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Professor, Leader
Department of Health Science and Technology
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Neural Engineering and Neurophysiology
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Research profile

RESEARCH VISION AND MISSION

I believe in improving quality of life for people with impaired sensory or motor capabilities through development of innovative, implantable technological solutions that are inspired by human biology. I work towards bridging animal and human research to create unique knowledge and novel rehabilitation systems.

RESEARCH STRATEGY AND EXAMPLE RESEARCH PROJECTS

My research was initiated within animal work, and most of my work has been carried out in animal models – however since 2013, my work also taken a translational step towards clinical work. All my work is ultimately dedicated to the development of future clinical sensory and motor rehabilitation devices and therapies for use in human patients.

Example research projects: Animal model of ischemic stroke, Animal models of neuropathic and phantom limb pain, Direct sensory feedback to alleviate phantom limb pain, Invasive brain computer interfacing.

RESEARCH EXPERTISE

Specialist knowledge within the area of neural engineering, including new implantable technologies to assess, understand and modulate neuroplasticity for treatment of diseased or damaged neural system.

Experience with development and test of medical device equipment in collaboration with national and international companies.

Experience with development and test of medical equipment (invasive and non-invasive) at multi-national level (approvals obtained at the national ethical committee systems and national competent authorities for human tests, knowledge of performing animal and human tests to comply with the EU medical device directive).

Broad knowledge of national and international policies, strategies, mega-trends ect. within health.

Employment

Professor

Professor, Leader
Department of Health Science and Technology
The Faculty of Medicine
Gistrup, Denmark
1 Jan 2000 → 31 Dec 4712

Professor

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The Faculty of Medicine
Gistrup, Denmark

1 Jan 2000 → 31 Dec 4712

Neural Engineering and Neurophysiology

The Faculty of Medicine

Gistrup, Denmark

1 Dec 2015 → present

Professor

Professor, Leader

Neural Engineering and Neurophysiology

The Faculty of Medicine

Gistrup, Denmark

1 Jan 2000 → 31 Dec 4712

Center for Neuroplasticity and Pain

The Faculty of Medicine

Aalborg East, Denmark

1 Feb 2015 → present

Research outputs

High-frequency electrical stimulation increases cortical excitability and mechanical sensitivity in a chronic large animal model

Meijs, S., Andreis, F. R., Janjua, T. A. M., Graven-Nielsen, T. & Jensen, W., Feb 2025, In: *Pain*. 166, 2, p. e18-e26

Pigs as a translational animal model for the study of peak alpha frequency

Mazhari-Jensen, D. S., Jensen, W., Muhammadee Janjua, T. A., Meijs, S., Nørgaard Dos Santos Nielsen, T. G. & Andreis, F. R., 26 Jan 2025, In: *Neuroscience*. 565, p. 567-576 10 p.

Comparison of Subdural and Intracortical Recordings of Somatosensory Evoked Responses

Andreis, F. R., Meijs, S., Nielsen, T. G. N. D. S., Janjua, T. A. M. & Jensen, W., Nov 2024, In: *Sensors*. 24, 21, 6847.

Spared ulnar nerve injury results in increased layer III-VI excitability in the pig somatosensory cortex

Meijs, S., Hayward, A. J., Gomes Nørgaard Dos Santos Nielsen, T., Reidies Bjarkam, C. & Jensen, W., Oct 2024, In: *Lab Animal*. 53, 10, p. 287-293 7 p.

Reliability of a cranial window for chronic epidural recordings from the pig primary somatosensory cortex

Meijs, S., Andreis, F. R., Janjua, T. A. M. & Jensen, W., 19 Jul 2024, *2024 46th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*. IEEE (Institute of Electrical and Electronics Engineers), p. 1-4 4 p. 10782109. (I E E E Engineering in Medicine and Biology Society. Conference Proceedings).

Porcine Model of Cerebral Ischemic Stroke Utilizing Intracortical Recordings for the Continuous Monitoring of the Ischemic Area

Nielsen, T. G. N. D. S., Dancause, N., Janjua, T. A. M., Andreis, F. R., Kjærgaard, B. & Jensen, W., 7 May 2024, In: *Sensors*. 24, 10, 2967.

Non-Invasive Sensory Input Results in Changes in Non-Painful and Painful Sensations in Two Upper-Limb Amputees

Lontis, E. R., Yoshida, K. & Jensen, W., Feb 2024, In: *Prosthesis*. 6, 1, p. 1-23 23 p.

Morphology and morphometry of the ulnar nerve in the forelimb of pigs

Andreis, F. R., Metcalfe, B., Janjua, T. A. M., Fazan, V. P. S., Jensen, W., Meijs, S. & Nielsen, T. G. N. D. S., Jan 2024, In: *Anatomia, histologia, embryologia*. 53, 1, e12972.

Differences in intracortical responses following non-noxious and noxious stimulation in anaesthetized rats

Lykholt, L. E. D., Mørch, C. D. & Jensen, W., 15 Dec 2023, In: Brain Research. 1821, 148564.

