univ. of Erlangen Nuremberg)*

FrPOS-27: 18:00-19:30 Hall B
Biorobotics and Biomechanics (I) – Poster (Poster Session)

18:00-19:30 FrPOS-27.1
Integration of Forearm sEMG Signals with IMU Sensors for Trajectory Planning and Control of Assistive Robotic Arm
Schabron, Bridget *(Wichita State University)*; Reust, Adam *(Wichita State University)*; Desai, Jaydip* *(Wichita State University)*; Yihun, Yimesker *(Wichita State University)*

18:00-19:30 FrPOS-27.2
Impact of an Uncooperative Passenger on the Control of an Externally Guided Self-Balancing Patient-Transport System
Phlippen, Lovis *(RWTH Aachen Univ.)*; Verjans, Mark* *(RWTH Aachen Univ.)*; Schleer, Philipp *(RWTH Aachen Univ.)*; Drobinsky, Sergey *(RWTH Aachen Univ.)*; Radermacher, Klaus *(RWTH Aachen Univ., Chair of Medical Engineering)*

18:00-19:30 FrPOS-27.3
Characterization of Helical Propulsion Inside in Vitro and Ex Vivo Models of a Rabbit Aorta
Mahdy, Dalia *(German Univ. in Cairo)*; Hesham El Feshawy, Sarah* *(German Univ. in Cairo GUC)*; Mansour, Mohanad *(German Univ. in Cairo)*; Basla, Ibrahim *(German Univ. in Cairo)*; Hamdi, Nabila *(The German Univ. in Cairo)*; Khalil, Islam S. M. *(Univ. of Twente)*; Misra, Sarthak *(Univ. of Twente)*; Mohamed, Abdallah *(German Univ. in Cairo)*

18:00-19:30 FrPOS-27.4
Bio-Inspired Model of Humanoid Robot for Ascending Movement
Vatankhah, Maryam* *(Borough of Manhattan Community College, City University of New Y)*; Kobravi, Hamid Reza *(Islamic Azad University, Mashhad Branch)*; Ritter, Arthur *(Stevens Institute of Technology)*

18:00-19:30 FrPOS-27.5
Pilot Study of Cadence, a Novel Shoe for Patients with Foot Drop
Evora, Arlette* *(University of California, Santa Barbara)*; Sloan, Erinn *(University of California, Santa Barbara)*; Castellino, Sean *(Santa Barbara Cottage Hospital)*; Hawkes, Elliot W. *(University of California, Santa Barbara)*; Susko, Tyler *(MIT)*

18:00-19:30 FrPOS-27.6
Short-Term Effects of Robot-Resistance Exercises on Muscle Strength and Activations: Types of Muscle Contraction and Speed of Contraction
Choi, Wiha *(DGIST)*; Oh, Sehoon *(DGIST)*; Lee, Junghoon *(DGIST)*; Lee, Chan *(DGIST)*; Kim, Young-Kwan* *(Chonnam National Univ.)*

18:00-19:30 FrPOS-27.7
Analytic Model for Quadruped Locomotion Task-Space Planning
Tiseo, Carlo* *(University of Edinburgh)*; Vijayakumar, Sethu *(The University of Edinburgh)*; Mistry, Michael *(School of Informatics of The University of Edingburgh)*

18:00-19:30 FrPOS-27.8
A Novel Underactuated Robotic Finger with Variable Stiffness Joints
Teng, Zhicheng *(Xi'an Jiao Tong University)*; Xu, Guanghua* *(Xi'an Jiao Tong University)*; Liang, Renghao *(Xi'an Jiao Tong University)*; Li, Min *(School of Mechanical Engineering, Xi'an Jiao Tong University)*; Zhang, Sicong *(Xi'an Jiao Tong University)*; Tao, Tangfei *(Xi'an Jiao Tong University)*

18:00-19:30 FrPOS-27.9
A Fully Implantable Wireless Stimulation System for Pigeon Navigation
Choi, Gwang Jin* *(Seoul National Univ.)*; Jang, Jungwoo *(Seoul National Univ.)*; Kim, Sunhyo *(College of Veterinary Medicine & Research Institute for Veteri)*; Baek, Changhoon *(Seoul National Univ.)*; Yun, Seunghyeon *(Seoul National Univ.)*; Shim, Shinyong *(Seoul National Univ.)*; Seo, Jungmin *(Seoul National Univ.)*; Jung, Younginha *(Nanoscience & Technology, Seoul National Univ.)*; Seo, Kangmoon *(Seoul National Univ. College of Veterinary Medicine)*; Seo, Jong Mo *(Seoul National Univ., School of Engineering)*; Song, Yoon-Kyu *(Seoul National Univ.)*; Kim, Sung June *(Seoul National Univ.)*

18:00-19:30 FrPOS-27.10
Estimation of Muscle Activity Change under Different Bolus Conditions using Musculoskeletal Model of Swallowing
Urabe, Mariko* *(Tokyo Univ. of Science)*; Hashimoto, Takuya *(Tokyo Univ. of Science)*; Kikuchi, Takahiro *(Musashino Red Cross Hospital)*; Michiwaki, Yukihiro *(Musashino Red Cross Hospital)*; Koike, Takuji *(The Univ. of Electro-Communications)*

18:00-19:30 FrPOS-27.11
Optimizing Probability Threshold of Convolution Neural Network to Improve HRV-Based Acute Stress Detection Performance
He, Jiayuan *(Univ. of Waterloo)*; Jiang, Ning* *(Univ. of Waterloo)*

18:00-19:30 FrPOS-27.12
Bone Conduction as Sensory Feedback Interface: A Preliminary Study
Mayer, Raphael Maria* *(The Univ. of Melbourne)*; Mohammadi, Alireza *(The Univ. of Melbourne)*; Alici, Gursel *(Univ. of Wollongong)*; Choong, Peter *(The Univ. of Melbourne)*; Oetomo, Denny *(The Univ. of Melbourne)*

18:00-19:30 FrPOS-27.13
Designing Configurable Arm Rehabilitation Games: How Do Different Game Elements Affect User Motion Trajectories?
Guneysu Ozgur, Arzu* *(EPFL)*; Wessel, Maximilian Jonas *(Ecole Polytechique Fédérale de Lausanne (EPFL))*; Asselborn, Thibault *(EPFL)*; Olsen, Jennifer Kaitlyn *(EPFL)*; Johal, Wafa *(EPFL)*; Ozgur, Ayberk *(EPFL)*; Hummel, Friedhelm Christoph *(EPFL)*; Dillenbourg, Pierre *(EPFL)*

18:00-19:30 FrPOS-27.14
Body Segment Mechanical Signal Contributions to Continuous Prediction of Locomotor Transitions Performed under Varying Anticipation
Kazemimoghadam, Mahdieh *(The University of Texas at Dallas)*; Fey, Nicholas* *(The University of Texas at Dallas)*

18:00-19:30 FrPOS-27.15
Modeling Perturbed Posture through an Adaptive Sliding Mode Approach
Tigrini, Andrea* *(Univ. Politecnica delle Marche)*; Mengarelli, Alessandro *(Univ. Politecnica delle Marche)*; Cardarelli, Stefano *(Univ. Politecnica delle Marche)*; Strazza, Annachiara *(Univ. Politecnica delle Marche)*; Di Nardo, Francesco *(Polytechnic University of Marche)*; Fioretti, Sandro *(Univ. Politecnica delle Marche)*; Verdini, Federica *(Univ. Politecnica delle Marche)*

18:00-19:30 FrPOS-27.16
Human Wrist Impedance Estimation based on Impulse Response Induced by Snap-Through Buckling of Closed-Elastica
Yagi, Keisuke* *(Ibaraki University)*; Mochiyama, Hiromi *(University of Tsukuba)*

18:00-19:30 FrPOS-27.17
Influence of Tactile Sensitivity in the Finger on Postural Control while using the Light touch Effect
Oshita, Kazushige* *(Kyushu Kyoritsu University)*; Yano, Sumio *(Kobe University)*

FrPOS-28: 18:00-19:30 Hall B
Biorobotics and Biomechanics (II) – Poster (Poster Session)

18:00-19:30 FrPOS-28.1
Using a Texture Analyser to Objectively Quantify Foot Orthoses
Cuppens, Kris* *(Mobilab – Thomas More Univ. College)*; De Raeve, Eveline *(Mobilab – Thomas More Univ. College)*; Saey, Tom *(Mobilab – Thomas More Univ. of Applied Sciences)*; Broeckx, Mario *(Mobilab – Thomas More Univ. College)*; Knippels, Ingrid *(Mobilab – Thomas More Univ. College)*; Claes, Johan *(Lab4Food, Microbial & Molecular Systems, KU Leuven)*; Muraru, Luiza *(Thomas More Univ. of Applied Sciences)*; Creylman, Veerle *(Thomas More Univ. of Applied Sciences)*

18:00-19:30 FrPOS-28.2
Experimental Modal Analysis of an In-Situ Clavicle
Rusovici, Razvan* *(UCF)*; Topping, Daniel *(UCF College of Medicine)*; Eriksson, Sven *(University of Central Florida College of Medicine)*; Lopez, Daralys *(University of Central Florida)*

18:00-19:30 FrPOS-28.3
The Effect of the Freezing Time on Muscle Fiber Mechanical Properties
Kammoun, Malek *(Sorbonne Université, Université de Technologie de Compiègne, UMR)*; Pouletaut, Philippe *(UTC France)*; Nguyen, Tan-Nhu* *(Université de Technologie de Compiègne)*; Malayannan, Subramaniam *(Dept. of Biochemistry & Molecular Biology, Mayo Clinic, R)*; Hawse, John R *(Dept. of Biochemistry & Molecular Biology, Mayo Clinic, R)*; Bensamoun, Sabine *(UTC)*

18:00-19:30 FrPOS-28.4
Distributed Bio-Inspired Humanoid Posture Control
Lippi, Vittorio* *(TU Berlin)*; Molinari, Fabio *(TU Berlin)*; Seel, Thomas *(Technische Universität Berlin)*

18:00-19:30 FrPOS-28.5
EMG-Based Control in a Test Platform for Exoskeleton with One Degree of Freedom
Suplino, Lucas Oliveira *(University of Sao Paulo)*; Fischi Sommer, Leonardo *(University of São Paulo)*; Forner-Cordero, Arturo* *(Escola Politécnica da Universidade de Sao Paulo)*

18:00-19:30 FrPOS-28.6
Investigation of the Optic Nerve Head Morphology Influence to the Optic Nerve Head Biomechanics – Patient Specific Model
Satekenova, Elnara *(Nazarbayev Univ.)*; Ko, Match Wai Lun *(Univ. of Hong Kong)*; Kim, Jong Ryeol* *(Nazarbayev Univ.)*

18:00-19:30 FrPOS-28.7
Investigation of the Optic Nerve Head Morphology Influence to the Optic Nerve Head Biomechanics – Population Specific Model
Ko, Match Wai Lun* *(Univ. of Hong Kong)*; Lai, Chrissi Chi Ching *(Univ. of Hong Kong)*; Ng, Partick Chun Kit *(Univ. of Hong Kong)*; Chow, Billy Ho Yeung *(Univ. of Hong Kong)*; Woo, Moses Jun Seen *(Univ. of Hong Kong)*; Yim, Kingsley Ho Chiu *(Univ. of Hong Kong)*; Kim, Jong Ryeol *(Nazarbayev Univ.)*

18:00-19:30 FrPOS-28.8
Precision Motion Control using Nonlinear Contact Force Model in a Surgical Device
Ng, Cailin* *(NUS)*; Liang, Wenyu *(National University of Singapore)*; Gan, Chee Wee *(NUS)*; Lim, Hsueh Yee *(NUS)*; Tan, Kok Kiong *(National University of Singapore)*

18:00-19:30 FrPOS-28.9
Evaluation of the Influence of Cyclic Loading on a Laser Sintered Transtibial Prosthetic Socket using Digital Image Correlation (DIC)
Saey, Tom* *(Mobilab – Thomas More Univ. of Applied Sciences)*; Muraru, Luiza *(Thomas More Univ. of Applied Sciences)*; De Raeve, Eveline *(Mobilab – Thomas More Univ. College)*; Cuppens, Kris *(Mobilab – Thomas More Univ. College)*; Balcaen, Ruben *(Faculty of Engineering Technology, KU Leuven)*; Creylman, Veerle *(Thomas More Univ. of Applied Sciences)*

18:00-19:30 FrPOS-28.10
Prosthetic Hip ROM from Multibody Software Simulation
Putame, Giovanni *(PolitoBIOMed Lab, Dept. of Mechanical & Aerospace Enginee)*; Pascoletti, Giulia* *(University of Perugia)*; Franceschini, Giordano *(Dept. of Engineering, University of Perugia)*; Dichio, Giancarlo *(PolitoBIOMed Lab, Dept. of Mechanical & Aerospace Enginee)*; Terzini, Mara *(PolitoBIOMed Lab, Dept. of Mechanical & Aerospace Enginee)*

18:00-19:30 FrPOS-28.11
A New Trajectory Determination Method for Robot-Assisted Ankle Ligament Rehabilitation
Liu, Zixiao *(Southern Univ. of Science & Technology)*; Zhong, Bin *(Southern Univ. of Science & Technology)*; Zhong, Wenjuan *(Southern Univ. of Science & Technology)*; Guo, Kq *(Southern Univ. of Science & Technology)*; Zhang, Mingming* *(Southern Univ. of Science & Technology)*

18:00-19:30 FrPOS-28.12
Design of a Myoelectric 3D-Printed Prosthesis for a Child with Upper Limb Congenital Amputation
Ccorimanya, Luis* *(University of Tsukuba)*; Watanabe, Reiko *(University of Tsukuba Hospital)*; Hassan, Modar *(University of Tsukuba)*; Hada, Yasushi *(University of Tsukuba Hospital)*; Suzuki, Kenji *(University of Tsukuba)*

18:00-19:30 FrPOS-28.13
Learning-Based Parameter Estimation for Hysteresis Modeling in Robotic Catheterization
Omisore, Olatunji Mumini* *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Shipeng, Han *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Zhou, Tao *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Al-Handarish, Yousef *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Du, Wenjing *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Ivanov, Kamen *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Wang, Lei *(Shenzhen Institutes of Advanced Technology)*

18:00-19:30 FrPOS-28.14
Reducing the Number of Degrees of Freedom to Control an Eye Surgical Robot through Classification of Surgical Phases
Askaripoor, Hadi* *(Technical University Munich)*; Mingchuan, Zhou *(Technical University Munich)*; Lohmann, Chris *(Klinikum Rechst der isaar, Muenchen)*; Cerveri, Pietro *(Politecnico di Milano)*; Nasseri, M. Ali *(Technische Universitaet Muenchen)*

18:00-19:30 FrPOS-28.15
Design of a Non-Invasive Pulse Rate Controlled Deep Vein Thrombosis Prophylaxis Lower Limb Device
K, Vinay* *(IIIT Bangalore)*; Vazhiyal, Vikas *(NIMHANS)*; Rao, Madhav *(IIITBangalore)*

18:00-19:30 FrPOS-28.16
Design and Preliminary Evaluation of a Novel Robotic System for Mobilization of Glenohumeral Joint
Azarsa, Mohammad Hassan *(Dept. of Medical Physics & Biomedical Engineering, School)*; Mirbagheri, Alireza* *(Tehran Univ. of Medical Sciences (TUMS))*; Shadmehr, Azadeh *(Tehran Univ. of Medical Sciences)*; Karimi, Noureddin *(Tehran Univ. of Medical Sciences)*; Mirbagheri, Mehdi *(Northwestern Univ./TUMS)*

18:00-19:30 FrPOS-28.17
Comparison of Two Intervertebral Disc Failure Models in a Numerical C4-C5 Trauma Model
Beausejour, Marie-Helene *(Ecole de Technologie Superieure)*; Petit, Yvan* *(École de Technologie Supérieure)*; Arnoux, Pierre-Jean *(Laboratoire de Biomécanique Appliquée, Aix-Marseille Université)*; Wagnac, Eric *(Ecole de Technologie Superieure)*

FrPOS-29: 18:00-19:30 Hall B
Diagnostic Devices – Physiological Monitoring (I) – Poster (Poster Session)

18:00-19:30 FrPOS-29.1
Attentional Bias for Emotional Faces in Depressed and Non-Depressed Individuals: An Eye-Tracking Study
Figueiredo, Germano R.* *(Federal University of Technology – Paraná)*; Ripka, Wagner L. *(UTFPR- Federal Technological University of Paraná)*; Romaneli, Eduardo F. R. *(UTFPR – Federal University of Technology – Paraná)*; Ulbricht, Leandra *(UTFPR – Federal University of Technology – Paraná)*

18:00-19:30 FrPOS-29.2
Unsupervised GEI-Based Gait Disorders Detection from Different Views
Elkholy, Amr* *(Egypt-Japan University for Science & Technology(E-JUST))*; Makihara, Yasushi *(The Institute of Scientific & Industrial Research, Osaka Unive)*; Gomaa, Walid *(Egypt-Japan University for Science & Technology(E-JUST))*; Ahad, Md Atiqur Rahman *(The Institute of Scientific & Industrial Research, Osaka Unive)*; Yagi, Yasushi *(Osaka University)*

18:00-19:30 FrPOS-29.3
Delevopment of an Application for Aid in Cataract Screening
Pereira da Cunha, Ana Julia* *(UFRN)*; Soares Gadelha de Lima, Luis Felipe *(Federal University of Rio Grande do Norte)*; Ribeiro, Anna Giselle *(Universidade Federal do Rio Grande do Norte)*; D. Vilar Wanderley, Caroline *(Universidade Federal do Rio Grande do Norte (UFRN))*; Diniz, Anthony *(Federal University of Rio Grande do Norte)*; Bezerra Soares, Heliana *(Federal University of Rio Grande do Norte)*

18:00-19:30 FrPOS-29.4
INSA Wound Mapping System: II. Preliminary Porcine Results
Montalibet, Amalric* *(INL UMR-5270 – INSA Lyon)*; Massot, Bertrand *(INL, CNRS UMR 5270, INSA Lyon, University of Lyon)*; Dahri-Correia, Latifa *(MEDAE SAS)*; McAdams, Eric *(INSA Lyon)*

18:00-19:30 FrPOS-29.5
Study of Patients Self-Training Influence on Peripheral Neuropathies Diseases Diagnosis through D.I.T.A Device
Avila Mireles, Edwin Johnatan* *(Istituto Italiano di Tecnologia)*; Abidi, Haider *(Istituto Italiano di Tecnologia)*; D'Imperio, Mariapaola *(Istituto Italiano di Tecnologia)*; Liberini, Paolo *(Spedali Civili Di Brescia, Neurological Clinic, Brescia, Italy)*; Caldwell, Darwin G. *(Italian Institute of Technology)*; Cannella, Ferdinando *(Istituto Italiano di Tecnologia)*; Scaccia, Massimiliano *(Istituto Italiano di Tecnologia)*

FrPOS-30: 18:00-19:30 Hall B
Diagnostic Devices – Physiological Monitoring (II) – Poster (Poster Session)

18:00-19:30 FrPOS-30.1
Nocturnal Hypoglycemia Detection using Optimal Bayesian Algorithm in an EEG Spectral Moments based System
Ngo, Cuong Q.* *(Swinburne University of Technology)*; Chai, Rifai *(Swinburne University of Technology)*; Nguyen, Tuan V. *(University of Technology, Sydney, Australia)*; Jones, Timothy *(Princess Margaret Hospital for Children)*; Nguyen, Hung T. *(Swinburne University of Technology)*

18:00-19:30 FrPOS-30.2
Classification of Postprandial Glycemic Patterns in Type 1 Diabetes Subjects under Closed-Loop Control: An in Silico Study
Schröder, Corinna *(University of Stuttgart)*; Diez, Jose Luis *(Politechnical University of Valencia)*; Laguna, Alejandro *(Politechnical University of Valencia)*; Bondia, Jorge *(Technical University of Valencia)*; Tarín, Cristina* *(University of Stuttgart)*

18:00-19:30 FrPOS-30.3
Multi-Cartridge Fluorescence Reader for Quantitative Immunoassays
Bheemavarapu, Lalitha Pratyusha* *(Indian Institute of Technology, Madras)*; Shah, Malay Ilesh *(Healthcare Technology Innovation Center (HTIC), Indian Institute)*; Joseph, Jayaraj *(HTIC, Indian Institute of Technology Madras)*; Sivaprakasam, Mohanasankar *(Indian Institute of Technology Madras)*

18:00-19:30 FrPOS-30.4
Training a Neural Network for Vocal Stereotypy Detection
Fetzner, John *(University of St. Thomas)*; Min, Cheol-Hong* *(University of St. Thomas)*

18:00-19:30 FrPOS-30.5
Early Detection of Mild Cognitive Impairment using Pervasive Sensing
Chowdhury, Arijit* *(TCS)*; Bhattacharya, Sakyajit *(TCS Innovation Labs)*; Ghose, Avik *(TCS Research & Innovation)*; Krishnan, Balasubramaniam *(TCS)*

18:00-19:30 FrPOS-30.6
Estimation of Arterial Pulse Wave Velocity from Doppler Radar Measurements: A Feasibility Study
Vasireddy, Rakesh* *(Inselspital, Bern University Hospital)*; Goette, Josef *(Institute for Human Centered Engineering, Bern University of App)*; Jacomet, Marcel *(Institute for Human Centered Engineering, Bern University of App)*; Vogt, Andreas *(Dept. of Anaesthesiology & Pain Medicine, Inselspital, Bern)*

18:00-19:30 FrPOS-30.7
Modeling the Variability of Insulin Sensitivity for People with Type 1 Diabetes based on Clinical Data from an Artificial Pancreas Study
Blanc, Romain *(Univ. Grenoble Alpes, CEA, LETI)*; Romero Ugalde, Héctor Manuel *(Univ. Grenoble Alpes, CEA, LETI)*; Benhamou, Pierre Yves *(Univ. Grenoble Alpes, CHU Grenoble Alpes, Endocrinology)*; Charpentier, Guillaume *(Centre Hospitalier Sud-Francilien, Dept. of Diabetes & En)*; Franc, Sylvia *(CERITD)*; Huneker, Erik *(Diabeloop)*; Villeneuve, Emma *(Univ. Grenoble Alpes, CEA, LETI)*; Doron, Maeva* *(CEA LETI)*

18:00-19:30 FrPOS-30.8
Establishing Pose based Features using Histograms for the Detection of Abnormal Infant Movements
McCay, Kevin* *(Northumbria Univ.)*; Ho, Edmond S. L. *(Northumbria Univ.)*; Marcroft, Claire *(Newcastle Hospitals NHS Trust)*; Embleton, Nicholas *(Newcastle Hospitals NHS Trust)*

18:00-19:30 FrPOS-30.9
Breathing Detection from Tracheal Sounds in Both Temporal and Frequency Domains in the Context of Phrenic Nerve Stimulation
LU, Xinyue* *(Univ. of Montpellier, INRIA, NeuroResp)*; Guiraud, David *(INRIA)*; Renaux, Serge *(ATROTECH/NEURORESP/ SIRMED)*; Similowski, Thomas *(UPRES EA2397 Univ. Paris VI Pierre et Marie Curie)*; Azevedo-Coste, Christine *(INRIA/LIRMM)*

18:00-19:30 FrPOS-30.10
Feasibility Study of a Novel MRI-Safe and Interactive Respiratory Biofeedback System
Ellerau, Mona *(Otto-von-Guericke University Magdeburg)*; Odenbach, Robert* *(Otto-von-Guericke University Magdeburg)*; Friebe, Michael *(Otto-von-Guericke-University)*

18:00-19:30 FrPOS-30.11
Signal Quality in Reconstructed 12-Lead Ambulatory ECGs Recorded using 3-Lead Device
Ivanovic, Marija* *(Vinca Institute of Nuclear Sciences)*; Miletic, Marjan *(Vinca Institute of Nuclear Sciences, University of Belgrade, Mik)*; Subotic, Ida *(Clinical center of Serbia)*; Boljevic, Darko *(Institute for Cardiovascular Diseases "Dedinje")*

FrPOS-31: 18:00-19:30 Hall B
Health Technology and Clinical Engineering – Poster (Poster Session)

18:00-19:30 FrPOS-31.1
Development of Adapted Guitar to Improve Motor Function after Stroke: Feasibility Study in Young Adults
Dechenaud, Marcelline* *(Louisiana State University)*; Laidig, Daniel *(TU Berlin)*; Seel, Thomas *(Technische Universität Berlin)*; Gilbert, Hunter B. *(Louisiana State University)*; Kuznetsov, Nikita *(Louisiana State University)*

18:00-19:30 FrPOS-31.2
TTR-FAP Progression Evaluation based on Gait Analysis using a Single RGB-D Camera
Vilas-Boas, Maria* *(INESC-TEC & Faculty of Engineering, Univ. of Porto)*; Rocha, Ana Patrícia *(Univ. of Aveiro)*; Choupina, Hugo Miguel Pereira *(Univ. of Porto)*; Cardoso, Márcio Neves *(Hospital Santo António, Centro Hospitalar do Porto E.P.E.)*; Fernandes, José Maria *(Univ. of Aveiro (PT 501461108))*; Coelho, Teresa *(Unidade Corino de Andrade, Hospital Santo António, Centro Hospit)*; Cunha, Joao Paulo Silva *(INESC TEC / Univ. of Porto)*

18:00-19:30 FrPOS-31.3
Using Thermography as Auxiliary Tool to Thyroid Cancer Diagnosis: Case Study
Magas, Viviane *(Federal University of Technology – Paraná (UTFPR))*; Ulbricht, Leandra* *(UTFPR – Federal University of Technology – Paraná)*; Romaneli, Eduardo F. R. *(UTFPR – Federal University of Technology – Paraná)*; Gamba, Humberto *(Federal Univ. of Technology UTFPR- C.N.P.J.)*

18:00-19:30 FrPOS-31.4
DigitalROM: Development and Validation of a System for Assessment of Shoulder Range of Motion
Muaremi, Amir* *(Novartis Institutes for Biomedical Research)*; Walsh, Lorcan *(Novartis)*; Stanton, Tom *(Novartis)*; Schieker, Matthias *(Novartis Institutes for Biomedical Research)*; Clay, Ieuan *(Novartis Institutes for Biomedical Research)*

18:00-19:30 FrPOS-31.5
Non-Invasive Assessments of the Advanced Glycation End Products in Human Skin using Reflectance NIR Spectroscopy
Shin, Eui Seok* *(Samsung Advanced Institute of Tech.)*; Park, Yun Sang *(Samsung Electronics Co., Ltd.)*; Nam, Sung Hyun *(Samsung Advanced Institute of Tech., Samsung Electronics)*

18:00-19:30 FrPOS-31.6
New Strategy of Visual Acuity Assessment by Consecutively-Sized Landolt Ring Symbol
Lee, Ho Jin* *(Seoul National University)*; Lee, Woon-Hee *(Seoul National University)*; Bae, So Hyun *(Hallym University)*; Seo, Jong Mo *(Seoul National University, School of Engineering)*

FrPOS-32: 18:00-19:30 Hall B
Therapeutic Systems and Technologies – Poster (Poster Session)

18:00-19:30 FrPOS-32.1
An Noninvasive and Impedance-Ignored Control Strategy of the Ablation Zone in Radiofrequency Ablation Therapy
Zheng, Yaobin *(Shanghai Jiao Tong Univ.)*; Zhang, Kangwei *(Shanghai Jiao Tong Univ.)*; Zou, Jincheng *(Shanghai Jiao Tong Univ.)*; Zou, Ke *(Shanghai Jiao Tong Univ.)*; Sun, Jianqi *(Shanghai Jiao Tong Univ.)*; Zhang, Aili* *(Shanghai Jiao Tong Univ.)*

18:00-19:30 FrPOS-32.2
Post-Treatment Analysis of Irreversible Electroporation Waveforms Delivered to Human Pancreatic Cancer Patients
Beitel-White, Natalie* *(Virginia Tech)*; Martin, Robert C. G. *(University of Louisville)*; Davalos, Rafael *(Virginia Tech)*

18:00-19:30 FrPOS-32.3
Miniaturized Peristaltic Rotary Pump for Non-Continuous Drug Dosing
Tamadon, Izadyar* *(Scuola Superiore Sant'Anna)*; Simoni, Virginia *(Univ. of Pisa)*; Iacovacci, Veronica *(Scuola Superiore Sant'Anna)*; Vistoli, Fabio *(Univ. of Pisa)*; Ricotti, Leonardo *(Scuola Superiore Sant'Anna)*; Menciassi, Arianna *(Scuola Superiore Sant'Anna)*

18:00-19:30 FrPOS-32.4
Improved Outcomes in Hemodialysis/Hemodiafiltration (HD/HDF) Treatments Applying Exercise and Physio-Logical Monitoring Techniques: Preliminary Results
Lopez del Angel, Francisco *(Univ. Autonoma Metropolitana)*; Azpiroz-Leehan, Joaquin* *(Univ. Autonoma Metropolitana)*; Martinez-Licona, Fabiola *(Univ. Autonoma Metropolitana)*; Moron Mendoza, Andres *(Asociación Mexicana de Obesidad Riñon y Nutricion)*; Fonseca Alva, Angel *(Nefrored SAPI)*; Quevedo, Karina *(Nefrored SAPI)*; Rosas Andreu, Gerardo *(Nefrored SAPI)*; Cadena, Miguel *(Univ. Autonoma Metropolitana)*; De la Rosa, Ana Maria *(Nefrored SAPI)*; Mendez, Danilo *(Univ. Nacional Autónoma de Mexico)*; Sacristan, Emilio *(Univ. Autónoma Metropolitana)*

FrPOS-33: 18:00-19:30 Hall B
Research-Poster-1-Page Fr A (Poster Session)

18:00-19:30 FrPOS-33.1
Deep Brain Stimulation of Subthalami Nucleus Changes Laterality in Parkinson's Disease Patients
Chladek, Jan* *(Institute of Scientific Instruments, ASCR, v.v.i.)*; Bočková, Martina *(Brno Epilepsy Center, Dept. of Neurology, St Anne's Univers)*; Bob, Petr *(Center for Neuropsychiatric Research of Traumatic Stress, Dept.)*; Lamos, Martin *(Masaryk Univ.)*; Goldemundová, Sabina *(Central European Institute of Technology, Masaryk Univ., Br)*; Baláž, Marek *(Central European Institute of Technology, Masaryk Univ., Br)*; Rektor, Ivan *(Central European Institute of Technology, Masaryk Univ., Br)*; Halamek, Josef *(Institute of Scientific Instruments)*; Jurak, Pavel *(Inst of Scientific Instruments Academy)*

18:00-19:30 FrPOS-33.2
Continuous Estimation of Grasp Movement with sEMG and Temporal Convolutional Nets Model
Guo, Weiyu *(Shenzhen Institute of Advanced Technology, Chinese Academy of Sc)*; Wang, Chao *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Lin, Chuang* *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Li, Le *(The First Affiliated Hospital, Sun Yat-Sen University)*; Huang, Xin *(Dept. of Rehabilitation Medicine, The First Affiliated Hosp)*; Zhang, Hang *(Shenzhen Institutes of Advanced Technology, Chinese Academy)*

18:00-19:30 FrPOS-33.3
Analysis of Tachograms of Healthy Subjects and Congestive Patients in Sleep and Wake State and in Stress Tests with Hurst Exponent
Salcedo Martínez, Amparo* *(Instituto Politécnico Nacional)*; Zamora-Justo, José Alberto *(UPIBI, Instituto Politécnico Nacional)*; Muñoz-Diosdado, Alejandro *(UPIBI, Instituto Politécnico Nacional, Mexico)*

18:00-19:30 FrPOS-33.4
Real-Time Electromyogram-Based Facial Expression Recognition using Riemannian Geometry Features for VR Applications
Cha, Ho-Seung *(Hanyang University)*; Choi, SeongJun *(Hanyang University)*; Im, Chang-Hwan* *(Hanyang University)*

18:00-19:30 FrPOS-33.5
Detecting Persons with Major Depression by a Voice Index based on the Relationship between Hurst Exponent and Zero Crossing Rate
Shinohara, Shuji* *(The Univ. of Tokyo)*; Toda, Hiroyuki *(National Defense Medical College)*; Nakamura, Mitsuteru *(The Univ. of Tokyo)*; Omiya, Yasuhiro *(PST Inc.)*; Higuchi, Masakazu *(The Univ. of Tokyo)*; Takano, Takeshi *(PST Inc.)*; Manome, Nobuhito *(SoftBank Robotics Corp. / The Univ. of Tokyo)*; Suzuki, Kouta *(SoftBank Robotics Corp. / The Univ. of Tokyo)*; Saito, Taku *(National Defense Medical College)*; Tanichi, Masaaki *(National Defense Medical College)*; Mitsuyoshi, Shunji *(Dept. of Verbal Analysis of Pathophysiology Graduate School of M)*; Uraguchi, Tomotaka *(PST Inc.)*; Yoshino, Aihide *(National Defense Medical College)*; Tokuno, Shinichi *(The Univ. of Tokyo)*

18:00-19:30 FrPOS-33.6
A Single Trial Detection Method for the Activation of Stereo-Electroencephalographic (SEEG) Signals
Li, Guangye *(Shanghai Jiao Tong Univ.)*; Paraskevopoulou, Sivylla-Eleni *(Imperial College London)*; Jiang, Shize *(Fu Dan Univ.)*; Chen, Liang *(Huanshan Hospital)*; Schalk, Gerwin *(Wadsworth Center, New York State Dept. of Health)*; Zhang, Dingguo* *(Shanghai Jiao Tong Univ.)*

18:00-19:30 FrPOS-33.7
Event Related Potentials in Adolescents with Insulin Resistance
Wang, Lana* *(East Carolina Univ.)*; White, Austin T. *(East Carolina Univ.)*; Williams, Patrick *(East Carolina Univ.)*; Wittwer, Jennifer *(East Carolina Univ.)*; Collier, David *(East Carolina Univ.)*; Kim, Sunghan *(East Carolina Univ.)*

18:00-19:30 FrPOS-33.8
Multivariate Multiscale Distribution Entropy Analysis of EEG for Discriminating Emotional States
Lee, Dae-Young *(Kwangwoon University)*; Choi, Young-Seok* *(Kwangwoon University)*

18:00-19:30 FrPOS-33.9
The Image Sequence based Driver Sleep Detection and Algorithm
Hwang, Seokmin *(Keimyoung)*; Kim, Chan-Il *(Keimyung Univ.)*; Park, Eun-Bin *(Keimyung Univ.)*; Lee, Jong-Ha* *(Keimyung Univ., School of Medicine)*

18:00-19:30 FrPOS-33.10
Using Nonlinear Signal Analysis to Localize the Seizure Onset Zone: A Data-Driven Approach
Gonzalez Martinez, Cristina* *(Univ. Pompeu Fabra)*; Niediek, Johannes *(Edmond & Lily Safra Center for Brain Sciences, The Hebrew Univ)*; Mormann, Florian *(Dept. of Epileptology, Univ. of Bonn)*; Andrzejak, Ralph *(Computational Neuroscience Group, Dept. of Information and)*

18:00-19:30 FrPOS-33.11
LSTM Network for the Reconstruction of Standard ECG from Patch-Type 3-Lead ECG
Kim, Hee Chan* *(Seoul National Univ.)*; An, Jieun *(Seoul National Univ.)*; Ku, Yunseo *(Chungnam National Univ. College of Medicine)*; Shin, Heean *(Seoul National Univ.)*; Yang, Seungman *(Seoul National Univ.)*; Lee, Joonnyong *(Seoul National Univ. Hospital)*; Sohn, Jangjay *(Seoul National Univ.)*

18:00-19:30 FrPOS-33.12
Assessment of Complexity Level in Decision Making: An Eye-Tracking Study
Nasreen, Shazia* *(IIT Kharagpur)*; Roy, Anup Kumar *(IIT Kharagpur)*; Joshi, Prachi *(IIT Kharagpur)*; Singh, Nicky *(IIT Kharagpur)*; Guha, Rajlakshmi *(IIT Kharagpur)*; Paik, Jiaul Hoque *(IIT Kharagpur)*

18:00-19:30 FrPOS-33.13
Concept of a System for Real-Time Measurement and Visualization of Brain-Shift
Juan, Carlos G.* *(Miguel Hernandez University)*; Blanco-Angulo, Carolina *(Miguel Hernandez University of Elche)*; Bermejo, Natividad *(Miguel Hernandez University of Elche)*; Garcia Martinez, Hector *(Miguel Hernández University of Elche)*; Vicente, Jose M. *(Miguel Hernandez University)*; Avila-Navarro, Ernesto *(Miguel Hernandez University)*; Sabater-Navarro, Jose Maria *(Universidad Miguel Hernandez)*

18:00-19:30 FrPOS-33.14
Detecting Keratoconus based on Statistical Modeling of Light Intensity Distribution of Scheimpflug Images
Consejo, Alejandra* *(Polish Academy of Science)*; Gławdecka, Karolina *(Wrocław Univ. of Science & Technology)*; Karnowski, Karol Marian *(Institute of Physical Chemistry of the Polish Academy of Science)*; Solarski, Jędrzej *(Instytut Chemii Fizycznej PAN)*; Rozema, Jos *(Antwerp Univ. Hospital)*; Iskander, D Robert *(Wroclaw Univ. of Technology)*; Wojtkowski, Maciej *(Institute of Physical Chemistry, Polish Academy of Sciences)*

18:00-19:30 FrPOS-33.15
Synthetic Stereo Images of the Optic Disc from the CORD Dataset
Coghill, Ian* *(University of Strathclyde)*; Jordan, Kirsty Charlotte *(University of Strathclyde)*; Menolotto, Matteo *(University of Strathclyde)*; Black, Richard Anthony *(University of Strathclyde)*; Livingstone, Iain *(NHS Greater Glasgow & Clyde)*; Giardini, Mario Ettore *(University of Strathclyde)*

18:00-19:30 FrPOS-33.16
Assessment of Motion Artifact Reduction Algorithm using Multi-Channel PPG Measurement System in Wearable System
Kim, Min Seong *(Hanyang Univ.)*; Kang, DongHun *(Hanyang Univ.)*; Lee, Jong-Shill* *(Hanyang Univ.)*; Kim, In Young *(Hanyang Univ.)*; Park, Hoon Ki *(Hanyang Univ. Hospital)*

18:00-19:30 FrPOS-33.17
Dual-Wavelength Photoacoustic Gas Detection for Smart Endoscopy
Wadamori, Naoki* *(Nagaoka University of Technology)*

18:00-19:30 FrPOS-33.18
Variable Source Emitter, Smart Textile Headgear Design for Functional Near-Infrared Spectroscopy
Bartkowski, Christian Henry* *(NIRx Medizintechnik GmbH, TU Berlin)*; Gemignani, Jessica *(Technische Universität Berlin)*; Barbour, Randall *(SUNY Downstate Medical Center)*; Lang, Klaus Dieter *(Technische Universität Berlin)*; von Krshiwoblozki, Malte *(Fraunhofer IZM)*; Vieroth, Rene *(TU-Berlin)*; Dils, Christian *(Fraunhofer IZM)*; Jung, Erik *(Fraunhofer IZM)*; Schmitz, Christoph *(NIRx Medizintechnik GmbH)*

18:00-19:30 FrPOS-33.19
Measurement Sensitivity Enhancement of Surface Tissue using Planar Light Source and Spatially-Resolved Near-Infrared Spectroscopy
Tsubota, Kohei* *(Shizuoka University)*; Niwayama, Masatsugu *(Shizuoka University)*

18:00-19:30 FrPOS-33.20
Measurement Sensitivity and Sensor Arrangement for Liver Tissue Oximeter
Kanzawa, Takahiro* *(Shizuoka University)*; Niwayama, Masatsugu *(Shizuoka University)*

18:00-19:30 FrPOS-33.21
Determination of Facial Optical Properties based on ToF, Spatially-Resolved and Time-Resolved Measurement
Nagakura, Jin* *(Shizuoka University)*; Niwayama, Masatsugu *(Shizuoka University)*

18:00-19:30 FrPOS-33.22
Wiener-Filter based Tissue Recognition in Surgical Microscopy
Babilon, Sebastian* *(TU Darmstadt)*; Klabes, Julian *(TU Darmstadt, Fachgebiet Lichttechnik)*; Myland, Paul *(TU Darmstadt, Fachgebiet Lichttechnik)*; Khanh, Tran Quoc *(TU Darmstadt, Fachgebiet Lichttechnik)*

18:00-19:30 FrPOS-33.23
Embedded Tumor Size Estimation using Projections Analysis of Smartphone-Based Compression-Induced Images
Choi, Sung In *(Temple Univ.)*; Oleksyuk, Vira *(Temple Univ.)*; Caroline, Dina *(Temple Univ. Hospital)*; Pascarella, Suzanne *(Temple Univ. Hospital)*; Kybic, Jan *(Czech Technical Univ. in Prague)*; Won, Chang-Hee* *(Temple Univ.)*

18:00-19:30 FrPOS-33.24
The Effect of Acupuncture Stimulation on Cognitive Function using Functional Near Infrared Spectroscopy: A Pilot Study
Lee, Seung Hyun *(Kyungpook National Univ.)*; Park, Sang Soo *(Dept. of Internal Korean Medicine, Dunsan Korean Medicine H)*; Kim, Jieun *(Korea Institute of Oriental Medicine)*; Yoo, Ho-Ryong* *(Dunsan Korean Medicine Hospital, Daejeon Univ.)*; Lee, Jun-Hwan *(Korea Institute of Oriental Medicine)*

18:00-19:30 FrPOS-33.25
Multiclass SVM for Embryo Time-Lapse Image Classification
Molder, Anna Leida *(Istituto Italiano di Tecnologia)*; Hartshorne, Geraldine *(University of Warwick)*; Costen, Nicholas Paul* *(Manchester Metropolitan University)*; Czanner, Silvester *(Liverpool John Moores University)*

18:00-19:30 FrPOS-33.26
Stabilization of Dynamic Electricity after Sacubitril /Valsartan Treatment in Spontaneously Hypertensive Rats
Syu, Jhen-Yang *(Institute of Biomedical Engineering, College of Electrical & C)*; Sung, Yen-Ling *(National Chiao-Tung University)*; Hsu, Hung-Jui *(NCTU)*; Lin, Ting-Tse *(National Taiwan University Hospital Hsin-Chu Branch)*; Lin, Shien-Fong* *(National Chiao Tung University)*

18:00-19:30 FrPOS-33.27
Method to Mitigate Confounding Effects from Human Movements While Dynamic Optical Contrast Imaging
Hu, Yong* *(UCLA)*; Pellionisz, Peter *(UCLA David Geffen School of Medicine)*; St. John, Maie *(UCLA Head & Neck Surgery)*

18:00-19:30 FrPOS-33.28
Design and Simulation of Dual -Axis Confocal Imaging Mirrors for Terahertz Medical Imaging
Hu, Yong* *(UCLA)*; Grundfest, Warren S. *(UCLA)*; Taylor, Zachary *(UCLA)*

18:00-19:30 FrPOS-33.29
Development of Visual Support Tool for Endoscopic Surgery – Evaluation of Enhanced Field of View
Hanafusa, Akihiko* *(Shibaura Institute of Technology)*; Yokoyama, Yuichi *(Shibaura Institute of Technology)*

18:00-19:30 FrPOS-33.30
Endoscopic Single-Shot 3D Reconstruction of Oral Cavity
Rosenthal, Jean-Claude *(Fraunhofer Heinrich-Hertz-Institute)*; Wisotzky, Eric L.* *(Fraunhofer Heinrich-Hertz-Institut)*; Eisert, Peter *(Fraunhofer Heinrich-Hertz-Institute)*; Uecker, Florian Cornelius *(Charité Universitätsmedizin Berlin)*