Bringing sensation to prosthetic hands—chronic assessment of implanted thin-film electrodes in humans

Čvančara, P., Valle, G., Müller, M., Bartels, I., Guiho, T., Hiairassary, A., Petrini, F., Raspopovic, S., Strauss, I., Granata, G., Fernandez, E., Rossini, P. M., Barbaro, M., Yoshida, K., Jensen, W., Divoux, J. L., Guiraud, D., Micera, S. & Stieglitz, T., Dec 2023, In: npj Flexible Electronics. 7, 1, 51.

From pulse width modulated TENS to cortical modulation: based on EEG functional connectivity analysis

Jadidi, A. F., Jensen, W., Zarei, A. A., Lontis, E. R. & Atashzar, S. F., 2 Aug 2023, In: Frontiers in Neuroscience. 17, 1239068.

Referred Sensation Areas in Bilateral Upper Limb Amputees

Lontis, R. & Jensen, W., 1 Jul 2023, *45th Annual International Conference of the IEEE Engineering in Medicine and Biology Society 2023*. IEEE (Institute of Electrical and Electronics Engineers), Vol. 2023. p. 1-4 4 p. 10340833. (IEEE Engineering in Medicine and Biology Society. Conference Proceedings).

Spatio-Temporal Analysis of LTP-like Neuroplasticity in Pigs

Danyar, M. B., Clark, H. F., Atchuthan, N. A., Daugbjerg, L. K., Andersen, A. K., Janjua, T. A. M. & Jensen, W., 19 May 2023, *11th International IEEE/EMBS Conference on Neural Engineering, NER 2023 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), 4 p. (International IEEE/EMBS Conference on Neural Engineering, NER).

On determining the mechanical nociceptive threshold in pigs: a reliability study

Andreis, F. R., Mørch, C. D., Jensen, W. & Meijs, S., 17 May 2023, In: Frontiers in Pain Research. 4, 1191786.

First Demonstration of Nociceptive and Non-Nociceptive Responses from Spinal Neurons in a Porcine Model

Meijs, S., Bjarkam, C. R., Andreis, F. R. & Jensen, W., 24 Apr 2023, *11th International IEEE/EMBS Conference on Neural Engineering, NER 2023 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), 10123833. (International IEEE/EMBS Conference on Neural Engineering, NER).

Modulation of Intracortical S1 Responses Following Peripheral Nerve High-Frequency Electrical Stimulation in Danish Landrace Pigs

Janjua, T. A. M., Nielsen, T. G. N. D. S., Andreis, F. R., Meijs, S. & Jensen, W., 24 Apr 2023, *11th International IEEE/EMBS Conference on Neural Engineering, NER 2023 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), 10123841. (International IEEE/EMBS Conference on Neural Engineering, NER).

On the Relationship Between Fascicle Diameter and Perineurium Thickness in the Ulnar Nerve of Pigs

Andreis, F. R., Metcalfe, B., Janjua, T. A. M., Fazan, V. P. S., Jensen, W., Meijs, S. & Nielsen, T. G. N. D. S., 24 Apr 2023, *11th International IEEE/EMBS Conference on Neural Engineering, NER 2023 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), 10123782. (International IEEE/EMBS Conference on Neural Engineering, NER).

Alteration in Cortical Activity and Perceived Sensation Following Modulated TENS

Jadidi, A. F., Jensen, W., Zarei, A. A. & Lontis, R., 2023, In: IEEE Transactions on Neural Systems and Rehabilitation Engineering. 31, p. 875-883 9 p.

Simultaneous Modulation of Cortical Activity and Phantom Pain in a Patient with Brachial Plexus Injury

Zarei, A. A., Atashzar, S. F., Jensen, W., Jadidi, A. F. & Lontis, R., 2023, *11th International IEEE/EMBS Conference on Neural Engineering, NER 2023 - Proceedings*. IEEE (Institute of Electrical and Electronics Engineers), 10123824. (International IEEE/EMBS Conference on Neural Engineering, NER).

AAU Forskningsindikator: Til fremme af AAU's Videnskabelige Publicering og Impact, Samarbejde, Synlighed, Åbenhed og Innovation

Stoustrup, J., Jensen, W., Kristensen, T. N., Larsen, B., Müller, C., Nielsen, T., Albretsen, J., Bjerg Bennike, K., Melchiorson, P. M., Sivertsen, G. & Stehouwer Øgaard, L. (Translator), 2023, Aalborg Universitet.

A novel technique combining transcutaneous electrical nerve stimulation with external tocography for automated and personalized labor pain control – a feasibility study

Thuvarakan, K., Prentow Lorentzen, I., Zimmermann, H., Hammer, A., Jensen, W. & Gazerani, P., Oct 2022, In: *Neuromodulation: Technology at the Neural Interface*. 25, Suppl. 7, p. S82-S83

Spared ulnar nerve injury results in increased layer III-VI excitability in the pig primary somatosensory cortex

Meijs, S., Hayward, A., Bjarkam, C., Nielsen, T. G. N. D. S. & Jensen, W., 21 Sept 2022.

Towards implementing an LTP-like pain model in pigs – a pilot study

Janjua, T., Nielsen, T. G. N. D. S., Rettore Andreis, F., Meijs, S. & Jensen, W., 20 Sept 2022.

Geometric Characterization of Local Changes in Tungsten Microneedle Tips after In-Vivo Insertion into Peripheral Nerves

Sergi, P. N., Jensen, W. & Yoshida, K., 6 Sept 2022, In: *Applied Sciences (Switzerland)*. 12, 18, 8938.

A Comparison of Delay-and-Add and Maximum Likelihood Estimation for Velocity-Selective Recording Using Multi-Electrode Cuffs

Andreis, F. R., Metcalfe, B., Al Muhamadee Janjua, T., Meijs, S., Favretto, M. A., Jensen, W. & Dos Santos Nielsen, T. G. N., Jul 2022, *2022 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*. IEEE (Institute of Electrical and Electronics Engineers), Vol. 2022. p. 4127-4130 4 p. (I E E Engineering in Medicine and Biology Society. Conference Proceedings).

Gamma-band Enhancement of Functional Brain Connectivity Following Transcutaneous Electrical Nerve Stimulation

Zarei, A. A., Jensen, W., Faghani Jadidi, A., Lontis, R. & Atashzar, S. F., Apr 2022, In: *Journal of Neural Engineering*. 19, 2, 12 p., 026020.

Effect of Modulated TENS on Corticospinal Excitability in Healthy Subjects

Jadidi, A. F., Stevenson, A. J. T., Zarei, A. A., Jensen, W. & Lontis, R., 1 Mar 2022, In: *Neuroscience*. 485, p. 53-64 12 p.

The Use of the Velocity Selective Recording Technique to Reveal the Excitation Properties of the Ulnar Nerve in Pigs

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The effect of peripheral high-frequency electrical stimulation on the primary somatosensory cortex in pigs

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A systematic review of porcine models in translational pain research

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Effect of Pulse-width Modulated Sensory Feedback on Cortical Excitability

Jadidi, A. F., Zarei, A. A., Lontis, R. & Jensen, W., 31 Aug 2021.

Sensory Feedback to Investigate and Drive Cortical Plasticity

Zarei, A. A., Jadidi, A. F., Lontis, R. & Jensen, W., 31 Aug 2021.

Short-term Suppression of Somatosensory Evoked Potentials and Perceived Sensations in Healthy Subjects Following TENS

Zarei, A. A., Jadidi, A. F., Lontis, R. & Jensen, W., Jul 2021, In: *IEEE Transactions on Biomedical Engineering*. 68, 7, p. 2261-2269 9 p., 9321509.

Correlation between Anesthesia Level and Cortical Oscillations: The Problem with Anesthetized Animal Studies

Tøttrup, L. & Jensen, W., 27 Jun 2021, *Proceedings for the IASP World Congress on Pain 2021*. 2 p.

Porcine models in pain research

Meijs, S. & Jensen, W., Jun 2021.

Altered evoked low-frequency connectivity from SI to ACC following nerve injury in rats

Tøttrup, L., Atashzar, S. F., Farina, D., Kamavuako, E. N. & Jensen, W., 24 May 2021, In: Journal of Neural Engineering. 18, 4, 046063.

Modulation of SI and ACC response to noxious and non-noxious electrical stimuli after the spared nerve injury model of neuropathic pain

Tøttrup, L., Diaz-Valencia, G., Kamavuako, E. N. & Jensen, W., Mar 2021, In: European Journal of Pain. 25, 3, p. 612-623 12 p.

Online Closed-Loop Control Using Tactile Feedback Delivered Through Surface and Subdermal Electrotactile Stimulation

Dong, J., Jensen, W., Geng, B., Kamavuako, E. N. & Dosen, S., 2021, In: Frontiers in Neuroscience. 15, 580385.

Ethical Assessment and Reflection in Research and Development of Non-Conformité Européene Marked Medical Devices

Telléus, P. K. & Jensen, W., Oct 2020, In: Cambridge Quarterly of Healthcare Ethics. 29, 4, p. 592-606 15 p.

Modulation of Corticospinal Excitability by Two Different Somatosensory Stimulation Patterns: A Pilot Study

Jadidi, A. F., Zarei, A. A., Lontis, R. & Jensen, W., 20 Jul 2020, *2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*. IEEE (Institute of Electrical and Electronics Engineers), p. 3573-3576 4 p. 9175393. (I E E E Engineering in Medicine and Biology Society. Conference Proceedings).

Transcutaneous Electrical Stimulation Influences the Time-Frequency Map of Cortical Activity - A Pilot Study

Zarei, A. A., Faghani Jadidi, A., Lontis, R. & Jensen, W., 20 Jul 2020, *2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC): Enabling Innovative Technologies for Global Healthcare, EMBC 2020*. IEEE (Institute of Electrical and Electronics Engineers), p. 3905-3908 4 p. 9176023. (I E E E Engineering in Medicine and Biology Society. Conference Proceedings).

Stability of flexible thin-film metallization stimulation electrodes: analysis of explants after first-in-human study and improvement of *in vivo* performance

Čvančara, P., Boretius, T., López-Álvarez, V. M., Maciejasz, P., Andreu, D., Raspopovic, S., Petrini, F. M., Micera, S., Granata, G., Fernandez, E., Rossini, P. M., Yoshida, K., Jensen, W., Divoux, J.-L., Guiraud, D., Navarro, X. & Stieglitz, T., 8 Jul 2020, In: Journal of Neural Engineering. 17, 4, 1 p., 046006.