18:00-19:30 FrPOS-33.31
Simultaneous RGB and Depth Image Capture System using Common Endoscope based on High Frequency Alternative Pattern Projection
Furukawa, Ryo *(Hiroshima City Univ.)*; Oka, Shiro *(Hiroshima Univ. Hospital)*; Kotachi, Takahiro *(Hiroshima Univ. Hospital)*; Okamoto, Yuki *(Hiroshima Univ. Hospital)*; Tanaka, Shinji *(Hiroshima Univ. Hospital)*; Kawasaki, Hiroshi* *(Kyushu Univ.)*

18:00-19:30 FrPOS-33.32
Frame-Wise Auto-Calibration of Projector-Camera Pair of 3D Endoscope
Furukawa, Ryo* *(Hiroshima City Univ.)*; Oka, Shiro *(Hiroshima Univ. Hospital)*; Kotachi, Takahiro *(Hiroshima Univ. Hospital)*; Okamoto, Yuki *(Hiroshima Univ. Hospital)*; Tanaka, Shinji *(Hiroshima Univ. Hospital)*; Kawasaki, Hiroshi *(Kyushu Univ.)*

18:00-19:30 FrPOS-33.33
Development of Methods to Visualize and Quantify Follicle Cells in Ovarian Tissue by Optical Coherence Tomography
Saito, Kasumi *(Keio University)*; Motani, Yuki *(Keio University)*; Takae, Seido *(St. Marianna University School of Medicine)*; Suzuki, Nao *(St. Marianna University School of Medicine)*; Tsukada, Kosuke* *(Keio University)*

18:00-19:30 FrPOS-33.34
Rigid-Endoscope Optical Coherence Tomography System using Two-Dimensional KTN Optical Beam Scanner
Ohmi, Masato* *(Osaka Univ.)*; Choi, Eunjoo *(Osaka Univ.)*

18:00-19:30 FrPOS-33.35
Reconstructing Resting State Networks with Diffuse Optical Tomography
Khan, Ali Fahim* *(University of Oklahoma)*; Zhang, Fan *(University of Oklahoma)*; Yuan, Han *(University of Oklahoma)*; Ding, Lei *(University of Oklahoma)*

18:00-19:30 FrPOS-33.36
Surface Acoustic Wave-Driven Enhanced Dye Uptake in Retinal Tissue
Stamp, Melanie* *(Univ. of Melbourne)*; Tong, Wei *(Univ. of Melbourne)*; Peng, Danli *(Univ. of Melbourne)*; Ibbotson, Michael R *(Australian College of Optometry)*; Collins, David J *(Univ. of Melbourne)*; Garrett, David J. *(Univ. of Melbourne)*; Prawer, Steven *(Univ. of Melbourne)*

18:00-19:30 FrPOS-33.37
A 3D Test Target for Focal Plane Assessment in Confocal Laser Endomicroscopy
Su, Yilun* *(Karlsruhe Institute of Technology)*; Nahm, Werner *(Karlsruhe Institute of Technology)*

18:00-19:30 FrPOS-33.38
Neuroregeneration and Plasticity in the Adult Central Nervous System: Two Models of Neuroregeneration Analyzed by Ultramicroscopy
Jährling, Nina* *(TU Vienna)*; Benedetti, Bruno *(Paracelsus Medizinsche PrivatUniversität)*; Bieler, Lara *(Paracelsus Medizinsche PrivatUniversität)*; Becker, Klaus *(TU Vienna)*; Saghafi, Saiedeh *(TU Vienna)*; Kramer, Edgar R. *(University of Plymouth)*; Weiler, Reto *(Carl von Ossietzky Universität Oldenburg)*; Dodt, Hans-Ulrich *(TU Vienna)*; Couillard-Despres, Sebastian *(Paracelsus Medizinische PrivatUniversität)*

18:00-19:30 FrPOS-33.39
Development of Optoacoustic Microscopic and Mesoscopic Imaging Handheld for Skin Monitoring
Afshari, Parastoo* *(Technische Universität München & Helmholtz Zentrum München)*; Berezhnoi, Andrei *((Chair for Biological Imaging, Technische Universitaet Muenchen))*; Aguirre, Juan *((Chair for Biological Imaging, Technische Universitaet Muenchen))*; Zakian, Christian *(Helmholtz Zentrum Muenchen)*; Ntziachristos, Vasilis *(Technische Universität München & Helmholtz Zentrum München)*

18:00-19:30 FrPOS-33.40
A NIRS System using Micro-Wall Structural Photodiodes
Chang, Yeonhee *(DGIST)*; Ko, Minjee *(Daegu Gyeongbuk Institute of Science & Technology (DGIST))*; Lee, Jinseon *(DGIST)*; Cho, Chang-Hee *(Daegu Gyeongbuk Institute of Science & Technology)*; Song, Cheol* *(DGIST)*

18:00-19:30 FrPOS-33.41
Correcting Physiological Noises in Functional Near-Infrared Spectroscopy
Zhang, Fan *(Univ. of Oklahoma)*; Cheong, Daniel *(Univ. of Oklahoma)*; Chen, Yuxuan *(Univ. of Oklahoma)*; Khan, Ali Fahim* *(Univ. of Oklahoma)*; Ding, Lei *(Univ. of Oklahoma)*; Yuan, Han *(Univ. of Oklahoma)*

18:00-19:30 FrPOS-33.42
A Human Growth Model with Anatomical Structure for Numerical Simulations
Nagaoka, Tomoaki* *(National Institute Info & Comm Tech)*; Wake, Kanako *(National Institute of Information & Communications Technology)*

18:00-19:30 FrPOS-33.43
Experimental Studies on the Ventilation Parameters in the Model Respiratory Tract with Double-Lumen Endotracheal Tube
Kramek-Romanowska, Katarzyna* *(Nalecz Institute of Biocybernetics & Biomedical Engineering Po)*; Stecka, Anna *(Nalecz Institute of Biocybernetics & Biomedical Engineering PA)*; Zieliński, Krzysztof *(The Nałęcz Institute of Biocybernetics & Biomedical)*; Dorosz, Agata *(Faculty of Chemical & Process Engineering Warsaw University of)*; Okrzeja, Piotr *(Nalecz Institute of Biocybernetics & Biomedical Engineering)*

18:00-19:30 FrPOS-33.44
Cerebral Aneurysm Intervention with Preoperative Planning in Immersive Virtual Reality
Dakua, Sarada *(Hamad Medical Corporation)*; Abinahed, Julien *(Hamad Medical Corporation)*; Balakrishnan, Shidin* *(Hamad Medical Corporation)*; Younes, Georges *(Hamad Medical Corporation)*; Zakaria, Ayman *(Hamad Medical Corporation)*; Baobeid, Abdulla *(Hamad Medical Corporation)*; Al-Ansari, Abdulla *(Hamad Medical Corporation)*; Soheilian Esfahani, Sahar *(Qatar Univ.)*; Zhai, Xiaojun *(Qatar Univ.)*; Amira, Abbes *(Univ. of the West of Scotland)*; Bensaali, Faycal *(Qatar Univ.)*; Richardson, Robin *(Univ. College London)*; Peter, Coveney *(Univ. College London)*

18:00-19:30 FrPOS-33.45
New Comprehension of Human Auditory System based on Acoustic Resonance of Outer Hair Cells
Horii, Yasushi* *(Kansai Univ.)*; Hong, Wenjia *(Kansai Univ.)*; Tamaki, Airi *(Kansai Univ.)*; Kitamura, Toshiaki *(Kansai Univ.)*

18:00-19:30 FrPOS-33.46
Discussion on Aging-Based Pitch Shift of Absolute Pitch in Auditory System based on Acoustic Resonance of Outer Hair Cells
Tamaki, Airi *(Kansai Univ.)*; Hong, Wenjia *(Kansai Univ.)*; Kitamura, Toshiaki *(Kansai Univ.)*; Horii, Yasushi* *(Kansai Univ.)*

18:00-19:30 FrPOS-33.47
Biomechanical Modelling and Computer Aided Simulation of Deep Brain Retraction in Neurosurgery
Gautam, Umesh *(IIT Delhi)*; Bhaskar, Suryanarayanan *(AIIMS Jodhpur)*; Roy, Sitikantha* *(Indian Institute of Technology Delhi)*; Awasthi, Abhilash *(Indian Institute of Technology Delhi, New Delhi, India)*

18:00-19:30 FrPOS-33.48
Mechanical Study on Piezoelectric Energy Harvesting Concepts for an Energy-Autonomous Total Hip Replacement
Lange, Hans-E.* *(Rostock Univ. Medical Center)*; Kluess, Daniel *(Rostock Univ. Medical Center, Dept. of Orthopaedics)*

18:00-19:30 FrPOS-33.49
High-Resolution Slow-Wave Response to High and Low Energy Pacing
Alighaleh, Saeed* *(Auckland Bioengineering Institute, University of Auckland)*; Cheng, Leo K *(The University of Auckland)*; Avci, Recep *(University of Auckland)*; O'Grady, Gregory *(University of Auckland)*; Angeli, Timothy Robert *(Auckland Bioengineering Institute, University of Auckland)*; Paskaranandavadivel, Niranchan *(The University of Auckland)*

18:00-19:30 FrPOS-33.50
Subdermal Solar Energy Harvesting – A Monte-Carlo Simulation on Light Transmission in Human Skin
Tholl, Maximilien Victor* *(University of Bern, Artorg Center)*; Niederhauser, Thomas *(Bern University of Applied Sciences)*; Zurbuchen, Adrian *(University of Bern, sitem-insel)*; Frenz, Martin *(University of Bern, Institude of Applied Physics, Biomedical Pho)*; Tanner, Hildegard *(University Hospital Bern, Dept. of Cardiology)*; Haeberlin, Andreas *(University Hospital Bern, Dept. of Cardiology)*

FrPOS-34**:** 18:00-19:30 Hall B
Research-Poster-1-Page Fr B (Poster Session)

18:00-19:30 FrPOS-34.1
Mobile Patient-Specific Real-Time Energy Simulations
Tatum, Nathan *(ARA)*; Hoer, Tim *(Duke University)*; White, Steven A *(Applied Research Associates)*; Baird, Austin* *(Applied Research Associates)*

18:00-19:30 FrPOS-34.2
A Wearable Bio-Feedback Gait Training Device for the Stroke Patients
Chang, Y. T. *(Cheng Kung University)*; Chen, Tainsong* *(National Cheng Kung University)*

18:00-19:30 FrPOS-34.3
In-Vitro Testing for the Risk Assessment of Workers with Active Implantable Devices Exposed to Electromagnetic Fields
Mattei, Eugenio* *(Italian National Institute of Health)*; Censi, Federica *(Italian National Institute of Health)*; Calcagnini, Giovanni *(Italian National Institute of Health)*

18:00-19:30 FrPOS-34.4
Contactless Pulse Rate Measurement based on a SoC Platform
Chen, Hong-Ren *(National Taiwan University of Science & Technology)*; Lin, Yuan-Hsiang* *(National Taiwan University of Science & Technology)*

18:00-19:30 FrPOS-34.5
An Image-Based Health Care System for Bedside Monitoring
Chiang, Kuan-Ting *(National Taiwan University of Science & Technology)*; Lin, Yuan-Hsiang* *(National Taiwan University of Science & Technology)*

18:00-19:30 FrPOS-34.6
A Non-Contact Cardiopulmonary Measuring System using Medical Radar and FPGA
V. Nguyen, Cuong *(Hanoi Univ. of Science & Technology)*; Dinh-Trung, Duc *(Hanoi Univ. of Science & Technology)*; Sun, Guanghao* *(The Univ. of Electro-Communications)*; Han Trong Thanh, Thanh *(Hanoi Univ. of Science & Technology)*; Do Trong, Tuan *(Hanoi Univ. of Science & Technology)*; Ishibashi, Koichiro *(The Univ. of Electro-Communications)*

18:00-19:30 FrPOS-34.7
The Accuracy of Wrist-Worn Heart Rate Measurements: A Comparison between a Consumer and Research Grade Device
Giggins, Oonagh* *(Dundalk Institute of Technology)*; Doyle, Julie *(CASALA, Dundalk Institute of Technology)*

18:00-19:30 FrPOS-34.8
Acquisition of Impedance Cardiogram with Integrated Synchronous Demodulation and Baseline Correction
T S, Susmi* *(Indian Institute of Technology Bombay)*; Pandey, Prem C. *(IIT Bombay)*

18:00-19:30 FrPOS-34.9
The Suitable Sensitive Area of Photodiode: Comparison of SNR and Amplitude of Green Photoplethysmogram for Pulse Rate Monitoring
Kusaba, Shihori *(Fukuoka Institute of Tech.)*; Lee, Jihyoung* *(Fukuoka Institute of Tech.)*; Fukumoto, Yuto *(Fukuoka Institute of Tech.)*; Kihara, Hiromu *(Fukuoka Institute of Tech.)*; Kabashima, Shogo *(Fukuoka Institute of Tech., Fukuoka, Japan)*; Ikejiri, Kouki *(Fukuoka Institute of Tech.)*; Isizaki, Shouta *(Fukuoka Institute of Tech.)*; Yamakoshi, Takehiro *(Fukuoka Institute of Tech.)*

18:00-19:30 FrPOS-34.10
A Study of the PPG Amplitude for Determination of Systolic Arterial Pressure in the Finger based on the Volume Oscillometric Method
Fukumoto, Yuto *(Fukuoka Institute of Technology)*; Lee, Jihyoung* *(Fukuoka Institute of Technology)*; Yamakoshi, Yasuhiro *(Showa Univ. School of Medicine)*; Kusaba, Shihori *(Fukuoka Institute of Technology)*; Kihara, Hiromu *(Fukuoka Institute of Technology)*; Ikejiri, Kouki *(Fukuoka Institute of Technology)*; Isizaki, Shouta *(Fukuoka Institute of Technology)*; Yamakoshi, Takehiro *(Fukuoka Institute of Technology)*; Yamakoshi, Ken-ichi *(Kanazawa Univ.)*

18:00-19:30 FrPOS-34.11
Range-Gate Tracking Technique for Ultrasonic Doppler Sensor
Um, Ji-Yong* *(Hannam Univ.)*; Park, Hyun-Tae *(Hannam Univ.)*

18:00-19:30 FrPOS-34.12
Measurement of Laryngeal Elevation using PVDF Film for Multimodal Assessment of Swallowing Function
Hashimoto, Takuya* *(Tokyo University of Science)*

18:00-19:30 FrPOS-34.13
Testing of Autonomic Nervous System using a Smartphone
Jung, Gihoon *(SoonChunHyang University)*; Ha, Sangho* *(SoonChunHyang University)*; Seok, Jin Myoung *(Dept. of Neurology, SoonChunHyang University Cheonan Hospit)*; Park, Jongkyu *(SoonChunHyang University Cheonan Hospital)*; Park, Sang-Heum *(SoonChungHyang University College of Medicine)*

18:00-19:30 FrPOS-34.14
Temporal Effects of Loading on Upper Limb Physiological Tremor
Akazawa, Jun* *(Meiji University of Integrative Medicine)*

18:00-19:30 FrPOS-34.15
Comparison between Physiological Indexes from ECG and BVP in Daily-Living Tasks
Ito, Kodai* *(National Institute of Advanced Industrial Science & Tech.)*; Laohakangvalvit, Tipporn *(National Institute of Advanced Industrial Science & Tech.)*; Tada, Mitsunori *(National Institute of Advanced Industrial Science & Tech.)*

18:00-19:30 FrPOS-34.16
A Tonometry based Non-Invasive Continuous Arterial Pressure Pulse Measuring Device
Pande, Karan *(Indian Institute of Technology Delhi)*; Pandey, Udayan *(Indian Institute of Technology Delhi)*; Ghosh, Saswath *(Indian Institute of Technology Delhi)*; Roy, Sitikantha* *(Indian Institute of Technology Delhi)*

18:00-19:30 FrPOS-34.17
Estimation of Time-Domain Indices of HRV by Body Pressure Distribution at Sitting Position
Sakai, Risako *(Nagoya City University)*; Yokoyama, Kiyoko* *(Nagoya City University)*

18:00-19:30 FrPOS-34.18
Real Time Blood Pressure Monitoring a Three-Dimensional Acceleration-Based Cuff-Less Non-Invasive Approach
Hsu, Po-Ya* *(UC San Diego)*; Hsu, Po-Han *(National Taipei Univ.)*; Liu, Hsin-Li *(Central Taiwan Univ. of Science & Tech.)*

18:00-19:30 FrPOS-34.19
Feasibility Study on Assessment of Stress Situation using Non-Contact Image Photo-Plethysmography
Ikarashi, Akira* *(Aino Univ.)*; Hayashi, Takuto *(Aino Univ.)*

18:00-19:30 FrPOS-34.20
Influence of a Signal Model on the Quality of Estimates of Brain Evoked Responses Measured with Magnetoencephalography
Sielużycki, Cezary* *(Faculty of Fundamental Problems of Technology, Wrocław Univ)*; Matysiak, Artur *(Leibniz Institute for Neurobiology, Magdeburg)*; König, Reinhard *(Leibniz Institute for Neurobiology, Magdeburg)*; Iskander, D Robert *(Wroclaw University of Technology)*

18:00-19:30 FrPOS-34.21
Estimation of Internet Gaming Disorder Severity using Heart Rate Variability
Hong, Sung Jun *(Osong Medical Inovation Foundation)*; Lee, SeungJae *(Hanyang University)*; Park, Jinsick *(Hanyang University)*; Kim, Byungyeon *(Osong Medical Inovation Foundation)*; Kim, In Young* *(Hanyang University)*

18:00-19:30 FrPOS-34.22
Quantification of Pupil Reflex Dynamics in Response to Voluntary Muscular Contraction across Age
Marmarelis, Zissis* *(University of Southern California)*; Huang, Ringo *(University of Southern California)*; Mather , Mara *(University of Southern California)*

18:00-19:30 FrPOS-34.23
Evaluation of Brain Response to Multisensory Stimuli by using Index of Spatiotemporal Locality of Magnetoencephalography
Mori, Fumina* *(The University of Tokyo)*; Kikuchi, Keigo *(The University of Tokyo)*; Kotani, Kiyoshi *(University of Tokyo)*; Jimbo, Yasuhiko *(University of Tokyo)*

18:00-19:30 FrPOS-34.24
Analysis of Driver Inattention State using Electroencephalography
Lim, Hyunjun *(Hyundai Mobis CO., Ltd)*; Jung, Yujin *(Hyundai Mobis)*; Park, Ki-Hee *(Hyundai Mobis Co., Ltd.)*; Hwang, JongHo *(Hyundai Mobis)*; Lee, Chang Won* *(Hyundai Mobis)*

18:00-19:30 FrPOS-34.25
Similar Muscle Synergies during Hand Reaching and Withdrawing
Lin, Jiayin* *(Sun Yet-sen Univ.)*; Luo, Jie *(Sun Yat-Sen Univ.)*

18:00-19:30 FrPOS-34.26
A Fast PPG-HR Transformation Algorithm with High Robustness
Tian, Yang* *(Tsinghua University)*; He, Weihua *(Tsinghua University)*; Jia, Yihan *(Tsinghua University)*

18:00-19:30 FrPOS-34.27
Non-Convulsive Status Epilepticus Detection
Wang, Ying* *(Eindhoven Univ. of Technology)*; Long, Xi *(Eindhoven Univ. of Technology & Philips Research)*; van Dijk, Johannes *(Kempenhaeghe Center for Sleep Medicine)*; Lazeron, Richard *(Epilepsy Center Kempenhaeghe)*; Aarts, Ronald M. *(Philips)*; Arends, Johan B.A.M. *(Epilepsy Center Kempenhaeghe)*

18:00-19:30 FrPOS-34.28
Towards Objective Pain Assessment: Characterization of Autonomic Signals through Ambulatory Monitoring
Moscato, Serena* *(University of Bologna)*; Palumbo, Pierpaolo *(DEI – University of Bologna)*; Sichi, Vittoria *(Fondazione ANT Italia Onlus)*; Chiari, Lorenzo *(University of Bologna)*

18:00-19:30 FrPOS-34.29
Measurement of Onset of Muscle Fatigue using Shifts in EMG Median Frequency in Children with Cerebral Palsy: A Pilot Study during a Walk-to-Run Test
Bielmann, Mathieu* *(CIRRIS – Univ. of Laval)*; Bertrand Charette, Michaël *(Univ. Laval)*; Levesque, Jessica *(Univ. Laval)*; Roy, Jean Sébastien *(Univ. Laval)*; Maltais, Desirée *(Univ. Laval)*; Bouyer, Laurent *(Univ. of Laval)*

18:00-19:30 FrPOS-34.30
High-Frequency Analysis for Detecting Bursts in Preterm EEG
Lundy, Christopher T.* *(Irish Centre for Fetal & Neonatal Translational Research (INFA)*; Boylan, Geraldine *(University College Cork)*; O'Toole, John M. *(University College Cork)*

18:00-19:30 FrPOS-34.31
Reduction of Latency Jitter in ERP through Visibility Graphs and Community Detection
Puxeddu, Maria Grazia* *(Sapienza, Univ. of Rome)*; Toppi, Jlenia *(Univ. of Rome "Sapienza")*; Mattia, Donatella *(Fondazione Santa Lucia IRCCS)*; Astolfi, Laura *(Univ. of Rome Sapienza)*

18:00-19:30 FrPOS-34.32
SEMG Cross Correlation Assessment of Muscle Coordination during Lower Limb Maximum Vertical Countermovement
Rodrigues, Carlos M. B.* *(INESCTEC – Technology & Science Associate Laboratory)*; Correia, Miguel *(Universidade do Porto, Faculdade de Engenharia)*; Abrantes, João M. C. S. *(MovLab – ULHT)*; Rodrigues, Marco Aurélio Benedetti *(Federal Univ. of Pernambuco)*; Nadal, Jurandir *(Federal Univ. of Rio de Janeiro)*

18:00-19:30 FrPOS-34.33
Neurophysiological Assessment of Auditory Thresholds for Electrical Stimulations Delivered by Cochlear Implants: A Pilot Study
Ma, Junwei *(University of Oklahoma)*; Wolfe, Jace *(Hearts for Hearing)*; Yuan, Han *(University of Oklahoma)*; Ding, Lei* *(University of Oklahoma)*

18:00-19:30 FrPOS-34.34
Estimation Model for VO2max using a Wearable Sensor in Non-Laboratory Setting
Kwon, Soon Bin *(Seoul National University)*; Ahn, Joong Woo *(Seoul National University Hospital)*; Kim, Heejin *(Seoul National University)*; Kwon, Chiheon *(Seoul National University)*; Kim, Hee Chan* *(Seoul National University)*; Yoon, Hyung-Jin *(Seoul National University)*

18:00-19:30 FrPOS-34.35
Decoding Muscle Expressions under Fatiguing Contractions in Surface Electromyography Signals
Ramakrishnan, Swaminathan* *(IIT Madras, India)*; Makaram, Navaneethakrishna *(Indian Institute of Technology Madras)*

18:00-19:30 FrPOS-34.36
Analysis of Feature Reduction on Bladder Volume Classification of Electrical Impedance Data
Dunne, Eoghan* *(National University of Ireland Galway)*; Santorelli, Adam *(National University of Ireland Galway)*; O'Halloran, Martin *(National University of Ireland, Galway)*; Porter, Emily *(National University of Ireland Galway)*

18:00-19:30 FrPOS-34.37
Increasing Rehabilitation Performance with Smart-Bar and Smart Device
Park, Jun Young *(Dongguk Univ.)*; Kwon, Bumsun *(Dongguk Univ. Hospital)*; Park, Sung Yun* *(Dongguk Univ.)*

18:00-19:30 FrPOS-34.38
Recognizing Lymphatic Fibrosis using Semantic Segmentation Method for Accurate Lymphatic System Deterioration Diagnosis
Lee, Suwon *(Univ. of Ulsan)*; Son, Hyewon *(Univ. of Ulsan, Ulsan)*; Lee, YongKwan *(Univ. of Ulsan)*; Duong, Thuy *(Univ. of Ulsan)*; Phan, Huu Lam *(Ulsan Univ.)*; Nguyen, Trung *(Univ. of Ulsan)*; Nguyen, Hang Phuong *(Univ. of Ulsan)*; Le, Thi Huong *(Univ. of Ulsan)*; Oh, Seok *(Univ. of Ulsan)*; Lee, HyoSeok *(Univ. of Ulsan)*; Hwang, Changho *(Ulsan Univ. Hospital)*; Koo, Kyoin* *(Univ. of Ulsan)*

18:00-19:30 FrPOS-34.39
Evaluation Method of Parasympathetic Nervous Activities by Heart Rate Time Series Measured by Wearable Device
Hayashi, Emi *(Nagoya City University)*; Yokoyama, Kiyoko* *(Nagoya City University)*; Ito, Hisatoshi *(Toho Gas Co., Ltd.)*; Kawahara, Yuko *(Toho Gas Co., Ltd.)*

18:00-19:30 FrPOS-34.40
Robust Estimation of Apnea-Hypopnea Index using a Wearable Patch
Yazdani, Sasan* *(SmartCardia S.A.)*; Baumann, Sebastien *(SmartCardia S.A.)*; Braojos, Ruben *(SmartCardia S.A.)*; Rincón, Francisco *(SmartCardia Sàrl)*; Murali, Srinivasan *(SmartCardia Sàrl)*

18:00-19:30 FrPOS-34.41
Audio Source Separation for Reducing Sleeping Partner Sounds: Simulation Study
Mordoh, Valeria* *(Ben-Gurion University of the Negev)*; Zigel, Yaniv *(Ben-Gurion University of the Negev)*

18:00-19:30 FrPOS-34.42
An Artifact Correction Method for Ear-EEG Data using Riemannian Geometry
Blum, Sarah* *(Univ. of Oldenburg)*; Mirkovic, Bojana *(Univ. of Oldenburg)*; Debener, Stefan *(Univ. of Oldenburg)*

18:00-19:30 FrPOS-34.43
Closed Loop Control System of a Bionic Artificial Sphincter
Al Adem, Kenana* *(Khalifa Univ. of Science & Technology)*; Stefanini, Cesare *(Khalifa Univ. of Science & Technology)*

18:00-19:30 FrPOS-34.44
Closed-Loop Control of Prosthetic Hand Grasp with Non-Invasive Neural Feedback of Evoked Tactile Sensation
Chou, Chih-Hong *(Shanghai Jiao Tong Univ.)*; Hao, Manzhao *(School of Biomedical Engineering, Shanghai Jiao Tong Univ.)*; Yin, Pengyu *(School of Biomedical Engineering, Shanghai Jiao Tong Univ.)*; Zhang, Zhuozhi *(Shanghai Jiao Tong Univ.)*; Zhang, Jie *(Xidian Univ.)*; Niu, Chuanxin M. *(Ruijin Hospital, School of Medicine, Shanghai Jiao Tong Universi)*; Pei, Weihua *(Institute of Semiconductors, CAS)*; Liang, Wenyuan *(National Research Center for Rehabilitation Technical Aids)*; Yao, Feng *(Shanghai Kesheng Prostheses Co., Ltd.)*; Lan, Ning* *(Shanghai Jiao Tong Univ.)*

18:00-19:30 FrPOS-34.45
Kinematic Analysis based Optimal Design of a Robotic Prosthetic Hand
Kim, Chang Won* *(KIMM)*; Chu, Jun-Uk *(Korea Institute of Machinery & Materials)*; Sin, Minki *(Seoul National University)*; Lee, Dongkyu *(Korea Institute of Machinery & Materials)*; Kwon, Ohwon *(Korea Institute of Machinery & Materials)*

18:00-19:30 FrPOS-34.46
Association between Cardiorespiratory Fitness and the Metabolic Syndrome in Korean Adults
Bae, Ye Seul *(Seoul National Univ. Hospital)*; Kim, Kyung Hwan *(Seoul National Univ. Hospital)*; Lee, Hae-Young *(Seoul National Univ. Hospital)*; Kim, Mi Jin *(Seoul National Univ. Hospital)*; Park, Sang Min* *(Seoul National Univ. Hospital)*

18:00-19:30 FrPOS-34.47
Improvement in Cognitive Function of MCI Patients after Application of Acupuncture: A fNIRS Study
Ghafoor, Usman *(Pusan National University)*; Yoo, Ho-Ryong Yoo *(Neurology Disorder Center, Dunsan Korean Medicine Hospital, Daej)*; Hong, Keum-Shik* *(Pusan National University)*

18:00-19:30 FrPOS-34.48
FRAME: Fall Risk Assessment for Lower Limb Amputees
Palumbo, Pierpaolo* *(DEI – University of Bologna)*; Stravato, Stefano *(Vibre)*; Davalli, Angelo *(INAIL Prosthesis Center)*; Chesani, Federico *(DISI – University of Bologna)*; Chiari, Lorenzo *(University of Bologna)*

FrPOS-35**:** 18:00-19:30 Hall B
Research-Poster-1-Page Fr C (Poster Session)

18:00-19:30 FrPOS-35.1
Perfusion Mismatch Analysis – A Novel Risk Stratification Method for Pulmonary Embolism using Dual Energy CT
Kesavadas, Tushar* *(Feinberg School of Medicine Northwestern Uty)*; Howard, Travis *(Northwestern University)*; Allen, Bradley *(Northwestern University)*; Sankar, Kamya *(Northwestern University)*; Schimmel, Daniel *(Northwestern University)*; Collins, Jeremy *(Mayo Clinic)*

18:00-19:30 FrPOS-35.2
InSafe: A Low-Cost Device to Improve Oxygenation and Airway Visualization during Emergency Intubation
Gordon, Alex* *(Univ. of Toronto)*; Mika, Nonoyama *(Hospital for Sick Children)*; Diane, Soares *(Hospital for Sick Children)*; Karsli, Cengiz *(Hospital for Sick Children)*; Tessaro, Mark *(Hospital for Sick Children)*; Estrada, Marvin *(Hospital for Sick Children)*; Looi, Thomas *(CIGITI, Hospital for Sick Children)*

18:00-19:30 FrPOS-35.3
Pulmonary Function Test Equipment for Mice using Double Chamber Plethysmography
Park, Hyun Mok *(Dongguk University)*; Chang, Kyung Hwa *(Dongguk University College of Medicine)*; Moon, Sang-Hyub *(Dongguk University)*; Lee, Ye Jin *(Dongguk University)*; Nam, Ki Chang* *(Dongguk University College of Medicine)*

18:00-19:30 FrPOS-35.4
Moisture-Triggered Fast Fixation Bandage
Yuan, Bo *(Tsinghua University)*; Liu, Jing* *(Tsinghua University)*

18:00-19:30 FrPOS-35.5
Light-Touch based Virtual Cane Improves Standing Balance without Physical Support
Alluri, Sindhu Reddy *(Missouri Univ. of Science & Technology)*; Burns, Devin *(Missouri Univ. of Science & Technology)*; Song, Yun Seong* *(Missouri Univ. of Science & Technology)*

18:00-19:30 FrPOS-35.6
Improvements in Gait Adaptability after Robotic Exoskeleton Gait Therapy in Person with Multiple Sclerosis
Niewrzol, Peter *(Montclair State Univ.)*; Popok, Paula *(Montclair State Univ.)*; Kwasnica, Marek *(Kessler Foundation)*; Yue, Guang *(Kessler Foundation)*; Androwis, Ghaith* *(Kessler Foundation, & New Jersey Institute of Technology)*

18:00-19:30 FrPOS-35.7
In Search for Fluid Flow Structures in Upper Human Airways during Independent Lung Ventilation
Kramek-Romanowska, Katarzyna* *(Nalecz Institute of Biocybernetics & Biomedical Engineering Po)*; Dorosz, Agata *(Faculty of Chemical & Process Engineering Warsaw University of)*; Stecka, Anna *(Nalecz Institute of Biocybernetics & Biomedical Engineering PA)*; Okrzeja, Piotr *(Nalecz Institute of Biocybernetics & Biomedical Engineering)*

18:00-19:30 FrPOS-35.8
Proposal of a Pediatric Externally Powered Prosthetic Hand
Takemoto, Nobuo *(Osaka Institute of Technology)*; Taniguchi, Hironari* *(Osaka Institute of Technology)*

18:00-19:30 FrPOS-35.9
Developing an Inexpensive Myoelectric Prosthetic Arm for Persons with Amputation
Rattazzi, Ryan *(NJIT)*; Haque, Emad *(NJIT)*; Whitaker, Ricardo *(NJIT)*; Baldassini, Nicole *(NJIT)*; Adamovich, Sergei *(New Jersey Institute of Technology)*; Androwis, Ghaith* *(Kessler Foundation, & New Jersey Institute of Technology)*

18:00-19:30 FrPOS-35.10
Modeling and Validation of a Novel Robotic Lower Extremity Exoskeleton for Neurorehabilitation
Zhou, Xianlian A. *(New Jersey Institute of Technology)*; Nunez, Erick *(NJIT)*; Adamovich, Sergei *(New Jersey Institute of Technology)*; Androwis, Ghaith* *(Kessler Foundation, & New Jersey Institute of Technology)*

18:00-19:30 FrPOS-35.11
Characterization of a Polymeric Composite Material for Its Potential use in the Replacement of Cruciate Anterior Ligament
Zemanate, Andrés Felipe *(Univ. Autónoma de Occidente)*; Ramirez, Alejandra* *(Univ. Autónoma de Occidente)*; Neuta, Paola Andrea *(Univ. Autónoma de Occidente)*; Caicedo, Julio César *(Univ. Autónoma de Occidente)*

18:00-19:30 FrPOS-35.12
A Simple Method for Mechanical Strength Measurement of Alginate-Collagen Fiber-Shaped Scaffold
Oh, Seok *(Univ. of Ulsan)*; Duong, Thuy* *(Univ. of Ulsan)*; Phan, Huu Lam *(Ulsan Univ.)*; Son, Hyewon *(Univ. of Ulsan, Ulsan)*; Nguyen, Trung *(Univ. of Ulsan)*; Nguyen, Hang Phuong *(Univ. of Ulsan)*; Le, Thi Huong *(Univ. of Ulsan)*; Lee, Suwon *(Univ. of Ulsan)*; Lee, HyoSeok *(Univ. of Ulsan)*; Hwang, Changho *(Ulsan Univ. Hospital)*; Koo, Kyoin *(Univ. of Ulsan)*

18:00-19:30 FrPOS-35.13
Alginate-Collagen Mixture for Tunica Intermedia in Blood Vessel-Mimicking Structure Formation
Nguyen, Hang Phuong* *(University of Ulsan)*; Duong, Thuy *(University of Ulsan)*; Oh, Seok *(University of Ulsan)*; Phan, Huu Lam *(Ulsan University)*; Nguyen, Trung *(University of Ulsan)*; Le, Thi Huong *(University of Ulsan)*; Lee, Suwon *(University of Ulsan)*; Son, Hyewon *(University of Ulsan, Ulsan)*; Lee, HyoSeok *(University of Ulsan)*; Hwang, Changho *(Ulsan University Hospital)*; Koo, Kyoin *(University of Ulsan)*

18:00-19:30 FrPOS-35.14
Construction of Three-Dimensional Aggregates by Human iPS Cell-Derived Hepatocyte-Like Cells in a Microfluidic Device
Harada, Yuko* *(Keio University)*; Yamashita, Tadahiro *(Keio University)*; Sudo, Ryo *(Keio University)*

18:00-19:30 FrPOS-35.15
Self-Assembly Tetra-Copolymer Scaffold Processed the Human Synovium-Derived Stem Cells for Cartilage Tissue Engineering: An in-Vivo Mice Animal Study
Wang, Chen-Chie* *(Taipei Tzu-Chi General Hospital)*; Yang, Ya-Ting *(Taipei Tzu-Chi General Hospital, Orthopedic Dept.)*; Yang, Kai-Chiang *(School of Dental Technology, College of Oral Medicine, Taipei Me)*

18:00-19:30 FrPOS-35.16
A Heart Rate Correction for Consumer-Grade Wrist-Worn Sensor
Choksatchawathi, Tanut *(Vidyasirimethi Institute of Science & Technology)*; Ponglertnapakorn, Puntawat *(Brain@VISTEC : Vidyasirimedhi Institute of Science & Technolog)*; Wisutthisen, Thayakorn *(King Mongkut's Univ. of Technology Thonburi)*; Wilaiprasitporn, Theerawit* *(Vidyasirimedhi Institute of Science & Technology (VISTEC))*

18:00-19:30 FrPOS-35.17
Data Logging Systems for Capturing Human-Wheelchair Interaction for Children Diagnosed with Dyskinetic Cerebral Palsy
Gakopoulos, Sotirios* *(KU Leuven)*; Nica, Ioana *(KU Leuven)*; Bekteshi, Saranda *(KU Leuven, Dept. of Rehabilitation Sciences, Campus Bruges,)*; Aerts, Jean-Marie *(KU Leuven)*; Monbaliu, Elegast *(KU Leuven, Dept. Rehabilitation Sciences Campus Bruges)*; Hallez, Hans *(KU Leuven)*

18:00-19:30 FrPOS-35.18
Ubiquitous Monitoring of Sleep-Wake Cycles using Combined Sensing and Deep Learning Models
Zhai, Bing *(Newcastle University upon Tyne)*; Perez Pozuelo, Ignacio* *(University of Cambridge)*; Brage, Soren *(MRC Epidemiology Unit, University of Cambridge)*; Yu, Guan *(Newcastle University upon Tyne)*

18:00-19:30 FrPOS-35.19
A Multi-Parameter Approach for Objective Measurement of Pain
Yan, Minghao *(Biofourmis)*; Chen, Gengbo *(Biofourmis)*; Labuschagne, FJ *(Life Groenkloof Hospital)*; Killia, CA *(Netcare Unitas)*; Chan, Soon Chee *(Biofourmis)*; Hadjiat, Yacine *(Mundipharma Pte. Ltd.)*; Rajput, Kuldeep Singh* *(Biofourmis)*

18:00-19:30 FrPOS-35.20
Evaluation of the Accuracy of Parametric and Non-Parametric Estimates in Kullback-Leibler Divergence in Rapid Eye Movement Sleep Estimation
Fujie, Tatsuro* *(Osaka Electro-Communication University)*; Tagawa, Munenori *(Osaka electro-communication University)*; Nakamura, Hideo *(Osaka Electro-Communication Univ)*; Umimoto, Koichi *(Osaka Electro-Communication University)*

18:00-19:30 FrPOS-35.21
GripIT: A Mobile Isometric Handgrip Test for Evaluation of Autonomic Cardiovascular Reflexes in Non-Clinical Applications
Costa, Pedro Filipe Fernandes *(Instituto Politécnico Setúbal, Escola Superior de Tecnologia de)*; Rocha, Miguel Ângelo *(IT – Instituto de Telecomunicações)*; Baptista, Ricardo *(Instituto Politécnico de Setúbal)*; Plácido da Silva, Hugo* *(IT – Instituto de Telecomunicações)*

18:00-19:30 FrPOS-35.22
A Feature-Based Approach to Quantify Motor Activity and Predict Outcomes in Critically Ill Patients
Bhattacharyay, Shubhayu* *(Johns Hopkins Univ.)*; Wang, Matthew *(Johns Hopkins Univ.)*; Rattray, John *(Johns Hopkins Univ.)*; Fredricks, Michiru *(Johns Hopkins Univ.)*; Aditya, Joshi *(Johns Hopkins Univ.)*; Etienne-Cummings, Ralph *(Johns Hopkins Univ.)*; Kudela, Pawel *(Johns Hopkins Univ.)*; Stevens, Robert *(Johns Hopkins Univ.)*

18:00-19:30 FrPOS-35.23
Auxiliary Integrated Multi-Sensor System for Medical Sensing
Rana, Srinivas *(King's College London)*; Pricci, Roberto L. *(MediWise, Medical Wireless Sensing Ltd.)*; Kosmas, Panagiotis *(Kings College London)*; Kallos, Efthymios* *(MediWise, Medical Wireless Sensing Ltd.)*

18:00-19:30 FrPOS-35.24
Low-Cost Wearable Assistive Technology Device for Visually Impaired
Gay-Torné, Júlia *(Universitat Internacional de Catalunya (UIC))*; Marimon, Xavier* *(Universitat Politècnica de Catalunya)*

18:00-19:30 FrPOS-35.25
Step Counting using a Head-Mounted Accelerometer
Cristiano, Alessia* *(San Raffaele Hospital)*; Sanna, Alberto *(San Raffaele Hospital)*; Trojaniello, Diana *(University of Sassari)*

18:00-19:30 FrPOS-35.26
Sleep Posture and Motion Detection using Depth Camera
Itoh, Yuki *(Nagaya City Univ.)*; Yokoyama, Kiyoko* *(Nagoya City Univ.)*; Umetani, Tomohiro *(Konan Univ.)*

18:00-19:30 FrPOS-35.27
Information Transmission in an Auditory Nerve Fiber Model Stimulated by a Simultaneous Pulse Rate and Amplitude-Modulated (PRAM) Waveform
Kawase, Yumeko *(Kanto Gakuin University)*; Mino, Hiroyuki* *(Kanto Gakuin University)*

18:00-19:30 FrPOS-35.28
Rapid FPGA Implementation of Independent Component Analysis for EEG Pre-Processing
Kim, Young Soo* *(Bradley Univ.)*; Sambolu, Ramya *(Bradley Univ.)*

18:00-19:30 FrPOS-35.29
Neural Recording from Rat Barrel Cortex for Brain-Machine Interface
Lee, Youjin *(Ewha Womans Univ.)*; Cho, Yoon Kyung *(Ewha Womans Univ.)*; Lee, Jee Won *(Ewha Womans Univ.)*; Kong, Chanho *(Yonsei Univ.)*; Shin, Jaewoo *(Yonsei Univ.)*; Koh, Chin Su *(Yonsei Univ.)*; Jung, Hyun Ho *(Yonsei Univ.)*; Chang, Jin Woo *(Yonsei Univ.)*; Jun, Sang Beom* *(Ewha Womans Univ.)*

18:00-19:30 FrPOS-35.30
Effect of Simultaneously Stimulating Different Ganglion Cell Types with the Same Stimulation Strategy in Epiretinal Implants
Hosseini, Maryam* *(Univ. de Sherbrooke)*; Azadmanesh, Matin *(Univ. de Sherbrooke)*; Plourde, Eric *(Univ. de Sherbrooke)*

18:00-19:30 FrPOS-35.31
Avoiding Retinal Ganglion Cell Axon Activation with Oriented Rectangular Electrodes
Tong, Wei *(Univ. of Melbourne)*; Meffin, Hamish *(National ICT Australia)*; Hejazi, Maryam *(Univ. of Melbourne)*; Stamp, Melanie *(Univ. of Melbourne)*; Garrett, David J. *(Univ. of Melbourne)*; Prawer, Steven *(Univ. of Melbourne)*; Ibbotson, Michael R* *(Australian College of Optometry)*

18:00-19:30 FrPOS-35.32
in-Vivo Characterisation of a Diamond-Based Epiretinal Prosthesis
Evans, Mihailo *(The Univ. of New South Wales)*; Garrett, David J. *(Univ. of Melbourne)*; Burns, Owen *(The Bionics Institute of Australia)*; Yeoh, Jonathan *(Centre for Eye Research Australia)*; Fox, Kate *(RMIT Univ.)*; Nayagam, David A.X. *(The Bionics Institute)*; Villalobos, Joel *(Bionics Institute)*; Sabu, Anu *(The Bionics Institute of Australia)*; Saunders, Alexia *(The Bionics Institute of Australia)*; McPhedran, Michelle *(The Bionics Institute of Australia)*; Abbott, Carla *(Centre for Eye Research Australia)*; Luu, Chi *(Centre for Eye Research Australia)*; Ganesan, Kumaravelu *(Univ. of Melbourne)*; Meffin, Hamish *(National ICT Australia)*; Prawer, Steven *(Univ. of Melbourne)*; Shepherd, Robert *(The Bionics Institute of Australia)*; Shivdasani, Mohit N.* *(Univ. of New South Wales)*