Referred Sensation Areas in a Bilateral Toes Amputee

Lontis, E. R., Yoshida, K. & Jensen, W., Jul 2020, *2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*. IEEE (Institute of Electrical and Electronics Engineers), p. 3569-3572 4 p. (I E E E Engineering in Medicine and Biology Society. Conference Proceedings).

A Multiday Evaluation of Real-Time Intramuscular EMG Usability with ANN

Waris, A., Zia Ur Rehman, M., Niazi, I. K., Jochumsen, M., Englehart, K., Jensen, W., Haavik, H. & Kamavuako, E. N., 15 Jun 2020, In: Sensors (Basel, Switzerland). 20, 12, p. 1-13 13 p., 3385.

The Short-Term Repeatability of Subdermal Electrical Stimulation for Sensory Feedback

Dong, J., Kamavuako, E. N., Dosen, S., Jensen, W. & Geng, B., 1 Jan 2020, In: IEEE Access. 8, p. 63983-63992 10 p., 9051664.

The Variability of Psychophysical Parameters following Surface and Subdermal Stimulation: A Multiday Study in Amputees

Dong, J., Geng, B., Niazi, I. K., Amjad, I., Dosen, S., Jensen, W. & Kamavuako, E. N., Jan 2020, In: IEEE Transactions on Neural Systems and Rehabilitation Engineering. 28, 1, p. 174-180 7 p., 8918067.

Nerve Injury Decreases Hyperacute Resting-State Connectivity Between the Anterior Cingulate and Primary Somatosensory Cortex in Anesthetized Rats

Tøttrup, L., Atashzar, S. F., Farina, D., Kamavuako, E. N. & Jensen, W., 2020, In: I E E E Transactions on Neural Systems and Rehabilitation Engineering. 28, 12, p. 2691-2698 8 p.

A New Treatment for Phantom Limb Pain Based on Restoration of Somatosensory Feedback Through Intraneural Electrical Stimulation

Granata, G., Jensen, W., Divoux, J.-L., Guiraud, D., Micera, S., Navarro, X., Stieglitz, T., Yoshida, K. & Rossini, P. M., Dec 2019, *Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain*. River Publishers, p. 233-253 (River Publishers Series in Biomedical Engineering).

Biocompatibility of the TIME Implantable Nerve Electrode

Badia, J., Kundu, A., Harreby, K. R., Boretius, T., Stieglitz, T., Jensen, W. & Navarro, X., Dec 2019, *Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain*. River Publishers, p. 155-169 (River Publishers Series in Biomedical Engineering).

Computerized "Psychophysical Testing Platform" to Control and Evaluate Multichannel Electrical Stimulation-Based Sensory Feedback

Geng, B., Yoshida, K., Guiraud, D., Andreu, D., Divoux, J.-L. & Jensen, W., Dec 2019, *Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain*. River Publishers, p. 217-231 (River Publishers Series in Biomedical Engineering).

Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain

Jensen, W. (Editor), Dec 2019, River Publishers. 262 p. (River Publishers Series in Biomedical Engineering).

Introduction

Jensen, W., Dec 2019, *Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain*. River Publishers, p. 1-6 (River Publishers Series in Biomedical Engineering).

Selectivity of the TIME Implantable Nerve Electrode

Badia, J., Harreby, K. R., Kundu, A., Boretius, T., Stieglitz, T., Jensen, W. & Navarro, X., Dec 2019, *Direct Nerve Stimulation for Induction of Sensation and Treatment of Phantom Limb Pain*. River Publishers, p. 171-191 (River Publishers Series in Biomedical Engineering).

Multiday Evaluation of Techniques for EMG Based Classification of Hand Motions

Waris, M. A., Niazi, I. K., Jamil, M., Englehart, K., Jensen, W. & Kamavuako, E. N., Jul 2019, In: *IEEE Journal of Biomedical and Health Informatics*. 23, 4, p. 1526-1534 9 p., 8429072.

Introduction

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Latency of ACC and SI processing of noxious and non-noxious electrical stimulation

Tøttrup, L., Valencia, G. D., Lykholt, L. E. D. & Jensen, W., Apr 2019, In: *Scandinavian Journal of Pain*. 19, Suppl. 1, p. S21

Latency of ACC and SI processing of noxious and non-noxious electrical stimuli

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Hybrid and fast: A novel in silico approach with reduced computational cost to predict failures of in vivo needle-based implantations

Sergi, P. N., Jensen, W., Yoshida, K. & Micera, S., 1 Jan 2019, *Converging Clinical and Engineering Research on Neurorehabilitation III: Proceedings of the 4th International Conference on NeuroRehabilitation (ICNR2018)*. Springer Publishing Company, p. 127-131 5 p. (Biosystems and Biorobotics, Vol. 21).

Keep Track of your Publications and Citations (HST): HST and the VBN Team Recommend

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Modulation of cortical activity by selective steady-state somatosensory stimulation

Zarei, A., Lontis, R. & Jensen, W., 2019, *2019 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*. IEEE (Institute of Electrical and Electronics Engineers), p. 421-424 4 p. 8856443. (Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Conference).

On the robustness of real-time myoelectric control investigations: A multiday Fitts' law approach

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Referred Sensation Areas in Transpelvic Amputee

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Patient care for postamputation pain and the complexity of therapies: living experiences

Flahaut, M., Laurent, N. L., Michetti, M., Hirt-Burri, N., Jensen, W., Lontis, R., Applegate, L. A. & Raffoul, W., 1 Nov 2018, In: *Pain Management*. 8, 6, p. 441-453 13 p.