FrPOS-36: 18:00-19:30 Hall B
Research-Poster-1-Page Fr D (Poster Session)

18:00-19:30 FrPOS-36.1
Comparison between Computer and Smartphone-Based Voice Recording System to Detect Parkinson's Disease
Perez, Carlos J.* *(Univ. de Extremadura)*; Campos Roca, Yolanda *(Univ. de Extremadura)*; Madruga, Mario *(Univ. de Extremadura)*; Santiago, Diego *(Univ. de Extremadura)*

18:00-19:30 FrPOS-36.2
Modulation of Event-Related Potentials by Cognitive Inhibition of Habitual Behaviors
Kang, Jae-Hwan *(Institute for Basic Science (IBS))*; Kim, Junsuk *(Institute for Basic Science)*; Kim, Sung-Phil* *(Ulsan National Institute of Science & Technology)*

18:00-19:30 FrPOS-36.3
12-Lead ECG Feature Identification to Discriminate Different Types of Atrial Flutter
Luongo, Giorgio* *(Karlsruhe Institute of Technology)*; Schuler, Steffen *(Karlsruhe Institute of Technology (KIT))*; Doessel, Olaf *(Karlsruhe Institute of Technology (KIT))*; Loewe, Axel *(Karlsruhe Institute of Technology (KIT))*

18:00-19:30 FrPOS-36.4
Sleep Pattern Recognition via Wearable Health Devices
Fedorin, Illia* *(Samsung R&D Institute Ukraine)*; Slyusarenko, Kostyantyn *(Samsung R&D Institute Ukraine)*; Lee, Wonkyu *(Samsung Electronics)*

18:00-19:30 FrPOS-36.5
Speech Command Recognition for Dysarthric Speakers based on Deep Learning Approach: A Pilot Study
Hung, Ying-Hsiu *(National Yang-Ming Univ.)*; Chen, Ko-Chiang *(National Yang-Ming Univ.)*; Han, Ji Yan *(Yang Ming)*; Ho, Guan-Min *(APrevent Medical)*; Chang, Chia-Yuan *(APrevent Medical Inc.)*; Lai, Ying-Hui* *(National Yang-Ming Univ.)*

18:00-19:30 FrPOS-36.6
Proposal of a SSVEP-Based BCI using Stimuli with Gradually Changing Flickering Frequencies
Yagi, Jin* *(Meijo Univ.)*; Mukai, Toshiharu *(Meijo Univ.)*

18:00-19:30 FrPOS-36.7
Feature Selection for Emotional State Identification based on Electroencephalogram
Yu, Sung-Nien* *(National Chung Cheng University)*; Lin, Wei-Ren *(National Chung Cheng University)*

18:00-19:30 FrPOS-36.8
Valence and Arousal Attributes in Emotional State Identification based on Photoplethysmogram
Yu, Sung-Nien* *(National Chung Cheng University)*; Lee, Chi-Chih *(National Chung Cheng University)*

18:00-19:30 FrPOS-36.9
Feasibility Study for Asynchronous Communication with Eyes
Chang, Won-Du* *(Tongmyong University)*; Cha, Ho-Seung *(Hanyang University)*; Im, Chang-Hwan *(Hanyang University)*

18:00-19:30 FrPOS-36.10
A Deep Learning Approaches for Pathological Voice Detection using Gender Analysis Methods
Lee, JiYeoun* *(Jungwon University)*; Choi, Hee-Jin *(Korea Advanced Institute of Science & Technology)*

18:00-19:30 FrPOS-36.11
A Study of Personal Identification Method based on EMG Signal
Lu, Lijing *(Institute of Automation, Chinese Academy of Sciences)*; Mao, Jingna* *(Chinese Academy of Sciences)*; Wang, Wuqi *(Institute of Automation, Chinese Academy of Sciences)*; Ding, Guangxin *(IACAS)*; Zhang, Zhiwei *(Institute of Automation, Chinese Academy of Sciences)*

18:00-19:30 FrPOS-36.12
Low-Complexity Data-Driven Seizure Detection Algorithm for Home Monitoring of Patients with Epilepsy using Wearable EEG
Dan, Jonathan* *(KU Leuven)*; Vandendriessche, Benjamin *(Case Western Reserve Univ.)*; Weckhuysen, Dorien *(KU Leuven)*; Van Paesschen, Wim *(Katholieke Univ. Leuven)*; Bertrand, Alexander *(KU Leuven, Univ. of Leuven)*

18:00-19:30 FrPOS-36.13
Estimation of Unified Parkinson's Disease Rating Scale III: A Sensor-Type Selection Study
Murtadha, Hssayeni *(Florida Atlantic Univ.)*; Shahed, Joohi *(Dept. of Neurology, Baylor College of Medicine)*; Burack, Michelle *(Univ. of Rochester)*; Ghoraani, Behnaz* *(Florida Atlantic Univ.)*

18:00-19:30 FrPOS-36.14
Preliminary Study: Person Identification using Multi-Channel ECG Measured on the Chest
Lee, Dongseok *(Seoul National University)*; Kim, Jeehoon *(Seoul National University)*; Kwon, Hyunbin *(Seoul National University)*; Park, Kwang S.* *(Seoul National University)*

18:00-19:30 FrPOS-36.15
K-NN Verses GMM for Neonatal EEG Multi-Event Classification
Murphy, Brian Michael *(Univ. College Cork)*; Boylan, Geraldine *(Univ. College Cork)*; Lightbody, Gordon *(Univ. College Cork)*; Marnane, William* *(Univ. College Cork)*

18:00-19:30 FrPOS-36.16
The Influence of Fetal Movement to Fetal QRS Complex Morphology
Weiß, Jonas* *(TU Dresden)*; Zaunseder, Sebastian *(Dortmund Univ. of Applied Sciences & Arts)*; Schmidt, Martin *(TU Dresden)*

18:00-19:30 FrPOS-36.17
Sleep Staging with a Wearable Respiratory Signal Adapted to an Inductance Plethysmography-Based Deep Learning Model
Ganglberger, Wolfgang* *(Massachusetts General Hospital)*; Sun, Haoqi *(Massachusetts General Hospital)*; Tesh, Ryan *(Massachusetts General Hospital (MGH))*; Panneerselvam, Ezhil *(Massachusetts General Hospital, Harvard)*; Paixao, Luis *(Massachusetts General Hospital)*; Leone, Michael *(Massachusetts General Hospital)*; Quadri, Syed *(Dept. of Neurology, Massachusetts General Hospital, Harvard)*; Thomas, Robert Joseph *(Beth Israel Deaconess Medical Center)*; Kuller, David Thomas *(MyAir llc)*; Westover, Brandon *(Massachusetts General Hospital)*

18:00-19:30 FrPOS-36.18
EEG-ECG Fusion-Based Multi-Modal Personal Authentication Algorithm using Deep Learning Methods
Kim, Jeehoon *(Seoul National Univ.)*; Lee, Dongseok *(Seoul National Univ.)*; Sung, Dongsuk *(Seoul National Univ.)*; Kim, Jason *(Korea Internet & Security Agency)*; Park, Kwang S.* *(Seoul National Univ.)*

18:00-19:30 FrPOS-36.19
Bio-Signal Feature Selection using Genetic Algorithm for Sleep Status Analysis
Lee, JeeEun *(YonSei Univ.)*; Kim, HanBit *(Yonsei Univ.)*; Yoo, Sun K.* *(Yonsei Univ. Health System)*

18:00-19:30 FrPOS-36.20
Experimental Study of the Patient-Specific Airway Occlusion of an Obstructive Sleep Apnea Patient using Silicone Models
Arnold, Marleen* *(University of Wuppertal)*; Burgmann, Sebastian *(University of Wuppertal)*; Bonitz, Lars *(Dortmund General Hospital)*; Pugachev, Alexander *(CADFEM Medical GmbH)*; Janoske, Uwe *(University of Wuppertal)*

18:00-19:30 FrPOS-36.21
An Interpenetrating, Patternable Conducting Polymer Hydrogel Covalently Bonded to Gold for Electrically Tuneable Drug Delivery
Bansal, Mahima* *(Univ. of Auckland)*; Aqrawe, Zaid *(Univ. of Auckland)*; Montgomery, Johanna *(The Univ. of Auckland, Centre for Brain Research)*; Wu, Zimei *(Univ. of Auckland)*; Svirskis, Darren *(The Univ. of Auckland, School of Pharmacy)*

18:00-19:30 FrPOS-36.22
A 3D Diamond Electrode Array for High Acuity Stimulation in Retinas
Stamp, Melanie* *(Univ. of Melbourne)*; Tong, Wei *(Univ. of Melbourne)*; Ganesan, Kumaravelu *(Univ. of Melbourne)*; Ibbotson, Michael R *(Australian College of Optometry)*; Prawer, Steven *(Univ. of Melbourne)*; Garrett, David J. *(Univ. of Melbourne)*

18:00-19:30 FrPOS-36.23
An Dual-Mode Antenna for Implantable Neurostimulators
Feng, Yuan *(Tsinghua Univ.)*; Ma, Bozhi *(Tsinghua Univ.)*; Hao, Hongwei *(Tsinghua Univ.)*; Li, Luming* *(Tsinghua Univ.)*

18:00-19:30 FrPOS-36.24
A Novel Tuning Method of the Resonance Coupling Wireless Power Transfer for Implantable Medical Devices
Minemura, Kohei* *(Tokyo City Univ.)*; Tatsuta, Masahiro *(Tokyo City Univ.)*; Yamamoto, Arata *(Tokyo City Univ.)*; Kyoso, Masaki *(Tokyo City Univ.)*; Shimatani, Yuichi *(Tokyo City Univ.)*

18:00-19:30 FrPOS-36.25
Factors Affecting Electrical Characteristics of Implanted Receiver Coils for the Resonance Coupling Wireless Power Transmission in the Living Body
Yamamoto, Arata* *(Tokyo City Univ.)*; Minemura, Kohei *(Tokyo City Univ.)*; Tatsuta, Masahiro *(Tokyo City Univ.)*; Shimatani, Yuichi *(Tokyo City Univ.)*; Kyoso, Masaki *(Tokyo City Univ.)*

18:00-19:30 FrPOS-36.26
Characteristic Evaluation of Flexible Film Material for a Wearable Device by Image-Based Method
Toyoshi, Takuya* *(Ritsumeikan University)*; Shiozawa, Naruhiro *(Ritsumeikan University)*

18:00-19:30 FrPOS-36.27
Sleep Stage Prediction Model by using Electrocardiogram Measured by Smart Wear in Field Test
Matsumoto, Hirotaka* *(Ritsumeikan University)*; Okada, Shima *(Ritsumeikan University)*; Shiozawa, Naruhiro *(Ritsumeikan University)*; Makikawa, Masaaki *(Ritsumeikan University)*

18:00-19:30 FrPOS-36.28
Development of Underwear-Type Electrocardiogram Measurement System
Goto, Daisuke* *(Ritsumeikan University)*; Nakatani, Minori *(Ritsumeikan University)*; Toyoshi, Takuya *(Ritsumeikan University)*; Shiozawa, Naruhiro *(Ritsumeikan University)*

18:00-19:30 FrPOS-36.29
Classification of Seated Postures by a Backrest Capacitive Pressure Sensor
Ho, Jong Gab *(SoonChunHyang Univ.)*; Kim, Young *(SoonChunHyang Univ.)*; Min, Se Dong* *(SoonChunHyang Univ.)*

18:00-19:30 FrPOS-36.30
Locally Operated Master-Slave Control System with Forceps Insertable Portable Operating Device for Laparoscopic Surgery
Karino, Hideyuki* *(Osaka Institute of Technology)*; Kawai, Toshikazu *(Osaka Institute of Technology)*; Nishizawa, Yuji *(Dept. of Gastroenterological Surgery, Faculty of Medicine,)*; Nishikawa, Atsushi *(Osaka University)*; Iwamoto, Noriyasu *(Shinshu University)*; Horise, Yuki *(Tokyo Women's Medical University)*; Masamune, Ken *(The University of Tokyo)*

18:00-19:30 FrPOS-36.31
Forceps Manipulator with Circular Ring Guided Rail and Linear Guide Roller for Laparoscopic Surgery
Sasaki, Ayumu* *(Osaka Institute of Technology)*; Amemori, Hiroki *(Osaka Institute of Technology)*; Kawai, Toshikazu *(Osaka Institute of Technology)*; Nishikawa, Atsushi *(Osaka Univ.)*; Nishizawa, Yuji *(Dept. of Gastroenterological Surgery, Faculty of Medicine,)*; Nakamura, Tatsuo *(Kyoto Univ.)*

18:00-19:30 FrPOS-36.32
Image Recognition of Surgical Tool in Working Area for Laparoscope Robot Control
Nishimura, Fumiaki* *(Osaka Institute of Technology)*; Nakasuji, Hisa *(Osaka Institute of Technology)*; Kawai, Toshikazu *(Osaka Institute of Technology)*; Nishikawa, Atsushi *(Osaka University)*; Iwamoto, Noriyasu *(Shinshu University)*; Nishizawa, Yuji *(Dept. of Gastroenterological Surgery, Faculty of Medicine,)*; Nakamura, Tatsuo *(Kyoto University)*

18:00-19:30 FrPOS-36.33
Development of Bending Assist System with SMA Coil for Endoscopic Surgical Robot
Goto, Toshiya* *(Shibaura Institute of Technology)*; Hanafusa, Akihiko *(Shibaura Institute of Technology)*; Suzuki, Naoki *(The Jikei University School of Medicine)*; Hattori, Asaki *(The Jikei University School of Medicine)*

18:00-19:30 FrPOS-36.34
Modeling and Force Analysis of Cable Conduit System
Choi, Jinwoo *(Korea Univ.)*; Hong, Daehie* *(Korea Univ.)*

18:00-19:30 FrPOS-36.35
BioGears Model to Estimate Glycogen Depletion and Blood Glucose Levels for Diabetic Patients during Simulated Exercise
Baird, Austin* *(Applied Research Associates)*; Tatum, Nathan *(ARA)*; White, Steven A *(Applied Research Associates)*; McDaniel, Matthew *(Applied Research Associates)*; Marin, Lucas *(Applied Research Associates)*; Carter, Jennifer *(Applied Research Associates, Inc.)*

18:00-19:30 FrPOS-36.36
Predicting Deep Brain Stimulation Success from Preoperative Markers using Machine Learning in Parkinson's Disease
Habets, Jeroen* *(Maastricht Univ.)*; Janssen, Mark *(Dept. of Neurophysiology, Maastricht Univ. Medical Cen)*; Duits, Annelien *(Dept. of Neuropsychology, Maastricht Univ. Medical Cen)*; De Greef, Bianca *(Clinical Epidemiology & Medical Technology Assessment, Maastri)*; Temel, Yasin *(Dept. of Neurosurgery, Maastricht Univ. Medical Center)*; Kuijf, Mark *(Maastricht Univ. Medical Center)*; Kubben, Pieter Leonard *(Maastricht Univ. Medical Center)*; Herff, Christian *(Maastricht Univ.)*

18:00-19:30 FrPOS-36.37
Prediction of Eight-Year Risk of Breast Cancer in Koreans
Choi, Sung Hyouk *(Dept. of Biomedical Engineering, Seoul National University)*; Park, Minseon *(Seoul National University Hospital)*; Yoon, Hyung-Jin* *(Seoul National University)*

18:00-19:30 FrPOS-36.38
The Proposal of a New Diagnostic Criterion for Schizophrenia Focused on an Abnormal Sense of Agency
Murata, Yuuki *(the Dept. of Computer & Information Sciences, Tokyo Univ.)*; Yano, Shiro *(Tokyo Univ. of Agriculture & Technology)*; Kondo, Toshiyuki* *(Tokyo Univ. of Agriculture & Technology)*; Maeda, Takaki *(Keio Univ. School of Medicine)*

18:00-19:30 FrPOS-36.39
The Effects of Transcranial Ultrasound Stimulation of the Prefrontal Cortex on Sleep in Freely Moving Mice
Jo, Yehhyun *(KAIST)*; Kim, Seongyeon *(Korea Advanced Institute of Science & Technology (KAIST))*; Kim, Hyunggug *(KAIST)*; Lee, Sang-Mok *(KAIST)*; Lee, Hyunjoo Jenny* *(Korea Advanced Institute of Science & Technology (KAIST))*

18:00-19:30 FrPOS-36.40
Bolt-Clamped Ultrasonic Transducer Design for Fat Emulsification via Equivalent Circuit Model
Kim, JinHyuk *(Kwangwoon University)*; Lee, Jungwoo* *(Kwangwoon University)*

18:00-19:30 FrPOS-36.41
Miniaturized Capacitive Micromachined Ultrasound Transducer Arrays for Personalized Medicine
Baum, Mario* *(Fraunhofer ENAS)*; Saeidi, Nooshin *(Technical University of Chemnitz)*; Wiemer, Maik *(Fraunhofer ENAS)*; Otto, Thomas *(Fraunhofer ENAS)*

18:00-19:30 FrPOS-36.42
Focused Ultrasound Improves Adult Hippocampal Neurogenesis and Cognitive Function in a Cholinergic Degeneration
Shin, Jaewoo* *(Yonsei University)*; Kong, Chanho *(Yonsei University)*; Lee, Jihyeon *(Yonsei University)*; Chang, Won Seok *(Yonsei University)*; Chang, Jin Woo *(Yonsei University)*

18:00-19:30 FrPOS-36.43
Novel Calibration Algorithm against Convection Changes for Non-Invasive Measurement of Core Body Temperature
Matsunaga, Daichi* *(NTT Device Technology Labs)*; Tanaka, Yujiro *(NTT Device Technology Labs.)*; Seyama, Michiko *(NTT Device Technology Labs)*

18:00-19:30 FrPOS-36.44
Microwave Radiometer for Noninvasive Temperature Measurement of Internal Body
Chiu, Chien wen* *(National Ilan Univ.)*; Zheng, Mao Sheng *(Dept. of Electronic Engineering, National Ilan Univ.)*; Gong, Jian Y. *(Dept. of Electronic Engineering, National Ilan Univ.)*

18:00-19:30 FrPOS-36.45
A Detailed Thermal Characterization of the Hand with Attention to Heat Flux
Subramanian, Arjun *(National Univ. of Singapore)*; Bandla, Aishwarya* *(National Univ. of Singapore)*; Veluru, Jagadeesh Babu *(Singapore Institute of Manufacturing Technology, A*STAR)*; Palanisamy, Mohankumar *(National Univ. of Singapore)*; Hey, Jonathan Heng Kiat *(SIMTech, Agency for Science, Technology & Research)*; Sundar, Raghav *(National Univ. Health System)*; Thakor, Nitish *(National Univ. of Singapore)*; Ramakrishna, Seeram *(National Univ. of Singapore)*; He, Wei *(Singapore Institute of Manufacturing Technology, A*STAR)*

FrPOS-37: 18:00-19:30 Hall B
Research-Poster-1-Page Fr E (Poster Session)

18:00-19:30 FrPOS-37.1
Continuous Blood Pressure Signal Modeling based on Deep Learning Method and a Physiological Mathematical Model
Kim, Youmin *(Gachon Univ.)*; Kang, JunHyuk *(Gachon Univ.)*; Cho, Jinwoo *(Gachon Univ.)*; Choi, Ahyoung* *(Gachon Univ.)*

18:00-19:30 FrPOS-37.2
Parameter Optimization in Ensemble Empirical Mode Decomposition Applied to Electrogastrography
Tatsuta, Masahiro* *(Tokyo City University)*; Minemura, Kohei *(Tokyo City University)*; Yamamoto, Arata *(Tokyo City University)*; Kyoso, Masaki *(Tokyo City University)*

18:00-19:30 FrPOS-37.3
Decomposition of Electrical Cochlear Response using Different EMD Algorithms for the Reduction of Signal Artifacts
Castaneda-Villa, Norma* *(Universidad Autónoma Metropolitana-Izt)*; Granados Trejo, María del Pilar *(Universidad Autónoma Metropolitana-Iztapalapa)*; Cornejo-Cruz, Juan Manuel *(Universidad Autonoma Metropolitana)*

18:00-19:30 FrPOS-37.4
Investigation of EEG Activity in the Different Events during Playing Game
Tahara, Ayumi* *(Kyushu Univ.)*; Nakphu, Nonthaporn *(Kyushu Univ.)*; Le Thi Cam, Van *(KYUSHU Univ.)*; Kaewlee, Thitikorn *(Dept of Biomedical Engineering)*; Wongsawat, Yodchanan *(Mahidol Univ.)*; Iramina, Keiji *(Kyushu Univ., Japan)*

18:00-19:30 FrPOS-37.5
Combining Adaptive Hermite and Sigmoid Functions with Piecewise Polynomial Interpolation for ECG Beat Representation
Boeck, Carl* *(Johannes Kepler University Linz)*; Kovács, Péter *(Johannes Kepler University)*; Meier, Jens *(Kepler University Linz)*; Huemer, Mario *(Johannes Kepler University)*

18:00-19:30 FrPOS-37.6
Decreased Post-Occlusion Reactive Hyperemia in Sole Microcirculation in Patients with Diabetes Mellitus
Wang, Jia-Jung* *(I-Shou University)*; Liu, Shing-Hong *(Chaoyang University of Technology, Taichung, Taiwan, ROC)*; Su, Xuan-Hao *(I-Shou University)*; Tseng, Wei-Kung *(Dept. of Cardiology, E-Da Hospital)*

18:00-19:30 FrPOS-37.7
Predicting Heart Failure Adverse Events using Telemonitoring Data
O'Donnell, Johanna* *(University of Oxford)*; Velardo, Carmelo *(University of Oxford)*; Rahimi, Kazem *(University of Oxford)*; Tarassenko, Lionel *(University of Oxford)*

18:00-19:30 FrPOS-37.8
Prosodic Features of Speech in Children with Autism
Eni, Marina* *(Ben-Gurion Univ. of the Negev)*; Dinstein, Ilan *(Ben Gurion Univ.)*; Zigel, Yaniv *(Ben-Gurion Univ. of the Negev)*

18:00-19:30 FrPOS-37.9
Diagnosis of Major Depression using Cross-Frequency Coupling
Colic, Sinisa* *(McMaster University)*; Flor-Henry, Pierre *(Alberta Hospital Edmonton)*; Lind, John C. *(University of Alberta)*; Chu, Justin *(University of Toronto)*; Reilly, James *(McMaster University)*; Hasey, Gary *(McMaster University)*

18:00-19:30 FrPOS-37.10
Proposal of a Method for Measuring Pulse Transit Time using a Tactile Sensor
Nonoyama, Taro* *(Meijo University)*; Ogishi, Yudai *(Meijo University)*; Mukai, Toshiharu *(Meijo University)*

18:00-19:30 FrPOS-37.11
Relationship between Sleep Stage and Head Motion
Yoshihi, Motoki* *(Ritsumeikan Univ., College of Science & Engineering)*; Okada, Shima *(Ritsumeikan Univ.)*; Nochino, Teruaki *(Osaka Univ.)*; Makikawa, Masaaki *(Ritsumeikan Univ.)*

18:00-19:30 FrPOS-37.12
Tracing Rhythmic Regularity Processing in EEG and MEG
Brandl, Stephanie* *(Berlin Institute of Technology)*; Haumann, Niels Trusbak *(Aarhus University)*; Brattico, Elvira *(Aarhus University)*; Vuust, Peter *(Aarhus University)*; Grube, Manon *(Berlin Institute of Technology)*

18:00-19:30 FrPOS-37.13
Fluctuations of Hemodynamic Global Signal are Correlated with Vigilance States in Middle-Aged and Older Adults: A Simultaneous EEG and fNIRS Study
Chen, Yuxuan *(Univ. of Oklahoma)*; Roque, Jesse *(Univ. of Oklahoma)*; Tang, Julia *(Univ. of Oklahoma)*; Craft, Melissa *(The Univ. of Oklahom)*; Carlson, Barbara *(The Univ. of Oklahom)*; Yuan, Han* *(Univ. of Oklahoma)*

18:00-19:30 FrPOS-37.14
Frequency Identification for Epileptic Spike Detection by Linear-Phase Constrained Convolutional Neural Network
Fukumori, Kosuke *(Tokyo Univ. of Agriculture & Technology)*; Yoshida, Noboru *(Juntendo Univ. Nerima Hospital)*; Tanaka, Toshihisa* *(Tokyo Univ. of Agriculture & Technology)*

18:00-19:30 FrPOS-37.15
Motion Artifact Correction of Photoplethysmogram (PPG) Signal using Advanced Wavelet based Method
Arora, Rahul* *(Samsung R&D Institute India Bangalore)*; Sujit, Jos *(Samsung Research India-Bangalore)*; Abdul Majeed, Ibrahim *(Samsung R&D India – Bangalore)*; Karam, Choi *(Samsung Advanced Institute of Technology)*; Bae, Sang Kon *(Samsung Advanced Inst of Tech)*

18:00-19:30 FrPOS-37.16
EEG Analysis Towards Evaluating Synthesized Speech Quality
Halim Parmonangan, Ivan* *(Nara Institute of Science & Technology)*; Tanaka, Hiroki *(Nara Institute of Science & Technology)*; Sakriani, Sakti *(Nara Institute of Science & Technology)*; Takamichi, Shinnosuke *(The Univ. of Tokyo)*; Satoshi, Nakamura *(Nara Institute of Science & Technology)*

18:00-19:30 FrPOS-37.17
The EEG Band Analysis for Comparing Attentional State of Elderly People in Different Web Environments
Kim, Wooseop *(The Seongnam Senior Experience Complex, Eulji Univ.)*; Shin, Young Seok *(Eulji Univ.)*; Jung, Duk Young* *(The Seongnam Senior Experience Complex, Eulji Univ.)*

18:00-19:30 FrPOS-37.18
Behavioral Analysis of Steroid Hormone-Treated Mouse by Automated Long-Term Overnight Continuous Measurement
Kasai, Ririko *(Keio University)*; Mitsukura, Yasue* *(Keio University)*; Hamada, Nozomu *(Keio University)*

18:00-19:30 FrPOS-37.19
Stroke Status Prediction with Imbalanced Demographic, Lifestyle and Biomarkers Data using Machine-Learning Models
Chan, Kei Hang Katie* *(City University of Hong Kong / Brown University)*; Liu, Jundong *(City University of Hong Kong)*

18:00-19:30 FrPOS-37.20
A Knowledge base for Human Motor Brain Circuitry
Wittenberg, George* *(University of Pittsburgh)*; Bocan, Kara *(University of Pittsburgh)*; Roy, Souvik *(University of Pittsburgh)*; Miskov-Zivanov, Natasa *(University of Pittsburgh)*

18:00-19:30 FrPOS-37.21
Single Cell Acoustic Trap using an Array Transducers
lim, Hae Gyun *(Pohang University of Science & Technology)*; Kim, Hyung Ham *(Pohang University of Science & Technology)*; Yoon, Changhan* *(Inje University)*

18:00-19:30 FrPOS-37.22
Semantic Segmentation of Echocardiography for Diagnosis of Heart Failure with Preserved Ejection Fraction
Chiou, Yu-An *(National Chiao Tung Univ.)*; Lin, Shien-Fong* *(National Chiao Tung Univ.)*; Hung, Chung-Lieh, Chung-Lieh *(Division of Cardiology, Dept. of Internal Medicine, Mackay)*

18:00-19:30 FrPOS-37.23
Discrete Morphometric Analysis by Echocardiography in Trypanosoma Cruzi Infection
Hevia-Montiel, Nidiyare *(Univ. Nacional Autonoma de Mexico)*; Parra-Castaneda, Natalia* *(Proyecto Savia, Formación Temprana de Científicos, SIIES)*; Carrillo-Bermejo, Angel *(Univ. Nacional Autónoma de México)*; Haro, Paulina *(CONACYT-Centro de Investigaciones Regionales Dr. Hideyo Noguchi,)*; Perez-Gonzalez, Jorge *(Univ. Nacional Autonoma de Mexico)*; Molino-Minero-Re, Erik *(Instituto de Investigaciones en Matemáticas Aplicadas y en Siste)*

18:00-19:30 FrPOS-37.24
Ultrasound Echo and Photoacoustic Vectorial Doppler Tissue Motion and Blood Flow Imaging
Sumi, Chikayoshi* *(Sophia University)*

18:00-19:30 FrPOS-37.25
Ultrasound Shear-Wave and Machine Learning for Muscle Contusion Assessment and Classification
Huang, Da-Ming *(National Cheng Kung University)*; Wang, Shyh-Hau* *(National Cheng Kung University)*

18:00-19:30 FrPOS-37.26
Machine Learning Approach to Needle Insertion Site Identification for Neuraxial Anaesthesia in Obese Patients
Ma, Jun *(National Univ. of Singapore)*; Leng, Yusong *(National Univ. of Singapore)*; Ng, Cailin* *(NUS)*; Ikhsan, Mohammad *(National Univ. of Singapore)*; Tan, Kok Kiong *(National Univ. of Singapore)*; Chan, Jason Ju In *(KK Women's & Children's Hospital)*; Sia, Alex Tiong Heng *(KK Women's & Children's Hospital)*; Sng, Ban Leong *(KK Women's & Children's Hospital)*

18:00-19:30 FrPOS-37.27
Improvement of Tissue Harmonic Imaging using Hankel SVD
Kim, Yeongdae* *(Dept. of Electrical Engineering, Sogang University)*; Yeo, Sunmi *(Sogang University, Electronic Engineering)*; Chung, Euisuk *(Sogang Univ.)*; Jang, Jintae *(Sogang University)*; Song, Tai-Kyong *(Sogang University)*

18:00-19:30 FrPOS-37.28
Real-Time Ultrasound/Photoacoustic Imaging System and Its in Vitro/in-Vivo Applications
Liao, Lun-De* *(National Health Research Institutes, Taiwan.)*

18:00-19:30 FrPOS-37.29
Ultra Wide-Field Acoustic-Resolution Photoacoustic Microscopy based on High-Speed MEMS Scanning
Baik, Jin Woo *(Pohang Univ. of Science & Technology)*; Kim, Jin Young *(POSTECH)*; Cho, Seonghee *(Pohang Univ. Science & Technology)*; Choi, Seongwook *(Pohang Univ. of Science & Technology)*; Kim, Jongbeom *(POSTECH)*; Kim, Chulhong* *(Pohang Univ. of Science & Technology)*

18:00-19:30 FrPOS-37.30
High-Speed and Label-Free Intraoperative Histology by MEMS-Based Photoacoustic Microscopy
Kim, Hyojin *(POSTECH)*; Baik, Jin Woo *(Pohang University of Science & Technology)*; Kim, Jin Young *(POSTECH)*; Son, Myeongjoo *(College of Medicine, Gachon University)*; Byun, Kyunghee *(College of Medicine, Gachon University)*; Ryu, Seon Young *(Panovision Co. Ltd.)*; Kim, Chulhong* *(Pohang University of Science & Technology)*

18:00-19:30 FrPOS-37.31
A Feasibility Study of an X-Ray Induced Acoustic Imaging System for a Low-Dose X-Ray Absorption Contrast Imaging
Park, Eunyeong *(Pohang University of Science & Technology (POSTECH))*; Park, Kyungjin *(Pohang University of Science & Technology)*; Lee, Donghyun *(POSTECH)*; Choi, Seongwook *(Pohang University of Science & Technology)*; Kim, Hyeongsub *(POSTECH)*; Kim, Jong Hyun *(Pohang Accelerator Laboratory)*; Kim, Chulhong* *(Pohang University of Science & Technology)*

18:00-19:30 FrPOS-37.32
Needle Detection and Quality Enhancement in Ultrasound Images
García-Berná, José Alberto* *(University of Murcia)*; Kim, Denisse M. *(University of Murcia)*; García-Mateos, Ginés *(University of Murcia)*; Carrillo de Gea, Juan Manuel *(University of Murcia)*; Fernandez Aleman, Jose Luis *(University of Murcia)*; Hosni, Mohamed *(ENSIAS, Mohammed V University)*; Idri, Ali *(Mohammed V University Rabat)*

18:00-19:30 FrPOS-37.33
Automatic Identification of the Juxtaluminal Hypoechoic Black Area in B-Mode Ultrasound Images of Carotid Plaque
Dalakleidi, Kalliopi* *(National Technical Univ. of Athens)*; Golemati, Spyretta *(National Kapodistrian Univ. of Athens)*; Lekkas, Konstantinos *(National Technical Univ. of Athens)*; Xenikou, Monika Filitsa *(National Technical Univ. of Athens)*; Liapis, Christos *(National Kapodistrian Univ. of Athens)*; Nikita, Konstantina *(National Technical Univ. of Athens)*

18:00-19:30 FrPOS-37.34
Carotid Plaque Motion Characterization using Ultrasound Video
Kyriacou, Efthyvoulos* *(Frederick Univ. Cyprus)*; Pattichis, Constantinos *(Univ. of Cyprus)*; Pattichis, Marios *(Univ. of New Mexico,)*; Nicolaides, Andrew *(Imperial College)*

18:00-19:30 FrPOS-37.35
Simple Evaluation of Cerebral Artery Occlusion by Pulse Wave Measurement using a Piezoelectric Sensor
Itai, Natsuko* *(Doshisha University)*; Tsurusaki, Ryo *(Doshisha University)*; Matsukawa, Mami *(Doshisha University)*; Saito, Kozue *(Nara Medical University)*; Yamagami, Hiroshi *(National Cerebral & Cardiovascular Center)*; Nagatsuka, Kazuyuki *(National Cerebral & Cardiovascular Center)*

18:00-19:30 FrPOS-37.36
Formulas to Explain Popular Oscillometric Blood Pressure Estimation Methods
Chandrasekhar, Anand *(Indian Institute of Technology Madras)*; Yavarimanesh, Mohammad *(Michigan State Univ.)*; Hahn, Jin-Oh *(Univ. of Maryland)*; Sung, Shih-Hsien *(Taipei Veterans General Hospital)*; Chen, Chen-Huan *(National Yang-Ming Univ.)*; Cheng, Hao-Min *(Taipei Veterans General Hospital)*; Mukkamala, Ramakrishna* *(Michigan State Univ.)*

18:00-19:30 FrPOS-37.37
A Deconvolution Method for Perfusion Imaging under Ongoing Ventilation using Electrical Impedance Tomography
Hentze, Benjamin* *(RWTH Aachen University)*; Muders, Thomas *(Dept. of Anaesthesiology & Intensive Care Medicine, Unive)*; Walter, Marian *(RWTH Aachen University)*; Putensen, Christian *(Dept. of Anaesthesiology & Intensive Care Medicine, Unive)*; Leonhardt, Steffen *(RWTH Aachen University)*

18:00-19:30 FrPOS-37.38
A Formula to Relate Pulse Wave Velocity to Blood Pressure
Yavarimanesh, Mohammad *(Michigan State University)*; Chandrasekhar, Anand *(Indian Institute of Technology Madras)*; Hahn, Jin-Oh *(University of Maryland)*; Mukkamala, Ramakrishna* *(Michigan State University)*

18:00-19:30 FrPOS-37.39
Modelling the Pre and Post-Operative Hepatic Arterial Hemodynamics in Living Liver Donor
Ma, Renfei* *(University of Auckland)*; Hunter, Peter *(University of Auckland)*; Ho, Harvey *(University of Auckland)*; Safaei, Soroush *(University of Auckland)*

18:00-19:30 FrPOS-37.40
Advanced Modeling Approaches and Big Data in a Multimodal Strategy for the Stratification of Carotid Artery Disease
Mantzaris, Michalis *(Unit of Medical Technology & Intelligent Information Systems,)*; Potsika, Vassiliki *(Unit of Medical Technology & Intelligent Information Systems,)*; Siogkas, Panagiotis *(Forth-IMBB)*; Pappas, Ioannis *(Biomedical Engineering Laboratory, ICCS, National Technical Univ)*; Exarchos, Themis P. *(Unit of Medical Tech & Intelligent Info)*; Koncar, Igor *(Clinic for Vascular & Endovascular Surgery, Serbian Clinical C)*; Pelisek, Jaroslav *(Dept. for Vascular & Endovascular Surgery, Klinikum recht)*; Andreakos, Evangelos *(Laboratory of Immunobiology, Center for Clinical, Experimental S)*; Fotiadis, Dimitrios I.* *(University of Ioannina)*

18:00-19:30 FrPOS-37.41
Computational Fluid Dynamics of Blood Flow at the Left Atrium Appendage
Grigoriadis, Grigoris *(University of Ioannina)*; Sakellarios, Antonis* *(Forth-Biomedical Research Institute)*; Naka, Katerina *(University of Ioannina)*; Kosmidou, Ioanna *(Columbia University Medical Center)*; Ellis, Christopher *(Vanderbilt University Medical Center)*; Michalis, Lampros *(University of Ioannina)*; Fotiadis, Dimitrios I. *(University of Ioannina)*

18:00-19:30 FrPOS-37.42
Achieving Finger Photoplethysmogram Reliability in the High NIR Water Absorption Band via Optimisation of Applied Pressure
Harada, Atsuhiro* *(Fukuoka Institute of Tech.)*; Lee, Jihyoung *(Fukuoka Institute of Tech.)*; Rolfe, Peter *(Oxford BioHorizons Ltd)*; Kusaba, Shihori *(Fukuoka Institute of Tech.)*; Kabashima, Shogo *(Fukuoka Institute of Tech., Fukuoka, Japan)*; Shibata, Masahiro *(Shibaura Institute of Tech.)*; Yamakoshi, Takehiro *(Fukuoka Institute of Tech.)*

FrPOS-38: 18:00-19:30 Hall B
Research-Poster-1-Page Fr F (Poster Session)

18:00-19:30 FrPOS-38.1
Transmission Characteristics of Electrode Arrangement in Human Body Communication
Mochizuki, Kanta* *(Tokyo Polytechnic Univ.)*; Koshiji, Fukuro *(Tokyo Polytechnic Univ.)*; Koshiji, Kohji *(Tokyo Univ. of Science)*

18:00-19:30 FrPOS-38.2
Hospitalized Patient Monitoring of Indirect Instantaneous Blood Pressure in Dorsalis Pedis Artery based on the Volume-Compensation Method
Yamakoshi, Yasuhiro* *(Showa University School of Medicine)*; Lee, Jihyoung *(Fukuoka Institute of Technology)*; Yamakoshi, Takehiro *(Fukuoka Institute of Technology)*; Rolfe, Peter *(Oxford BioHorizons Ltd)*; Motoi, Kosuke *(Shizuoka Institute of Science & Technology)*; Shibata, Masahiro *(Shibaura Institute of Technology)*; Yamakoshi, Ken-ichi *(Kanazawa University)*

18:00-19:30 FrPOS-38.3
An Interference Mitigation Method of Body Area Network for Medical and Healthcare Application
Tanaka, Hirokazu* *(Hiroshima City University)*; Yamanaka, Masaaki *(Japan Coast Guard Academy)*

18:00-19:30 FrPOS-38.4
IMU-Based Joint Kinematics for Connected Segments
Weygers, Ive* *(KU Leuven)*; Kok, Manon *(Delft University of Technology)*; De Vroey, Henri *(KU Leuven)*; Hallez, Hans *(KU Leuven)*; Versteyhe, Mark *(KU Leuven)*; Claeys, Kurt *(Dept. of Rehabilitation Sciences – KU Leuven Campus Bruges)*

18:00-19:30 FrPOS-38.5
Experimental Results on a Real-Time Vital Data Collection from a Group of Persons making a Variety of Exercises
Hamagami, Takuma* *(Oki Electric Industry Co., Ltd.)*; Kawamoto, Yasukata *(Oki Electric Industry Co., Ltd.)*; Yomo, Hiroyuki *(Kansai Univ.)*; Miyamoto, Ryusuke *(Meiji Univ.)*; Shimazaki, Takunori *(Osaka City Univ.)*; Okuhata, Hiroyuki *(Soliton Systems K.K.)*; Hara, Shinsuke *(Osaka City Univ.)*

18:00-19:30 FrPOS-38.6
Interference Prediction at 2.4GHz ISM Band for Reliable Signal Transmission in Medical BAN using Machine Learning
Yamanaka, Masaaki* *(Japan Coast Guard Academy)*; Tanaka, Hirokazu *(Hiroshima City University)*

18:00-19:30 FrPOS-38.7
Cross-Layer Evaluation of ETSI SmartBAN PHY and MAC
Takabayashi, Kento* *(Okayama Prefectural University)*; Tanaka, Hirokazu *(Hiroshima City University)*; Sakakibara, Katsumi *(Okayama Prefectural University)*

18:00-19:30 FrPOS-38.8
Parabolic Antenna Comprising a Multilayered Printed Circuit Board for Heartbeat and Respiration Sensing
Matsuo, Yoshiki* *(Tokyo Polytechnic Univ.,)*; Koshiji, Fukuro *(Tokyo Polytechnic Univ.)*; Koshiji, Kohji *(Tokyo Univ. of Science)*

18:00-19:30 FrPOS-38.9
Development of Swimwear-Type Electrode for Electrocardiogram Measurement under the Water
Nakatani, Minori* *(Ritsumeikan Univ.)*; Yamamoto, Keisuke *(Ritsumeikan Univ.)*; Goto, Daisuke *(Ritsumeikan Univ.)*; Toyoshi, Takuya *(Ritsumeikan Univ.)*; Taki, Chinami *(Kobe Univ)*; Shiozawa, Naruhiro *(Ritsumeikan Univ.)*

18:00-19:30 FrPOS-38.10
Flexible Cuff-Integrated ECG Amplifier with Active Dry Electrodes
Kreuzer, Samuel* *(Bern University of Applied Sciences)*; Niederhauser, Thomas *(Bern University of Applied Sciences)*

18:00-19:30 FrPOS-38.11
Proposal of an Optically-Operated, Sticker-Like Device Platform for Health Monitoring
Wuthibenjaphonchai, Nattakarn* *(Nara Institutes of Science & Tech.)*; Haruta, Makito *(Nara Institute of Science & Tech.)*; Sasagawa, Kiyotaka *(Nara Institute of Science & Tech.)*; Tokuda, Takashi *(Nara Institute of Science & Tech.)*; Carrara, Sandro *(EPFL – Swiss Federal Institute of Tech. – Lausanne)*; Ohta, Jun *(Nara Institute of Science & Tech.)*

18:00-19:30 FrPOS-38.12
A Novel Low-Voltage Capacitively Coupled Bulk-Driven Instrumentation Amplifier for Wearable Biomedical Sensors
Liu, Huaiyu* *(Shanghai Jiao Tong Univ.)*; Wu, Chundong *(Shang Hai Jiao Tong Univ.)*; Chen, Mingyi *(Shanghai Jiao Tong Univ.)*; Wang, Guoxing *(Shanghai Jiao Tong Univ.)*

18:00-19:30 FrPOS-38.13
A Headset-Type EEG and ECG System for Healthcare Application
Ahn, Joong Woo *(Seoul National University Hospital)*; Ku, Yunseo *(Chungnam National University College of Medicine)*; Kim, Hee Chan* *(Seoul National University)*

18:00-19:30 FrPOS-38.14
Design of an Energy-Harvesting Arm Brace
Schuchmann, Jake *(Missouri Univ. of Science & Technology)*; Song, Yun Seong* *(Missouri Univ. of Science & Technology)*

18:00-19:30 FrPOS-38.15
Investigation of Recognition Rate of Grasping Force Produced by Wrist/Ankle Attachment Device for Prosthetic Hand Feedback
Sekine, Masashi* *(Chiba Univ.)*; Yu, Wenwei *(Univ. of Chiba)*

18:00-19:30 FrPOS-38.16
Wearable Sensor System Architecture for Monitoring Long-Term Psychological Health
Arquilla, Katya* *(University of Colorado Boulder)*; Anderson, Allison *(University of Colorado Boulder)*; Webb, Andrea *(The Charles Stark Draper Laboratory)*

18:00-19:30 FrPOS-38.17
Development of a Fugl-Meyer Assessment Evaluation Support System using Wearable Mocap
Watanabe, Masaya *(Tokyo Univ. of Agriculture & Tech.)*; Yamamoto, Naoya *(Tokyo Univ. of Agriculture & Tech.)*; Ishii, Yuki *(Tokyo Univ. of Agriculture & Tech.)*; Inamura, Tetsunari *(National Institute of Informatics)*; Kaneko, Fuminari *(Keio Univ.)*; Yano, Shiro *(Tokyo Univ. of Agriculture & Tech.)*; Kondo, Toshiyuki* *(Tokyo Univ. of Agriculture & Tech.)*

18:00-19:30 FrPOS-38.18
Practical UCD in Hand and Arm Function Training for Children
Mittag, Christina* *(Technische Universität Berlin)*; Lorenz, Katharina *(Technische Universität Berlin)*; Leiss, Regina *(Technische Universitaet Berlin)*

18:00-19:30 FrPOS-38.19
Assessment of Human Response of Laser-Based Tactile Actuator
Ji-Hun, Jo *(Konkuk Univ.)*; Chung, Soon-Cheol *(Konkuk Univ.)*; Choi, Mi-Hyun *(Konkuk Univ.)*; Hyung-Sik, Kim* *(Konkuk Univ.)*

18:00-19:30 FrPOS-38.20
Audomni: Towards a Primary Mobility Aid for Blind and Low Vision Individuals using Super Scale Sensory Supplementation
Isaksson, Johan* *(Lund University)*; Jansson, Tomas *(Lund University)*; Nilsson, Johan *(Dept. Biomedical Engineering, LTH, Lund University)*

18:00-19:30 FrPOS-38.21
Technical Validation of Sensor Dot: A Wearable for Ambulatory Monitoring of Epileptic Seizures
Dan, Jonathan *(KU Leuven)*; Weckhuysen, Dorien *(KU Leuven)*; Cleeren, Evy *(KU Leuven)*; Van Paesschen, Wim *(Katholieke Universiteit Leuven)*; Vandendriessche, Benjamin* *(Case Western Reserve University)*

18:00-19:30 FrPOS-38.22
Improving Emotions Prediction with Sequence Representations of Psychophysiological Data
Hernández-Guillamet, Guillem *(Pompeu Fabra University)*; Lopez, Beatriz* *(University of Girona)*

18:00-19:30 FrPOS-38.23
Unobtrusive and Wireless ECG and Pulse Oximetry System
Larochelle, Jonathan* *(Université Laval)*; Doucet, Mélanie *(Université Laval)*; Gosselin, Benoit *(Laval University)*

18:00-19:30 FrPOS-38.24
Wearable Thermo-Hygro Sensor for Monitoring Heat Stress in Human Body
Hashimoto, Yuki* *(NTT Corp.)*; Matsuoka, Hiroto *(Nippon Telegraph & Telephone Corp.)*; Ishihara, Takako *(NTT Device Innovation Center, NTT Corp.)*; Tokura, Akio *(NTT Device Innovation Center, NTT Corp.)*; Kuwabara, Kei *(Nippon Telegraph & Telephone Corp.)*; Ootsuka, Yosuke *(ASICS Corp.)*; Koshida, Manami *(ASICS Corp.)*; Uzawa, Hiroki *(ASICS Corp.)*; Tagawa, Takehiro *(ASICS Corp.)*

18:00-19:30 FrPOS-38.25
Classification of Involuntary Movements of the Distal Arm in Dyskinetic Cerebral Palsy Wheelchair Users with Inertial Sensors
Nica, Ioana* *(KU Leuven)*; Cuyvers, Benoit *(KU Leuven)*; Bekteshi, Saranda *(KU Leuven, Dept. of Rehabilitation Sciences, Campus Bruges,)*; Gakopoulos, Sotirios *(KU Leuven)*; Hallez, Hans *(KU Leuven)*; Monbaliu, Elegast *(KU Leuven, Dept. Rehabilitation Sciences Campus Bruges)*; Aerts, Jean-Marie *(KU Leuven)*

18:00-19:30 FrPOS-38.26
A Wearable Obstacle Detection System for Visually Impaired People
Kurz, Jennifer* *(Friedrich-Alexander-Univ. Erlangen-Nürnberg)*; Tharmalingam, Varun *(Friedrich-Alexander-Univ. Erlangen-Nürnberg)*; Pryakhina, Natalia *(Friedrich-Alexander-Univ. Erlangen-Nürnberg)*; Hunger, Andre *(Friedrich-Alexander-Univ. Erlangen-Nürnberg)*; Ollenschläger, Malte *(Friedrich-Alexander-Univ. Erlangen-Nürnberg)*; Eskofier, Bjoern M *(Friedrich-Alexander-Univ. Erlangen-Nürnberg)*

18:00-19:30 FrPOS-38.27
Smartwatch Application to Assist Intermittent Fasting of Acute Stroke Patients: A Pilot Study
Son, Hyewon *(Univ. of Ulsan, Ulsan)*; Lee, HyoSeok *(Univ. of Ulsan)*; Phan, Huu Lam *(Ulsan Univ.)*; Lee, Suwon *(Univ. of Ulsan)*; Duong, Thuy *(Univ. of Ulsan)*; Nguyen, Trung *(Univ. of Ulsan)*; Nguyen, Hang Phuong *(Univ. of Ulsan)*; Le, Thi Huong *(Univ. of Ulsan)*; Oh, Seok *(Univ. of Ulsan)*; Hwang, Changho *(Ulsan Univ. Hospital)*; Koo, Kyoin* *(Univ. of Ulsan)*

18:00-19:30 FrPOS-38.28
End-User Evaluation of a Smart Knee Brace
Alder, Andrew *(Univ. of Colorado Boulder)*; Ward, Sarah *(Univ. College Dublin)*; McDaid, Andrew* *(The Univ. of Auckland)*

18:00-19:30 FrPOS-38.29
Digital Technology to Monitor Rehabilitation Outcomes after Knee Injury: A Case Study
McDaid, Andrew* *(The Univ. of Auckland)*; Alder, Andrew *(Univ. of Colorado Boulder)*; Ward, Sarah *(Univ. College Dublin)*

18:00-19:30 FrPOS-38.30
Development of Grip Force Estimation Glove for Finger Assist Hand
Maeda, Tamon* *(Ritsumeikan University)*; Okada, Shima *(Ritsumeikan University)*

18:00-19:30 FrPOS-38.31
A Comparison Study of Wearable Sensing based Classifier Algorithms for Physical Activity Recognition in Elderly Person Monitoring
Newcombe, Lee* *(Liverpool John Moores University)*; Yang, Po *(Liverpool John Moores University)*; Carter, Chris *(Liverpool John Moores University)*; Hanneghan, Martin *(Liverpool John Moores University)*; Simpson, Andrew *(Liverpool John Moores University)*; Qi, Jun *(Liverpool John Moores University)*

18:00-19:30 FrPOS-38.32
Using Wearable Sensors to Quantify Torso Compensatory Motion in Post-Stroke Patients during Occupational Therapy
Nguyen, Golda* *(Massachusetts Institute of Technology)*; Fineman, Richard *(Massachusetts Institute of Technology)*; MacLean, Julie *(Massachusetts General Hospital)*; Stirling, Leia *(Massachusetts Institute of Technology)*

18:00-19:30 FrPOS-38.33
Comparison of Eye Blink in Daily-Living Tasks with Emotional States
Laohakangvalvit, Tipporn* *(National Institute of Advanced Industrial Science & Tech.)*; Ito, Kodai *(National Institute of Advanced Industrial Science & Tech.)*; Tada, Mitsunori *(National Institute of Advanced Industrial Science & Tech.)*

18:00-19:30 FrPOS-38.34
Detection of Laryngeal Elevation Time for Mendelsohn Maneuver by Band-Shaped Device
Nakamoto, Hiroyuki* *(Kobe Univ.)*; Katsuno, Yuki *(Kobe Univ.)*; Yamamoto, Akio *(Kobe Univ.)*; Umehara, Ken *(Kobe Univ.)*; Bessho, Yusuke *(Bando Chemical Industries, LTD)*; Kobayashi, Futoshi *(Kobe Univ.)*; Ishikawa, Akira *(Kobe Univ.)*

18:00-19:30 FrPOS-38.35
Low-Cost Wearable Set-Up for Stimulation and Detection of Steady-State Visual Evoked Potentials
Gillies, Audrey H. *(University of Strathclyde)*; Kahani, Danial *(University of Strathclyde)*; Lakany, Heba *(University of Strathclyde)*; Giardini, Mario Ettore* *(University of Strathclyde)*

18:00-19:30 FrPOS-38.36
Slicer Module for Segmentation of Cerebral Vasculature and Aneurysms Detection in 3D Rotational Angiography
Abinahed, Julien* *(Hamad Medical Corp.)*; Dakua, Sarada *(Hamad Medical Corp.)*; Balakrishnan, Shidin *(Hamad Medical Corp.)*; Younes, Georges *(Hamad Medical Corp.)*; Baobeid, Abdulla *(Hamad Medical Corp.)*; Zakaria, Ayman *(Hamad Medical Corp.)*; Al-Ansari, Abdulla *(Hamad Medical Corp.)*; Soheilian Esfahani, Sahar *(Qatar Univ.)*; Zhai, Xiaojun *(Qatar Univ.)*; Chen, Minsi *(Univ. of Huddersfield)*; Amira, Abbes *(Univ. of the West of Scotland)*; Bensaali, Faycal *(Qatar Univ.)*; Richardson, Robin *(Univ. College London)*; Peter, Coveney *(Univ. College London)*

18:00-19:30 FrPOS-38.37
Red Fluorescent Carbon Dots for Sentinel Lymph Node Mapping
Li, Wen-Tyng* *(Chung-Yuan Christian University)*

18:00-19:30 FrPOS-38.38
Fast Detection of Opioids from a Small Blood Sample
Mynttinen, Elsi* *(Aalto Univ.)*; Wester, Niklas *(Aalto Univ.)*; Lilius, Tuomas *(Univ. of Helsinki, Univ. of Helsinki & Helsinki Univ)*; Kalso, Eija *(Univ. of Helsinki, Univ. of Helsinki & Helsinki Univ)*; Mikladal, Björn *(Canatu Oy)*; Varjos, Ilkka *(Canatu Oy)*; Kauppinen, Esko *(Aalto Univ.)*; Koskinen, Jari *(Aalto Univ.)*; Laurila, Tomi *(Aalto Univ.)*

Saturday, 27 July 2019

SaA01: 08:30-10:00 Hall A6+A7 – Level 1
Brain-Computer Interface (I) (Oral Session)
Chair: Carrozza, Maria Chiara *(Scuola Superiore Sant'Anna)*

08:30-08:45 SaA01.1
Decoding Speech from Single Trial MEG Signals using Convolutional Neural Networks and Transfer Learning
Dash, Debadatta* *(The University of Texas at Dallas)*; Ferrari, Paul *(University of Texas at Austin)*; Heitzman, Daragh *(Texas Neurology)*; Wang, Jun *(University of Texas at Dallas)*

08:45-09:00 SaA01.2
Investigating Evoked EEG Responses to Targets Presented in Virtual Reality
Lapborisuth, Pawan *(Columbia Univ.)*; Faller, Josef *(Columbia Univ.)*; Koss, Jonathan* *(Columbia Univ.)*; Waytowich, Nicholas *(Army Research Laboratory)*; Touryan, Jonathan *(U.S. Army Research Laboratory)*; Sajda, Paul *(Columbia Univ.)*

09:00-09:15 SaA01.3
Enhancing Mu-Based BCI Performance with Rhythmic Electrical Stimulation at Alpha Frequency
Zhang, XiangZi *(Jinan Univ.)*; Guo, Yaqiu *(Jinan Univ.)*; Gao, BoYu *(Jinan Univ.)*; Long, Jinyi* *(Jinan Univ.)*

09:15-09:30 SaA01.4
Trajectory Decoding of Arm Reaching Movement Imageries for Brain-Controlled Robot Arm System
Jeong, Ji-Hoon *(Korea Univ.)*; Shim, Kyung-Hwan *(Korea Univ.)*; Kim, Dong-Joo *(Korea Univ.)*; Lee, Seong-Whan* *(Korea Univ.)*

09:30-09:45 SaA01.5
An SSVEP-BCI in Augmented Reality
Liu, Pengxiao *(Tianjin Univ.)*; Ke, Yufeng* *(Tianjin Univ.)*; Du, Jiale *(Tianjin Univ.)*; Liu, Wentao *(Tianjin Univ.)*; Kong, Linghan *(Tianjin Univ.)*; Wang, Ningci *(Tianjin Univ.)*; Xu, Minpeng *(Tianjin Univ.)*; An, Xingwei *(Tianjin Univ.)*; Ming, Dong *(Tianjin Univ.)*

09:45-10:00 SaA01.6
Estimation of Mental Workload Induced by Different Presentation Rates in Rapid Serial Visual Presentation Tasks
Yi, Weibo* *(Beijing Machine & Equipment Institute)*; Qiu, Shuang *(Institute of Automation, Chinese Academy of Science)*; Fan, Xin-An *(Beijing Machine & Equipment Institute)*; Zhang, Lijian *(Beijing Machine & Equipment Institute)*

SaA02: 08:30-10:00 Hall A8 – Level 1
Signal Processing and Classification of Photoplethysmographic Signals (Oral Session)
Chair: Faes, Luca *(University of Palermo)*

08:30-08:45 SaA02.1
RespNet: A Deep Learning Model for Extraction of Respiration from Photoplethysmogram
R, Vignesh* *(Healthcare Tech. Innovation Center, IIT Madras)*; Murugesan, Balamurali *(Indian Institute of Tech. Madras)*; Balakarthikeyan, Vaishali *(Healthcare Tech. Innovation Centre)*; M Shankaranarayana, Sharath *(Indian Institute of Tech. Madras)*; SP, Preejith *(Healthcare Tech. Innovation Center – IITMadras)*; Ram, Keerthi *(IIT Madras)*; Joseph, Jayaraj *(HTIC, Indian Institute of Tech. Madras)*; Sivaprakasam, Mohanasankar *(Indian Institute of Tech. Madras)*

08:45-09:00 SaA02.2
PPG-Based Blood Pressure Monitoring by Pulse Wave Analysis: Calibration Parameters are Stable for Three Months
Proenca, Martin* *(CSEM SA)*; Bonnier, Guillaume *(CSEM SA)*; Ferrario, Damien *(CSEM)*; Verjus, Christophe *(CSEM)*; Lemay, Mathieu *(CSEM)*

09:00-09:15 SaA02.3
Sleep-Wake Classification using Statistical Features Extracted from Photoplethysmographic Signals
Motin, Mohammod Abdul *(PhD Student, Univ. of Melbourne)*; Karmakar, Chandan* *(Deakin Univ.)*; Penzel, Thomas *(Charité Univ. Berlin)*; Palaniswami, Marimuthu *(The Univ. of Melbourne)*

09:15-09:30 SaA02.4
A Validity and Reliability Study of Conditional Entropy Measures of Pulse Rate Variability
Pernice, Riccardo* *(Univ. of Palermo)*; Javorka, Michal *(Comenius Univ., Jessenius Faculty of Medicine)*; Krohova, Jana *(Comenius Univ. in Bratislava)*; Czippelova, Barbora *(Dept. of Physiology, Comenius Univ., Jessenius Faculty)*; Turianikova, Zuzana *(Dept. of Physiology, Comenius Univ., Jessenius Faculty)*; Busacca, Alessandro *(Università degli Studi di Palermo)*; Faes, Luca *(Univ. of Palermo)*

09:30-09:45 SaA02.5
Photoplethysmography Signal Analysis to Assess Obesity, Age Group and Hypertension
Ferdinando, Hany* *(University of Oulu)*; Huotari, Matti *(University of Oulu)*; Myllylä, Teemu *(University of Oulu)*

09:45-10:00 SaA02.6
Motion Artifact Removal of Photoplethysmogram (PPG) Signal
Abdul Majeed, Ibrahim* *(Samsung R&D India – Bangalore)*; Sujit, Jos *(Samsung Research India-Bangalore)*; Arora, Rahul *(Samsung R&D Institute India Bangalore)*; Karam, Choi *(Samsung Advanced Institute of Technology)*; Bae, Sang Kon *(Samsung Advanced Inst of Tech)*

SaA03: 08:30-10:00 Hall A3 – Level 1
Optical Imaging – Coherence Tomography (Oral Session)

08:30-08:45 SaA03.1
Glaucoma Assessment from OCT using Capsule Network
Gaddipati, Divya Jyothi* *(International Institute of Information Tech.)*; Desai, Alakh *(International Institute of Information Tech., Hyderabad)*; Sivaswamy, Jayanthi *(International Institute of Information Tech.-Hyderabad)*; Vermeer, Koenraad A. *(Rotterdam Ophthalmic Institute, Rotterdam Eye Hospital)*

08:45-09:00 SaA03.2
Super-Resolution OCT using Sparse Representations and Heavy-Tailed Models
Valdez Zermeno, Daniel *(University of Bristol)*; Mayo, Perla* *(University of Bristol)*; Nicholson, Lindsay *(University of Bristol)*; Achim, Alin *(University of Bristol)*

09:00-09:15 SaA03.3
Speckle Reduction in Optical Coherence Tomography via Super-Resolution Reconstruction
Zhao, Rui *(Shenyang Jianzhu Univ.)*; Zhao, Yitian* *(Chinese Academy of Sciences)*; Chen, Zhili *(Shenyang Jianzhu Univ.)*; Zhao, Yifan *(Cranfield Univ.)*; Yang, Jianlong *(Cixi Institute of Biomedical Engineering, Chinese Academy of Sci)*; Hu, Yan *(Chinese Academy of Sciences)*; Cheng, Jun *(Institute of Biomedical Engineering, Chinese Academy of Sciences)*; Liu, Jiang *(Ningbo Institute of Materials Tech. & Engineering, CAS)*

09:15-09:30 SaA03.4
Relation between Retinal Vasculature and Retinal Thickness in Macular Edema
Ajaz, Aqsa* *(RMIT Univ.)*; Aliahmad, Behzad *(RMIT Univ.)*; Sarossy, Marc *(RMIT Univ.)*; Kant Kumar, Dinesh *(RMIT Univ.)*

09:30-09:45 SaA03.5
Using Convolutional Neural Networks for Classification of Bifurcation Regions in IVOCT Images
Miyagawa, Makoto *(Federal Univ. of Amazonas)*; Costa, Marly G. F. *(Federal Univ. of Amazonas – UFAM)*; Gutierrez, Marco *(Heart Institute, Univ. of Sao Paulo Medical School)*; Costa, Joao Pedro *(Universidade Federal do Amazonas)*; Costa Filho, Cicero F. F.* *(Universidade Federal do Amazonas)*

09:45-10:00 SaA03.6
Optical Coherence Tomography Image Reconstruction using Morphological Component Analysis
Rabbani, Hossein* *(Isfahan Univ. of Medical Sciences)*; Mokhtary, Marzieh *(Isfahan University od Medical Sciences)*

SaA04: 08:30-10:00 Hall A1 – Level 1
Bio-Electric Monitoring Applications (Oral Session)
Co-Chair: Kidmose, Preben *(Aarhus University, Denmark)*

08:30-08:45 SaA04.1
EEG-Based Mental Workload Estimation
Samima, Shabnam *(Indian Institute of Technology Kharagpur)*; Sarma, Monalisa* *(Indian Institute of Technology Kharagpur)*

08:45-09:00 SaA04.2
Emotional State Estimation using Sensor Fusion of EEG and EDA
Yasemin, Mine* *(Istanbul Technical University)*; Sarikaya, Mehmet Ali *(Istanbul Technical University)*; Ince, Gökhan *(Istanbul Technical University)*

09:00-09:15 SaA04.3
Generic Dry-Contact Ear-EEG
Rands Bertelsen, Astrid *(Aarhus Univ.)*; Bladt, Henriette *(Aarhus Univ.)*; Christensen, Christian Bech *(Aarhus Univ.)*; Kappel, Simon Lind *(Univ. of Moratuwa)*; Toft, Hans Olaf *(Widex A/S)*; Rank, Mike Lind *(Widex A/S)*; Mikkelsen, Kaare *(Univ. of Aarhus)*; Kidmose, Preben* *(Aarhus Univ., Denmark)*

09:15-09:30 SaA04.4
An Efficient Algorithm for the Extraction of Fetal ECG from Standard and Non-Standard Multi Abdominal Maternal Leads
Pini, Nicolò* *(Politecnico di Milano)*; Magenes, Giovanni *(University of Pavia)*; Fanelli, Andrea *(Massachusetts Institute of Technology)*; Signorini, Maria G. *(Politecnico di Milano)*

09:30-09:45 SaA04.5
Capacitive Multi-Electrode Array with Real-Time Electrode Selection for Unobtrusive ECG and BIOZ Monitoring
Castro, Ivan D. *(KU Leuven & imec)*; Patel, Aakash* *(imec)*; Torfs, Tom *(imec)*; Puers, Robert *(Catholic University of Leuven)*; Van Hoof, Chris *(imec)*

09:45-10:00 SaA04.6
Characterization of Implanted Stents through Neointimal Tissue Bioimpedance Simulations
Portillo-Anaya, Jose María *(Univ. de Sevilla)*; Perez, Pablo *(Instituto de Microelecctronica de Sevilla / Univ. de Sevil)*; Huertas, Gloria *(Instituto de Microelectronica de Sevilla / Univ. de Sevill)*; Olmo, Alberto *(Univ. de Sevilla)*; Serrano, Juan A. *(Instituto de Microelectrónica de Sevilla (IMSE/US))*; Andres, Maldonado-Jacobi *(Instituto de Microelectronica de Sevilla / Univ. de Sevill)*; Yufera, Alberto* *(Univ. of Seville)*

SaA05: 08:30-10:00 Hall A2 – Level 1
Time-Frequency Analysis of Cardiovascular Signals (Oral Session)
Chair: Augustyniak, Piotr *(AGH University of Science and Tech)*
Co-Chair: Hernández, Alfredo I. *(Univ. of Rennes 1 & INSERM U1099)*

08:30-08:45 SaA05.1
A Direct Transform of Discrete Non-Uniform ECG to a Time-Scale Representation
Augustyniak, Piotr* *(AGH University of Science & Tech)*

08:45-09:00 SaA05.2
ECG Delineation using a Piecewise Gaussian Derivative Model with Parameters Estimated from Scale-Dependent Algebraic Expressions
Spicher, Nicolai* *(Univ. of Applied Sciences & Arts Dortmund)*; Kukuk, Markus *(Univ. of Applied Sciences & Arts Dortmund)*

09:00-09:15 SaA05.3
Differences in Brugada Syndrome Patients through Ventricular Repolarization Analysis during Sleep
Romero, Daniel *(Institute for Bioengineering of Catalonia)*; Béhar, Nathalie *(Université de Rennes 1)*; Mabo, Philippe *(Université de Rennes 1)*; Hernández, Alfredo I* *(Univ. of Rennes 1 & INSERM U1099)*

09:15-09:30 SaA05.4
Spectro-Temporal Feature based Multi-Channel Convolutional Neural Network for ECG Beat Classification
Chen, Hao *(Biofourmis)*; Wibowo, Sandi *(Biofourmis)*; Majmudar, Maulik *(Massachusetts General Hospital)*; Rajput, Kuldeep Singh* *(Biofourmis)*

09:30-09:45 SaA05.5
Cardiotocograph Data Classification Improvement by using Empirical Mode Decomposition
Fuentealba, Patricio* *(Otto von Guericke Universität, Magdeburg.)*; Illanes, Alfredo *(Otto-von-Guericke University of Magdeburg)*; Ortmeier, Frank *(Otto von Guericke Universität, Magdeburg.)*

09:45-10:00 SaA05.6
Estimation of Beat-to-Beat Interval and Systolic Time Intervals using Phono and Seismocardiograms
Ahmaniemi, Teemu* *(VTT Technical Research Center of Finland)*; Rajala, Satu *(Nokia Technologies)*; Lindholm, Harri *(Nokia Technologies)*

SaA06: 08:30-10:00 Hall A5 – Level 1
Novel Multimodal Neural Interfaces for High Resolution Recording and Stimulation (Minisymposium)
Chair: Chamanzar, Maysamreza *(Carnegie Mellon University)*
Co-Chair: Kuzum, Duygu *(University of California San Diego)*

08:30-08:45 SaA06.1
Organic Materials for Neuromorphic Devices and Architectures
Gkoupidenis, Paschalis* *(Max Planck Institute for Polymer Research)*

08:45-09:00 SaA06.2
Multimodal Readout and Control Technologies for the Deep Brain
Pisanello, Marco *(Istituto Italiano di Tecnologia)*; Pisano, Filippo *(Istituto Italiano di Tecnologia)*; Pisanello, Ferruccio *(Istituto Italiano di Tecnologia)*; De Vittorio, Massimo* *(Istituto Italiano di Tecnologia)*

09:00-09:15 SaA06.3
Flexible Neural Interfaces for Multimodal Recording and Stimulation
Stieglitz, Thomas* *(University of Freiburg)*

09:15-09:30 SaA06.4
Soft Neural Implants with Light Delivery to Study the Somatosensory System
Michoud, Frederic *(EPFL)*; Seehus, Corey *(Harvard Medical School)*; Schönle, Philipp *(Integrated Systems Laboratory (IIS), ETH Zurich)*; Huang, Qiuting *(Integrated Systems Laboratory (IIS), ETH Zurich)*; Woolf, Clifford *(Harvard Medical School)*; Lacour, Stéphanie* *(EPFL)*

09:30-09:45 SaA06.5
Rapid Volumetric Optoacoustic Imaging of Calcium Dynamics across the Mouse Brain
Mc Larney, Ben *(Technical Univ. of Munich & Helmholtz Center Munich)*; Gottschalk, Sven *(Biological & Medical Imaging, Technical Univ. of Munich a)*; Degtyaruk, Oleksij *(Helmholtz Zentrum Muenchen GmbH)*; Rebling, Johannes *(Univ. & ETH Zurich)*; Deán-Ben, X. Luis *(Biological & Medical Imaging, Technical Univ. of Munich a)*; Shoham, Shy *(Technion-Israel Institute of Technology)*; Razansky, Daniel* *(Univ. & ETH Zurich)*

SaA07: 08:30-10:00 Hall A4 – Level 1
Micro/Nano-Bioengineering (Oral Session)
Chair: Bansod, Yogesh *(University of Rostock)*
Co-Chair: Weizel, Alina *(University of Rostock)*

08:30-08:45 SaA07.1
High Density Nanowire Electrodes for Intracortical Microstimulation
Puttaswamy, Srinivasu Valagerahally* *(Ulster Univ.)*; Shi, Qiongfeng *(National Univ. of Singapore)*; Steele, David *(Ulster Univ.)*; Fishlock, Sam *(Ulster Univ.)*; Lee, Chengkuo *(National Univ. of Singapore)*; McLaughlin, James *(Univ. of Ulster)*

08:45-09:00 SaA07.2
Development of Size-Selective Microfluidic Platform
Chen, Zheyuan* *(Texas A&M Univ.)*; Yamaguchi, Hirohito *(Hamad Bin Khalifa Univ.)*; Kameoka, Jun *(Texas A&M Univ.)*

09:00-09:15 SaA07.3
Evaluating Plasma Skimming with Whole Blood in Small Gap Region Imitating Clearance of Blood Pumps
Jiang, Ming* *(Tokyo Inst. of Tech.)*; Murashige, Tomotaka *(Tokyo Inst. of Tech.)*; Sakota, Daisuke *(Natl. Inst. of Advanced Industrial Science & Tech.)*; Hijikata, Wataru *(Tokyo Inst. of Tech.)*

09:15-09:30 SaA07.4
Rapid Label-Free DNA Quantification by Multi-Frequency Impedance Sensing on a Chip
Sui, Jianye* *(Rutgers, the State University of New Jersey)*; Gandotra, Neeru *(Yale University)*; Scharfe, Curt *(Yale University)*; Javanmard, Mehdi *(Rutgers University New Bru)*

09:30-09:45 SaA07.5
Computational Simulation of Electromagnetic Fields on Human Targets for Magnetic Targeting Applications
Fiocchi, Serena* *(Consiglio Nazionale delle Ricerche CNR)*; Chiaramello, Emma *(IEIIT Institute of Electronics, Computers & Telecommunication)*; Bonato, Marta *(IEIIT Institute of Electronics, Computers & Telecommunication)*; Tognola, Gabriella *(CNR IEIIT – Istituto di Elettronica e di Ingegneria dell'Informa)*; Catalucci, Daniele *(Consiglio Nazionale delle Ricerche, Istituto di Ricerca Genetica)*; Parazzini, Marta *(Consiglio Nazionale delle Ricerche)*; Ravazzani, Paolo *(Consiglio Nazionale delle Ricerche CNR)*

09:45-10:00 SaA07.6
A Novel Spinal Cord Surrogate for the Study of Compressive Traumatic Spinal Cord Injuries
Diotalevi, Lucien *(École de Technologie Supérieure)*; Petit, Yvan* *(École de Technologie Supérieure)*; Peyrache, Louis-Marie *(École de Technologie Supérieure)*; Facchinello, Yann *(École de Technologie Supérieure)*; Mac-Thiong, Jean-Marc *(Dept. of Surgery, Faculty of Medicine, University of Montre)*; Wagnac, Eric *(Ecole de Technologie Superieure)*

SaA08: 08:30-10:00 M8 – Level 3
Health Informatics – Health Data Acquisition, Transmission, Management and Visualization (Oral Session)

08:30-08:45 SaA08.1
Differential Watermarking of Multilead ECG Baseline
Augustyniak, Piotr* *(AGH University of Science & Tech)*

08:45-09:00 SaA08.2
Fully Automated Subtraction of Heart Activity for Fetal Magnetoencephalography Data
Sippel, Katrin* *(Univ. of Tübingen)*; Moser, Julia *(Univ. of Tübingen)*; Schleger, Franziska *(Univ. of Tübingen)*; Escalona-Vargas, Diana Irazú *(Univ. of Arkansas for Medical Sciences)*; Preissl, Hubert *(Univ. of Tübingen)*; Rosenstiel, Wolfgang *(Dept. of Computer Engineering, Univ. Tübingen, Germany)*; Spüler, Martin *(Univ. of Tübingen)*

09:00-09:15 SaA08.3
A Mixed Reality System for the Simulation of Emergency and First-Aid Scenarios
Girau, Elisa *(University of Genoa)*; Mura, Fabrizio *(University of Genoa)*; Bazurro, Simone *(University of Genoa – Centro di Ateneo di Simulazione e Formazio)*; Casadio, Maura *(University of Genova)*; Chirico, Marco *(University of Genoa – Centro di Ateneo di Simulazione e Formazio)*; Solari, Fabio *(University of Genoa)*; Chessa, Manuela* *(University of Genoa)*

09:15-09:30 SaA08.4
An Artificial Intelligence-Based System for Nutrient Intake Assessment of Hospitalised Patients
Lu, Ya *(Univ. of Bern)*; Stathopoulou, Thomai *(Univ. of Bern)*; Vasiloglou, Maria F. *(Univ. of Bern)*; Christodoulidis, Stergios *(Univ. of Bern)*; Blum, Beat *(Univ. Hospital Bern)*; Walser, Thomas *(Inselspital, Bern Univ. Hospital, Univ. of Bern)*; Meier, Vinzenz *(Inselspital, Bern Univ. Hospital, Univ. of Bern)*; Stanga, Zeno *(Bern Univ. Hospital, Univ. of Bern)*; Mougiakakou, Stavroula* *(Univ. of Bern)*

09:30-09:45 SaA08.5
A Sustainable HL7 FHIR based Ontology for PHR Data
Kilintzis, Vassilis* *(Aristotle University of Thessaloniki)*; Kosvyra, Alexandra *(Aristotle University of Thessaoniki)*; Beredimas, Nikolaos *(Aristotle University of Thessaloniki)*; Natsiavas, Pantelis *(Aristotle University of Thessaloniki)*; Maglaveras, Nikolaos *(Aristotle University of Thessaloniki)*; Chouvarda, Ioanna *(Aristotle University)*

09:45-10:00 SaA08.6
Predicting Stroke from Electronic Health Records
Chidozie Shamrock, Nwosu *(NCIRL)*; Dev, Soumyabrata *(The ADAPT Centre)*; Bhardwaj, Peru *(Trinity College Dublin)*; Veeravalli, Bharadwaj *(National Univ. of Singapore)*; John, Deepu* *(UCD)*

SaA09: 08:30-10:00 M1 – Level 3
Research on Electrically Active Implants: Theory, Models, Experiments and Clinical Applications (Invited Session)
Chair: van Rienen, Ursula *(Univ. of Rostock)*
Co-Chair: Bader, Rainer *(Univ. Medicine of Rostock, Dept. of Orthopaedics)*

08:30-08:45 SaA09.1
The Mechanical Regulation of Neuronal Growth and Regeneration
Franze, Kristian* *(University of Cambridge)*

08:45-09:00 SaA09.2
Towards an Energy Autonomous Platform for Electrically Active Implants
Niemann, Christoph *(University of Rostock)*; Plocksties, Franz *(University of Rostock)*; Heller, Jakob *(University of Rostock)*; Timmermann, Dirk* *(University of Rostock)*

09:00-09:15 SaA09.3
Design Trade-Offs in Neural Interface ICs
Reich, Stefan *(Univ. of Ulm)*; Sporer, Markus *(Univ. of Ulm)*; Haas, Michael *(Univ. of Ulm)*; Ortmanns, Maurits* *(Univ. of Ulm)*

09:15-09:30 SaA09.4
Computational Modelling of Closed-Loop Deep Brain Stimulation
Lowery, Madeleine* *(University College Dublin)*; Fleming, John *(University College Dublin)*; Dunn, Eleanor *(University College Dublin)*; Sridhar, Karthik *(University College Dublin)*

SaA10: 08:30-10:00 M2 – Level 3
The Science and Engineering of Tumor Treating Fields (TTFields) (Invited Session)
Chair: Bomzon, Ze'ev *(Novocure)*
Co-Chair: Makarov, Sergey *(Electrical and Computer Engineering, Worcester Polytechnic Institute)*

08:30-08:45 SaA10.1
Advanced Imaging for Monitoring Response to TTFields in Glioblastoma Patients
Mohan, Suyash* *(University of Pennsylvania)*

08:45-09:00 SaA10.2
The Dielectric Properties of Brain Tumor Tissue
Proescholdt, Martin *(Univ. Regensburg Medical Center)*; Haj, Amer *(Dept. of Neurosurgery; Univ. Regensburg Medical Center)*; Lohmeier, Annette *(Dept. of Neurosurgery; Univ. Regensburg Medical Center)*; Stoerr Eva-Maria, Eva-Maria *(Dept. of Neurosurgery; Univ. Regensburg Medical Center)*; Eberl, Petra *(Dept. of Neurosurgery; Univ. Regensburg Medical Center)*; Brawanski, Alexander *(Univ. Hospital Regensburg)*; Bomzon, Ze'ev* *(Novocure)*; Hershkovich, Hadas Sara *(Novocure Ltd., Haifa, Israel)*

09:00-09:15 SaA10.3
Determination of Parameter Values for Conductivity, Capacitance and Inductance of Microtubules and a Refined Model of their Bioelectric Circuitry Elucidate the Mode of Action of TTFields
Tuszynski, Jack Adam* *(University of Alberta)*

09:15-09:30 SaA10.4
Potential of Cortical Neurons Modeling with Boundary Element Fast Multipole Method
Makarov, Sergey* *(Electrical & Computer Engineering, Worcester Polytechnic Institute)*; Noetscher, Gregory *(Worcester Polytechnic Institute)*; Alexiou, Ioannis *(Worcester Polytechnic Institute)*; Sundaram, Padmavathi *(Massachusetts General Hospital)*; Nummenmaa, Aapo *(Massachusetts General Hospital)*

09:30-09:45 SaA10.5
A Theory Connecting Mechanisms Underlying 200 kHz AC Electric Fields Effects on Tumor Cell Structures
Carlson, Kris* *(BIDMC/Harvard Medical School)*; Tuszynski, Jack Adam *(University of Alberta)*; Paudel, Nirmal *(IEEE)*; Bomzon, Ze'ev *(Novocure)*

09:45-10:00 SaA10.6
A Computational Study of Joule Heating during TTFields Therapy
Miranda, Pedro Cavaleiro* *(Faculdade de Ciências, Univ. de Lisboa)*; Gentilal, Nichal *(IBEB, Faculdade de Ciências, Univ. de Lisboa)*; Salvador, Ricardo *(Neuroelectrics)*

SaA11: 08:30-10:00 M4 – Level 3
Sleep Apnea (Oral Session)
Chair: Penzel, Thomas *(Charité Universitätsmedizin Berlin)*
Co-Chair: Khoo, Michael *(University of Southern California)*

08:30-08:45 SaA11.1
An Investigation of the Relationship between the Apnoea Hypopnoea Index and Apnoea Hypopnoea Duration Per Hour
de Chazal, Philip* *(Univ. of Sydney)*; Sadr, Nadi *(Univ. of Sydney)*

08:45-09:00 SaA11.2
Recognition of Sleep/Wake States Analyzing Heart Rate, Breathing and Movement Signals
Gaiduk, Maksym* *(HTWG Konstanz)*; Seepold, Ralf *(HTWG Konstanz)*; Penzel, Thomas *(Charité Univ. Berlin)*; Ortega, Juan Antonio *(Univ. de Sevilla)*; Glos, Martin *(Charité-Univ. Berlin)*; Martinez Madrid, Natividad *(Reutlingen Univ.)*

09:00-09:15 SaA11.3
Trend Statistics Network and Channel Invariant EEG Network for Sleep Arousal Study
Rao M V, Achuth *(Indian Institute of Science)*; Ghosh, Prasanta *(Indian Institute of Science)*; Bhattacharjee, Tanuka* *(Research & Innovation, TATA Consultancy Services, India)*; Dutta Choudhury, Anirban *(Tata Consultancy Services Ltd.)*

09:15-09:30 SaA11.4
Effects of Optimized Heart Failure Medication on Central Sleep Apnea with Cheyne-Stokes Respiration Pattern in Chronic Heart Failure with Reduced Left-Ventricular Ejection Fraction
Schoebel, Christoph* *(Charité Universitaetsmedizin Berlin)*; Fietze, Ingo *(Charité-Universitaetsmedizin Berlin)*; Penzel, Thomas *(Charité Universitätsmedizin Berlin)*

09:30-09:45 SaA11.5
Dynamic Estimation of Cerebral Blood Flow using Photo-Plethysmography Signal during Simulated Apnea
Soltan Zadi, Armin *(University of Texas at Arlington)*; Alex, Raichel *(University of Texas Arlington)*; Zhang, Rong *(University of Texas Southwestern Medical Center at Dallas)*; Watenpaugh, Donald *(Sleep Consultants Inc.)*; Behbehani, Khosrow* *(University of Texas at Arlington)*

09:45-10:00 SaA11.6
Linear Mixed Effects Modelling of Oxygen Desaturation after Sleep Apneas and Hypopneas: A Pilot Study
Solà-Soler, Jordi* *(Institut de Bioenginyeria de Catalunya (IBEC))*; Giraldo, Beatriz *(Universitat Poiltècnica de Catalunya)*; Jané, Raimon *(Institut de Bioenginyeria de Catalunya (IBEC))*

SaA12: 08:30-10:00 M6 – Level 3
Imaging for Surgery and Intervention (Oral Session)
Co-Chair: Friebe, Michael *(Otto-von-Guericke-University)*

08:30-08:45 SaA12.1
RASNet: Segmentation for Tracking Surgical Instruments in Surgical Videos using Refined Attention Segmentation Network
Ni, ZhenLiang *(Institute of Automation, Chinese Academy of Sciences)*; Bian, Gui-Bin *(Institute of Automation, Chinese Academy of Sciences)*; Xie, Xiao-Liang *(Chinese Academy of Sciences)*; Hou, Zeng-Guang* *(Institute of Automation, Chinese Academy of Sciences)*; Zhou, Xiaohu *(Institute of Automation, Chinese Academy of Sciences)*; Zhou, Yanjie *(Institute of Automation, Chinese Academy of Sciences)*

08:45-09:00 SaA12.2
Novel Similarity Metric for Image-Based Out-of-Plane Motion Estimation in 3D Ultrasound
Balakrishnan, Sathish* *(Otto von Guericke University Magdeburg)*; Patel, Rajan *(Otto von Guericke University Magdeburg)*; Illanes, Alfredo *(Otto-von-Guericke University of Magdeburg)*; Friebe, Michael *(Otto-von-Guericke-University)*

09:00-09:15 SaA12.3
Quantifying Dermatology: Method and Device for User-Independent Ultrasound Measurement of Skin Thickness
Beaudoin, Judith *(Massachusetts Institute of Technology)*; Anthony, Brian W.* *(Massachusetts Institute of Technology)*

09:15-09:30 SaA12.4
Towards Validating Stent Induced Micro Flow Patterns in Left Main Coronary Artery Bifurcations
Masoud-Ansari, Sina *(The Univ. of Auckland)*; Ormiston, John *(Mercy Angiography)*; Webster, Mark *(Auckland District Health Board)*; Pontre, Beau *(Univ. of Auckland)*; Cowan, Brett *(Univ. of Auckland)*; Beier, Susann* *(Univ. of New South Wales)*

09:30-09:45 SaA12.5
Susceptibility-Based MR Imaging of Nitinol Stent
Shi, Caiyun *(Shenzhen Institutes of Advanced Technology, Lauterbur Research C)*; Wang, Haifeng *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Xie, Guoxi *(Shenzhen Institutes of Advanced Technology, Lauterbur Research C)*; Su, Shi *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Huang, Yi *(Guangzhou Panyu Central Hospital)*; Chen, Hanwei *(Guangzhou Panyu Central Hospital)*; Liu, Xin *(Shenzhen Institutes of Advanced Technology, Chinese Academy of Sc)*; Zheng, Hairong *(Shenzhen Inst of Advanced Tech)*; Liang, Dong* *(Shenzhen Institutes of Advanced Technology)*

09:45-10:00 SaA12.6
A New Method for the 3D Reconstruction of Coronary Bifurcations Pre and Post the Angioplasty Procedure using the QCA
Andrikos, Ioannis *(University of Ioannina)*; Sakellarios, Antonis* *(Forth-Biomedical Research Institute)*; Siogkas, Panagiotis *(Forth-IMBB)*; Tsompou, Panagiota *(Unit of Medical Technology & Intelligent Information Systems,)*; Kigka, Vassiliki *(University of Ioannina)*; Michalis, Lampros *(University of Ioannina)*; Fotiadis, Dimitrios I. *(University of Ioannina)*

SaA13: 08:30-10:00 R2 – Level 3
New Sensing Technologies (Oral Session)
Co-Chair: Cisotto, Giulia *(University of Padova)*

08:30-08:45 SaA13.1
A Reconfigurable, Pulse-Shaping Potentiometric Readout System for Bio-Sensing Transistors
Lu, Shao-Yung *(National Chiao Tung Univ.)*; Shan, Siang-Sin *(National Chiao Tung Univ.)*; Liao, Yu-Te* *(National Chiao Tung Univ.)*; Yang, Jiancheng *(Univ. of Florida)*; Ren, Fan *(Univ. of Florida)*; Chang, Chin-Wei *(Univ. of Florida)*; Lin, Jenshan *(Univ. of Florida)*; Pearton, Stephen *(Univ. of Florida)*