Features of Referred Sensation Areas for Artificially Generated Sensory Feedback - A Case Study

Eugen Lontis, R., Yoshida, K. & Jensen, W., Jul 2018, In: *Conference proceedings : ... Annual International Conference of the IEEE Engineering in Medicine and Biology Society*. IEEE Engineering in Medicine and Biology Society. Conference. 2018, p. 3533-3536 4 p.

A new rat model of seizures suitable for screening antiepileptic electrical stimulation therapies

Sevcencu, C., Jiao, J., Harreby, K. R. & Jensen, W., Jan 2018, In: *Artificial Organs*. 42, 1, p. 94-99 6 p.

Does gender affect detection threshold and pain threshold in subdermal electrical stimulation?

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Phantom somatosensory evoked potentials following selective intraneural electrical stimulation in two amputees

Granata, G., Di Iorio, R., Romanello, R., Iodice, F., Raspopovic, S., Petrini, F., Strauss, I., Valle, G., Stieglitz, T., Čvančara, P., Andreu, D., Divoux, J. L., Giraud, D., Wauters, L., Hiarrassary, A., Jensen, W., Micera, S. & Rossini, P. M., 2018, In: *Clinical Neurophysiology*. 129, 6, p. 1117-1120

Psychophysical Evaluation of Subdermal Electrical Stimulation in Relation to Prosthesis Sensory Feedback

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The effect of time on EMG classification of hand motions in able-bodied and transradial amputees

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Low-Frequency Intracortical Electrical Stimulation Decreases Sensorimotor Cortex Hyperexcitability in the Acute Phase of Ischemic Stroke

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Advanced 56 channels stimulation system to drive intrafascicular electrodes

Guiho, T., Andreu, D., López-Alvarez, V. M., Cvancara, P., Hiarrassary, A., Granata, G., Wauters, L., Jensen, W., Divoux, J. L., Micera, S., Stieglitz, T., Navarro, X. & Guiraud, D., 2017, *Converging Clinical and Engineering Research on Neurorehabilitation II: Proceedings of the 3rd International Conference on NeuroRehabilitation (ICNR2016), October 18-21, 2016, Segovia, Spain*. Springer, p. 743-747 (Biosystems and Biorobotics; No. 15).

Evaluation of the effect of sensory feedback on phantom limb pain in multi-center clinical trials

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A new rat model of sustained cortical spike-and-wave seizures

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Comparison of EMG feature projection techniques for force estimation

Waris, A., Jensen, W., Englehart, K. & Kamavuako, E. N., 2016, *ISEK 2016 Oral Abstract Booklet, XXI Congress of the International Society of Electrophysiology and Kinesiology, ISEK, 5-8 July 2016, Chicago, IL, USA*. ISEK, O.3.1

Discrimination of spatial and temporal parameters in electrocutaneous stimulation

Geng, B., Paramanathan, S., Pedersen, K. F. Ø., Lauridsen, M. V., Gade, J., Lontis, E. R. & Jensen, W., 2016, In: *International Journal of Physical Medicine & Rehabilitation*. 4, 2, 5 p., 333.

Interactions among biotic and abiotic factors affect the reliability of tungsten microneedles puncturing in vitro and in vivo peripheral nerves: A hybrid computational approach

Sergi, P. N., Jensen, W. & Yoshida, K., 2016, In: *Materials Science and Engineering C: Materials for Biological Applications*. 59, p. 1089-1099 11 p.

Optimal vagus nerve stimulation frequency for suppression of spike-and-wave seizures in rats

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Sensory and motor thresholds for surface electrical stimulation of median and ulnar nerves at elbow for sensory feedback

Thijssen, M. E., Sipka, P., Larsen, S., Thomsen, M. K., Lontis, E. R. & Jensen, W., 2016, *ISEK 2016 Oral Abstract Booklet, XXI Congress of the International Society of Electrophysiology and Kinesiology, ISEK, 5-8 July 2016, Chicago, IL, USA*. ISEK, O.4.4

Simulation of a real-time brain computer interface for detecting a self-paced hitting task

Hammad, S. H., Kamavuako, E. N., Farina, D. & Jensen, W., 2016, In: *Neuromodulation: Technology at the Neural Interface*. 19, 8, p. 804-811

The effect of spinal cord stimulation on epileptic seizures

Jiao, J., Jensen, W., Harreby, K. R. & Sevcencu, C., 2016, In: *Neuromodulation: Technology at the Neural Interface*. 19, 2, p. 154-160

The influence of vagus nerve and spinal cord stimulation on the ictal fast ripple activity in a spike-and-wave rat model of seizures

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Delaying discharge after the stimulus significantly decreases muscle activation thresholds with small impact on the selectivity: an in vivo study using TIME

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Thin film longitudinal intra-fascicular electrodes: a multichannel peripheral nerve neural interface

Yoshida, K., Kurstjens, M. & Jensen, W., 2007, *Engineering the Future of Biology and Medicine, Annual Fall Meeting of the Biomedical Engineering Society, BMES, 26-29 September 2007, Los Angeles, CA, USA*. p. No. 700