08:45-09:00 SaA13.2
A Simple and Accessible Inkjet Platform for Ultra-Short Concept-to-Prototype sEMG Electrodes Production
Cisotto, Giulia* *(University of Padova)*; Rosati, Giulio *(University of Padova)*; Paccagnella, Alessandro *(University of Padova)*

09:00-09:15 SaA13.3
Near Infrared Spectrometric Investigations on the Behaviour of Lactate
Baishya, Nystha* *(City, Univ. of London)*; Budidha, Karthik *(City Univ.)*; Mamouei, MohammadHossein *(City, Univ. of London)*; Qassem, Meha *(City Univ. London)*; Vadgama, Pankaj *(Queen Mary Univ. of London)*; Kyriacou, Panayiotis *(City Univ. London)*

09:15-09:30 SaA13.4
Towards the Design of an Impedance-Controlled HD-sEMG Amplifier: A Feasibility Study
Cerone, Giacinto Luigi* *(Politecnico di Torino)*; Gazzoni, Marco *(Politecnico di Torino)*

09:30-09:45 SaA13.5
Hearables: Feasibility and Validation of In-Ear Electrocardiogram
Hammour, Ghena *(Imperial College London)*; Yarici, Metin* *(Imperial College London)*; von Rosenberg, Wilhelm *(Imperial College London)*; Mandic, Danilo *(Imperial College)*

09:45-10:00 SaA13.6
Wearable Multimodal Stethoscope Patch for Wireless Biosignal Acquisition and Long-Term Auscultation
Klum, Michael* *(Technische Univ. Berlin)*; Leib, Fabian *(Technische Univ. Berlin)*; Oberschelp, Casper *(Technische Univ. Berlin)*; Martens, David *(Technische Univ. Berlin)*; Pielmus, Alexandru Gabriel *(Technische Univ. Berlin)*; Tigges, Timo *(Technical University Berlin)*; Penzel, Thomas *(Charité Univ. Berlin)*; Orglmeister, Reinhold *(Technische Univ. Berlin)*

SaA14**:** 08:30-10:00 R3 – Level 3
Time-Frequency Analysis of Electrophysiological Signals (Oral Session)
Chair: Hornero, Roberto *(University of Valladolid)*
Co-Chair: Boylan, Geraldine *(University College Cork)*

08:30-08:45 SaA14.1
Characterization of EEG Resting-State Activity in Alzheimer's Disease by Means of Recurrence Plot Analyses
Núñez, Pablo *(Univ. of Valladolid)*; Poza, Jesus* *(Univ. of Valladolid)*; Gomez, Carlos *(Univ. of Valladolid)*; Barroso-García, Verónica *(Univ. of Valladolid)*; Ruiz-Gómez, Saúl J. *(Biomedical Engineering Group, Univ. of Valladolid)*; Maturana-Candelas, Aarón *(Univ. of Valladolid)*; Tola-Arribas, Miguel A. *(Dept. of Neurology, Hospital Universitario Río Hortega)*; Cano, Mónica *(Dept. of Clinical Neurophysiology, Hospital Universitario R)*; Hornero, Roberto *(Univ. of Valladolid)*

08:45-09:00 SaA14.2
Correntropy based Robust Decomposition of Neuromodulations
Akella, Shailaja *(University of Florida, Gainesville)*; Principe, Jose* *(University of Florida)*

09:00-09:15 SaA14.3
State-Space Global Coherence to Estimate the Spatio-Temporal Dynamics of the Coordinated Brain Activity
Yousefi, Ali* *(Massachusetts General Hospital & Harvard Medical School)*; Saadati Fard, Reza *(Isfahan Univ. of Technology)*; Eden, Uri *(Boston Univ.)*; Brown, Emery *(MIT)*

09:15-09:30 SaA14.4
Machine Learning without a Feature Set for Detecting Bursts in the EEG of Preterm Infants
O'Toole, John M.* *(University College Cork)*; Boylan, Geraldine *(University College Cork)*

09:30-09:45 SaA14.5
Multitaper Infinite Hidden Markov Model for EEG
Song, Andrew* *(Massachusetts Institute of Technology)*; Chlon, Leon *(MIT)*; Soulat, Hugo *(MGH – MIT)*; Tauber, John *(Massachusetts Institute of Technology)*; Subramanian, Sandya *(Massachusetts Institute of Technology)*; Ba, Demba *(MIT)*; Prerau, Michael *(Massachusetts General Hospital)*

09:45-10:00 SaA14.6
Drug-Specific Models Improve the Performance of an EEG-Based Automated Brain-State Prediction System
Kashkooli, Kimia* *(Tufts University School of Medicine)*; Polk, Sam, L *(Tufts University)*

SaA15**:** 08:30-10:00 M3 – Level 3
Ultrasound Imaging – Cardiac and Vascular Applications (Oral Session)
Chair: Stieglitz, Thomas *(University of Freiburg)*
Co-Chair: Fotiadis, Dimitrios I. *(University of Ioannina)*

08:30-08:45 SaA15.1
A Comparison of Three Multimodality Coronary 3D Reconstruction Methods
Tsompou, Panagiota *(Unit of Medical Technology & Intelligent Information Systems,)*; Siogkas, Panagiotis *(Forth-IMBB)*; Sakellarios, Antonis* *(Forth-Biomedical Research Institute)*; Andrikos, Ioannis *(Univ. of Ioannina)*; Kigka, Vassiliki *(Univ. of Ioannina)*; Lemos, Pedro *(Dept. of Interventional Cardiology at the Heart Institute (InCor)*; Michalis, Lampros *(Univ. of Ioannina)*; Fotiadis, Dimitrios I. *(Univ. of Ioannina)*

08:45-09:00 SaA15.2
Left Ventricular Vortices in Myocardial Infarction Observed with Echodynamography
Oktamuliani, Sri *(Graduate School of Biomedical Engineering, Tohoku University)*; Hasegawa, Kaoru *(Tohoku University)*; Saijo, Yoshifumi* *(Tohoku University)*

09:00-09:15 SaA15.3
Experimental Characterization of Optoacoustic Phantoms in Gel Wax and Polyvinyl Alcohol for Blood Pressure Measurements
Amado Rey, Ana Belén* *(Univ. of Freiburg)*; Mittnacht, Annette *(Univ. of Freiburg)*; Stieglitz, Thomas *(Univ. of Freiburg)*

09:15-09:30 SaA15.4
Three-Dimensional Extension of Blood Vessel Network by Combining Multiple Ultrasound Volumes from Different Directions
Katai, Takuya *(Tokyo Univ. of Agriculture & Technology)*; Yasuda, Ikumu *(Tokyo Univ. of Agriculture & Technology)*; Watanabe, Kosuke *(Tokyo Univ. of Agriculture & Technology)*; Okadome, Kansai *(Tokyo Univ. of Agriculture & Technology)*; Edamoto, Yoshihiro *(Higashi-Saitama National Hospital)*; Enosawa, Shin *(National Center for Child Health & Development)*; Masuda, Kohji* *(Tokyo Univ. A&T)*

09:30-09:45 SaA15.5
Patch based Texture Classification of Thyroid Ultrasound Images using Convolutional Neural Network
Poudel, Prabal* *(Otto-von-Guericke-Universität Magdeburg)*; Illanes, Alfredo *(Otto-von-Guericke Univ. of Magdeburg)*; Sadeghi, Maryam *(Otto-von-Guericke Univ., Institute of Medical Technology, I)*; Friebe, Michael *(Otto-von-Guericke-Univ.)*

09:45-10:00 SaA15.6
Higher Order Statistical Analysis for Thyroid Texture Classification and Segmentation in 2D Ultrasound Images
Mahmoodian, Naghmeh* *(Otto-von-Guericke-Univ. Magdeburg)*; Poudel, Prabal *(Otto-von-Guericke-Univ. Magdeburg)*; Illanes, Alfredo *(Otto-von-Guericke Univ. of Magdeburg)*; Friebe, Michael *(Otto-von-Guericke-Univ.)*

SaA16**:** 08:30-10:00 M5 – Level 3
Surgical Robotics (Oral Session)
Chair: Casals, Alicia *(Center of Research in Biomedical Engineering, Universitat Politècnica de Catalunya, Barcelona Tech)*
Co-Chair: Esfahani, Ehsan *(University at Buffalo, SUNY)*

08:30-08:45 SaA16.1
Mechanical Design and Modeling of a Manipulator Tool for a Compact Multiple-Tool Single Port Laparoscopic Robot Platform
Wang, Fanxin* *(University of Illinois at Urbana-Champaign)*; Toombs, Nicholas *(University of Illinois at Urbana-Champaign)*; Kesavadas, Thenkurussi *(UIUC/HCESC)*; Ferreira, Placid *(University of Illinois at Urbana-Champaign)*

08:45-09:00 SaA16.2
Surgical Skill Assessment using Motor Control Features and Hidden Markov Model
Gorantla, Kuber Reddy *(University at Buffalo)*; Esfahani, Ehsan* *(University at Buffalo, SUNY)*

09:00-09:15 SaA16.3
Determination of a Tactile Feedback Strategy for use in Robotized Percutaneous Procedures
Zhu, Rui* *(Hochschule Furtwangen)*; Rubbert, Lennart *(INSA Strasbourg)*; Renaud, Pierre *(INSA Strasbourg)*; Mescheder, Ulrich *(Institute for Microsystems Technology (IMST), Furtwangen Univ.)*

09:15-09:30 SaA16.4
Development of a Transoral Robotic Surgery Training Platform
Geoghegan, Rory* *(Univ. of California, Los Angeles)*; Song, Jonathan *(Univ. of California, Los Angeles)*; Singh, Aadesh *(Univ. of California, Los Angeles)*; Le, Tyler *(Univ. of California, Los Angeles)*; Abiri, Ahmad *(Univ. of California, Los Angeles)*; Mendelsohn, Abie H *(UCLA School of Medicine)*

09:30-09:45 SaA16.5
Vision based Robot Assistance in TTTS Fetal Surgery
Sayols, Narcís *(Univ. Politècnica de Catalunya)*; Hernansanz, Albert *(Technical Univ. of Catalonia)*; Parra, Johanna *(Fetal i+D Fetal Medicine Research Center, BCNatal)*; Eixarch, Elisenda *(BCNatal, Hospital Clínic, Hospital Sant Joan de Déu)*; Gratacós, Eduard *(Fetal i+D Fetal Medicine Research Center, BCNatal – Barcelona Ce)*; Amat, Josep *(Univ. Politècnica de Catalunya, Barcelona Tech.)*; Casals, Alicia* *(Center of Research in Biomedical Engineering, Univ. Politè)*

09:45-10:00 SaA16.6
Quantitative Evaluation of Bleeding during Blood Vessel Puncture Caused by Fine Needle in Lower Abdomen
Izumi, Koki* *(Waseda University)*; Tsumura, Ryosuke *(Waseda University)*; Iwata, Hiroyasu *(Waseda University)*

SaA17**:** 08:30-10:00 R12 – Level 3
Wearable Inertial Sensors and Systems (Oral Session)
Co-Chair: Beudel, Martijn *(Amsterdam University Medical Center)*

08:30-08:45 SaA17.1
A Clinical Applicable Smartwatch Application for Measuring Hyperkinetic Movement Disorder Severity
Vochteloo, Martijn *(Hanze Univ. of Applied Sciences)*; Tijssen, Marina AJ *(Dept Neurology, UMCG, Univ. of Groningen)*; Beudel, Martijn* *(Amsterdam Univ. Medical Center)*

08:45-09:00 SaA17.2
Estimating Movements of Human Body for the Shirt-Type Wearable Device Mounted on the Strain Sensors based on Convolutional Neural Networks
Ogata, Kunihiro* *(National Institute of Advanced Industrial Science & Technology)*; Matsumoto, Yoshio *(Advanced Industrial Science & Technology)*

09:00-09:15 SaA17.3
IMU Sensor Fusion Algorithm for Monitoring Knee Kinematics in ACL Reconstructed Patients
Bravo, Graciela *(Pontificia Universidad Católica de Chile)*; Halvorson, Ryan* *(UCSF)*; Matthew, Robert, P *(UC Berkeley)*; Lansdown, Drew *(UCSF)*; Ma, Benjamin *(UCSF)*; Bajcsy, Ruzena *(UC Berkeley, CITRIS)*

09:15-09:30 SaA17.4
Techniques for Improving the Reliability of Prosthesis Wearer Muscle Signals using Pressure and EMG Sensors
Shin, Jin Woo *(Korea Polytechnic University)*; Eom, Su Hong *(Korea Polytechnic University)*; Lee, Chol U *(Korea Polytechnic University)*; Lee, Eung Hyuk* *(Korea Polytechnic University)*

09:30-09:45 SaA17.5
Gut-Brain Computer Interfacing (GBCI): Wearable Monitoring of Gastric Myoelectric Activity
Vujic, Angela* *(MIT)*; Krause, Christopher *(MIT)*; Georgette, Tso *(MIT)*; Lin, Jiaqi *(Dept. of Chemical Eng., David H. Koch Insti. for)*; Han, Bicheng *(Harvard Univ.)*; Maes, Pattie *(MIT Media Lab)*

09:45-10:00 SaA17.6
A Novel Parameterisation of Phase Plots for Monitoring of Parkinson's Disease
Dunne-Willows, Michael* *(EPSRC Centre for Doctoral Training in Cloud Computing for Big Da)*; Watson, Paul *(School of Computing Science, Newcastle Univ., Newcastle Upo)*; Shi, Jian *(School of Mathematics & Statistics, Newcastle Univ.)*; Rochester, Lynn *(Newcastle Univ.)*; Del Din, Silvia *(Newcastle Univ.)*

SaA18**:** 08:30-10:00 R13 – Level 3
Neural Stimulation (I) (Oral Session)

08:30-08:45 SaA18.1
Constrained Maximum Intensity Optimized Multi-Electrode tDCS Targeting of Human Somatosensory Network
Khan, Asad* *(Univ. Klinikum Münster,Univ. of Münster)*; Antonakakis, Marios *(Univ. of Muenster)*; Vogenauer, Nikolas *(Univ. of Münster)*; Wollbrink, Andreas *(Univ. of Muenster)*; Suntrup-Krueger, Sonja *(Univ. Hospital Muenster)*; Schneider, Till *(Dept. of Neurophysiology & Pathophysiology, Univ. Me)*; Herrmann, Christoph *(Research Center Neurosensory Science, European Medical School, U)*; Nitsche, Michael A. *(Georg-August-Univ., Goettingen)*; Paulus, Walter *(Georg-August-Univ., Goettingen)*; Haueisen, Jens *(Technische Univ. Ilmenau)*; Wolters, Carsten *(Univ. of Muenster)*

08:45-09:00 SaA18.2
Electric Field Distribution during Non-Invasive Electric and Magnetic Stimulation of the Cervical Spinal Cord
Fernandes, Sofia Rita *(Faculdade de Ciências e Faculdade de Medicina da Univ. de)*; Salvador, Ricardo *(Neuroelectrics)*; de Carvalho, Mamede *(IMM Molecular Medicine Institute, Faculty of Medicine, Univ.)*; Miranda, Pedro Cavaleiro* *(Faculdade de Ciências, Univ. de Lisboa)*

09:00-09:15 SaA18.3
Beta Power May Meditate the Effect of Gamma-TACS on Motor Performance
Mastakouri, Atalanti Anastasia* *(Max Planck Institute for Intelligent Systems)*; Schölkopf, Bernhard *(MPI for Biological Cybernetics)*; Grosse-Wentrup, Moritz *(Max Planck Institute for Intelligent Systems)*

09:15-09:30 SaA18.4
Towards Safe Infrared Nerve Stimulation: A Systematic Experimental Approach
Schlett, Paul* *(Uniklinik Freiburg)*; Wegner, Celine *(inomed Medizintechnik GmbH)*; Krueger, Thilo B *(inomed Medizintechnik GmbH)*; Hofmann, Ulrich G. *(University of Freiburg)*

09:30-09:45 SaA18.5
A Computational Analysis of the Electric Field Components in Transcranial Direct Current Stimulation
Callejón Leblic, María Amparo* *(Faculty of Sciences. University of Lisbon)*; Miranda, Pedro Cavaleiro *(Faculdade de Ciências, Universidade de Lisboa)*

09:45-10:00 SaA18.6
The Lasting Effects of 1Hz Repetitive Transcranial Magnetic Stimulation on Resting State EEG in Healthy Subjects
Qiu, Shuang* *(Institute of Automation, Chinese Academy of Science)*; Wang, Shengpei *(Research Center for Brain-inspired Intelligence & National Lab)*; Yi, Weibo *(Beijing Machine & Equipment Institute)*; Zhang, Chuncheng *(Institute of Automation, Chinese Academy of Sciences)*; He, Huiguang *(Institute of Automation, Chinese Academy of Sciences)*

SaA19**:** 08:30-10:00 R4 – Level 3
Image Segmentation (I) (Oral Session)

08:30-08:45 SaA19.1
Epistemic Uncertainty Modeling for Vessel Segmentation
Martin, Rémi* *(Ecole de Technologie Superieure)*; Miró, Joaquim *(Dept. of Pediatrics, CHU Sainte-Justine)*; Duong, Luc *(Ecole de Technologie Superieure)*

08:45-09:00 SaA19.2
Simultaneous Tissue Classification and Lateral Ventricle Segmentation via a 2D U-Net Driven by a 3D Fully Convolutional Neural Network
Wu, Jiong *(Sun Yat-Sen University)*; Zhang, Yue *(Southern University of Science & Technology)*; Tang, Xiaoying* *(Southern University of Science & Technology)*

09:00-09:15 SaA19.3
Instance Segmentation of Nematode Cysts in Microscopic Images of Soil Samples
Chen, Long* *(RWTH Aachen University, Aachen, Germany)*; Strauch, Martin *(RWTH Aachen University)*; Daub, Matthias *(Julius Kühn Institute: Federal Research Centre for Cultivated Pl)*; Jansen, Marcus *(LemnaTec GmbH, Aachen, Germany)*; Luigs, Hans-Georg *(LemnaTec GmbH, Aachen, Germany)*; Merhof, Dorit *(RWTH Aachen University)*

09:15-09:30 SaA19.4
Pancreas Segmentation in Abdominal CT Scans using Inter-/Intra-Slice Contextual Information with a Cascade Neural Network
Yang, Zhengzheng *(Northwest Univ.)*; Zhang, Lei *(Northwest Univ.)*; Zhang, Min* *(Northwest Univ., China)*; Feng, Jun *(Northwest Univ.)*; Wu, Zheng *(First Affiliated Hospital of Xi'an Jiao Tong Univ.)*; Ren, Fenggang *(First Affiliated Hospital of Xi'an Jiao Tong Univ.)*; Lv, Yi *(First Affiliated Hospital of Xi'an Jiao Tong Univ.)*

09:30-09:45 SaA19.5
Electroanatomic Mapping to Determine Scar Regions in Patients with Atrial Fibrillation
He, Jiyue* *(Univ. of Pennsylvania)*; Jang, Kuk Jin *(Univ. of Pennsylvania)*; Walsh, Katie *(Hospital of The Univ. of Pennsylvania)*; Liang, Jackson *(Hospital of The Univ. of Pennsylvania)*; Dixit, Sanjay *(Hospital of The Univ. of Pennsylvania)*; Mangharam, Rahul *(Univ. of Pennsylvania)*

09:45-10:00 SaA19.6
Localization of Small Neoplastic Lesions in Colonoscopy by Estimating Edge, Texture and Motion Saliency
Ruano, Josue *(Univ. Nacional de Colombia)*; Barrera, Cristian *(Univ. Nacional de Colombia)*; Bravo, Diego *(Univ. Nacional de Colombia)*; Gomez, Martin *(Univ. Nacional de Colombia)*; Romero, Eduardo* *(Univ. Nacional de Colombia)*

SaB01: 10:30-12:00 Hall A6+A7 – Level 1
Brain-Computer Interface (II) (Oral Session)

10:30-10:45 SaB01.1
Applying Intuitive EEG-Controlled Grasp Neuroprostheses in Individuals with Spinal Cord Injury: Preliminary Results from the MoreGrasp Clinical Feasibility Study
Müller-Putz, Gernot* *(Graz Univ. of Technology)*; Ofner, Patrick *(Graz Univ. of Technology)*; Pereira, Joana *(Graz Univ. of Technology)*; Pinegger, Andreas *(Graz Univ. of Technology)*; Schwarz, Andreas *(Graz, Univ. of Technology)*; Zube, Marcel *(Graz Univ. of Technology)*; Eck, Ute *(Heidelberg Univ. Hospital)*; Hessing, Björn *(Heidelberg Univ. Hospital)*; Schneiders, Matthias *(Heidelberg Univ. Hospital)*; Rupp, Rüdiger *(Heidelberg Univ. Hospital)*

10:45-11:00 SaB01.2
Effects of Stimulus Position on the Classification of Miniature Asymmetric VEPs for Brain-Computer Interfaces
Xu, Minpeng *(Tianjin Univ.)*; Zhou, Xiaoyu* *(Tianjin Univ.)*; Xiao, Xiaolin *(Tianjin Univ.)*; Wang, Yijun *(Institute of Semiconductors, Chinese Academy of Sciences)*; Jung, Tzyy-Ping *(Univ. of California San Diego)*; Ming, Dong *(Tianjin Univ.)*

11:00-11:15 SaB01.3
Comparison of Visual and Auditory Modalities for Upper-Alpha EEG-Neurofeedback
Bucho, Teresa* *(Instituto Superior Técnico, Universidade de Lisboa)*; Caetano, Gina *(Instituto Superior Técnico, Univ. de Lisboa)*; Vourvopoulos, Athanasios *(Univ. of Southern California)*; Accoto, Floriana *(Univ. of Salento)*; Esteves, Inês *(Instituto Superior Técnico, Univ. de Lisboa)*; Badia, Sergi Bermúdez i *(Faculdade de Ciências Exatas e da Engenharia, Univ. da Ma)*; Rosa, Agostinho Claudio da *(Technical Univ. of Lisbon)*; Figueiredo, Patricia *(Instituto Superior Técnico, Univ. de Lisboa)*

11:15-11:30 SaB01.4
A.Eye Drive: Gaze-Based Semi-Autonomous Wheelchair Interface
Subramanian, Mahendran *(Imperial College London)*; Songur, Noyan *(Imperial College London)*; Adjei, Darrell *(Imperial College London)*; Orlov, Pavel *(Imperial College London)*; Faisal, A. Aldo* *(Imperial College London)*

11:30-11:45 SaB01.5
Tensor Discriminant Analysis for MI-EEG Signal Classification using Convolutional Neural Network
Huang, Shoulin *(Harbin Institute of Tech.)*; Peng, Hao *(Dept. of Electronic & Information Engineering, Harbin Ins)*; Chen, Yang *(Harbin Institute of Tech., Shenzhen)*; Sun, Kai *(Dept. of Electronic & Information Engineering, Harbin Insti)*; Fang, Shen *(Dept. of Electronic & Information Engineering, Harbin Insti)*; Wang, Tong *(Harbin Institute of Tech., Shenzhen)*; Ma, Ting* *(Harbin Institute of Tech. at Shenzhen)*

11:45-12:00 SaB01.6
A Multifocal SSVEPs-Based Brain-Computer Interface with Less Calibration Time
Tang, Jiabei *(Tianjin University)*; Xu, Minpeng *(Tianjin University)*; Liu, Zheng *(Tianjin University)*; Meng, Jiayuan *(Tianjin University)*; Chen, Shanguang *(China Astronaut Research & Training Center)*; Ming, Dong* *(Tianjin University)*

SaB02: 10:30-12:00 Hall A8 – Level 1
Signal Processing and Classification in Fetal and Neonatal Physiology (Oral Session)
Chair: Signorini, Maria G. *(Politecnico di Milano)*

10:30-10:45 SaB02.1
Influence of Averaged Fetal Heart Rate in Heart Rate Variability Analysis
De Jonckheere, Julien* *(CHRU de Lille)*; Logier, Regis *(CHRU de Lille)*

10:45-11:00 SaB02.2
Fetal Heart Rate Estimation from a Single Phonocardiogram Signal using Non-Negative Matrix Factorization
Dia, Nafissa* *(Univ. Grenoble Alpes, CNRS, CHU Grenoble Alpes, Grenoble INP, TI)*; Fontecave-Jallon, Julie *(Univ. Grenoble Alpes, TIMC – IMAG)*; Gumery, Pierre-Yves *(Univ. Joseph Fourier)*; Rivet, Bertrand *(Grenoble Univ.)*

11:00-11:15 SaB02.3
Characterization of EHG Contractions at Pregnancy and Term Labor by Multiscale Entropy Analysis
Garcia-Gonzalez, Maria-Teresa* *(Universidad Autonoma Metropolitana)*; Charleston-Villalobos, Sonia *(Universidad Autonoma Metropolitana)*; Gonzalez-Camarena, Ramon *(Universidad Autonoma Metropolitana)*; García-Ruíz, Ashmed-Claudio *(Universidad Autónoma Metropolitana)*; Aljama-Corrales, Tomas *(Universidad Autonoma Metropolitana)*

11:15-11:30 SaB02.4
Hybrid Neonatal EEG Seizure Detection Algorithms Achieve the Benchmark of Visual Interpretation of the Human Expert
Stevenson, Nathan* *(QIMR Berghofer)*; Tapani, Karoliina *(Aalto University)*; Vanhatalo, Sampsa *(Helsinki University Central Hospital & University of Helsinki,)*

11:30-11:45 SaB02.5
Automatic and Continuous Discomfort Detection for Premature Infants in a NICU using Video-Based Motion Analysis
Sun, Yue* *(Eindhoven Univ. of Tech.)*; Kommers, Deedee *(Maxima Medical Center, Veldhoven; Eindhoven Univ. of Tech.)*; Wang, Wenjin *(Philips Research)*; Joshi, Rohan *(Philips Research)*; Shan, Caifeng *(Philips Research)*; Tan, Tao *(Eindhoven Univ. of Tech.)*; Aarts, Ronald M. *(Philips)*; van Pul, Carola *(Maxima Medical Center)*; Andriessen, Peter *(Maxima Medical Center)*; de With, Peter *(Eindhoven Univ. of Tech.)*

11:45-12:00 SaB02.6
The Implementation of an Apnea-Based Perinatal Stress Calculator
Lavanga, Mario* *(KU Leuven)*; De Wel, Ofelie *(KU Leuven)*; Caicedo, Alexander *(Univ. del Rosario)*; Deviaene, Margot *(KU Leuven)*; Moeyersons, Jonathan *(KU Leuven)*; Varon, Carolina *(Katholieke Univ. Leuven)*; Bollen, Bieke *(UZ Leuven)*; Jansen, Katrien *(Dept. of Pediatrics, Univ. Hospital Gasthuisberg, Leuve)*; Ortibus, Els *(UZ Leuven)*; Naulaers, Gunnar *(Univ. Hospitals Leuven)*; Van Huffel, Sabine *(KU Leuven)*

SaB03**:** 10:30-12:00 Hall A3 – Level 1
Optical Imaging and Microscopy (Oral Session)

10:30-10:45 SaB03.1
Quantitative Analysis of 3D Artery Volume Reconstructions using Biplane Angiography and Intravascular OCT Imaging
Latus, Sarah* *(Hamburg Univ. of Technology)*; Neidhardt, Maximilian *(Hamburg Univ. of Technology, Institute of Medical Technolog)*; Lutz, Matthias *(Univ. Schleswig-Holstein)*; Gessert, Nils *(Hamburg Univ. of Technology, Institute of Medical Technolog)*; Frey, Norbert *(Univ. Schleswig-Holstein)*; Schlaefer, Alexander *(Hamburg Univ. of Technology)*

10:45-11:00 SaB03.2
Ultrasonically Steerable Graded-Index Optical Waveguides for Deep Tissue Light Delivery: Theory and Applications
Scopelliti, Matteo Giuseppe *(Carnegie Mellon University)*; Karimi, Yasin *(Carnegie Mellon University)*; Chamanzar, Maysamreza* *(Carnegie Mellon University)*

11:00-11:15 SaB03.3
Fractal Characterization of Subviral Particle Motion: On the Influence of Spatio-Temporal Interpolation Methods
Rausch, Andreas* *(Technische Hochschule Mittelhessen)*; Schanze, Thomas *(Technische Hochschule Mittelhessen (THM), FB LSE, IBMT)*

11:15-11:30 SaB03.4
Tracking and Line Integration of Diffuse Cellular Subdomains by Mesh Advection
Boquet-Pujadas, Aleix* *(Institut Pasteur)*; Grimaldi, Cecilia *(Institute for Cell Biology, ZMBE)*; Raz, Erez *(Institute for Cell Biology, ZMBE)*; Olivo-Marin, Jean-Christophe *(Institut Pasteur)*

11:30-11:45 SaB03.5
Rotation Invariant Clustering of 3D Cell Nuclei Shapes
Wagner, Patrick *(Fraunhofer Heinrich Hertz Institute)*; Morath, Jakob Paul *(Max Planck Institute for Infection Biology)*; Zychlinsky, Arturo *(Max Planck Institute for Infection Biology)*; Müller, Klaus-Robert *(Technical University of Berlin)*; Samek, Wojciech* *(Fraunhofer Heinrich Hertz Institute)*

11:45-12:00 SaB03.6
Dynamic Activation Patterns of the Motor Brain Revealed by Diffuse Optical Tomography
Khan, Ali Fahim* *(University of Oklahoma)*; Zhang, Fan *(University of Oklahoma)*; Yuan, Han *(University of Oklahoma)*; Ding, Lei *(University of Oklahoma)*

SaB04**:** 10:30-12:00 Hall A1 – Level 1
Bio-Electric Sensing (Oral Session)
Co-Chair: Leonov, Vladimir *(imec)*

10:30-10:45 SaB04.1
Feasibility Experiments to Detect Skin Hydration using a Bio-Impedance Sensor
Sunny, Ali Imam* *(King's College London)*; Rahman, Mohammed *(King's College London)*; Koutsoupidou, Maria *(King's College London)*; Cano-Garcia, Helena *(King's College London, Medical Wireless Sensing Ltd.)*; Thanou, Maya *(King's College London)*; Rafique, Waqas *(King's College London)*; Lipscombe, Oliver *(Mediwise)*; Kassanos, Panagiotis *(Imperial College London)*; Triantis, Iasonas *(City, University of London)*; Kallos, Efthymios *(MediWise, Medical Wireless Sensing Ltd.)*; Kosmas, Panos *(King's College London)*

10:45-11:00 SaB04.2
Bioimpedance Method for Human Body Hydration Assessment
Leonov, Vladimir* *(imec)*; Lee, Seulki *(imec)*; Londergan, Ana *(Qualcomm Technology, Inc.)*; Martin, Russel A. *(Qualcomm Technology, Inc.)*; De Raedt, Walter *(imec)*; Van Hoof, Chris *(imec)*

11:00-11:15 SaB04.3
A Wearable Wireless Armband Sensor for High-Density Surface Electromyography Recording
Tam, Simon* *(Laval Univ.)*; Bilodeau, Guillaume *(Laval Univ.)*; Brown, Jérémy *(Laval Univ.)*; Gagnon-Turcotte, Gabriel *(Univ. Laval)*; Campeau-Lecours, Alexandre *(Univ. Laval)*; Gosselin, Benoit *(Laval Univ.)*

11:15-11:30 SaB04.4
Tissue Paper as a Substrate for Electronic Biosensing
Sardar, Sakshi* *(Rutgers University)*; Javanmard, Mehdi *(Rutgers University New Bru)*

11:30-11:45 SaB04.5
Imaging of a Dielectric Inclusion using a Contactless Radio-Frequency Inductive Probe for Tissue Diagnosis
Pasquier, Alexiane* *(Centre de Nanosciences et de NanoTechnologies, CNRS, Univ. Paris)*; Le Diraison, Yohan *(SATIE, CNRS, Univ. de Cergy-Pontoise)*; Joubert, Pierre-Yves *(Centre de Nanosciences et de NanoTechnologies, CNRS, Univ. Paris)*; Serfaty, Stéphane *(SATIE, CNRS, Univ. de Cergy-Pontoise)*

11:45-12:00 SaB04.6
Development of a Low Cost and Low Noise Amplification System for in Vitro Neuronal Recording through Microelectrode Arrays
Aqrawe, Zaid* *(University of Auckland)*; Patel, Nitish *(University of Auckland)*; Montgomery, Johanna *(The University of Auckland, Centre for Brain Research)*; Travas-Sejdic, Jadranka *(The University of Auckland)*; Svirskis, Darren *(The University of Auckland, School of Pharmacy)*

SaB05**:** 10:30-12:00 Hall A2 – Level 1
Signal Processing and Classification for Contactless Measurements (Oral Session)
Chair: McDuff, Daniel Jonathan *(Microsoft)*

10:30-10:45 SaB05.1
Exploiting Weak Head Movements for Camera-Based Respiration Detection
Schrumpf, Fabian* *(Leipzig Univ. of Applied Sciences (HTWK))*; Mönch, Christoph *(Leipzig Univ. of Applied Sciences)*; Bausch, Gerold *(Leipzig Univ. of Applied Sciences)*; Fuchs, Mirco *(Laboratory for Biosignal Processing, Leipzig Univ. of Appli)*

10:45-11:00 SaB05.2
Classifying Individuals with ASD through Facial Emotion Recognition and Eye-Tracking
Jiang, Ming *(Univ. of Minnesota)*; Francis, Sunday* *(Univ. of Minnesota)*; Srishyla, Diksha *(Univ. of Minnesota)*; Conelea, Christine *(Univ. of Minnesota)*; Zhao, Qi *(Univ. of Minnesota)*; Jacob, Suma *(Univ. of Minnesota)*

11:00-11:15 SaB05.3
Number and Angle Analysis in UWB Radar Deployment for Vital Sign Monitoring
Yu, Yibo* *(Beijing Univ. of Posts & Telecommunications)*; Yang, Xiuzhu *(Beijing Univ. of Posts & Telecommunications)*; Qian, Hongyu *(Beijing Univ. of Posts & Telecommunications)*; Zhang, Xinyue *(Beijing Univ. of Posts & Telecommunications)*; Li, Lei *(Beijing Univ. of Posts & Telecommunications)*; Zhang, Lin *(Beijing Univ. of Posts & Telecommunications)*

11:15-11:30 SaB05.4
MUSIC-Based Non-Contact Heart Rate Estimation with Adaptive Window Size Setting
Yamamoto, Kohei* *(Keio University)*; Toyoda, Kentaroh *(Keio University)*; Ohtsuki, Tomoaki *(Keio University)*

11:30-11:45 SaB05.5
Contactless Anesthesia Monitoring in Spontanously Breathing Rodents
Kunczik, Janosch* *(RWTH Aachen University, Faculty of Medicine)*; Barbosa Pereira, Carina *(RWTH Aachen University)*; Wassermann, Laura *(Hannover Medical School)*; Häger, Christine *(Hannover Medical School)*; Bleich, André *(Hannover Medical School)*; Zieglowski, Leonie *(University Hospital RWTH Aachen)*; Tolba, Rene *(RWTH Aachen University)*; Czaplik, Michael *(University Hospital RWTH Aachen)*

11:45-12:00 SaB05.6
Doppler Radar System for In-Home Gait Characterization using Wavelet Transform Analysis
Soubra, Racha* *(Université de Technologie de Troyes)*; Chkeir, Aly *(University of Technology of Troyes)*; Mourad-Chehade, Farah *(Université de Technologie de Troyes)*; Alshama, Daniel *(University of Technology of Troyes)*

SaB06: 10:30-12:00 Hall A5 – Level 1
Neuromodulation: Modeling, Simulation, and Experimentation (Minisymposium)
Chair: Cinelli, Ilaria *(Tufts University)*

10:30-10:45 SaB06.1
Guiding Head Model Selection for tDCS Current Flow Models
Cinelli, Ilaria* *(Tufts University)*; Dorfmann, Luis *(Tufts University)*; Hussey, Erika *(Tufts University)*

10:45-11:00 SaB06.2
Open Issues in E-Field Modeling of Transcranial Electric Stimulation
Callejón Leblic, María Amparo* *(Faculty of Sciences. Univ. of Lisbon)*; Miranda, Pedro Cavaleiro *(Faculdade de Ciências, Univ. de Lisboa)*

11:00-11:15 SaB06.3
Model-Driven Optimization of Multichannel Transcranial Current Stimulation
Sanchez-Todo, Roser* *(Neuroelectrics Barcelona)*; Salvador, Ricardo *(Neuroelectrics)*; Santarnecchi, Emiliano *(Berenson-Allen Center for Non-Invasive Brain Stimulation, Beth I)*; Wendling, Fabrice *(INSERM – Université de Rennes 1)*; Deco, Gustavo *(Center for Brain & Cognition, Universitat Pompeu Fabra (UPF),)*; Ruffini, Giulio *(Starlab Barcelona SL)*

11:15-11:30 SaB06.4
Enhancing Accuracy and Application of Individualized MRI Derived Computational Models through 3D-Capture of tES Electrode Positioning
Woods, Adam J.* *(University of Florida)*; Indahlastari, Aprinda *(University of Florida)*; Albizu, Alejandro *(University of Florida)*; Nissim, Nicole *(University of Florida)*; Traeger, Kelsey *(University of Florida)*; O'Shea, Andrew *(University of Florida)*

11:30-11:45 SaB06.5
Inter-Individual Variation from MRI Derived Computational Models: Comparison across Pediatric, Adults, Elderly, Ethnic and Gender Factors
Datta, Abhishek* *(Soterix Medical, Inc.)*; Thomas, Chris *(Soterix Medical, Inc.)*; Huang, Yu *(City College of New York)*

SaB07: 10:30-12:00 Hall A4 – Level 1
Cells and Tissue as Prediction Model for Toxicology, Drug Development and Personalized Medicine (Minisymposium)
Chair: Wiest, Joachim *(cellasys GmbH)*
Co-Chair: Schulze, Frank *(German Federal Inst. for Risk Assessment)*

10:30-10:45 SaB07.1
New Magnetic Field Device for Application with Laser Microscopes
Koch, Martin* *(Feldkraft Ltd.)*; Wiest, Joachim *(cellasys GmbH)*

10:45-11:00 SaB07.2
Tissue-on-a-Chip
Wiest, Joachim* *(cellasys GmbH)*

11:00-11:15 SaB07.3
Modelling the Crosstalk between Immune Cells and Bone
Lang, Annemarie* *(Charité-Univ. Berlin)*; Pfeiffenberger, Moritz *(Charité-Univ. Berlin)*; Damerau, Alexandra *(Charité-Univ. Berlin)*; Buttgereit, Frank *(Charité-Univ. Berlin)*; Gaber, Timo *(Charité-Univ. Berlin)*

11:15-11:30 SaB07.4
Mechanical Loading of Human Osteoblasts in a Bone-on-a-Chip
Schulze, Frank* *(German Federal Institute for Risk Assessment)*

11:30-11:45 SaB07.5
Development of Personalized Therapies for Cancer with 3D Tumor Spheroids
Brischwein, Martin* *(Technische Universität München)*; Wiest, Joachim *(cellasys GmbH)*

SaB08: 10:30-12:00 M8 – Level 3
General and Theoretical Informatics – Natural Language Processing (Oral Session)

10:30-10:45 SaB08.1
FREGEX: A Feature Extraction Method for Biomedical Text Classification using Regular Expressions
Flores, Christopher A.* *(Univ. de Concepción)*; Figueroa, Rosa *(Univ. de Concepcion)*; Pezoa, Jorge E. *(Univ. de Concepción)*

10:45-11:00 SaB08.2
UMLS Mapping and Word Embeddings for ICD Code Assignment using the MIMIC-III Intensive Care Database
Schäfer, Henning *(Dept. of Computer Science, University of Applied Sciences a)*; Friedrich, Christoph M.* *(University of Applied Sciences & Arts Dortmund; Dept. of)*

11:00-11:15 SaB08.3
Prediction of Personal Experience Tweets of Medication use via Contextual Word Representations
Jiang, Keyuan* *(Purdue Univ. Northwest)*; Chen, Tingyu *(Purdue Univ. Northwest)*; Calix, Ricardo *(Purdue Univ. Northwest)*; Bernard, Gordon R. *(Vanderbilt Univ. Medical Center)*

11:15-11:30 SaB08.4
Analyzing Progression of Motor and Speech Impairment in ALS
Agurto, Carla* *(IBM)*; Pietrowicz, Mary *(IBM)*; Eyigoz, Elif *(IBM)*; Mosmiller, Elizabeth *(Johns Hopkins Univ.)*; Baxi, Emily *(Johns Hopkins Univ.)*; Rothstein, Jeffrey D. *(Johns Hopkins Univ.)*; Roy, Promit *(Johns Hopkins Univ.)*; Berry, James *(Massachusetts General Hospital)*; Maragakis, Nicholas *(Johns Hopkins Univ.)*; Ahmad, Omar *(Kata, Johns Hopkins School of Medicine)*; Cecchi, Guillermo *(IBM T. J. Watson Research Center, Yorktown Heights, NY)*; Norel, Raquel *(IBM)*

11:30-11:45 SaB08.5
Natural Language Processing of Clinical Notes for Improved Early Prediction of Septic Shock in the ICU
Liu, Ran* *(The Johns Hopkins Univ.)*; Greenstein, Joseph L *(The Johns Hopkins Univ.)*; Sarma, Sridevi V. *(Johns Hopkins Univ.)*; Winslow, Raimond L. *(Johns Hopkins Univ.)*

11:45-12:00 SaB08.6
Geospatial Suicide Clusters and Emergency Responses: An Analysis of Text Messages to a Crisis Service
Larsen, Mark Erik* *(University of New South Wales)*; Torok, Michelle *(University of New South Wales)*; Huckvale, Kit *(University of New South Wales)*; Reda, Bilal *(University of New South Wales)*; Berrouiguet, Sofian *(University Hospital of Brest)*; Christensen, Helen *(University of New South Wales)*

SaB09: 10:30-12:00 M1 – Level 3
Models of Organs and Physiology (Oral Session)

10:30-10:45 SaB09.1
Anatomical Characterization of Frontal Sinus and Development of Representative Models
Coemert, Suat* *(Technical Univ. of Munich)*; Veith, Larissa *(Technical Univ. of Munich)*; Strauss, Gero *(Univ. of Leipzig)*; Schmitz, Pia M. *(IRDC GmbH International Reference & Dev. Centre for Sur)*; Lueth, Tim *(Technical Univ. of Munich)*

10:45-11:00 SaB09.2
Accurate Anatomical Head Segmentations: A Data Set for Biomedical Simulations
Farcito, Silvia *(IT'IS Foundation)*; Puonti, Oula *(Copenhagen Univ. Hospital Hvidovre, Denmark)*; Montanaro, Hazael *(IT'IS Foundation for Research on Information Technologies in Soc)*; Bicalho Saturnino, Guilherme *(Technical Univ. of Denmark)*; Nielsen, Jesper D. *(Copenhagen Univ. Hospital Hvidovre, Denmark & Dept. of Appl)*; Madsen, Camilla *(DRCRM, Technical Univ. Denmark)*; Siebner, Hartwig R. *(Hvidovre Hospital, Danish Research Center for Magnetic Resonance)*; Neufeld, Esra *(Foundation for Research on Information Technologies in Society ()*; Kuster, Niels *(Foundation)*; Lloyd, Bryn *(Foundation for Information Technology in Society (IT'IS))*; Thielscher, Axel* *(Copenhagen Univ. Hospital Hvidovre, Denmark & Biomedical En)*

11:00-11:15 SaB09.3
A Shape Optimization Technique to Predict Left Ventricle Ischemic Tissue Damage
Dempsey, Sergio C. H.* *(Western University)*; So, Aaron *(Western University)*; Samani, Abbas *(Western University)*

11:15-11:30 SaB09.4
A Geometrical Approach to Human Saccade Simulation
Gunawardane, Palpolage Don Shehan Hiroshan* *(University of British Columbia)*; Chiao, Mu *(University of British Columbia)*; W de Silva, Clarence *(University of British Columbia)*

11:30-11:45 SaB09.5
Real-Time Subject-Specific Head and Facial Mimic Animation System using a Contactless Kinect Sensor and System of Systems Approach
Nguyen, Tan-Nhu* *(Univ. de Technologie de Compiègne)*; Dakpé, Stéphanie *(CHU Amiens- Service Chirurgie Maxillo-Faciale)*; Ho Ba Tho, Marie-Christine *(Univ. de Technologie de Compiègne)*; Dao, Tien-Tuan *(Univ. of Technology of Compiegne)*

11:45-12:00 SaB09.6
Modelling Optogenetic Subthreshold Effects
Luo, JunWen* *(Newcastle Univ.)*; Nikolic, Konstantin *(Imperial College London)*; Degenaar, Patrick *(Newcastle Univ.)*

SaB10: 10:30-12:00 M2 – Level 3
Neural and Muscle Stimulation (Oral Session)
Chair: Panescu, Dorin *(Zidan Medical, Inc.)*

10:30-10:45 SaB10.1
A Minimally Invasive Wirelessly Powered Brain Stimulation System for Treating Neurological Disorders
Lee, Hyungwoo* *(Samsung Advanced Institute of Technology)*; Lee, Jin San *(KyungHee Univ. Medical Center)*; Chung, Yeongu *(Asan Medical Center)*; Jung, Wooram *(Samsung Medical Center)*; Kang, Joonseong *(Samsung Advanced Institute of Technology)*; Seo, Dae Won *(Samsung Medical Center)*; Shon, Young-Min *(Samsung Medical Center)*; Na, Duk-Lyul *(Samsung Medical Center)*; Kim, Sang Joon *(Samsung Electronics)*

10:45-11:00 SaB10.2
Task-Based Automatic Evaluation of People with Intellectual Disabilities Performed on a Robotic Table Soccer
Reis Gomes, Pedro Miguel Pinto* *(Lusiada Univ.)*; Lima, Carlos Manuel Gregorio Santos *(Univ. of Minho)*; Portela de Lemos, Ana F. *(Universidade Lusíada)*; Nicolau V Costa, António *(Universidade Lusíada)*; P M Torrinha, Ângela *(APPACDM Braga)*; Fatima P. S. Moreira, Maria *(APPACDM Braga)*; G Dantas, Odete *(APPACDM Braga)*; Daniel Lopes dos Santos, Filipe *(Universidade Lusíada)*; Oliveira, Rui Pedro *(Universidade Lusíada)*; Costa, José Miguel *(Univ. Lusíada)*

11:00-11:15 SaB10.3
Electrical Safety and Performance of the G.L.O.V.E Relative to Relevant Requirements of International Electrical Standards
Jiang, Zhiyong *(Shenzhen Senxunda Electronic Tech. Co., Ltd., Shenzhen, Chi)*; Panescu, Dorin* *(Zidan Medical, Inc.)*

11:15-11:30 SaB10.4
Toward Miniaturization of Defibrillators: Design of a Defibrillation Charge/Discharge Circuit
Huang, Yanqi *(Fudan University)*; Wen, Xin *(Fudan University)*; Wang, Jianfei* *(Fudan University)*; Jin, Lian *(Fudan University)*; Qian, Li *(Fudan University)*; Wu, Xiaomei *(Fudan University)*

11:30-11:45 SaB10.5
Towards Automated Patient-Specific Optimization of Deep Brain Stimulation for Movement Disorders
Sarikhani, Parisa *(Emory University)*; Miocinovic, Svjetlana *(Emory University)*; Mahmoudi, Babak* *(Emory University)*

11:45-12:00 SaB10.6
Efficient Thermobonding Process Forming a Polyurethane based Diagnostic Catheter with Liquid Crystal Polymer
Kuert, Gerhard* *(Berner Fachhochschule)*; Jacomet, Marcel *(Institute for Human Centered Engineering, Bern Univ. of App)*; Niederhauser, Thomas *(Bern Univ. of Applied Sciences)*

SaB11: 10:30-12:00 M4 – Level 3
Identification of Cardiopulmonary Function (Invited Session)
Chair: Karbing, Dan Stieper *(Aalborg University)*
Co-Chair: Badnjevic, Almir *(Medical Devices Verification Lab Verlab)*

10:30-10:45 SaB11.1
Computational Simulation of Continuous Positive Airway Pressure in Casualties Suffering from Primary Blast Lung Injury
Scott, Timothy *(Academic Dept. of Military Anaesthesia & Critical Care, R)*; Haque, Mainul *(Univ. of Nottingham)*; Das, Anup *(Univ. of Warwick)*; Cliff, Ian *(Univ. Hospital North Midlands, Stoke-On-Trent, UK.)*; Bates, Declan Gerard* *(Univ. of Warwick)*; Hardman, Jonathan G. *(Univ. of Nottingham)*

10:45-11:00 SaB11.2
A Predictive Model of the Stochastic and Temporally Scaled Characteristics of Cardiorespiratory Activity
BuSha, Brett* *(The College of New Jersey)*

11:00-11:15 SaB11.3
Model-Based Decision Support for Support Mode Mechanical Ventilation
Karbing, Dan Stieper* *(Aalborg University)*

11:15-11:30 SaB11.4
Analysis of CT Images with a Pseudo-Three Dimensional Multiscale Fuzzy Entropy Measure: Applications to Lung Diseases
Hilal, Mirvana* *(University of Angers)*; Thomsen, Lars Pilegaard *(Aalborg University)*; Azami, Hamed *(Harvard University)*; Humeau-Heurtier, Anne *(University of Angers)*

11:30-11:45 SaB11.5
Correlation between Valve Event Amplitudes in the Seismocardiogram and VO2-Max
Sørensen, Kasper* *(Aalborg University)*; Poulsen, Mathias Krogh *(Respiratory & Critical Care Group at Dept. of Health Scie)*; Karbing, Dan Stieper *(Aalborg University)*; Søgaard, Peter *(Aalborg University Hospital)*; Struijk, Johannes *(Aalborg University)*; Schmidt, Samuel Emil *(Aalborg University)*

SaB13: 10:30-12:00 R2 – Level 3
Computational Human Models for In- and On-Body Communications (Invited Session)
Chair: Noetscher, Gregory *(Worcester Polytechnic Institute)*
Co-Chair: Sayrafian, Kamran *(NIST)*

10:30-10:45 SaB13.1
A Preliminary Study of Capsule Endoscopy Orientation Estimation using a Computational Human Body Model
Krhac, Katjana *(University of Zagreb, Faculty of Electrical Engineering & Comp)*; Sayrafian, Kamran* *(NIST)*; Simunic, Dina *(University of Zagreb)*

10:45-11:00 SaB13.2
Sensitivity of Bio-Loading Effect on Hearable Antennas
Chen, Louis* *(Bose Corporation)*; Noetscher, Gregory *(Worcester Polytechnic Institute)*; Makarov, Sergey *(Electrical & Computer Engineering, Worcester Polytechnic Institute)*

11:00-11:15 SaB13.3
Human Phantom Models for Numerical Modeling of in and On-Body Antennas
Noetscher, Gregory* *(Worcester Polytechnic Institute)*; Makarov, Sergey *(Electrical & Computer Engineering, Worcester Polytechnic Institute)*

SaB14: 10:30-12:00 R3 – Level 3
Signal Processing and Classification for BCIs and Motor Imagery (Oral Session)
Co-Chair: Faes, Luca *(University of Palermo)*

10:30-10:45 SaB14.1
Using Discriminative Lasso to Detect a Graph Fourier Transform (GFT) Subspace for Robust Decoding in Motor Imagery BCI
Georgiadis, Kostas* *(Aristotle Univ. of Thessaloniki – Information Technologies)*; Laskaris, Nikos *(Aristotle Univ. of Thessaloniki)*; Nikolopoulos, Spiros *(Information Technologies Institute, Centre for Research & Tech)*; Adamos, Dimitrios *(School of Music Studies, Faculty of Fine Arts, Aristotle Univ.)*; Kompatsiaris, Ioannis (Yannis) *(Information Technologies Institute, CERTH)*

10:45-11:00 SaB14.2
Level-Wise Subject Adaptation to Improve Classification of Motor and Mental EEG Tasks
Sharon, Rini A *(Indian Institute of Technology, Madras)*; Aggarwal, Sidharth* *(Indian Institute of Technology, Madras)*; Goel, Purvi *(Indian Institute of Technology, Madras)*; Joshi, Raviraj *(Indian Institute of Technology, Madras)*; Sur, Mriganka *(MIT)*; Murthy, Hema *(Indian Institute of Technology Madras)*; Ganapathy, Sriram *(Indian Institute of Science, Banglore)*

11:00-11:15 SaB14.3
Mutual Information Analysis of Brain-Body Interactions during Different Levels of Mental Stress
Pernice, Riccardo* *(University of Palermo)*; Zanetti, Matteo *(Dipartimento di Ingegneria Industriale, Università di Trento)*; Nollo, Giandomenico *(University of Trento)*; De Cecco, Mariolino *(Dipartimento di Ingegneria Industriale, Università di Trento)*; Busacca, Alessandro *(Università degli Studi di Palermo)*; Faes, Luca *(University of Palermo)*

11:15-11:30 SaB14.4
Weighted Sparse Representation for Classification of Motor Imagery EEG Signals
Sreeja, S R *(Indian Institute of Technology, Kharagpur)*; Himanshu, . *(Indian Institute of Technology, Kharagpur)*; Samanta, Debasis* *(Indian Institute of Technology Kharagpur)*; Sarma, Monalisa *(Indian Institute of Technology Kharagpur)*

11:30-11:45 SaB14.5
High-Frequency SSVEP Stimulation Paradigm based on Dual Frequency Modulation
Liang, Li Yan *(Tsinghua Univ., Dept. of Biomedical Engineering)*; Yang, Chen *(Tsinghua Univ.)*; Wang, Yijun *(Institute of Semiconductors, Chinese Academy of Sciences)*; Gao, Xiaorong* *(Tsinghua Univ.)*

11:45-12:00 SaB14.6
Multiple-Instance Learning for In-the-Wild Parkinsonian Tremor Detection
Papadopoulos, Alexandros* *(Aristotle Univ. of Thessaloniki)*; Kyritsis, Konstantinos *(Aristotle Univ. of Thessaloniki)*; Bostanjopoulou, Sevasti *(Dept. of Neurology, Hippokration Hospital, Thessaloniki)*; Klingelhoefer, Lisa *(Dept. of Neurology Technical Univ. Dresden, Dresden, G)*; Chaudhuri, Ray *(International Parkinson Excellence Research Centre, King's Colle)*; Delopoulos, Anastasios *(Aristotle Univ. of Thessaloniki)*

SaB15: 10:30-12:00 M3 – Level 3
Ultrasound Imaging (I) (Oral Session)

10:30-10:45 SaB15.1
3D-Rendered Electromechanical Wave Imaging for Localization of Accessory Pathways in Wolff-Parkinson-White Minors
Melki, Lea *(Columbia Univ.)*; Grubb, Christopher *(Columbia Univ. Medical Center)*; Weber, Rachel *(Columbia Univ.)*; Nauleau, Pierre *(Columbia Univ.)*; Garan, Hasan *(Columbia Univ.)*; Wan, Elaine *(Columbia Univ.)*; Silver, Eric S. *(Columbia Univ. Medical Center)*; Liberman, Leonardo *(Columbia Univ. Medical Center)*; Konofagou, Elisa* *(Columbia Univ.)*

10:45-11:00 SaB15.2
Breast Calcifications Detection based on Radiofrequency Signals by Quantitative Ultrasound Multi-Parameter Fusion
Qiao, Mengyun *(Fudan University)*; Guo, Yi* *(Fudan University)*; Zhou, Shichong *(Fudan University)*; Chang, Cai *(Fudan University)*; Wang, Yuanyuan *(Fudan University)*

11:00-11:15 SaB15.3
Atherosclerotic Plaque Mechanical Characterization Coupled with Vector Doppler Imaging in Atherosclerotic Carotid Arteries in-Vivo
Karageorgos, Grigorios Marios *(Columbia Univ.)*; Apostolakis, Iason-Zacharias *(Columbia Univ.)*; Nauleau, Pierre *(Columbia Univ.)*; Gatti, Vittorio *(Mr.)*; Weber, Rachel *(Columbia Univ.)*; Konofagou, Elisa* *(Columbia Univ.)*

11:15-11:30 SaB15.4
Fast Approximate Time-Delay Estimation in Ultrasound Elastography using Principal Component Analysis
Zayed, Abdelrahman* *(Concordia University)*; Rivaz, Hassan *(Concordia University)*

11:30-11:45 SaB15.5
An Instrumented Ultrasound Probe for Shear Wave Elastography with Uneven Force Distribution
Huang, Athena Y. *(Massachusetts Institute of Technology)*; Anthony, Brian W.* *(Massachusetts Institute of Technology)*

11:45-12:00 SaB15.6
A Convolutional Neural Network for 250-MHz Quantitative Acoustic-Microscopy Resolution Enhancement
Mamou, Jonathan* *(Riverside Research)*; Pellegrini, Thomas *(Univ. de Toulouse III ; IRIT)*; Kouamé, Denis *(Univ. de Toulouse III, IRIT UMR CNRS)*; Basarab, Adrian *(Univ. de Toulouse)*

SaB16: 10:30-12:00 M5 – Level 3
Wearable Robotic Systems – Orthotics (Oral Session)
Co-Chair: Liarokapis, Minas *(The University of Auckland)*

10:30-10:45 SaB16.1
An Assistance Approach for a Powered Knee Exoskeleton during Level Walking and the Effects on Metabolic Cost
Jang, Junwon* *(Samsung Electronics)*; Lim, Bokman *(Samsung Electronics Co., Ltd)*; Shim, Youngbo *(Samsung Advanced Institute of Technology)*

10:45-11:00 SaB16.2
Optimized Design of a Variable Viscosity Link for Robotic AFO
Hassan, Modar* *(University of Tsukuba)*; Yagi, Keisuke *(Ibaraki University)*; Kadone, Hideki *(University of Tsukuba)*; Ueno, Tomoyuki *(University of Tsukuba Hospital)*; Mochiyama, Hiromi *(University of Tsukuba)*; Suzuki, Kenji *(University of Tsukuba)*

11:00-11:15 SaB16.3
An Underactuated, Tendon-Driven, Wearable Exo-Glove with a Four-Output Differential Mechanism
Gerez, Lucas *(University of Auckland)*; Liarokapis, Minas* *(The University of Auckland)*

11:15-11:30 SaB16.4
Effect of Segmentation Parameters on Classification Accuracy of High-Density EMG Recordings
Lara, Jaime* *(The University of Auckland)*; Paskaranandavadivel, Niranchan *(The University of Auckland)*; Cheng, Leo K *(The University of Auckland)*

11:30-11:45 SaB16.5
A Shoulder Mechanism for Assisting Upper Arm Function with Distally Located Actuators
Jones, Michael *(University of Maine)*; Bouffard, Connor *(University of Maine)*; Hejrati, Babak* *(University of Maine)*

11:45-12:00 SaB16.6
A Pneumatic-Muscle-Actuator-Driven Knee Rehabilitation Device for CAM Therapy
Martens, Mirco *(Technische Universität Berlin)*; Zawatzki, Johannes* *(Beuth Hochschule für Technik Berlin)*; Seel, Thomas *(Technische Universität Berlin)*; Boblan, Ivo *(Beuth Hochschule für Technik Berlin)*

SaB17: 10:30-12:00 R12 – Level 3
CT Imaging (Oral Session)

10:30-10:45 SaB17.1
Hybrid Neural Networks for Mortality Prediction from LDCT Images
Yan, Pingkun* *(Rensselaer Polytechnic Institute)*; Guo, Hengtao *(Rensselaer Polytechnic Institute)*; Wang, Ge *(Rensselaer Polytechnic Institute)*; De Man, Ruben *(Massachusetts General Hospital)*; Kalra, Mannudeep *(Massachusetts General Hospital & Harvard Medical School)*

10:45-11:00 SaB17.2
Low-Dose CT Denoising using Edge Detection Layer and Perceptual Loss
Gholizadeh-Ansari, Maryam *(Ryerson University)*; Alirezaie, Javad* *(Ryerson University, Univ. of Waterloo)*; Babyn, Paul *(University of Saskatchewan)*

11:00-11:15 SaB17.3
Inner Focus Iterative Reconstruction Method with the Interlaced Phase Stepping Scanning for Grating-Based Phase Contrast Tomography
Hou, Zhishang *(Shanghai Jiao Tong Univ.)*; Zhao, Jun *(Shanghai Jiao Tong Univ.)*; Sun, Jianqi* *(Shanghai Jiao Tong Univ.)*

11:15-11:30 SaB17.4
Quantitative Pathologic Analysis of Pulmonary Nodules using Three-Dimensional Computed Tomography Images based on Latent Dirichlet Allocation
Gao, Mengdi *(Sino-Dutch Biomedical & Information Engineering School, Northe)*; Jiang, Hongyang* *(Sino-Dutch Biomedical & Information Engineering School, Northe)*; Zhang, Dongdong *(Beijing ZhiZhen Internet Technology Co., Ltd .)*; Ma, He *(Northeastern Univ.)*; Qian, Wei *(Univ. of Texas at El Paso)*

11:30-11:45 SaB17.5
Lung Nodule Classification using a Novel Two-Stage Convolutional Neural Networks Structure
An, Yang *(Univ. of Technology Sydney)*; Hu, Tianren *(Univ. of Technology Sydney)*; Wang, Jiaqi *(Univ. of Technology Sydney)*; Lyu, Juan *(Harbin Engineering Univ.)*; Banerjee, Sunetra *(Univ. of Technology Sydney)*; Ling, Sai Ho, Steve* *(Univ. of Technology Sydney)*

11:45-12:00 SaB17.6
4DCT Ventilation Map Construction using Biomechanics-Based Image Registration and Enhanced Air Segmentation
Jafari, Parya* *(Western Univ.)*; Yaremko, Brian *(London Regional Cancer Program)*; Parraga, Grace *(Robarts Research Institute)*; Hoover, Douglas *(London Health Sciences Centre)*; Sadeghi-Naini, Ali *(York Univ.)*; Samani, Abbas *(Western Univ.)*

SaB18: 10:30-12:00 R13 – Level 3
Neural Stimulation (II) (Oral Session)

10:30-10:45 SaB18.1
Modulation of Reciprocal Inhibition at the Wrist as a Neurophysiological Correlate of Tremor Suppression: A Pilot Healthy Subject Study
Pascual Valdunciel, Alejandro *(CSIC)*; Oliveira Barroso, Filipe* *(Spanish National Research Council (CSIC))*; Muceli, Silvia *(Imperial College London)*; Taylor, Julian S *(Hospital Nacional de Parapléjicos)*; Farina, Dario *(Imperial College London)*; Pons, Jose Luis *(Cajal Institute, Spanish Research Council)*

10:45-11:00 SaB18.2
Extracellular Stimulation of Neural Tissues: Activating Function and Sub-Threshold Potential Perspective
Appali, Revathi* *(Univ. of Rostock)*; Sriperumbudur, Kiran K *(Univ. of Rostock)*; van Rienen, Ursula *(Univ. of Rostock)*

11:00-11:15 SaB18.3
Extraction of Evoked Compound Nerve Action Potentials from Vagus Nerve Recordings
Chang, Yao-Chuan* *(Feinstein Institute for Medical Research)*; Ahmed, Umair *(Feinstein Institute for Medical Research)*; Tomaio, Jacquelyn *(The Feinstein Institute for Medical Research)*; Rieth, Loren *(University of Utah)*; Datta-Chaudhuri, Timir *(Feinstein Institute for Medical Research)*; Zanos, Stavros *(Feinstein Institute for Medical Research)*

11:15-11:30 SaB18.4
Mobile Wireless Low-Intensity Transcranial Ultrasound Stimulation System for Freely Behaving Small Animals
Kim, Evgenii* *(Korea Institute of Science & Tech.)*; Sanchez-Casanova, Jorge *(Carlos III Univ. of Madrid, Univ. Group for Identifica)*; Anguluan, Eloise *(Gwangju Institute of Science & Tech.)*; Kim, Hyungmin *(Korea Institute of Science & Tech.)*; Kim, Jae Gwan *(Gwangju Institute of Science & Tech.)*

11:30-11:45 SaB18.5
Targeted Vagus Nerve Stimulation Does Not Disrupt Cardiac Function in the Diabetic Rat
Dirr, Elliott* *(University of Florida)*; Patel, Yogi *(Johns Hopkins University)*; Lester, Lauren *(University of Florida)*; Delgado, Francisco *(Dr.)*; Otto, Kevin *(University of Florida)*

11:45-12:00 SaB18.6
Optimized Transcutaneous Spinal Cord Direct Current Stimulation using Multiple Electrodes from 3/9/7 System
Huang, Yu *(City College of New York)*; Thomas, Chris *(Soterix Medical, Inc.)*; Datta, Abhishek* *(Soterix Medical, Inc.)*

SaB19: 10:30-12:00 R4 – Level 3
Image Segmentation (II) (Oral Session)
Co-Chair: Soroushmehr, S.M. Reza *(Univ. of Michigan, Ann Arbor)*

10:30-10:45 SaB19.1
Cascaded CNN for View Independent Breast Segmentation in Thermal Images
Kakileti, Siva Teja* *(Niramai Health Analytix Pvt. ltd)*; Manjunath, Geetha *(Niramai Health Analytix)*; Madhu, Himanshu *(Niramai Health Analytix)*

10:45-11:00 SaB19.2
Automatic Corneal Ulcer Segmentation Combining Gaussian Mixture Modeling and Otsu Method
Liu, Zhenrong *(Southern University of Science & Technology)*; Shi, Yankun *(Southern University of Science & Technology)*; Zhan, Pengji *(Southern University of Science & Technology)*; Zhang, Yue *(Southern University of Science & Technology)*; Gong, Yi *(Southern University of Science & Technology)*; Tang, Xiaoying* *(Southern University of Science & Technology)*

11:00-11:15 SaB19.3
An Effective Encoder-Decoder Network for Neural Cell Bodies and Cell Nucleus Segmentation of EM Images
Jiang, Yi *(Institute of Automation, Chinese Academy of Sciences)*; Xiao, Chi *(Institute of Automation, Chinese Academy of Sciences)*; Li, Linlin *(Institute of Automation Chinese Academy of Sciences)*; Chen, Xi *(Institute of Automation, Chinese Academy of Sciences)*; Shen, Lijun *(Institute of Automation, Chinese Acacemy of Sciences)*; Han, Hua* *(Institute of Automation, Chinese Academy of Sciences)*

11:15-11:30 SaB19.4
An Augmented Cell Segmentation in Fluorescent in Situ Hybridization Images
Shen, Jianhuo *(Anhui Univ)*; Li, Teng *(Anhui University)*; Hu, Chuanrui *(Anhui University)*; He, Hong *(Xiamen Chokhmah Biotechnology Co., Ltd.)*; Jiang, Dashan *(Electrical Engineering & Automation, Anhui University)*; Liu, Jianfei* *(Anhui University)*

11:30-11:45 SaB19.5
Liver Segmentation in Abdominal CT Images using Probabilistic Atlas and Adaptive 3D Region Growing
Rafiei, Shima *(IUT)*; Karimi, Nader *(Isfahan University of Technology)*; Mirmahboub, Behzad *(Istituto Italiano di Tecnologia (IIT))*; Najarian, Kayvan *(University of Michigan – Ann Arbor)*; Felfeliyan, Banafsheh *(Isfahan University of Technology)*; Samavi, Shadrokh *(McMaster University)*; Soroushmehr, S.M.Reza* *(University of Michigan, Ann Arbor)*

11:45-12:00 SaB19.6
Aided Hand Detection in Thermal Imaging using RGB Stereo Vision
Smieschek, Manfred* *(RWTH Aachen University)*; Kobsik, Gregor *(Informatik 11 – Embedded Software, RWTH Aachen)*; Stollenwerk, Andre *(RWTH Aachen)*; Kowalewski, Stefan *(RWTH Aachen University)*; Orlikowsky, Thorsten *(Uniklinik RWTH Aachen)*; Mark, Schoberer *(Uniklinik RWTH Aachen)*

SaC01: 13:00-14:30 Hall A6+A7 – Level 1
Brain-Computer Interface (III) (Oral Session)

13:00-13:15 SaC01.1
Development of a High-Speed Mental Spelling System Combining Eye Tracking and SSVEP-Based BCI with High Scalability
Lin, Xinyuan *(Zhejiang Univ.)*; Chen, Zhenyi *(Zhejiang Univ.)*; Xu, Kedi *(Qiushi Academy for Advanced Studies, Zhejiang Univ., Hangzhou)*; Zhang, Shaomin* *(Zhejiang Univ.)*

13:15-13:30 SaC01.2
A Convolutional Neural Network for Enhancing the Detection of SSVEP in the Presence of Competing Stimuli
Ravi, Aravind *(University of Waterloo)*; Manuel, Jacob *(University of Waterloo)*; Heydari, Nargess *(University of Waterloo)*; Jiang, Ning* *(University of Waterloo)*

13:30-13:45 SaC01.3
State-Space Modeling and Fuzzy Feedback Control of Cognitive Stress
Fekri Azgomi, Hamid *(Univ. of Houston)*; Wickramasuriya, Dilranjan *(Univ. of Houston)*; Faghih, Rose T.* *(Univ. of Houston)*

13:45-14:00 SaC01.4
A Four-Class Phase-Coded SSVEP BCI at 60Hz using Refresh Rate
Jiang, Lu *(Institute of Semiconductors, Chinese Academy of Sciences)*; Wang, Yijun* *(Institute of Semiconductors, Chinese Academy of Sciences)*; Pei, Weihua *(Institute of Semiconductors, CAS)*; Chen, Hongda *(Institute of Semiconductors, CAS)*

14:00-14:15 SaC01.5
A Visual-Haptic Neurofeedback Training Improves Sensorimotor Cortical Activations and BCI Performance
Wang, Zhongpeng *(Tianjin University)*; Zhou, Yijie *(Tianjin University)*; Chen, Long *(Tianjin University)*; Gu, Bin *(Tianjin University)*; Liu, Shuang *(Tianjin University)*; Xu, Minpeng *(Tianjin University)*; Qi, Hongzhi *(Tianjin University)*; He, Feng *(Tianjin University)*; Ming, Dong* *(Tianjin University)*

14:15-14:30 SaC01.6
Toward Comparison of Cortical Activation with Different Motor Learning Methods using Event-Related Design: EEG-fNIRS Study
Jeong, Hojun* *(DGIST (Daegu Gyeongbuk Institute of Science & Technology))*; Song, Minsu *(DGIST (Daegu Gyeongbuk Institute of Science & Technology))*; Oh, Seunghue *(DGIST)*; Kim, Jongbum *(DGIST)*; Kim, Jonghyun *(DGIST)*

SaC02: 13:00-14:30 Hall A8 – Level 1
Signal Processing and Classification of Heart Rate Variability: Methods (Oral Session)
Chair: Voss, Andreas *(University of Applied Sciences Jena)*
Co-Chair: Masè, Michela *(University of Trento)*

13:00-13:15 SaC02.1
A Novel Algorithm for HRV Estimation from Short-Term Acoustic Recordings at Neck
Sharma, Piyush* *(Imperial College London)*; Rodriguez-Villegas, Esther *(Imperial College London)*

13:15-13:30 SaC02.2
Modeling Framework for the Generation of Synthetic RR Series during Atrial Arrhythmias
Masè, Michela* *(University of Trento)*; Marsili, Italo Augustin *(Medicaltech srl)*; Nollo, Giandomenico *(University of Trento)*; Ravelli, Flavia *(University of Trento)*

13:30-13:45 SaC02.3
Can the Detrended Fluctuation Analysis Reveal Nonlinear Components of Heart Rate Variability?
Castiglioni, Paolo* *(Fondazione Don Carlo Gnocchi ONLUS)*; Parati, Gianfranco *(University of MIlano-Bicocca & Istituto Auxologico Italiano, M)*; Faini, Andrea *(Istituto Auxologico Italiano)*

13:45-14:00 SaC02.4
A Correlation-Based Algorithm for Beat-to-Beat Heart Rate Estimation from Ballistocardiograms
Wen, Xin *(Fudan Univ.)*; Huang, Yanqi *(Fudan Univ.)*; Wu, Xiaomei* *(Fudan Univ.)*; Zhang, Biyong *(BOBO Technology Ltd.)*

14:00-14:15 SaC02.5
Temporal Cardiovascular Causality during Orthostatic Stress by Extended Partial Directed Coherence
Reulecke, Sina *(Univ. Autónoma Metropolitana)*; Charleston-Villalobos, Sonia* *(Univ. Autonoma Metropolitana)*; Voss, Andreas *(Univ. of Applied Sciences Jena)*; Gonzalez-Camarena, Ramon *(Univ. Autonoma Metropolitana)*; Gaitan-Gonzalez, Mercedes *(Univ. Autonoma Metropolitana)*; Gonzalez-Hermosillo, Jesus Antonio *(Instituto Nacional de Cardiología)*; Hernandez-Pacheco, Guadalupe *(Instituto Nacional de Cardiologia "Ignacio Chavez")*; Aljama-Corrales, Tomas *(Univ. Autonoma Metropolitana)*

14:15-14:30 SaC02.6
Are we Training our Heartbeat Classification Algorithms Properly?
Villa, Amalia* *(Biomed, ESAT-STADIUS, KU Leuven)*; Deviaene, Margot *(KU Leuven)*; Willems, Rik *(KU Leuven)*; Van Huffel, Sabine *(KU Leuven)*; Varon, Carolina *(Katholieke Univ. Leuven)*

SaC03: 13:00-14:30 Hall A3 – Level 1
Photoacoustic/Optoacoustic/Thermoacoustic Imaging (Oral Session)
Co-Chair: Thittai, Arun Kumar *(IIT MADRAS)*

13:00-13:15 SaC03.1
Hybrid Neural Network for Photoacoustic Imaging Reconstruction
Lan, Hengrong* *(ShanghaiTech University)*; Zhou, Kang *(ShanghaiTech University)*; Yang, Changchun *(ShanghaiTech University)*; Liu, Jiang *(Ningbo Institute of Materials Technology & Engineering, CAS)*; Gao, Shenghua *(ShanghaiTech University)*; Gao, Fei *(ShanghaiTech University)*

13:15-13:30 SaC03.2
Accelerated Photoacoustic Tomography Reconstruction via Recurrent Inference Machines
Yang, Changchun *(ShanghaiTech University)*; Lan, Hengrong* *(ShanghaiTech University)*; Gao, Fei *(ShanghaiTech University)*

13:30-13:45 SaC03.3
Non-Invasive Remote Temperature Monitoring using Microwave-Induced Thermoacoustic Imaging
Nan, Hao *(Stanford University)*; Fitzpatrick, Aidan* *(Stanford University)*; Wang, Ke *(University of California, Berkeley)*; Arbabian, Amin *(Stanford University)*

13:45-14:00 SaC03.4
Enhancing Depth of Penetration in PLD-Based Photoacoustic Imaging: Preliminary Results
Chandramoorthi, Sowmiya *(IIT Madras)*; Thittai, Arun Kumar* *(IIT MADRAS)*

14:00-14:15 SaC03.5
Adjustable Handheld Probe Design for Photoacoustic Imaging: Mathematical Modelling and Simulation Study
Zhao, Yongjian* *(School of Information Science & Technology, ShanghaiTech Unive)*; Tao, Ben *(Tongji Univ.)*; Yu, Shaohui *(ShanghaiTech Univ.)*; Gao, Fei *(ShanghaiTech Univ.)*

14:15-14:30 SaC03.6
Ultrasound-Based Regularized Log Spectral Difference Method for Monitoring Microwave Hyperthermia
Kothawala, AliArshad *(Indian Institute of Technology Madras)*; Baskaran, Divya Baskaran *(Indian Institute of Technology Madras)*; Arunachalam, Kavitha *(Duke University)*; Thittai, Arun Kumar* *(IIT MADRAS)*

SaC04: 13:00-14:30 Hall A1 – Level 1
Biomechanical Analysis (Oral Session)
Chair: Cereatti, Andrea *(University of Sassari)*
Co-Chair: Doheny, Emer *(University College Dublin)*

13:00-13:15 SaC04.1
Synthesising Motion Sensor Data from Biomechanical Simulations to Investigate Motion Sensor Placement and Orientation Variations
Derungs, Adrian* *(Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU))*; Amft, Oliver *(Friedrich-Alexander Universität Erlangen-Nürnberg (FAU))*

13:15-13:30 SaC04.2
IMU-Based Assessment of Ankle Inversion Kinematics and Orthosis Migration
Betz, Johannes *(TU Berlin)*; Klingspor, Christoph *(TU Berlin)*; Seel, Thomas* *(Technische Universität Berlin)*

13:30-13:45 SaC04.3
Three-Dimensional GRF and CoP Estimation during Stair and Slope Ascent/Descent with Wearable IMUs and Foot Pressure Sensors
Fukushi, Kenichiro* *(NEC Corporation)*; Sekiguchi, Yusuke *(Tohoku Univ.)*; Honda, Keita *(Tohoku Univ.)*; Yaguchi, Haruki *(Tohoku Univ.)*; Izumi, Shin-ichi *(Tohoku Univ.)*

13:45-14:00 SaC04.4
Hand Motion Measurement using Inertial Sensor System and Accurate Improvement by Extended Kalman Filter
Kitano, Keisuke* *(Doshisha University)*; Ito, Akihito *(Doshisha University)*; Tsujiuchi, Nobutaka *(Doshisha University)*

14:00-14:15 SaC04.5
Regression-Based Analysis of Front Crawl Swimming using Upper-Arm Mounted Accelerometers
Doheny, Emer* *(Univ. College Dublin)*; Goulding, Cathy *(Univ. College Dublin)*; Lowery, Madeleine *(Univ. College Dublin)*

14:15-14:30 SaC04.6
Inter-Leg Distance Measurement as a Tool for Accurate Step Counting in Patients with Multiple Sclerosis
Bertuletti, Stefano* *(University of Sassari)*; Salis, Francesca *(University of Sassari)*; Cereatti, Andrea *(University of Sassari)*; Angelini, Lorenza *(University of Sheffield)*; Buckley, Ellen *(University of Sheffield)*; Nair, K.P.S. *(Sheffield Teaching Hospitals NHS Foundation Trust)*; Mazzà, Claudia *(University of Sheffield)*; Della Croce, Ugo *(University of Sassari)*

SaC05: 13:00-14:30 Hall A2 – Level 1
Connectivity and Causality (Oral Session)
Chair: Astolfi, Laura *(University of Rome Sapienza)*

13:00-13:15 SaC05.1
Recurrent Neural Networks for Reconstructing Complex Directed Brain Connectivity
Duggento, Andrea* *(University of Rome "Tor Vergata")*; Guerrisi, Maria *(University of Rome "Tor Vergata")*; Toschi, Nicola *(University of Rome "Tor Vergata", Faculty of Medicine)*

13:15-13:30 SaC05.2
Single-Trial Connectivity Estimation through the Least Absolute Shrinkage and Selection Operator
Antonacci, Yuri* *(University of Rome Sapienza)*; Toppi, Jlenia *(University of Rome "Sapienza")*; Mattia, Donatella *(Fondazione Santa Lucia IRCCS)*; Pietrabissa, Antonio *(University of Rome Sapienza)*; Astolfi, Laura *(University of Rome Sapienza)*

13:30-13:45 SaC05.3
Effect of Connectivity Measures on the Identification of Brain Functional Core Network at Rest
Rizkallah, Jennifer* *(LTSI Inserm U1099, Univ. de Rennes 1)*; Amoud, Hassan *(Lebanese Univ.)*; Wendling, Fabrice *(INSERM – Univ. de Rennes 1)*; Hassan, Mahmoud *(Univ. de Rennes 1)*

13:45-14:00 SaC05.4
Tracking Changes in Brain Network Connectivity under Transcranial Current Stimulation
Jami, Apoorva Sargarwal *(New York Univ.)*; Guo, Xinling *(Zhejiang Univ.)*; Kulkarni, Prathamesh *(Univ. of Houston)*; Henin, Simon *(NYU School of Medicine)*; Liu, Anli *(New York Univ. Langone Health)*; Chen, Zhe* *(New York Univ. School of Medicine)*

14:00-14:15 SaC05.5
Analysis of Volume Conduction Effects on Different Functional Connectivity Metrics: Application to Alzheimer's Disease EEG Signals
Ruiz-Gómez, Saúl J. *(Biomedical Engineering Group, Univ. of Valladolid)*; Gomez, Carlos* *(Univ. of Valladolid)*; Poza, Jesus *(Univ. of Valladolid)*; Maturana-Candelas, Aarón *(Univ. of Valladolid)*; Rodríguez-González, Víctor *(Biomedical Engineering Group, Univ. of Valladolid)*; Garcia, Maria *(Univ. of Valladolid)*; Tola-Arribas, Miguel A. *(Dept. of Neurology, Hospital Universitario Río Hortega)*; Cano, Mónica *(Dept. of Clinical Neurophysiology, Hospital Universitario R)*; Hornero, Roberto *(Univ. of Valladolid)*

14:15-14:30 SaC05.6
Time-Varying Effective EEG Source Connectivity: The Optimization of Model Parameters
Rubega, Maria* *(Univ. of Geneva)*; Pascucci, David *(Univ. of Fribourg)*; Rué Queralt, Joan *(Dept. of Radiology, Lausanne Univ. Hospital & Univer)*; van Mierlo, Pieter *(Ghent Univ., Epilog NV)*; Hagmann, Patric *(Dept. of Radiology, Univ. Hospital Center (CHUV) & U)*; Plomp, Gijs *(Univ. of Fribourg)*; Michel, Christoph *(Univ. of Geneva)*

SaC06: 13:00-14:30 Hall A5 – Level 1
Neural Stimulation (III) (Oral Session)

13:00-13:15 SaC06.1
High-Resolution Head Model of Transcranial Direct Current Stimulation: A Labeling Analysis
Thomas, Chris *(Soterix Medical, Inc.)*; Huang, Yu *(City College of New York)*; Faria, Paula Cristina *(ESTG, CDRSP, IPLeiria)*; Datta, Abhishek* *(Soterix Medical, Inc.)*

13:15-13:30 SaC06.2
Cortical Stimulation Induces Network-Wide Coherence Change in Non-Human Primate Somatosensory Cortex
Bloch, Julien *(Univ. of Washington, Seattle)*; Khateeb, Karam *(Univ. of Washington)*; Silversmith, Daniel *(Univ. of California, San Francisco)*; O'Doherty, Joseph E. *(Univ. of California, San Francisco)*; Sabes, Philip N. *(Univ. of California, San Francisco)*; Yazdan-Shahmorad, Azadeh* *(Univ. of Washington)*

13:30-13:45 SaC06.3
Quantification of Neural Conduction Block on the Rat Sciatic Nerve based on EMG Response
Pérez, Diego *(Univ. Rennes, CHU Rennes, Inserm, LTSI UMR 1099, Rennes)*; Dieuset, Gabriel *(LTSI, Inserm UMR 1099, Rennes, France; University Rennes 1, Fran)*; Yochum, Maxime *(Université de Rennes 1)*; Senhadji, Lotfi *(Université de Rennes 1 & INSERM)*; Martin, Benoit *(INSERM; Université de Rennes 1; LTSI)*; Le Rolle, Virginie *(University of Rennes 1)*; Hernández, Alfredo I* *(Univ. of Rennes 1 & INSERM U1099)*

13:45-14:00 SaC06.4
Learning State-Dependent Neural Modulation Policies with Bayesian Optimization
Connolly, Mark* *(Emory University)*; Park, Sang-Eon *(Georgia Institute of Technology)*; Gross, Robert *(Emory University)*

14:00-14:15 SaC06.5
Referred Sensation Areas in Transpelvic Amputee
Lontis, Eugen Romulus* *(Aalborg University)*; Yoshida, Ken *(Indiana University-Purdue University Indianapolis)*; Jensen, Winnie *(Center for Sensory-Motor Interaction)*

14:15-14:30 SaC06.6
A Sub-Millimeter Lateral Resolution Ultrasonic Beamforming System for Brain Stimulation in Behaving Animals
Seok, Chunkyun* *(North Carolina State Univ.)*; Yamaner, Feysel Yalcin *(North Carolina State Univ.)*; Sahin, Mesut *(New Jersey Institute of Tech.)*; Oralkan, Omer *(North Carolina State Univ.)*

SaC07: 13:00-14:30 Hall A4 – Level 1
Tissue Engineering (Oral Session)
Co-Chair: Majd, Sheereen *(University of Houston)*

13:00-13:15 SaC07.1
Numerical Analysis of Electromechanically Driven Bone Remodeling using the Open-Source Software Framework
Bansod, Yogesh* *(University of Rostock)*; van Rienen, Ursula *(University of Rostock)*

13:15-13:30 SaC07.2
Study of Contraction Profile of Cardiomyocytes by using a Piezoelectric Membrane
Yang, Chiou-Fong *(National Taiwan University)*; Hsu, Yu-Hsiang* *(National Taiwan University)*

13:30-13:45 SaC07.3
Initial Bacterial Adhesion Properties of Anodically Oxidized Ti6Al4V
Doll, Patrick W.* *(Karlsruhe Institute of Tech. (KIT), Institute of Microstruc)*; Wolf, Monika *(Karlsruhe Institute of Tech. (KIT))*; Guttmann, Markus *(Karlsruhe Institute of Tech. (KIT))*; Thelen, Richard *(Karlsruhe Institute of Tech. (KIT))*; Ahrens, Ralf *(Karlsruhe Institute of Tech.)*; Spindler, Bruno *(Fräszentrum Ortenau GmbH & Co KG)*; Guber, Andreas E. *(Karlsruhe Institute of Tech.)*; Al-Ahmad, Ali *(Univ. Freiburg)*

13:45-14:00 SaC07.4
Numerical Simulation of the Electric Field Distribution in an Electrical Stimulation Device for Scaffolds Settled with Cartilaginous Cells
Weizel, Alina* *(Univ. of Rostock)*; Zimmermann, Julius *(Univ. of Rostock)*; Riess, Alexander *(Univ. of Rostock)*; Krüger, Simone *(Univ. Medicine Rostock)*; Bader, Rainer *(Univ. Medicine of Rostock, Dept. of Orthopaedics)*; van Rienen, Ursula *(Univ. of Rostock)*; Seitz, Hermann *(Univ. of Rostock)*

14:00-14:15 SaC07.5
Electrical Impedance Spectroscopy for Characterization of Prostate PC-3 and DU 145 Cancer Cells
Silva Teixeira, Viviane* *(Hamburg Univ. of Technology)*; Barth, Tobias *(Hamburg Univ. of Technology)*; Labitzky, Vera *(Univ. Medical Center Hamburg-Eppendorf (UKE))*; Schumacher, Udo *(Univ. Medical Center Hamburg-Eppendorf (UKE))*; Krautschneider, Wolfgang H. *(Hamburg Univ. of Technology)*