A method for monitoring intra-cortical motor cortex responses in an animal model of ischemic stroke

Jensen, W., Rousche, P. J. & Chiganos, T. C., 2006, *Proceedings of the 28th IEEE EMBS Annual International Conference, Engineering in Medicine and Biology Society, 30 August-3 September 2006, New York City, USA*. Electrical Engineering/Electronics, Computer, Communications and Information Technology Association, p. 1201-1203

A novel high channel-count system for acute multisite neuronal recordings

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Electroneurography

Sinkjær, T., Yoshida, K., Jensen, W. & Schnabel, V., 2006, *Encyclopedia of Medical Devices and Instrumentation*. Webster, J. G. (ed.). 2 ed. Hoboken: Wiley, Vol. 3. p. 109-132

Electrophysiological response dynamics during focal cortical infarction

Chiganos, T. C., Jensen, W. & Rousche, P. J., 2006, In: *Journal of Neural Engineering*. 3, 4, p. L15-L22

In-vivo implant mechanics of flexible, silicon-based ACREO microelectrode arrays in rat cerebral cortex

Jensen, W., Yoshida, K. & Hofmann, U. G., 2006, In: *IEEE Transactions on Biomedical Engineering*. 53, 5, p. 934-940

On variability and use of rat primary motor cortex responses in behavioral task discrimination

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Characterization of M1 local-field potentials preceding repetitive forelimb movement in rats

Jensen, W. & Rousche, P. J., 2005, *Proceedings of the 2005 BMES Annual Fall Meeting, Biomedical Engineering Society, 28 September-1 October 2005, Baltimore, MD, USA*.

Characterization of rat auditory cortex responses after photothrombotic infarction

Chiganos, T. C., Jensen, W. & Rousche, P. J., 2005, *Proceedings of the 2005 BMES Annual Fall Meeting, Biomedical Engineering Society, 28 September-1 October 2005, Baltimore, MD, USA*.

Movement discrimination based on rat primary motor cortex responses

Jensen, W. & Rousche, P. J., 2005, *Proceedings of the 2nd Annual IEEE EMBS Conference on Neural Engineering, 16-19 March 2005, Washington DC, USA*. IEEE Signal Processing Society, p. v-viii

Acute peripheral nerve recording characteristics of polymer-based longitudinal intrafascicular electrodes

Lawrence, S. M., Dhillon, G. S., Jensen, W., Yoshida, K. & Horch, K. W., 2004, In: *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. 12, 3, p. 345-348

Encoding of self-paced, repetitive forelimb movements in rat primary motor cortex

Jensen, W. & Rousche, P. J., 2004, *26th Annual International Conference of the IEEE Engineering in Medicine and Biology Society [EMBS] : conference proceedings, 1-4 September 2004, San Francisco, CA, USA*. Hudson, D. L., Liang, Z.-P. & Dumont, G. (eds.). Electrical Engineering/Electronics, Computer, Communications and Information Technology Association, p. 4233-4236

Assessment of subdural insertion force of single-fine microelectrodes in rat cerebral cortex

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On the intersubject generalization ability in extracting kinematic information from afferent nervous signals

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Improving signal reliability for on-line joint angle estimation from nerve cuff recordings of muscle afferents

Jensen, W., Sinkjær, T. & Sepulveda, F., 2002, In: *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. 10, 3, p. 133-139

Long-term recording properties of longitudinal intra-fascicular electrodes

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Silizium Vielfach-Mikrosonden für die Neurowissenschaften

Hofmann, U. G., Jensen, W., Yoshida, K., Kindlundh, M. & Norlin, P., 2002, In: *Focus M U L*. 19, 3, p. 132-139

Soft-computing algorithms for kinematic information extraction from ENG afferent signals

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A 32-site neural recording probe fabricated by double-sided deep reactive ion etching of silicon-on-insulator substrates

Norlin, P., Kindlundh, M., Mouroux, A., Yoshida, K., Jensen, W. & Hofmann, U. G., 2001, *12th Micromechanics Europe Workshop, MME, 16-18 September 2001, Cork, Ireland*. 4 p.

Angular resolution and working ranges of flexion-extension information in nerve cuff recordings of muscle afferent activity

Jensen, W., Riso, R. R., Sepulveda, F. & Sinkjær, T., 2001, *Proceedings of the 6th Annual Conference of the International Functional Electrical Stimulation Society, IFESS 2001, 17-20 June 2001, Cleveland, OH, USA*.

Characterization of silicon microelectrodes from the EU VSAMUEL project

Yoshida, K., Jensen, W., Norlin, P., Kindlundh, M. & Hofmann, U. G., 2001, *Proc. 35. Jahrestagung der Deutschen Gesellschaft für Biomedizinische Technik e.V. (DGBMT), August 2001, Bochum, Germany*. 2 p.