14:15-14:30 SaC07.6
Tissue Phantom to Mimic the Dielectric Properties of Human Muscle within 20 Hz and 100 kHz for Biopotential Sensing Applications
Yu, Yang *(Institute of Biomedical Technologies, Auckland University of Tec)*; Lowe, Andrew *(Auckland University of Technology)*; Anand, Gautam* *(Auckland University of Technology)*; Kalra, Anubha *(AUT University)*

SaC08: 13:00-14:30 M8 – Level 3
Health Informatics – Information Technologies for Healthcare Delivery and Management (Oral Session)
Chair: Dunn, Jessilyn *(Duke University)*

13:00-13:15 SaC08.1
Secure Processing of Stream Cipher Encrypted Data Issued from IOT: Application to a Connected Knee Prosthesis
Pistono, Maxime* *(Institut Mines-Telecom; Telecom Bretagne)*; Bellafqira, Reda *(Institut Mines-Telecom; Telecom Bretagne)*; Coatrieux, Gouenou *(Institut Telecom, Telecom Bretagne, Inserm)*

13:15-13:30 SaC08.2
Privacy-Preserving Artificial Intelligence: Application to Precision Medicine
Vizitiu, Anamaria* *(Transilvania University of Brasov, Brasov, Romania)*; Nita, Cosmin *(Transilvania University of Brasov)*; Puiu, Andrei *(Transilvania University of Brasov, Brasov, Romania)*; Suciu, Constantin *(Siemens Corporate Technology)*; Itu, Lucian *(Transilvania University of Brasov)*

13:30-13:45 SaC08.3
On Anonymizing Medical Microdata with Large-Scale Missing Values – A Case Study with the FAERS Dataset
Hsiao, Mei-Hui *(National Univ. of Kaohsiung)*; Lin, Wen-Yang* *(National Univ. of Kaohsiung)*; Hsu, Kuang-Yung *(National Univ. of Kaohsiung)*; Shen, Zih-Xun *(National Univ. of Kaohsiung)*

13:45-14:00 SaC08.4
Exploring Users' Willingness to Share their Health and Personal Data under the Prism of the New GDPR: Implications in Healthcare
Karampela, Maria* *(IT Univ. of Copenhagen)*; Ouhbi, Sofia *(UAE Univ.)*; Minna, Isomursu *(IT Univ. of Copenhagen)*

14:00-14:15 SaC08.5
A Deep Learning Technique for Imputing Missing Healthcare Data
Phung, Le Son *(University of Sydney)*; Kumar, Ashnil* *(University of Sydney)*; Kim, Jinman *(University of Sydney)*

14:15-14:30 SaC08.6
A Mobile Cloud based IoMT Framework for Automated Health Assessment and Management
C. Nguyen, Dinh* *(Deakin University)*; Nguyen, Khoa D. *(Deakin University)*; Pathirana, Pubudu N *(Deakin University)*

SaC09: 13:00-14:30 M1 – Level 3
Modelling and Measurement of Skeletal Muscle Activity for Applications in Soft Tissue Robotics (Minisymposium)
Chair: Cheng, Leo K. *(The University of Auckland)*
Co-Chair: Röhrle, Oliver *(University of Stuttgart)*

13:00-13:15 SaC09.1
Computational Skeletal Muscle Models for Signal Identification and Sensor Development
Saini, Harnoor* *(University of Stuttgart)*; Liu, Andi *(University of Auckland)*; Gizzi, Leonardo *(University of Stuttgart)*; Röhrle, Oliver *(University of Stuttgart)*

13:15-13:30 SaC09.2
Neuromechanical Modelling of Neuromuscular Impairment for the Online Control of Wearable Robots
Sartori, Massimo* *(University of Twente)*

13:30-13:45 SaC09.3
Influence of Segmentation Parameters on Classification Accuracy of High-Density EMG Recordings
Lara, Jaime* *(Univ. of Auckland)*; Paskaranandavadivel, Niranchan *(Univ. of Auckland)*; Cheng, Leo K *(Univ. of Auckland)*

13:45-14:00 SaC09.4
Continuum-Mechanical Simulations of Musculoskeletal Systems for Determining the Interaction with External Devices
Avci, Okan* *(Fraunhofer IPA)*; Röhrle, Oliver *(University of Stuttgart)*; Ramasamy, Ellankavi *(Fraunhofer IPA)*; Tröster, Mark *(Fraunhofer IPA)*; Schneider, Urs *(Fraunhofer IPA)*

SaC10: 13:00-14:30 M2 – Level 3
Neuromodulation Technologies: Rewiring the Human Brain (Minisymposium)
Chair: Milosevic, Luka *(University of Tübingen)*
Co-Chair: Popovic, Milos R. *(University of Toronto)*

13:00-13:15 SaC10.1
How Deep Brain Stimulation Modulates Synaptic Plasticity on a Neuronal Level
Milosevic, Luka* *(Univ. of Tübingen)*; Popovic, Milos R. *(Univ. of Toronto)*; Hutchison, William *(Univ. of Toronto)*

13:15-13:30 SaC10.2
Neuroplasticity after Electrical Stimulation of Muscles and Nerves: Implications for Recovery of Voluntary Function
Milosevic, Matija* *(Osaka University)*

13:30-13:45 SaC10.3
Human in-Vivo Machine Learning based Acute Brain Stimulation for Epilepsy
O Leary, Gerard *(University of Toronto)*; Groppe, David *(Krembil Neuroscience Center)*; Barkley, Victoria *(Krembil Neuroscience Center)*; Genov, Roman *(University of Toronto)*; Valiante, Taufik A.* *(University of Toronto)*

13:45-14:00 SaC10.4
Use of Functional Electrical Stimulation Therapy to Treat Major Depressive Disorder
Popovic, Milos R.* *(University of Toronto)*

14:00-14:15 SaC10.5
State-Dependent Neuromodulation for the Restoration of Motor Function
Alireza, Gharabaghi* *(Universität Tübingen)*

14:15-14:30 SaC10.6
Deep Brain Stimulation of the Posterior Hypothalamic Area for Refractory Aggressive Behavior
Hutchison, William* *(University of Toronto)*

SaC11**:** 13:00-14:30 M4 – Level 3
Unobtrusive Cardiorespiratoy Monitoring (Oral Session)
Chair: Di Rienzo, Marco *(IRCCS Fondazione Don Carlo Gnocchi)*
Co-Chair: Mukkamala, Ramakrishna *(Michigan State University)*

13:00-13:15 SaC11.1
IPhys: An Open Non-Contact Imaging-Based Physiological Measurement Toolbox
McDuff, Daniel Jonathan* *(Microsoft)*; Blackford, Ethan Brian *(Ball Aerospace)*

13:15-13:30 SaC11.2
Inter-Beat Interval Estimation from Facial Video based on Reliability of BVP Signals
Maki, Yuichiro* *(Tokyo Institute of Technology)*; Monno, Yusuke *(Tokyo Institute of Technology)*; Yoshizaki, Kazunori *(Olympus Corporation)*; Tanaka, Masayuki *(National Institute of Advanced Industrial Science & Technology)*; Okutomi, Masatoshi *(Tokyo Institute of Technology)*

13:30-13:45 SaC11.3
A Vision-Based System for Breathing Disorder Identification: A Deep Learning Perspective
Martinez, Manuel *(Karlsruhe Institute of Technology)*; Ahmedt-Aristizabal, David* *(Queensland University of Technology)*; Väth, Tilman *(Karlsruhe Institute of Technology,)*; Fookes, Clinton *(Queensland University of Technology)*; Benz, Andreas *(Universität Heidelberg)*; Stiefelhagen, Rainer *(Karlsruhe Institute of Technology)*

13:45-14:00 SaC11.4
Respiration Extraction from Radar Heart Sound Measurements
Schellenberger, Sven* *(Brandenburg University of Technology)*; Shi, Kilin *(Friedrich-Alexander-Universität Erlangen-Nürnberg)*; Michler, Fabian *(Friedrich-Alexander-Universität Erlangen-Nürnberg)*; Lurz, Fabian *(Friedrich-Alexander-Universität Erlangen-Nürnberg)*; Weigel, Robert *(University of Erlangen Nuremberg)*; Koelpin, Alexander *(Chair for Electronics & Sensor Systems, Brandenburg University)*

14:00-14:15 SaC11.5
Heart Rate Variability for Driver Sleepiness Classification in Real Road Driving Conditions
Anna, Persson *(Dept. of Biomedical Engineering, Linköping University)*; Jonasson, Hanna *(Dept. of Biomedical Engineering, Linköping University)*; Fredriksson, Ingemar *(Dept. of Biomedical Engineering, Linköping University)*; Wiklund, Urban *(Umea University)*; Ahlström, Christer* *(Swedish National Road & Transport Research Institute (VTI))*

14:15-14:30 SaC11.6
Heart Rate Extraction from Novel Neck Photoplethysmography Signals
Garcia Lopez, Irene *(Imperial College of London)*; Sharma, Piyush* *(Imperial College London)*; Rodriguez-Villegas, Esther *(Imperial College London)*

SaC12**:** 13:00-14:30 M6 – Level 3
Fetal and Pediatric Imaging (Oral Session)
Chair: Signorini, Maria G. *(Politecnico di Milano)*
Co-Chair: Balestra, Gabriella *(Politecnico di Torino)*

13:00-13:15 SaC12.1
Fetal Ultrasound Image Segmentation for Measuring Biometric Parameters using Multi-Task Deep Learning
Sobhani-Nia, Zahra *(Isfahan Univ. of Technology, Iran)*; Rafiei, Shima *(IUT)*; Emami, Ali *(Isfahan Univ. of Technology)*; Karimi, Nader *(Isfahan Univ. of Technology)*; Najarian, Kayvan *(Univ. of Michigan – Ann Arbor)*; Samavi, Shadrokh *(McMaster Univ.)*; Soroushmehr, S.M.Reza* *(Univ. of Michigan, Ann Arbor)*

13:15-13:30 SaC12.2
Automated Detection of Fetal Brain Signals with Principal Component Analysis
Moser, Julia* *(University of Tübingen)*; Sippel, Katrin *(University of Tübingen)*; Schleger, Franziska *(University of Tübingen)*; Preissl, Hubert *(University of Tübingen)*

13:30-13:45 SaC12.3
Evaluation of Cortical Segmentation Pipelines on Clinical Neonatal MRI Data
Tor-Díez, Carlos *(IMT Atlantique)*; Pham, Chi-Hieu *(Télécom Bretagne)*; Meunier, Hélène *(Service de Médecine Néonatale et Réanimation Pédiatrique, CHU de)*; Faisan, Sylvain *(ICube, Strasbourg Univ.)*; Bloch, Isabelle *(Télécom ParisTech – CNRS UMR 5141 LTCI)*; Bednarek, Nathalie *(Service de Médecine Néonatale et Réanimation Pédiatrique, CHU de)*; Passat, Nicolas* *(Reims Univ.)*; Rousseau, François *(Telecom Bretagne)*

13:45-14:00 SaC12.4
Pediatric Brain Tissue Segmentation from MRI using Clustering: A Preliminary Study
Rosati, Samanta *(Politecnico di Torino)*; Toselli, Benedetta *(University of Genova)*; Fato, Marco Massimo *(University of Genoa)*; Tortora, Domenico *(IRCCS Istituto Giannina Gaslini)*; Severino, Maria Savina *(IRCCS Istituto Giannina Gaslini)*; Rossi, Andrea *(IRCCS Istituto Giannina Gaslini)*; Balestra, Gabriella* *(Politecnico di Torino)*

14:00-14:15 SaC12.5
Fully Automatic Pediatric Echocardiography Segmentation using Deep Convolutional Networks based on BiSeNet
Hu, Yujin *(School of Biomedical Engineering, Health Science Center, Shenzhe)*; Guo, Libao *(Shen Zhen Univ.)*; Lei, Baiying *(Shenzhen Univ.)*; Mao, Muyi *(Shenzhen Children Hospital)*; Jin, Zelong *(Shenzhen Children Hospital)*; Elazab, Ahmed *(Shenzhen Univ.)*; Xia, Bei *(Shenzhen Children Hospital, Hospital of Shantou Univ.)*; Wang, Tianfu* *(Shenzhen Univ.)*

14:15-14:30 SaC12.6
A Video Database of Neonatal Facial Expression based on Painful Clinical Procedures
Chen, Shuohui* *(Zhejiang Univ.)*; Luo, Feixiang *(Zhejiang Univ.)*; Chen, Xiaofei *(Zhejiang Univ.)*; Yan, Jiayi *(Hangzhou Proton Technology Co., Ltd.)*; Zhong, Yizhou *(Hangzhou Proton Technology Co., Ltd.)*; Pan, Yun *(Zhejiang Univ.)*

SaC13**:** 13:00-14:30 R2 – Level 3
Non Invasive Monitoring (Oral Session)
Co-Chair: Bujnowski, Adam *(Gdansk University of Technology)*

13:00-13:15 SaC13.1
Effects of Bio-Impedance Sensor Placement Relative to the Arterial Sites for Capturing Hemodynamic Parameters
Ibrahim, Bassem* *(Texas A&M Univ.)*; Mrugala, Dariusz *(Texas A&M Univ.)*; Jafari, Roozbeh *(Texas A&M Univ.)*

13:15-13:30 SaC13.2
Non-Invasive, Continuous, Pulse Pressure Monitoring Method
Kuwahara, M.* *(Univ. of Hawaii at Manoa)*; Yavari, E. *(Univ. of Hawaii Manoa)*; Boric-Lubecke, O. *(Univ. of Hawaii Manoa)*

13:30-13:45 SaC13.3
UWB Radar for Non-Contact Heart Rate Variability Monitoring and Mental State Classification
Han, Yang *(Imperial College London)*; Lauteslager, Timo* *(Imperial College London)*; Lande, Tor Sverre *(University of Oslo)*; Constandinou, Timothy *(Imperial College of Science, Technology & Medicine)*

13:45-14:00 SaC13.4
Electrodes Array for Contactless ECG Measurement of a Bathing Person – A Sensitivity Analysis
Osiński, Kamil *(Gdansk Univ. of Technology)*; Bujnowski, Adam* *(Gdansk Univ. of Technology)*; Przystup, Piotr *(Gdansk Univ. of Technology)*; Wtorek, Jerzy *(Gdansk Univ. of Technology)*

14:00-14:15 SaC13.5
Capacitive Coupled Electrodes based Non-Contact ECG Measurement System with Real-Time Wavelet Denoising Algorithm
Peng, Shun *(Fudan University)*; Bao, Shenjie *(Fudan University)*; Chen, Wei* *(Fudan University)*

14:15-14:30 SaC13.6
On the use of Non-Contact Capacitive Sensors for the Assessment of Postural Hand Tremor of Individuals with Parkinson's Disease
Oliveira, Fabio Henrique M *(Federal Univ. of Uberlandia)*; Rabelo, Amanda *(Univ. Federal de Uberlândia)*; Luiz, Luiza Maire *(Univ. Federal de Uberlândia)*; Pereira, Adriano A. *(Federal Univ. of Uberlândia)*; Vieira, Marcus *(Federal Univ. de Goias)*; Andrade, Adriano* *(Federal Univ. of Uberlândia)*

SaC14**:** 13:00-14:30 R3 – Level 3
Signal Processing and Classification of Electromyographic Signals (Oral Session)
Chair: Ramakrishnan, Swaminathan *(IIT Madras, India)*
Co-Chair: Nguyen, Hung T. *(Swinburne University of Technology)*

13:00-13:15 SaC14.1
Relationship between Offline and Online Metrics in Myoelectric Pattern Recognition Control based on Target Achievement Control Test
Lyu, Bo* *(Shanghai Jiao Tong Univ.)*; Sheng, Xinjun *(Shanghai Jiao Tong Univ.)*; Hao, Dehong *(Shanghai Jiao Tong Univ.)*; Zhu, Xiangyang *(Shanghai Jiao Tong Univ.)*

13:15-13:30 SaC14.2
Exploring Intrinsic Triggers for Functional Facial Electrostimulation based on Intramuscular Electromyography Recordings
Leistritz, Lutz* *(Jena University Hospital, Friedrich Schiller University Jena)*; Poeschl, Christiane *(MED-EL Medical Electronics)*; Volk, Gerd Fabian *(Jena University Hospital)*

13:30-13:45 SaC14.3
Smoothed Arg Max Extreme Learning Machine: An Alternative to Avoid Classification Ripple in sEMG Signals
Cene, Vinicius H. *(Univ. Federal do Rio Grande do Sul)*; Machado, Juliano* *(Instituto Federal Sul-Riograndense (IFSul))*; Balbinot, Alexandre *(Federal Univ. of Rio Grande do Sul (UFRGS))*

13:45-14:00 SaC14.4
Estimation of Motor Unit Global Firing Rate by Features of EMG in Frequency Domain
Ma, Shihan* *(Shanghai Jiao Tong University)*; Chen, Chen *(Shanghai Jiao Tong University)*; Lyu, Bo *(Shanghai Jiao Tong University)*; Sheng, Xinjun *(Shanghai Jiao Tong University)*; Zhu, Xiangyang *(Shanghai Jiao Tong University)*

14:00-14:15 SaC14.5
Exploiting the Intertemporal Structure of the Upper-Limb sEMG: Comparisons between an LSTM Network and Cross-Sectional Myoelectric Pattern Recognition Methods
Olsson, Alexander *(Lund Univ.)*; Malesevic, Nebojsa *(Lund Univ.)*; Björkman, Anders *(Lund Univ.)*; Antfolk, Christian* *(Lund Univ.)*

14:15-14:30 SaC14.6
The Influence of Force Level and Motor Unit Coherence on Nonlinear Surface EMG Features Examined using Model Simulation
McManus, Lara* *(Univ. College Dublin)*; Pereira Botelho, Diego *(Univ. College Dublin)*; Flood, Matthew W. *(Univ. College Dublin)*; Lowery, Madeleine *(Univ. College Dublin)*

SaC15**:** 13:00-14:30 M3 – Level 3
Ultrasound Imaging (II) (Oral Session)
Chair: Konofagou, Elisa *(Columbia University)*
Co-Chair: Beg, Mirza Faisal *(Simon Fraser University)*

13:00-13:15 SaC15.1
Morphological Characterization of Breast Tumors using Conventional B-Mode Ultrasound Images
El-Azizy, Ahmed R. M. *(Dept. of Biomedical Engineering, Cairo University Faculty o)*; Salaheldien, Mohamed *(Dept. of Biomedical Engineering, Cairo University Faculty o)*; Rushdi, Muhammad *(Cairo University)*; Gewefel, Hanan *(Radiographic Imaging Technology, Faculty of Applied Medical Scie)*; Mahmoud, Ahmed M.* *(Cairo University Faculty of Engineering)*

13:15-13:30 SaC15.2
Quantitative Ultrasound Imaging for the Differentiation between Fresh and Decellularized Mouse Kidneys
Alnazer, Israa *(Lebanese Univ.)*; Falou, Omar* *(Lebanese Univ.)*; Nasr, Remie *(Lebanese Univ.)*; Azar, Danielle *(Lebanese American Univ.)*; Hysi, Eno *(Ryerson Univ.)*; Wirtzfeld, Lauren *(Ryerson Univ.)*; Berndl, Elizabeth *(Ryerson Univ.)*; Kolios, Michael *(Ryerson Univ.)*

13:30-13:45 SaC15.3
Ultrasound Segmentation using U-Net: Learning from Simulated Data and Testing on Real Data
Behboodi, Bahareh* *(Concordia University)*; Rivaz, Hassan *(Concordia University)*

13:45-14:00 SaC15.4
Fully Automated Segmentation of Alveolar Bone using Deep Convolutional Neural Networks from Intraoral Ultrasound Images
Duong, Dat *(Univ. of Alberta)*; Nguyen, Kim-Cuong T *(Univ. of Alberta)*; Kaipatur, Neelambar *(Univ. of Alberta)*; Lou, Edmond H. *(Univ. of Alberta)*; Noga, Michelle *(Univ. of Alberta)*; Major, Paul *(Univ. of Alberta)*; Punithakumar, Kumaradevan* *(Univ. of Alberta)*; Le, Lawrence H *(Univ. of Alberta)*

14:00-14:15 SaC15.5
Automated Diagnosis of Cardiovascular Disease through Measurement of Intima Media Thickness using Deep Neural Networks
Chinnappan, Rajasekaran* *(K.S.Rangasamy College of Technology)*; Krishnasamy Balasundaram, Jayanthi *(K.S.Rangasamy College of Technology)*; Subramaniam, Sudha *(K.S.Rangasamy College of Technology)*; Kuchelar, Ramani *(Apollo Hospitals,Chennai)*

14:15-14:30 SaC15.6
A Novel Transcranial Ultrasound Imaging Method with Diverging Wave
Du, Bin *(Shenzhen Univ.)*; Zheng, Haoteng *(Shenzhen Univ.)*; Siyuan, Fang *(Shenzhen Univ.)*; Chen, Siping *(Shenzhen Univ.)*; Lu, Minhua* *(Shenzhen Univ.)*; Mao, Rui *(Shenzhen Univ.)*

SaC16**:** 13:00-14:30 M5 – Level 3
Wearable Robotic Systems – Prosthetics (Oral Session)
Chair: Sanguineti, Vittorio *(University of Genoa)*

13:00-13:15 SaC16.1
A Control Method for Transfemoral Prosthetic Knees based on Thigh Angular Motion
Inoue, Koh* *(Kagawa University)*; Fukuda, Tetsuya *(Kagawa University)*; Wada, Takahiro *(Ritsumeikan University)*

13:1y5-13:30 SaC16.2
A Dynamic Model of Hand Movements for Proportional Myoelectric Control of a Hand Prosthesis
Sanguineti, Vittorio* *(University of Genoa)*; Beninati, Giovanna *(University of Genoa)*

13:30-13:45 SaC16.3
Robotic Prosthesis that Maintains Flexion Posture
Katsumura, Motoyu* *(Mie Univ.)*; Obayashi, Shuya *(Mie Univ.)*; Yano, Kenichi *(Mie Univ.)*; Hamada, Atsushi *(Imasen Engineering Corp.)*; Nakao, Tomoyuki *(Imasen Engineering Corp.)*; Torii, Katsuhiko *(Imasen Engineering Corp.)*

13:45-14:00 SaC16.4
Adaptive, Tendon-Driven, Affordable Prostheses for Partial Hand Amputations: On Body-Powered and Motor Driven Implementations
Gao, Geng *(The Univ. of Auckland)*; Gerez, Lucas *(Univ. of Auckland)*; Liarokapis, Minas* *(The Univ. of Auckland)*

14:00-14:15 SaC16.5
Rehand II: Wire-Driven Five-Fingered Electric Prosthetic Hand Utilizing Elasticity of a Cosmetic Glove
Odagaki, Narinobu* *(Osaka Institute of Technology)*; Yoshikawa, Masahiro *(Osaka Institute of Technology)*; Tanaka, Yoshihiro *(Nagoya Institute of Technology)*; Kawashima, Noritaka *(Research Institute, National Rehab. Center for Persons wi)*

14:15-14:30 SaC16.6
Compact and Lightweight Transradial Electric Prosthesis for Children with Forearm Deficiency
Kobayashi, Toya* *(Osaka Institute of Technology)*; Yoshikawa, Masahiro *(Osaka Institute of Technology)*; Ogawa, Kazunori *(Daiya Industry Co., Ltd.)*; Ohmatsu, Satoko *(Research Institute of National Rehabi. Center for the Dis)*; Kawashima, Noritaka *(Research Institute, National Rehabi. Center for Persons wi)*

SaC17**:** 13:00-14:30 R12 – Level 3
Signal Processing and Classification of Phonocardiographic Signals (Oral Session)

13:00-13:15 SaC17.1
Using Soft Attention Mechanisms to Classify Heart Sounds
Oliveira, Jorge *(Instituto de Telecomunicações, Faculdade de Ciências da Universi)*; Nogueira, Diogo Marcelo *(INESC TEC)*; Ramos, Cleber *(Univ. of Porto)*; Renna, Francesco *(Instituto de Telecomunicações e Faculdade de Ciências da Univers)*; Ferreira, Carlos *(LIAAD – INESC TEC)*; Coimbra, Miguel* *(Instituto de Telecomunicações / Universidade do Porto)*

13:15-13:30 SaC17.2
Fully-Automated Diagnosis of Aortic Stenosis using Phonocardiogram-Based Features
Saraf, Kanav* *(Univ. of California Los Angeles)*; Baek, Christopher Inhwan *(Sensydia Corporation)*; Wasko, Michael *(Sensydia Corporation)*; Zhang, Xu *(Univ. of California, Los Angeles)*; Zheng, Yi *(Sensydia Corporation)*; Borgstrom, Per Henrik *(Sensydia Corporation)*; Mahajan, Aman *(Univ. of Pittsburgh)*; Kaiser, William *(Univ. of California, Los Angeles)*

13:30-13:45 SaC17.3
Segmentation of Radar-Recorded Heart Sound Signals using Bidirectional LSTM Networks
Shi, Kilin* *(Friedrich-Alexander-Universität Erlangen-Nürnberg)*; Schellenberger, Sven *(Brandenburg University of Technology)*; Weber, Leon *(Humboldt-Universität zu Berlin)*; Wiedemann, Jan Philipp *(Friedrich-Alexander-Universität Erlangen-Nürnberg)*; Michler, Fabian *(Friedrich-Alexander-Universität Erlangen-Nürnberg)*; Steigleder, Tobias *(Universitätsklinikum Erlangen)*; Malessa, Anke *(Universitätsklinikum Erlangen)*; Lurz, Fabian *(Friedrich-Alexander-Universität Erlangen-Nürnberg)*; Ostgathe, Christoph *(Universitätsklinikum Erlangen)*; Weigel, Robert *(University of Erlangen Nuremberg)*; Koelpin, Alexander *(Chair for Electronics & Sensor Systems, Brandenburg University)*

13:45-14:00 SaC17.4
Improved Segmentation with Dynamic Threshold Adjustment for Phonocardiography Recordings
Ozkan, Ibrahim* *(Hacettepe Univ.)*; Yilmaz, Atila *(Hacettepe Univ.)*; Celebi, Gulsen *(ESEN System Integration)*

14:00-14:15 SaC17.5
An Approach for Automatic Identification of Fundamental and Additional Sounds from Cardiac Sounds Recordings
Dwivedi, Amit Krishna* *(Imperial College London)*; Rodriguez-Villegas, Esther *(Imperial College London)*

14:15-14:30 SaC17.6
Multi-Source Signal Processing in Phonocardiography: Comparison among Signal Selection and Signal Enhancement Techniques
Giordano, Noemi *(Politecnico di Torino)*; Knaflitz, Marco* *(Politecnico di Torino)*

SaC18**:** 13:00-14:30 R13 – Level 3
Wearable Sleep Monitoring (Oral Session)
Co-Chair: Kidmose, Preben *(Aarhus University, Denmark)*

13:00-13:15 SaC18.1
A Graphene-Based Sleep Mask for Comfortable Wearable Eye Tracking
Beach, Christopher* *(University of Manchester)*; Karim, Nazmul *(University of Manchester)*; Casson, Alexander James *(The University of Manchester)*

13:15-13:30 SaC18.2
Discrimination of Sleep Spindles in Ear-EEG
Mikkelsen, Kaare *(University of Aarhus)*; Kappel, Simon Lind *(University of Moratuwa)*; Hemmsen, Martin Christian *(T&W Engineering)*; Rank, Mike Lind *(Widex A/S)*; Kidmose, Preben* *(Aarhus University, Denmark)*

13:30-13:45 SaC18.3
Detection of Sleep and Wake States based on the Combined use of Actigraphy and Ballistocardiography
Jaworski, Dominic* *(Simon Fraser University)*; M. Roshan, Yaser *(CannSight Technologies)*; Tae, Chul-Gyu *(Bigmotion Technologies)*; Park, Edward J. *(Simon Fraser University)*

13:45-14:00 SaC18.4
Novel Active ECG Electrode and Membrane Pressure Sensor-Based Unconstrained Cardiorespiratory System for Sleep Monitoring
Wang, Zeyu *(Fudan University)*; Chen, Chen *(Fudan University)*; Tao, Linkai *(Eindhoven University of Technology)*; Yuan, Wei *(Printable Electronics Research Centre, Suzhou Institute of Nanot)*; Li, Wei *(Fudan University)*; Sun, Chenglu *(Fudan University)*; Chen, Wei* *(Fudan University)*

14:00-14:15 SaC18.5
Can we Monitor Breathing during Sleep via Wi-Fi on Smartphone?
Tataraidze, Alexander* *(Huawei Technologies Co. Ltd.)*; Pikhletsky, Mikhail *(Huawei Technologies)*; Olesyuk, Roman *(Huawei Technologies Co., Ltd.)*

14:15-14:30 SaC18.10
Adaptive Accelerometry Derived Respiration: Comparison with Respiratory Inductance Plethysmography during Sleep
Bricout, Aurélien* *(Université Grenoble Alpes)*; Fontecave-Jallon, Julie *(Univ. Grenoble Alpes, CNRS, CHU Grenoble Alpes, Grenoble INP)*; Colas, Damien *(Holi)*; Gerard, Gregoire *(Holi)*; Pepin, Jean-Louis *(Grenoble University Hospital)*; Gumery, Pierre-Yves *(Université Grenoble Alpes)*

SaC19**:** 13:00-14:30 R4 – Level 3
Image Segmentation with Neural Networks (I) (Oral Session)
Chair: Cardoso, Jaime S. *(INESC TEC and University of Porto)*

13:00-13:15 SaC19.1
Automated Placenta Segmentation with a Convolutional Neural Network Weighted by Acoustic Shadow Detection
Hu, Ricky* *(University of British Columbia)*; Singla, Rohit *(University of British Columbia)*; Yan, Ryan *(University of British Columbia)*; Mayer, Chantal *(University of British Columbia)*; Rohling, Robert *(University of British Columbia)*

13:15-13:30 SaC19.2
Using Synthetic Training Data for Deep Learning-Based GBM Segmentation
Lindner, Lydia *(Graz University of Technology)*; Narnhofer, Dominik *(Graz University of Technology)*; Weber, Maximilian* *(TU Graz)*; Gsaxner, Christina *(TU Graz)*; Kolodziej, Malgorzata *(UKGM Giessen)*; Egger, Jan *(Graz University of Technology)*

13:30-13:45 SaC19.3
Delineation of Ischemic Core and Penumbra Volumes from MRI using MSNet Architecture
Gupta, Akshat *(IIT Kharagpur)*; Vupputuri, Anusha* *(Indian Institute of Technology Kharagpur)*; Ghosh, Nirmalya *(Indian Institute of Technology (IIT), Kharagpur)*

13:45-14:00 SaC19.4
Quality-Based Regularization for Iterative Deep Image Segmentation
Rebelo, José *(INESC TEC & University of Porto)*; Fernandes, Kelwin *(INESC TEC & University of Porto)*; Cardoso, Jaime S.* *(INESC TEC & University of Porto)*

14:00-14:15 SaC19.5
Cascaded Multi-Scale Convolutional Encoder-Decoders for Breast Mass Segmentation in High-Resolution Mammograms
Yan, Yutong *(IMT Atlantique, LaTIM)*; Conze, Pierre-Henri* *(IMT Atlantique, LaTIM)*; Decenciere, Etienne *(MINES ParisTech, PSL Research University)*; Lamard, Mathieu *(Université de Bretagne Occidentale)*; Quellec, Gwenole *(Inserm)*; Cochener, Béatrice *(CHU Morvan)*; Coatrieux, Gouenou *(Institut Telecom – Telecom Bretagne – Inserm)*

14:15-14:30 SaC19.6
Deep Neural Network based Polyp Segmentation in Colonoscopy Images using a Combination of Color Spaces
Bagheri, Mahnoosh *(Isfahan Univ. of Technology, Iran)*; Mohrekesh, Majid *(Isfahan Univ. of Technology)*; Tehrani, Milad *(Isfahan Univ. of Technology, Iran)*; Najarian, Kayvan *(Univ. of Michigan – Ann Arbor)*; Karimi, Nader *(Isfahan Univ. of Technology)*; Samavi, Shadrokh *(McMaster Univ.)*; Soroushmehr, S.M.Reza* *(Univ. of Michigan, Ann Arbor)*

SaD01: 14:30-16:00 Hall A6+A7 – Level 1
Brain-Computer Interface (IV) (Oral Session)

14:30-14:45 SaD01.1
Investigating Sex Differences in Classification of Five Emotions from EEG and Eye Movement Signals
Bao, Lan-Qing* *(East China Univ. of Science & Technology)*; Qiu, Jielin *(Shanghai Jiao Tong Univ.)*; Tang, Hao *(Shanghai Jiao Tong Univ.)*; Zheng, Wei-Long *(Shanghai Jiao Tong Univ.)*; Lu, Bao-Liang *(Shanghai Jiao Tong Univ.)*

14:45-15:00 SaD01.2
The Effect of Vibrotactile Feedback on ErrP-Based Adaptive Classification of Motor Imagery
Schiatti, Lucia* *(Istituto Italiano di Tecnologia)*; Barresi, Giacinto *(Istituto Italiano di Tecnologia)*; Tessadori, Jacopo *(IIT – Italian Institute of Technology)*; King, Louis Charles *(Istituto Italiano di Tecnologia)*; Mattos, Leonardo *(Istituto Italiano di Tecnologia)*

15:00-15:15 SaD01.3
A Novel Feature Extraction Framework for Four Class Motor Imagery Classification using Log Determinant Regularized Riemannian Manifold
Bandaru, Jagadish* *(Indian Institute of Technology Hyderabad)*; P, Rajalakshmi *(Indian Institute of Technology Hyderabad)*

15:15-15:30 SaD01.4
Influence of User Tasks on EEG-Based Classification Performance in a Hazard Detection Paradigm
Kolkhorst, Henrich* *(University of Freiburg)*; Kärkkäinen, Saku *(University of Freiburg)*; Raheim, Amund Faller *(University of Freiburg)*; Burgard, Wolfram *(University of Freiburg)*; Tangermann, Michael *(University of Freiburg)*

15:30-15:45 SaD01.5
Cortical Activations and BCI Performances at Different Speeds of Visual and Proprioceptive Stimulation
Wang, Mengya *(Tianjin University)*; Chen, Long *(Tianjin University)*; Wang, Zhongpeng *(Tianjin University)*; Zhang, Lei *(Tianjin University)*; Gu, Xiaosong *(Tianjin University)*; Ming, Dong* *(Tianjin University)*

15:45-16:00 SaD01.6
Comparison of Classifiers for the Transfer Learning of Affective Auditory P300-Based BCIs
Onishi, Akinari* *(Chiba Univ.)*; Nakagawa, Seiji *(Chiba Univ.)*

SaD02: 14:30-16:00 Hall A8 – Level 1
Signal Processing and Classification of Heart Rate Variability: Applications (Oral Session)
Chair: Laguna, Pablo *(Zaragoza University and CIBER-BBN)*
Co-Chair: Voss, Andreas *(University of Applied Sciences Jena)*

14:30-14:45 SaD02.1
Heart Rate Variability Analysis to Predict Onset of Ventricular Tachyarrhythmias in Implantable Cardioverter Defibrillators
Parsi, Ashkan* *(National University of Ireland Galway)*; O'Loughlin, Declan *(National University of Ireland Galway)*; Glavin, Martin *(National University of Ireland)*; Jones, Edward *(National University of Ireland Galway)*

14:45-15:00 SaD02.2
Pre-Ictal Time Assessment using Heart Rate Variability Features in Drug-Resistant Epilepsy Patients
Leal, Adriana *(University of Coimbra)*; Pinto, Mauro *(University of Coimbra)*; Henriques, Jorge *(University of Coimbra)*; Ruano, M. Graça *(FCT, University of Algarve & CISUC-University of Coimbra)*; de Carvalho, Paulo* *(University of Coimbra)*; Teixeira, César *(University of Coimbra)*

15:00-15:15 SaD02.3
Effect of EKG Sampling Rate on Heart Rate Variability Analysis
Govindan, Rathinaswamy* *(Children's National Health System)*; Massaro, An *(Children's National Health System)*; Kota, Srinivas *(UT Southwestern Medical Center)*; Grabowski, Reagan *(Children's National Health System)*; Wilson, James *(University of Arkansas at Little Rock)*; DuPlessis, Adre *(Children's National Medical Center)*

15:15-15:30 SaD02.4
Heart Rate Variability at Bedtime Predicts Subsequent Sleep Features
Tramonti Fantozzi, Maria Paola* *(Università di Pisa)*; Artoni, Fiorenzo *(Center for Neuroprosthetics, Institute of Bioengineering, School)*; Faraguna, Ugo *(Dept. of Translational Research & of New Surgical & Med)*

15:30-15:45 SaD02.5
Multivariable Relationships between Autonomic Nervous System Related Indices in Hyperbaric Environments
Pérez Martínez, Cristina* *(University of Zaragoza)*; Peláez Coca, María Dolores *(Centro Universitario de la Defensa)*; Hernando, Alberto *(BSICoS Group, CIBER-BBN)*; Gil, Eduardo *(Zaragoza University & CIBER-BBN)*; Sanchez, Carlos *(Defense University Centre, University of Zaragoza)*

15:45-16:00 SaD02.6
Risk Detection in Patients with Obstructive Sleep Apnea Syndrome based on Cardiovascular Time Series Analysis
Schulz, Steffen *(University of Applied Sciences Jena)*; Ritter, Julia *(University Hospital Jena, Dept. of Otorhinolaryngology, Jen)*; Schneider, Gerlind *(Jena University Hospital, Dept. of Otorhinolaryngology)*; Guntinas-Lichius, Orlando *(University Hospital Jena, Dept. of Otorhinolaryngology, Jen)*; Voss, Andreas* *(University of Applied Sciences Jena)*

SaD03: 14:30-16:00 Hall A3 – Level 1
MRI-RF and New Imaging Technologies (Oral Session)
Chair: Rispoli, Joseph Vincent *(Purdue University)*
Co-Chair: Cheng, Jing *(Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences)*

14:30-14:45 SaD03.1
Stitching Stretchable Radiofrequency Coils for MRI: A Conductive Thread and Athletic Fabric Approach
Vincent, Jana* *(Purdue University)*; Rispoli, Joseph Vincent *(Purdue University)*

14:45-15:00 SaD03.2
Dual-Tuned Removable Common-Mode Current Trap for Magnetic Resonance Imaging and Spectroscopy
Enriquez, Angel *(Purdue University)*; Vincent, Jana* *(Purdue University)*; Rispoli, Joseph Vincent *(Purdue University)*

15:00-15:15 SaD03.3
Feasibility of using a 1T Extremity Scanner with a Four-Element Array to Detect 31P in the Human Calf
Carrell, Travis* *(Texas A&M University)*; Gu, Minyu *(Texas A&M University)*; McDougall, Mary *(Texas A&M University)*; Wright, Steven M. *(Texas A&M University)*

15:15-15:30 SaD03.4
Metasurface Resonator for 1.5 T MRI based on BaTiO3 Host Material
Koutsoupidou, Maria *(King's College London)*; Saha, Shimul C. *(MediWise, Medical Wireless Sensing Ltd.)*; Pricci, Roberto L. *(MediWise, Medical Wireless Sensing Ltd.)*; Cano-Garcia, Helena* *(King's College London, Medical Wireless Sensing Ltd.)*; Palikaras, George *(MediWise, Medical Wireless Sensing Ltd.)*; Kosmas, Panagiotis *(Kings College London)*; Kallos, Efthymios *(MediWise, Medical Wireless Sensing Ltd.)*

15:30-15:45 SaD03.5
Radio-Frequency Coil Array for Improved Concurrent Transcranial Magnetic Stimulation and Functional Magnetic Resonance Imaging
Mathieu, William *(McGill University)*; Popovich, Milica* *(McGill University)*; Farivar, Reza *(McGill University)*

15:45-16:00 SaD03.6
Accelerating MR Imaging via Deep Chambolle-Pock Network
Wang, Haifeng *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Cheng, Jing *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Jia, Sen *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Qiu, Zhilang *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Shi, Caiyun *(Shenzhen Institutes of Advanced Technology, Lauterbur Research C)*; Zou, Lixian *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Su, Shi *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Chang, Yuchou *(Univ. of Houston – Downtown)*; Zhu, Yanjie *(Shenzhen Institutes of Advanced Technology, Chinese Academy of S)*; Ying, Leslie *(The State Univ. of New York at Buffalo)*; Liang, Dong* *(Shenzhen Institutes of Advanced Technology)*

SaD04: 14:30-16:00 Hall A1 – Level 1
Cardiovascular Monitoring (Oral Session)
Co-Chair: McDuff, Daniel Jonathan *(Microsoft)*

14:30-14:45 SaD04.1
Identification and Tracking of Physiological Parameters from Skin using Video Photoplethysmography
Barbieri, Riccardo* *(Politecnico di Milano)*; Levi, Riccardo *(Politecnico di Milano)*; Negro, Matteo *(Politecnico di Milano, Milan, Italy)*; Ficarelli, Luca *(Politecnico di Milano)*; Cerina, Luca *(Politecnico of Milan)*; Mainardi, Luca *(Politecnico di Milano)*

14:45-15:00 SaD04.2
Continuous Tracking of Changes in Systolic Blood Pressure using BCG and ECG
He, Shan* *(Univ. of Ottawa)*; Dajani, Hilmi *(Univ. of Ottawa)*; Meade, Robert *(Univ. of Ottawa)*; Kenny, Glen Patrick *(Univ. of Ottawa)*; Bolic, Miodrag *(Univ. of Ottawa)*

15:00-15:15 SaD04.3
Using Non-Contact Imaging Photoplethysmography to Recover Diurnal Patterns in Heart Rate
McDuff, Daniel Jonathan* *(Microsoft)*

15:15-15:30 SaD04.4
Cuff-Less Blood Pressure Monitoring with a 3-Axis Accelerometer
Chang, Eric *(UC San Diego)*; Cheng, Chung-Kuan *(Univ. of California, San Diego)*; Gupta, Anushka *(UC San Diego)*; Hsu, Po-Han *(National Taipei Univ.)*; Hsu, Po-Ya* *(UC San Diego)*; Liu, Hsin-Li *(Central Taiwan Univ. of Science & Technology)*; Moffitt, Amanda *(UC San Diego)*; Ren, Alissa *(UC San Diego)*; Tsaur, Irene *(UC San Diego)*; Wang, Samuel *(UC San Diego)*

15:30-15:45 SaD04.5
The Cuffless Blood Pressure Measurement with Multi-Dimension Regression Model based on Characteristics of Pulse Waveform
Liu, Shing-Hong* *(Chaoyang University of Technology, Taichung, Taiwan, ROC)*; Wang, Jia-Jung *(I-Shou University)*; Tan, Tan-Hsu *(National Taipei University of Technology)*; Huang, Yung-Fa *(Chaoyang University of Technology)*

15:45-16:00 SaD04.6
A Wireless Wearable Sensor Patch for the Real-Time Estimation of Continuous Beat-to-Beat Blood Pressure
Qiu, Chunkai* *(Monash University)*; Wu, Taiyang *(Monash University)*; Redouté, Jean-Michel *(Monash University)*; Yuce, Mehmet *(Monash University)*

SaD05: 14:30-16:00 Hall A2 – Level 1
Signal Processing and Classification of Movement-Related Signals (Oral Session)

14:30-14:45 SaD05.1
Automated Evaluation of Upper Limb Motor Impairment in Patient with Cerebellar Ataxia
Tran, Ha* *(Deakin University)*; Pathirana, Pubudu N *(Deakin University)*; Horne, Malcolm *(Florey Institute of Neuroscience & Mental Health)*; Power, Laura *(Royal Victorian Eye & Ear Hospital)*; Szmulewicz, David *(Victorian Eye & Ear Hospital)*