Effect of agonist-antagonist electrical stimulation on muscle afferent recordings in anesthetized rabbits

Jensen, W. & Sinkjær, T., 2001, In: *Neuromodulation: Technology at the Neural Interface*. 4, 3, p. 127-137

Effect of initial joint position on nerve cuff recordings of muscle afferents in rabbits

Jensen, W., Lawrence, S. M., Riso, R. R. & Sinkjær, T., 2001, In: *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. 9, 3, p. 265-273

First insights on muscle afferent nerve signals for closed-loop control of FES-generated rabbit ankle movements

Sepulveda, F., Jensen, W. & Sinkjær, T., 2001, *Proceedings of 7th Vienna International Workshop on Functional Electrical Stimulation, 12-15 September 2001, Vienna, Austria*. p. 152-155

Measurement of intrafascicular insertion force of a tungsten needle into peripheral nerve

Jensen, W., Yoshida, K., Malina, T. & Hofmann, U., 2001, *23rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBC 2001, 25-28 October 2001, Istanbul, Turkey*. Vol. 3. p. 3108-3109

Muscle afferent signals for FES systems

Jensen, W., 2001, Aalborg: Center for Sensory-Motor Interaction (SMI), Department of Health Science and Technology, Aalborg University.

Neuro-fuzzy extraction of angular information from muscle afferents for ankle control during standing in paraplegic subjects: an animal model

Micera, S., Jensen, W., Sepulveda, F., Riso, R. R. & Sinkjær, T., 2001, In: IEEE Transactions on Biomedical Engineering. 48, 7, p. 787-794

The rabbit model and LIFE as a neural interface

Jensen, W. & Yoshida, K., 2001, *Scandinavian Society for Laboratory Animal Science, Scand-LAS, 13-15 May 2001, Aarhus, Denmark.* p. 100, No. A76

Using nerve signals from muscle afferent electrodes to control FES-based ankle motion in a rabbit

Sepulveda, F., Jensen, W. & Sinkjær, T., 2001, *23rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBC 2001, 25-28 October 2001, Istanbul, Turkey.* Vol. 23. p. 1290-1292

Effect of intertrial delay on whole nerve cuff recordings of muscle afferents in rabbits

Jensen, W., Riso, R. R. & Sinkjær, T., 2000, In: *Neuromodulation: Technology at the Neural Interface.* 3, 1, p. 43-53

Nerve cuff recordings of muscle afferent activity from tibial and peroneal nerves in rabbit during passive ankle motion

Riso, R. R., Mosallaie, F. K., Jensen, W. & Sinkjær, T., 2000, In: *IEEE transactions on rehabilitation engineering.* 8, 2, p. 244-258

On-line joint angle estimation based on nerve cuff recordings from muscle afferents

Jensen, W., Riso, R. R. & Sepulveda, F., 2000, *IFESS 2000. NP 2000, Proceedings, 5th Annual Conference of the International Functional Electrical Stimulation Society, 6th Triennial Conference "Neural Prostheses: Motor Systems", 18-24 June 2000, Aalborg, Denmark.* Sinkjær, T., Popovic, D. & Struijk, J. J. (eds.). Center for Sensory-Motor Interaction (SMI), Department of Health Science and Technology, Aalborg University, p. 376-377

A fuzzy model for extraction of angular position information from whole nerve cuff muscle afferent recordings: preliminary results

Micera, S., Jensen, W., Sepulveda, F., Riso, R. R. & Sinkjær, T., 1999, *IFESS 1999, Proceedings of the 4th Annual Conference of the International Functional Electrical Stimulation Society, 23-27 August 1999, Sendai, Japan.* p. 299-302

Nerve cuff recordings of muscle afferents during electrical stimulation of agonist-antagonist muscle pain

Jensen, W., Riso, R. R. & Sinkjær, T., 1999, *IFESS 1999, Proceedings of the 4th Annual Conference of the International Functional Electrical Stimulation Society, 23-27 August 1999, Sendai, Japan.* p. 303-306

Effect of initial position on nerve cuff recordings of muscle afferents during passive rotation of the ankle joint in rabbit

Jensen, W., Riso, R. R. & Sinkjær, T., 1998, *Abstract Book, 4th International Congress, INS/IFESS, 16-20 September 1998, Lucerne, Switzerland.* p. 252, No. PP19

Position information in whole nerve cuff recordings of muscle afferents in a rabbit model of normal and paraplegic standing

Jensen, W., Riso, R. R. & Sinkjær, T., 1998, *Proceedings of the 20th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Vol. 20, No. 5, 29 October-1 November 1998, Hong Kong.* p. 2528-2531

Causal probabilistic network and power spectral estimation used in sleep stage classification

Nielsen, K. D., Kjær, A., Jensen, W., Dyrby, T., Andreasen, L. N. S., Andersen, J. & Andreassen, S., 1997, In: *Methods of Information in Medicine.* 36, p. 345-348

Nerve cuff recordings of muscle afferent activity during passive joint motion in a rabbit

Sinkjær, T., Riso, R. R., Mosallaie, F., Jensen, W. & Lawrence, S., 1997, *IFESS 97, Proceedings of the 2nd Annual Conference, International Functional Electrical Stimulation Society and the 5th Triennial Conference: Neural Prostheses Motor Systems (NP 97), 16-21 August 1997, Burnaby, Canada.* p. 219-220

Causal probabilistic network and power spectral estimation used for sleep classification

Nielsen, K. D., Andersen, J. M., Andreasen, L. N. S., Dyrby, T., Jensen, W., Kjær, A. G. & Andreassen, S., 1996, *Proceedings of the 2nd IFMBE-IMIA International Workshop on Biosignal Interpretation, International Federation for*