14:45-15:00 SaD05.2
Quantitative Assessment of Cerebellar Ataxia, through Automated Limb-Coordination Tests
Krishna, Ragil* *(Deakin Univ.)*; Pathirana, Pubudu N *(Deakin Univ.)*; Horne, Malcolm *(Florey Institute of Neuroscience & Mental Health)*; Power, Laura *(Royal Victorian Eye & Ear Hospital)*; Szmulewicz, David *(Victorian Eye & Ear Hospital)*

15:00-15:15 SaD05.3
Estimating Center of Mass Trajectory in Quiet Standing: A Review
Nicolaï, Alice* *(CMLA, ENS Paris Saclay, CNRS)*; Audiffren, julien *(CMLA, ENS Paris Saclay, CNRS)*

15:15-15:30 SaD05.4
Relationship between Medial Gastrocnemius Muscle Stiffness and the Angle between the Rearfoot and Floor
Uchiyama, Takanori* *(Keio Univ.)*; Hamada, Eiki *(Keio Univ.)*

15:30-15:45 SaD05.5
Gesture Classification using LSTM Recurrent Neural Networks
Cifuentes Quintero, Jenny Alexandra* *(Univ. de La Salle)*; Boulanger, Pierre *(Univ. of Alberta)*; Pham, Minh Tu *(Institut National des Sciences Appliquées (INSA de Lyon))*; Prieto, Flavio *(Univ. Nacional de Colombia)*; Moreau, Richard *(INSA-Lyon)*

15:45-16:00 SaD05.6
Cortical Reactive Balance Responses to Unexpected Slippages while Walking: A Pilot Study
Mezzina, Giovanni* *(Politecnico di Bari)*; Aprigliano, Federica *(The BioRobotics Institute of Scuola Superiore Sant'Anna, Pisa)*; Micera, Silvestro *(Scuola Superiore Sant'Anna)*; Monaco, Vito *(Scuola Superiore Sant'Anna, Pisa)*; De Venuto, Daniela *(Politecnico di Bari)*

SaD06: 14:30-16:00 Hall A5 – Level 1
Neural Stimulation (IV) (Oral Session)

14:30-14:45 SaD06.1
A Simulation Study of Light Propagation in the Spinal Cord for Optogenetic Surface Stimulation
Chang, Shih-Yin* *(The University of Tokyo)*; Nishikawa, Satoshi *(The University of Tokyo)*; Sekino, Masaki *(The University of Tokyo)*; Onodera, Hiroshi *(University of Tokyo Graduate School of Engineering)*; Kuniyoshi, Yasuo *(University of Tokyo)*

14:45-15:00 SaD06.2
A Distributed Wireless Network of Implantable Sub-Mm Cortical Microstimulators for Brain-Computer Interfaces
Laiwalla, Farah *(Brown Univ.)*; Lee, Jihun *(Brown Univ.)*; Lee, Ah-Hyoung *(Seoul National Univ.)*; Mok, Ethan *(Brown Univ.)*; Leung, Vincent *(Qualcomm Institute)*; Shellhammer, Steven *(Qualcomm)*; Song, Yoon-Kyu *(Seoul National Univ.)*; Larson, Lawrence *(Brown Univ.)*; Nurmikko, Arto* *(Brown Univ.)*

15:00-15:15 SaD06.3
Sinusoidal Stimulation on Afferent Fibers Can Selectively Activate Different Types of Neurons in Rat Hippocampus
Wang, Zhaoxiang *(Zhejiang Univ.)*; Feng, Zhouyan* *(Zhejiang Univ.)*; Hu, Hanhan *(Zhejiang Univ.)*; Yuan, Yue *(Zhejiang Univ.)*

15:15-15:30 SaD06.4
Excitation Comparison between Multi-Site Stimulation using Network-Based tDCS and Focal Stimulation using High-definition tDCS
Chen, Cheng* *(The Chinese Univ. of Hong Kong)*; Fang, Yuqi *(Chinese Univ. of Hong Kong)*; Wang, Xin *(The Chinese Univ. of Hong Kong)*; Bao, Shi-Chun *(The Chinese Univ. of Hong Kong)*; Tang, Zhiqiang *(The Chinese Univ. of Hong Kong)*; Tong, Kai Yu, Raymond *(The Chinese Univ. of Hong Kong)*

15:30-15:45 SaD06.5
Extracellular and Intracellular Fluid Shifts on the Onset of Transcutaneous Auricular Vagus Nerve Stimulation
Ülgen, Yekta* *(Bahcesehir University)*; Solmaz, Hakan *(Bahcesehir University)*; Tunç, Burcu *(Bahcesehir University)*; Buyuksarac, Bora *(Bogazici University)*

15:45-16:00 SaD06.6
Investigation of Architectures for Models of Neural Responses to Electrical Brain Stimulation
Steinhardt, Cynthia* *(Johns Hopkins University)*; Sacré, Pierre *(University of Liège)*; Inati, Sara *(National Institute of Health)*; Sarma, Sridevi V. *(Johns Hopkins University)*; Zaghloul, Kareem *(National Institute of Health)*

SaD07: 14:30-16:00 Hall A4 – Level 1
Physiological Systems Modeling (Oral Session)
Co-Chair: Wessel, Niels *(Humboldt-Universität zu Berlin)*

14:30-14:45 SaD07.1
A System Theoretic Investigation of Cortisol Dysregulation in Fibromyalgia Patients with Chronic Fatigue
Pednekar, Divesh Deepak* *(University of Houston)*; Amin, Md. Rafiul *(University of Houston)*; Fekri Azgomi, Hamid *(University of Houston)*; Aschbacher, Kirstin *(University of California, San Francisco)*; Crofford, Leslie J. *(Vanderbilt University)*; Faghih, Rose T. *(University of Houston)*

14:45-15:00 SaD07.2
A Systematic Method for Preprocessing and Analyzing Electrodermal Activity
Subramanian, Sandya* *(Massachusetts Institute of Technology)*; Barbieri, Riccardo *(Politecnico di Milano)*; Brown, Emery N *(MGH-Harvard Medical School-MIT)*

15:00-15:15 SaD07.3
A Convolutional Neural Network-Based Model of Neural Pathways in the Retina
Zamani, Yasin *(Univ. of Utah)*; Nategh, Neda* *(Univ. of Utah)*

15:15-15:30 SaD07.4
Assessment of Children Exposure Variability to Near-Field Sources using Stochastic Dosimetry
Bonato, Marta* *(IEIIT Institute of Electronics, Computers & Telecommunication)*; Chiaramello, Emma *(IEIIT Institute of Electronics, Computers & Telecommunication)*; Fiocchi, Serena *(Consiglio Nazionale delle Ricerche CNR)*; Tognola, Gabriella *(CNR IEIIT – Istituto di Elettronica e di Ingegneria dell'Informa)*; Parazzini, Marta *(Consiglio Nazionale delle Ricerche)*; Ravazzani, Paolo *(Consiglio Nazionale delle Ricerche CNR)*

15:30-15:45 SaD07.5
A Bayesian Framework to Identify Type 1 Diabetes Physiological Models using Easily Accessible Patient Data
Cappon, Giacomo* *(Univ. of Padova)*; Facchinetti, Andrea *(Univ. of Padova)*; Sparacino, Giovanni *(Univ. of Padova)*; Del Favero, Simone *(Univ. of Padova, Padova, Italy)*

15:45-16:00 SaD07.6
EOG-Based Gaze Angle Estimation using a Battery Model of the Eye
Barbara, Nathaniel* *(Univ. of Malta)*; Camilleri, Tracey *(Univ. of Malta)*; Camilleri, Kenneth Patrick *(Univ. of Malta)*

SaD08: 14:30-16:00 M8 – Level 3
Health Informatics – Mobile Health (Oral Session)

14:30-14:45 SaD08.1
Developing a Smartphone Application to Support Smoking Behavior Change through Social Comparison
Maramis, Christos *(Aristotle Univ. of Thessaloniki)*; Mylonopoulou, Vasiliki *(Univ. of Oulu)*; Stibe, Agnis *(ESLSCA Business School Paris)*; Minna, Isomursu *(IT Univ. of Copenhagen)*; Chouvarda, Ioanna* *(Aristotle Univ.)*

14:45-15:00 SaD08.2
Detection and Classification of Multidirectional Steps for Motor-Cognitive Training in Older Adults using Shoe-Mounted Inertial Sensors
Guimarães, Vânia* *(Fraunhofer Portugal AICOS)*; Sousa, Inês *(Fraunhofer Portugal AICOS)*; Correia, Miguel *(Universidade do Porto, Faculdade de Engenharia)*

15:00-15:15 SaD08.3
Monitoring and Prediction of Mood in Elderly People during Daily Life Activities
Bautista-Salinas, Daniel *(The Hamlyn Centre for Robotic Surgery, Imperial College London)*; Roca-González, Joaquín *(Universidad Politécnica de Cartagena – UPCT)*; Méndez, Inmaculada *(Universidad de Murcia)*; Martinez Mozos, Oscar* *(Technical University of Cartagena)*

15:15-15:30 SaD08.4
Inferring Respiratory Minute Volume from Wrist Motion
Alam, Ridwan* *(University of Virginia)*; Peden, David *(University of North Carolina at Chapel Hill)*; Ghaemmaghami, Benjamin *(University of Virginia)*; Lach, John *(University of Virginia)*

15:30-15:45 SaD08.5
Assessment of In-Meal Eating Behaviour using Fuzzy SVM
Sarafis, Ioannis* *(Aristotle Univ. of Thessaloniki)*; Diou, Christos *(Aristotle Univ. of Thessaloniki)*; Ioakimidis, Ioannis *(Karolinska Institute, NVS, Division of Applied Neuroendocrinolog)*; Delopoulos, Anastasios *(Aristotle Univ. of Thessaloniki)*

15:45-16:00 SaD08.6
Health-E Minds: A Participatory Personalised and Gamified mHealth Platform to Support Healthy Living Behaviours for People with Mental Illness
Varnfield, Marlien* *(CSIRO)*; Rajesh, Kausthubram *(CSIRO)*; Redd, Christian Brandt *(Commonwealth Scientific & Industrial Research Organisation)*; Gibson, Simon *(CSIRO)*; Gwillim, Lisa *(Queensland Health)*; Polkinghorne, Stuart *(Queensland Health)*

SaD09: 14:30-16:00 M1 – Level 3
Models of Tissue, Organs, and Devices (Oral Session)
Co-Chair: Fotiadis, Dimitrios I. *(University of Ioannina)*

14:30-14:45 SaD09.1
The Geometric Effects on the Stress of Arterial Atherosclerotic Plaques: A Computational Study
Liu, Haipeng *(Anglia Ruskin Univ.)*; Leung, Thomas *(The Chinese Univ. of Hong Kong)*; Wong, Adrian *(The Chinese Univ. of Hong Kong)*; Chen, Fei *(Southern Univ. of Science & Technology)*; Zheng, Dingchang* *(Anglia Ruskin Univ.)*

14:45-15:00 SaD09.2
Computational Modelling of the Effect of Infarct Stiffness on Regional Myocardial Mechanics
Leong, Chen Onn* *(Univ. of Malaya)*; Leong, Chin Neng *(Univ. of Malaya)*; Al Abed, Amr *(Univ. of New South Wales)*; Ahmad Bakir, Azam *(The Univ. of New South Wales)*; Liew, Yih Miin *(Univ. of Malaya)*; Dokos, Socrates *(Univ. of New South Wales)*; Lim, Einly *(Univ. of Malaya)*

15:00-15:15 SaD09.3
Functional Requirements of a Mathematical Model of Muscle Contraction
Palladino, Joseph* *(Trinity College)*

15:15-15:30 SaD09.4
Numerical Evaluation of the Mechanical Environment of a Fractured Long Bone for Osteoporotic and Non-Osteoporotic Subjects
Potsika, Vassiliki *(Unit of Medical Technology & Intelligent Information Systems,)*; Tachos, Nikolaos *(Unit of Medical Technology & Intelligent Information Systems,)*; Pakos, Emilios *(Laboratory of Biomechanics, School of Medicine, University of Io)*; Fotiadis, Dimitrios I.* *(University of Ioannina)*

15:30-15:45 SaD09.5
Incorporating Pathology-Induced Heterogeneities in a Patient-Specific Biomechanical Model of the Lung for Accurate Tumor Motion Estimation
Jafari, Parya* *(Western Univ.)*; Hoover, Douglas *(London Health Sciences Centre)*; Yaremko, Brian *(London Regional Cancer Program)*; Parraga, Grace *(Robarts Research Institute)*; Samani, Abbas *(Western Univ.)*; Sadeghi-Naini, Ali *(York Univ.)*

15:45-16:00 SaD09.6
Fast Simulation of Stent Deployment with Plastic Beam Elements
Krewcun, Camille* *(Institut Pascal)*; Sarry, Laurent *(Université d'Auvergne)*; Combaret, Nicolas *(Institut Pascal)*; Pery, Emilie *(Université d'Auvergne)*

SaD10: 14:30-16:00 M2 – Level 3
Therapeutic and Diagnostic Modeling (Oral Session)
Chair: Makarov, Sergey *(Electrical and Computer Engineering, Worcester Polytechnic Institute)*

14:30-14:45 SaD10.1
Multi-Modal Framework for Image-Guided Trans-Oral Surgery with Intraoperative Imaging and Deformation Modeling
Wu, Xiaotian* *(Thayer School of Engineering at Dartmouth College)*; Sánchez, Antonio *(University of British Columbia)*; Kahng, Peter *(Geisel School of Medicine)*; Rees, Christiaan *(Geisel School of Medicine)*; Ponukumati, Aravind *(Geisel School of Medicine)*; Eisen, Eric *(Dartmouth-Hitchcock Medical Center)*; Pastel, David *(Dartmouth-Hitchcock Medical Center)*; Borgard, Heather *(University of British Columbia)*; Lloyd, John E. *(The University of British Columbia)*; Fels, Sidney *(The University of British Columbia)*; Paydarfar, Joseph *(Dartmouth-Hitchcock Medical Center)*; Halter, Ryan *(Dartmouth College)*

14:45-15:00 SaD10.2
A New 3D Printed Applicator with Radioactive Gel for Conformal Brachytherapy of Superficial Skin Tumor
Pashazadeh, Ali* *(Otto-von-Guericke-University of Magdeburg, Germany)*; Castro, Nathan *(George Washington University)*; Boese, Axel *(Dept. of Medical Engineering, Otto-von-Guericke-University)*; Hutmacher, Dietmar W. *(Queensland University of Technology)*; Friebe, Michael *(Otto-von-Guericke-University)*

15:00-15:15 SaD10.3
Optimizing Configurations for 7-DoF Robotic Ultrasound Guidance in Radiotherapy of the Prostate
Schlüter, Matthias* *(Hamburg Univ. of Technology)*; Fürweger, Christoph *(Europäisches Cyberknife Zentrum München-Großhadern)*; Schlaefer, Alexander *(Hamburg Univ. of Technology)*

15:15-15:30 SaD10.4
Evaluation of Laser-Induced Plasma Ablation Focusing on the Difference in Pulse Duration
Akimoto, Kohei* *(Tokyo University of Science)*; Tsuichihara, Satoki *(Tokyo University of Science)*; Takamatsu, Toshihiro *(Tokyo University of Science)*; Soga, Kohei *(Tokyo University of Science)*; Yokota, Hideo *(RIKEN Center for Advanced Photonics)*; Ito, Masaaki *(National Cancer Center Hospital East)*; Gotoda, Naoto *(National Cancer Center Hospital East)*; Takemura, Hiroshi *(Tokyo University of Science)*

15:30-15:45 SaD10.5
Development and Preliminary Evaluation of a Novel Adaptive Staircase Procedure for Automated Speech-in-Noise Testing
Zanet, Marco *(Politecnico di Milano)*; Polo, Edoardo Maria *(Politecnico di Milano)*; Rocco, Giulia *(Politecnico di Milano)*; Paglialonga, Alessia* *(CNR National Research Council of Italy)*; Barbieri, Riccardo *(Politecnico di Milano)*

15:45-16:00 SaD10.6
Enhancing Tumor Treating Fields Therapy with Skull-Remodeling Surgery. The Role of Finite Element Methods in Surgery Planning and Treatment Evaluation
Korshoej, Anders R. *(Aarhus University Hospital)*; Bicalho Saturnino, Guilherme *(Technical University of Denmark)*; Mikic, Nikola *(Aarhus University Hospital, Dept. of Neurosurgery)*; Thielscher, Axel *(Copenhagen University Hospital Hvidovre, Denmark & Biomedical En)*; Bomzon, Ze'ev* *(Novocure)*

SaD11: 14:30-16:00 M4 – Level 3
Vascular Mechanics and Hemodynamics – Vascular Disease (Oral Session)
Chair: Fotiadis, Dimitrios I. *(University of Ioannina)*
Co-Chair: Kerkhof, Peter LM *(VU University Medical Center)*

14:30-14:45 SaD11.1
Site Specific Prediction of Atherosclerotic Plaque Progression using Computational Biomechanics and Machine Learning
Kigka, Vassiliki *(Univ. of Ioannina)*; Sakellarios, Antonis* *(Forth-Biomedical Research Institute)*; Tsompou, Panagiota *(Unit of Medical Technology & Intelligent Information Systems,)*; Kyriakidis, Savvas *(Institute of Molecular Biology & Biotechnology, FORTH)*; Siogkas, Panagiotis *(Forth-IMBB)*; Andrikos, Ioannis *(Univ. of Ioannina)*; Michalis, Lampros *(Univ. of Ioannina)*; Fotiadis, Dimitrios I. *(Univ. of Ioannina)*

14:45-15:00 SaD11.2
Predictive Models of Coronary Artery Disease based on Computational Modeling: The SMARTool System
Sakellarios, Antonis* *(Forth-Biomedical Research Institute)*; Tsompou, Panagiota *(Unit of Medical Technology & Intelligent Information Systems,)*; Siogkas, Panagiotis *(Forth-IMBB)*; Kigka, Vassiliki *(Univ. of Ioannina)*; Andrikos, Ioannis *(Univ. of Ioannina)*; Tachos, Nikolaos *(Unit of Medical Technology & Intelligent Information Systems,)*; Georga, Eleni I. *(Univ. of Ioannina)*; Kyriakidis, Savvas *(Institute of Molecular Biology & Biotechnology, FORTH)*; Rocchiccioli, Silvia *(Institute of Clinical Physiology, National Research Council, Pis)*; Pelosi, Gualtiero *(Institute of Clinical Physiology, National Research Council)*; Fotiadis, Dimitrios I. *(Univ. of Ioannina)*

15:00-15:15 SaD11.3
Sex-Specific Interpretation of Coronary Flow Reserve and Fractional Flow Reserve Metrics, Including their Companions
Kerkhof, Peter LM* *(VU University Medical Center)*; Osto, Elena *(Dept. Clinical Chemistry, University of Zurich)*; Tona, Francesco *(University of Padova)*; Heyndrickx, Guy R. *(Cardiovascular Center, OLV Clinic, Aalst)*; Handly, Neal *(Dept. Emergency Medicine, Drexel University College of Medicine,)*

15:15-15:30 SaD11.4
Recognition of Endovascular Manipulations using Recurrent Neural Networks
Li, Rui-Qi *(Institute of Automation, Chinese Academy of Sciences)*; Zhou, Xiaohu *(Institute of Automation, Chinese Academy of Sciences)*; Bian, Gui-Bin *(Institute of Automation, Chinese Academy of Sciences)*; Xie, Xiao-Liang *(Chinese Academy of Sciences)*; Hou, Zeng-Guang* *(Institute of Automation, Chinese Academy of Sciences)*

15:30-15:45 SaD11.5
Model-Free Cardiorespiratory Motion Prediction from X-Ray Angiography Sequence with LSTM Network
Azizmohammadi, Fariba* *(Ecole de Technologie Superieure)*; Martin, Rémi *(Ecole de Technologie Superieure)*; Miró, Joaquim *(Dept. of Pediatrics, CHU Sainte-Justine)*; Duong, Luc *(Ecole de Technologie Superieure)*

15:45-16:00 SaD11.6
Three Dimensional Fluid Structure Interaction Analysis of Carotid Artery Models with Different Calcification Patterns
Mahmoud, Aya H. *(Cairo Univ., Faculty of Engineering)*; Hassan, Noha *(Biomedical Engineering Dept., Cairo Univ.)*; Mahmoud, Ahmed M.* *(Cairo Univ. Faculty of Engineering)*

SaD12: 14:30-16:00 M6 – Level 3
Digital Pathology (Oral Session)
Chair: Maglogiannis, Ilias *(University of Piraeus)*
Co-Chair: Ramakrishnan, Swaminathan *(IIT Madras, India)*

14:30-14:45 SaD12.1
Breast Cancer Image Classification via Multi-Level Dual-Network Features and Sparse Multi-Relation Regularized Learning
Wang, Yongjun *(Shenzhen University)*; Huang, Fanglin *(Shenzhen University)*; Zhang, Yongtao *(Shenzhen University)*; Zhang, Rugang *(Shenzhen University)*; Lei, Baiying *(Shenzhen University)*; Wang, Tianfu* *(Shenzhen University)*

14:45-15:00 SaD12.2
WBCaps: A Capsule Architecture-Based Classification Model Designed for White Blood Cells Identification
Liu, Yan *(Sichuan Univ.)*; Fu, Ying *(Chengdu Univ. of Information Technology)*; Chen, Pu* *(Zhongshan Hospital Fudan Univ.)*

15:00-15:15 SaD12.3
Classification of Elastic and Collagen Fibers in H&E Stained Hyperspectral Images
Septiana, Lina* *(Tokyo Institute of Technology, Krida Wacana Christian Univ.)*; Suzuki, Hiroyuki *(Tokyo Institute of Technology)*; Ishikawa, Masahiro *(Saitama Medical Univ.)*; Obi, Takashi *(Tokyo Institute of Technology)*; Kobayashi, Naoki *(Saitama Medical Univ.)*; Ohyama, Nagaaki *(Tokyo Institute of Technology)*; Erning, Wihardjo *(Krida Wacana Christian Univ.)*; Andiani, Dini *(Indonesian Institute of Sciences)*

15:15-15:30 SaD12.4
Creating Visual Vocabularies for the Retrieval and Classification of Histopathology Images
Kallipolitis, Athanasios *(University of Piraeus)*; Maglogiannis, Ilias* *(University of Piraeus)*

15:30-15:45 SaD12.5
Binary Grey Wolf Optimizer based Feature Selection for Nucleolar and Centromere Staining Pattern Classification in Indirect Immunofluorescence Images
Devanathan, Kanchana* *(Indian Institute of Technology Madras)*; Ganapathy, Nagarajan *(Indian Institute of Technology Madras)*; Ramakrishnan, Swaminathan *(IIT Madras, India)*

15:45-16:00 SaD12.6
Automated Pap Smear Cervical Cancer Screening using Deep Learning
Sompawong, Nitiwat *(Thammasat Univ.)*; Mopan, Jintapatee *(Thammasat Univ.)*; Pooprasert, Pakinee *(Cardiff Univ. School of Medicine)*; Himakhun, Wanwisa *(Thammasat Univ.)*; Suwannarurk, Komsun *(Thammasat Univ.)*; Ngamvirojcharoen, Jarun *(Sertis, Co., Ltd.)*; Vachiramon, Tee *(Sertis, Co., Ltd.)*; Tantibundhit, Charturong* *(Thammasat Univ.)*

SaD13: 14:30-16:00 R2 – Level 3
Novel Methods for Physiological Monitoring (Oral Session)
Co-Chair: Chung, Wan-Young *(Pukyong National University)*

14:30-14:45 SaD13.1
An Earbud-Type Wearable (A Hearable) with Vital Parameter Sensors for Early Detection and Prevention of Heat-Stroke
Matsumoto, Keiji* *(IBM Research Tokyo)*; Temiz, Yuksel *(IBM Research-Zurich)*; Taghavi, Hamidreza *(Sonion)*; Cornelius, Elrick Lennaert *(Sonion – In-Ear Technology Dev. & Man. Partner)*; Mori, Hiroyuki *(IBM Research Tokyo, IBM Japan Ltd.)*; Michel, Bruno *(IBM Research – Zurich)*

14:45-15:00 SaD13.2
Stress and Anxiety Measurement "In-the-Wild" using Quality-Aware Multi-Scale HRV Features
Tiwari, Abhishek* *(Institut National de la Recherche Scientifique)*; Narayanan, Shrikanth *(University of Southern California)*; Falk, Tiago *(Institut National de la Recherche Scientifique)*

15:00-15:15 SaD13.3
Estimation of the Blood Pressure Waveform using Electrocardiography
Landry, Cederick* *(University of Waterloo)*; D. Peterson, Sean *(University of Waterloo)*; Arami, Arash *(University of Waterloo)*

15:15-15:30 SaD13.4
An Ultrasonically Powered Wireless System for in-Vivo Gastric Slow-Wave Recording
Meng, Miao *(The Pennsylvania State University)*; Graybill, Philip *(Penn State University)*; Ramos, Raddy *(NYIT College of Osteopathic Medicine)*; Javan-Khoshkholgh, Amir *(New York Institute of Technology)*; Farajidavar, Aydin *(New York Institute of Technology)*; Kiani, Mehdi* *(Pennsylvania State University)*

15:30-15:45 SaD13.5
Insights into Oscillometry: An Experimental Study for Improvement of Cuff-Based Blood Pressure Measurement Technology
Bogatu, Laura* *(Philips Research, Eindhoven University of Technology)*; Bresch, Erik *(Philips)*; Muehlsteff, Jens *(Philips)*; Smink, Jouke *(Philips)*; Woerlee, Pierre *(TUe Eindhoven)*

15:45-16:00 SaD13.6
Compressive Sensing of Cuff-Less Biosensor for Energy-Efficient Blood Pressure Monitoring
Rachim, Vega Pradana *(Pukyong National University)*; Chung, Wan-Young* *(Pukyong National University)*

SaD14: 14:30-16:00 R3 – Level 3
Signal Processing and Classification of Electrophysiological Signals (Oral Session)
Chair: Nguyen, Hung T. *(Swinburne University of Technology)*

14:30-14:45 SaD14.1
A Hidden Semi-Markov Model for Estimating Burst Suppression EEG
Chakravarty, Sourish* *(Massachusetts Institute of Technology)*; Baum, Taylor Elise *(The Pennsylvania State University)*; An, Jingzhi *(MIT)*; Kahali, Pegah *(Picower Institute for Learning & Memory)*; Brown, Emery N *(MGH-Harvard Medical School-MIT)*

14:45-15:00 SaD14.2
Sigmoid Wake Probability Model for High-Resolution Detection of Drowsiness using Electroencephalogram
Hassan, Ahnaf Rashik *(North South Univ., Dhaka, Bangladesh)*; Kabir, Muammar Muhammad *(Toronto Rehabilitation Institute, Univ. Health Network)*; Keshavarz, Behrang *(Toronto Rehab, Ryerson Univ.)*; Taati, Babak* *(Toronto Rehabilitation Institute & Univ. of Toronto)*; Yadollahi, Azadeh *(Univ. of Toronto)*

15:00-15:15 SaD14.3
Automatically Identified Micro-Scale Sharp-Wave Transients in the Early-Latent Phase of Hypoxic-Ischemic EEG from Preterm Fetal Sheep Reveal Timing Relationship to Subcortical Neuronal Survival
Abbasi, Hamid* *(University of Auckland)*; Bennet, Laura *(The University of Auckland)*; Gunn, Alistair Jan *(University of Auckland)*; Unsworth, Charles Peter *(University of Auckland)*

15:15-15:30 SaD14.4
A Hybrid Physiological Approach of Emotional Reaction Detection using Combined FCM and SVM Classifier
Guo, Kairui *(Univ. of Technology, Sydney)*; Yu, Hairong* *(Univ. of Technology, Sydney)*; Chai, Rifai *(Swinburne Univ. of Technology)*; Nguyen, Hung T. *(Swinburne Univ. of Technology)*; Su, Steven Weidong *(Univ. of Technology, Sydney)*

15:30-15:45 SaD14.5
Mixed-Norm based Broad Learning System for EEG Classification
Zheng, Yunfei* *(Xi'an Jiao Tong University)*; Qin, Xuemei *(Xi'an Jiao Tong University)*; Xi, Zhengkai *(Xi'an Jiao Tong University)*; Chen, Badong *(Xi'an Jiao Tong University)*

15:45-16:00 SaD14.6
Wavelet P-Leader Non-Gaussian Multiscale Expansions for EEG Series: An Exploratory Study on Cold-Pressor Test
Catrambone, Vincenzo* *(Università di Pisa)*; Valenza, Gaetano *(University of Pisa)*; Scilingo, Enzo Pasquale *(University of Pisa)*; Vanello, Nicola *(University of Pisa)*; Wendt, Herwig *(CNRS, University of Toulouse)*; Barbieri, Riccardo *(Politecnico di Milano)*; Abry, Patrice *(ENS Lyon, CNRS)*

SaD15: 14:30-16:00 M3 – Level 3
Ultrasound Imaging – Reconstruction, Modeling and Simulation (Oral Session)
Co-Chair: Gao, Fei *(ShanghaiTech University)*

14:30-14:45 SaD15.1
Finite Element Breast Simulation for Sonography Image Registration
Esslinger, Dominik *(Univ. of Stuttgart)*; Bacher, Neal *(Univ. of Stuttgart)*; Rapp, Philipp *(Univ. of Stuttgart)*; Preibsch, Heike *(Dept. of Diagnostic & Interventional Radiology, Eberhard-)*; Tarín, Cristina* *(Univ. of Stuttgart)*; Sawodny, Oliver *(Institute for System Dynamics, Univ. of Stuttgart)*; Brucker, Sara *(Univ. Hospital Tübingen)*; Hahn, Markus *(Dept. of Women's Health, Research Centre for Women's Health)*

14:45-15:00 SaD15.2
Quantitative Quasi-Static Ultrasound Elastography using Reference Layer: Ex-Vivo Study
Selladurai, Sathiyamoorthy *(IIT MADRAS)*; Thittai, Arun Kumar* *(IIT MADRAS)*

15:15-15:30 SaD15.4
Novel Ultrasound Texture based Similarity Metric using Autoregressive Modelling
Balakrishnan, Sathish* *(Otto von Guericke University Magdeburg)*; Illanes, Alfredo *(Otto-von-Guericke University of Magdeburg)*; Friebe, Michael *(Otto-von-Guericke-University)*

15:30-15:45 SaD15.5
Reconstruct the Photoacoustic Image based on Deep Learning with Multi-Frequency Ring-Shape Transducer Array
Lan, Hengrong* *(ShanghaiTech University)*; Yang, Changchun *(ShanghaiTech University)*; Jiang, Daohuai *(Shanghaitech University)*; Gao, Fei *(ShanghaiTech University)*

15:45-16:00 SaD15.6
Adjustable Handheld Probe Design for Photoacoustic Imaging: Experimental Validation
Zhao, Yongjian* *(School of Information Science & Technology, ShanghaiTech Unive)*; Yu, Shaohui *(ShanghaiTech Univ.)*; Tao, Ben *(Tongji Univ.)*; Gao, Fei *(ShanghaiTech Univ.)*

SaD16: 14:30-16:00 M5 – Level 3
Wearable Sensors and Systems (Oral Session)
Chair: Di Rienzo, Marco *(IRCCS Fondazione Don Carlo Gnocchi)*
Co-Chair: Redd, Christian Brandt *(Commonwealth Scientific and Industrial Research Organization)*

14:30-14:45 SaD16.1
The Effect of Expertise on Gaze Behaviour in Laparoscopic Cholecystectomy
Gunawardena, Nishan* *(Johannes Kepler Univ.)*; Matscheko, Michael *(Institute of Pervasive Computing, Johannes Kepler Univ.)*; Bernhard, Anzengruber *(Institute of Pervasive Computing, Johannes Kepler Univ.)*; Alois, Ferscha *(Institute of Pervasive Computing, Johannes Kepler Univ.)*; Schobesberger, Martin *(Institute of Pervasive Computing, Johannes Kepler Univ.)*; Shamiyeh, Andreas *(2nd Surgical Dept., Kepler Univ. Clinic, Linz)*; Klugsberger, Bettina *(2nd Surgical Dept., Kepler Univ. Clinic, Linz)*; Solleder, Peter *(Karl Storz SE & Co. KG)*

14:45-15:00 SaD16.2
Bone Conduction Headphones for Force Feedback in Robotic Surgery
Mikic, Marko* *(University of Toronto, CIGITI, Hospital for Sick Children)*; Francis, Peter *(University of Toronto)*; Looi, Thomas *(CIGITI, Hospital for Sick Children)*; Gerstle, J. Ted *(University of Toronto, Hospital for Sick Children, CIGITI)*; Drake, James *(University of Toronto, CIGITI, Hospital for Sick Children)*

15:00-15:15 SaD16.3
Development of a Wearable Sensor Network for Quantification of Infant General Movements for the Diagnosis of Cerebral Palsy
Redd, Christian Brandt* *(Commonwealth Scientific & Industrial Research Organisation)*; Barber, Lee *(Central Queensland Univ.)*; Boyd, Roslyn *(Univ. of Queensland)*; Varnfield, Marlien *(CSIRO)*; Karunanithi, Mohanraj *(CSIRO Digital Productivity Flagship)*

15:15-15:30 SaD16.4
Measurement of Three-Dimensional Force Applied to Elastic Suture Training Pads for Laparoscopic Suturing
Fukuda, Kohei* *(Osaka University)*; Kawasetsu, Takumi *(Osaka University)*; Ishihara, Hisashi *(Osaka University)*; Horii, Takato *(The University of Electro-Communications)*; Nakamura, Ryoichi *(Chiba University)*; Kawahira, Hiroshi *(Jichi Medical University)*; Asada, Minoru *(Osaka University)*

15:30-15:45 SaD16.5
Orientation-Based Food Image Capture for Head Mounted Egocentric Camera
Hassan, Mohamed *(University of Alabama)*; Sazonov, Edward* *(University of Alabama)*

15:45-16:00 SaD16.6
The Ambulatory Eye Shield Head Tracking Device with Real-Time Feedback for Gas Filled Eye Patients
Thanawattano, Chusak* *(National Science & Tech. Dev. Agency)*; Buekban, Chatchai *(National Science & Tech. Dev. Agency)*; Dumnin, Songphon *(National Electronics & Computer Tech. Center)*; Limsuknirun, Wannasiri *(Chulalongkorn Univ. & King Chulalongkorn Memorial Hospital)*; Waradisai, Adisai *(Chulalongkorn Univ.)*; Pongsachareonnont, Pear *(Chulalongkorn Univ. & King Chulalongkorn Memorial Hospital)*

SaD17: 14:30-16:00 R12 – Level 3
Time-Frequency Analysis of Biosignals (Oral Session)

14:30-14:45 SaD17.1
Automatic Cough Detection in Acoustic Signal using Spectral Features
Pramono, Renard Xaviero Adhi* *(Imperial College London)*; Imtiaz, Syed Anas *(Imperial College London)*; Rodriguez-Villegas, Esther *(Imperial College London)*

14:45-15:00 SaD17.2
Detection of Monophasic Slow-Wave Activation Phase using Wavelet Decomposition
Han, Baozeng *(Univ. of Auckland)*; Cheng, Leo K *(Univ. of Auckland)*; Angeli, Timothy Robert *(Auckland Bioengineering Institute, Univ. of Auckland)*; Paskaranandavadivel, Niranchan* *(Univ. of Auckland)*

15:00-15:15 SaD17.3
Feature Space Reduction for Single Trial EEG Classification based on Wavelet Decomposition
Shahtalebi, Soroosh *(Concordia University)*; Mohammadi, Arash* *(Concordia University)*

15:15-15:30 SaD17.4
Order Frequency Spectral Correlation based Cyclo-Nonstationary Analysis of Surface EMG Signals in Biceps Brachii Muscles
Sam Jeeva Raj, Edward Jero* *(Indian Institute of Technology Madras)*; Ramakrishnan, Swaminathan *(IIT Madras, India)*

15:30-15:45 SaD17.5
Time-Frequency Relevancy Analysis between Local Field Potentials and Lever Pressing Motion of Rats
Huang, Yifan* *(Hong Kong Univ. of Science & Technology)*; Shen, Xiang *(Hong Kong Univ. of Science & Technology)*; Wang, Yiwen *(Hong Kong Univ. of Science & Technology)*; Chen, Shuhang *(Hong Kong Univ. of Science & Technology)*; Zhang, Xiang *(The Hong Kong Univ. of Science & Technology)*

15:45-16:00 SaD17.6
Automated Tongue-Twister Phrase-Based Screening for Cerebellar Ataxia using Vocal Tract Biomarkers
Kashyap, Bipasha* *(Deakin Univ.)*; Pathirana, Pubudu N *(Deakin Univ.)*; Szmulewicz, David *(Victorian Eye & Ear Hospital)*; Horne, Malcolm *(Florey Institute of Neuroscience & Mental Health)*; Power, Laura *(Royal Victorian Eye & Ear Hospital)*

SaD18**:** 14:30-16:00 R13 – Level 3
Wearable or Portable Devices for Bio-Monitoring (Oral Session)
Chair: Chen, JIe *(University of Alberta)*
Co-Chair: Leonhardt, Steffen *(RWTH Aachen University)*

14:30-14:45 SaD18.1
Nocturnal Hypoglycemia Detection using EEG Spectral Moments under Natural Occurrence Conditions
Ngo, Cuong Q.* *(Swinburne University of Technology)*; Chai, Rifai *(Swinburne University of Technology)*; Nguyen, Tuan V. *(University of Technology, Sydney, Australia)*; Jones, Timothy *(Princess Margaret Hospital for Children)*; Nguyen, Hung T. *(Swinburne University of Technology)*

14:45-15:00 SaD18.2
Development of a Low-Cost, Portable, Pediatric Infection Screening System using Simultaneous Measurement of Multiple Vital Signs
Dagdanpurev, Sumiyakhand* *(Tokyo Metropolitan Univ.)*; Tsogzolmaa, Udval *(Tokyo Metropolitan Univ.)*; Sun, Guanghao *(The Univ. of Electro-Communications)*; Choimaa, Lodoiravsal *(National Univ. of Mongolia)*; Abe, Shigeto *(Takasaka Clinic)*; Matsui, Takemi *(Tokyo Metropolitan Univ.)*

15:00-15:15 SaD18.3
Fast Assessment of Glycemic Control based on Continuous Glucose Monitoring Data
Mohebbi, Ali* *(Technical University of Denmark)*; Tarp, Jens *(Novo Nordisk)*; Jensen, Morten Lind *(Novo Nordisk A/S)*; Puthusserypady, Sadasivan *(Technical University of Denmark)*; Hachmann-Nielsen, Elise *(MD; Novo Nordisk)*; Bengtsson, Henrik *(Novo Nordisk A/S)*; Morup, Morten *(DTU Compute)*

15:15-15:30 SaD18.4
Implementation of a Virtual Reality Rendered in Portable Devices for Strabismus Treatment based on Conventional Visual Therapy
Cepeda-Zapata, Luis Kevin *(Tecnológico de Monterrey)*; Romero Soto, Fabian Oswaldo *(Instituto Tecnologico de Estudios Superiores de Monterrey)*; Diaz-de-Leon, Victor Abdiel *(Tecnologico de Monterrey)*; Roa, Jessica Lorena *(Tecnológico de Monterrey)*; Naal-Ruiz, Norberto Emmanuel *(Tecnológico de Monterrey)*; Ibarra Zarate, David Isaac *(ITESM)*; Alonso-Valerdi, Luz Maria* *(Tecnologico de Monterrey)*

15:30-15:45 SaD18.5
Detection of Sleep Apnea using Sonar Smartphone Technology
Lyon, Graeme* *(ResMed Inc.)*; Tiron, Roxana *(ResMed Inc.)*; Zaffaroni, Alberto Antonio *(ResMed Inc.)*; Osman, Ahmed *(ResMed Inc.)*; Kilroy, Hannah *(ResMed)*; Lederer, Katharina *(Advanced Sleep Research Berlin)*; Fietze, Ingo *(Charité-Univ. Berlin)*; Penzel, Thomas *(Charité Univ. Berlin)*

15:45-16:00 SaD18.6
Removing Subject Dependencies on Non-Invasive Blood Glucose Measurement using Hybrid Techniques
Pathirage, Kasun Dushmantha* *(University of Moratuwa)*; Roopasinghe, Pubudu *(University of Moratuwa)*; Sooriyaarachchi, Jinani Janahansi *(University of Moratuwa)*; Weththasinghe, Rasangika *(University of Moratuwa)*; Nanayakkara, Nuwan Dayananda *(University of Moratuwa)*

SaD19**:** 14:30-16:00 R4 – Level 3
Image Segmentation with Neural Networks (II) (Oral Session)
Chair: Korbicz, Józef *(University of Zielona Góra)*

14:30-14:45 SaD19.1
Polyp Segmentation using Generative Adversarial Network
J M, Poorneshwaran* *(Healthcare Technology Innovation Centre (HTIC), Indian Institute)*; Sukumar, Santhosh Kumar *(Healthcare Technology Innovation Centre, IIT Madras)*; Ram, Keerthi *(IIT Madras)*; Joseph, Jayaraj *(HTIC, Indian Institute of Technology Madras)*; Sivaprakasam, Mohanasankar *(Indian Institute of Technology Madras)*

14:45-15:00 SaD19.2
U-NetPlus: A Modified Encoder-Decoder U-Net Architecture for Semantic and Instance Segmentation of Surgical Instruments from Laparoscopic Images
Hasan, S. M. Kamrul* *(Rochester Institute of Technology)*; Linte, Cristian A. *(Rochester Institute of Technology)*

15:00-15:15 SaD19.3
Feedback-Based Self-Improving CNN Algorithm for Breast Cancer Lymph Node Metastasis Detection in Real Clinical Environment
Sadeghi, Maryam* *(Otto-von-Guericke University, Institute of Medical Technology, I)*; Maldonado, Ivan *(OVGU, INKA)*; Abele, Niklas *(Dept. of Pathology, Otto-von-Guericke University Magdeburg,)*; Haybaeck, Johannes *(Dept. of Pathology, Otto-von-Guericke University Magdeburg,)*; Boese, Axel *(Dept. of Medical Engineering, Otto-von-Guericke-University)*; Poudel, Prabal *(Otto-von-Guericke-Universität Magdeburg)*; Friebe, Michael *(Otto-von-Guericke-University)*

15:15-15:30 SaD19.4
Refinement of Convolutional Neural Network based Cell Nuclei Detection using Bayesian Inference
Kowal, Marek* *(University of Zielona Góra)*; Korbicz, Józef *(University of Zielona Góra)*

15:30-15:45 SaD19.5
Psi-Net: Shape and Boundary Aware Joint Multi-Task Deep Network for Medical Image Segmentation
Murugesan, Balamurali* *(Indian Institute of Technology Madras)*; Sarveswaran, Kaushik *(Healthcare Technology Innovation Centre, IIT Madras Research Par)*; M Shankaranarayana, Sharath *(Indian Institute of Technology Madras)*; Ram, Keerthi *(IIT Madras)*; Joseph, Jayaraj *(HTIC, Indian Institute of Technology Madras)*; Sivaprakasam, Mohanasankar *(Indian Institute of Technology Madras)*

15:45-16:00 SaD19.6
Low Complexity CNN Structure for Automated Bleeding Zone Detection in Wireless Capsule Endoscopy Imaging
Hajabdollahi, Mohsen *(Isfahan Univ. of Technology)*; Esfandiarpoor, Reza *(Isfahan Univ. of Technology)*; Najarian, Kayvan *(Univ. of Michigan – Ann Arbor)*; Karimi, Nader *(Isfahan Univ. of Technology)*; Samavi, Shadrokh *(McMaster Univ.)*; Soroushmehr, S.M.Reza* *(Univ. of Michigan, Ann Arbor)*

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