Medical and Biomedical Engineering (IFMBE), 1996. p. 211-214

Identification of the relationship between center of pressure and ankle angle during standing of normal subjects

Jensen, W., Struijk, L. N. S. A., Veltink, P. H. & Mayagoitia, R., 1996, *Proceedings of the 18th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 31 October-3 November 1996, Amsterdam, the Netherlands*. Vol. 2. p. 575-576

Natural sensory feedback for control of standing

Struijk, L. N. S. A., Jensen, W., Veltink, P. H. & Struijk, J. J., 1996, *Proceedings of the 18th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 31 October-3 November 1996, Amsterdam, the Netherlands*. Vol. 1. p. 441-442

Activities

Facilitatoruddannelsen (Playmakers.dk)

Jensen, W. (Other)
2024

AAU Interdisciplinary Leadership Course

Jensen, W. (Other)
2023

Udvalget til konstruktion af forskningsindikator på AAU (Event)

Stoustrup, J. (Chairperson), Jensen, W. (Member), Kristensen, T. N. (Member), Larsen, B. (Member), Albrechtsen, J. (Member), Müller, C. (Member), Nielsen, T. (Member), Bjerg Bennike, K. (Member), Melchiorson, P. M. (Member) & Sivertsen, G. (Member)
Sept 2022 → Feb 2023

Aalborg Universitet - proceskonsulentuddannelse (Mannaz.dk)

Jensen, W. (Other)
2020

Studielederkursus (SyddanskUniversitet.dk)

Jensen, W. (Other)
2014

Opponent on Ph.D-defense (External organisation)

Jensen, W. (Member)
30 Mar 2012

Forskeren som leder - ledelse af forskere på AAU

Jensen, W. (Other)
2012

UIC animal Care Committee Training (University of Illinois at Chicago)

Jensen, W. (Other)
2003

Univesitetspædagogik for adjunkter (Aalborg Universitet)

Jensen, W. (Other)
2001 → 2003

Dyreforsøgskunskab

Jensen, W. (Other)
1997

Prizes

3rd Best Paper Award

Rettore Andreis, F. (Recipient), Jensen, W. (Recipient), Janjua, T. (Recipient), Meijs, S. (Recipient) & Nielsen, T. G. N. D. S. (Recipient), Oct 2023

Order of the Dannebrog

Jensen, W. (Recipient), 9 Oct 2024

Vanførefondens forskningspris

Jensen, W. (Recipient), 2016

Press/Media

10 teknologiske tendenser, du bør kende: #4. Trådløse signaler mellem hjerne og muskel erstatter ødelagt rygmarv

Jensen, W.

03/05/2017

1 item of Media coverage

Banebrydende metode kan hjælpe amputerede

Jensen, W. & Sørensen, P.

23/02/2016

1 item of Media coverage

Behandling af fantomsmerter hos amputerede

Lontis, R. & Jensen, W.

20/02/2024

1 item of Media coverage

Bionisk protese

Jensen, W.

26/02/2015

1 item of Media coverage

Commentary: Geometric Characterisation of Local Changes in Tungsten Microneedle Tips after In-Vivo Insertion into Peripheral Nerves

Jensen, W.

06/09/2022

1 item of Media coverage

Danske forsøgspersoner skal have elektroder opereret ind i nerverne

Jensen, W.

25/03/2014

6 items of Media coverage

Dansker med fingerprotese føler teksturer for første gang i verden

Jensen, W.

09/03/2016

1 item of Media coverage

Det hele kommer fra hjernen af

Jensen, W.

30/11/2013

1 item of Media coverage

Elektroniske nerver

Jensen, W.
12/12/2008
1 item of Media coverage

En robotarm og to bioniske øjne, tak!

Jensen, W.
18/10/2015
1 item of Media coverage

En robotarm og to bioniske øjne, tak!

Jensen, W.
19/10/2015
2 items of Media coverage

En underlig "kriblen-krablen"

Jensen, W.
01/11/2008
1 item of Media coverage

Forskere vil manipulere med fantomsmerter

Jensen, W.
22/02/2008
1 item of Media coverage

Forskere vil snyde kroppens fantomsmerter

Jensen, W.
13/12/2013
50 items of Media coverage

Forskning i fantomsmerter

Jensen, W.
22/02/2008
1 item of Media coverage

Forskning i fantomsmerter

Jensen, W.
22/02/2008
2 items of Media coverage

Forskning i neuroteknologi giver store muligheder

Struijk, J., Rijkhoff, N., Jensen, W. & Sinkjær, T.
12/12/2008
1 item of Media coverage

Forsøgsdyr i forskningens tjeneste

Jensen, W.
01/12/2007
1 item of Media coverage

Fremtidens menneske kan trække på to typer reservedele

Jensen, W.
10/04/2015
2 items of Media coverage

Grise hjælper forskere med at bekæmpe fantomsmerter

Jensen, W.
17/03/2016
2 items of Media coverage

Hjerne-Madsen underholder fuld AAU-sal

Hüttel, H., Hansen, K. T. & Jensen, W.
04/11/2014
2 items of Media coverage

Implantat i hjernen viser vej til helbredelse

Jensen, W.
16/06/2011
1 item of Media coverage

Jagten på supermennesket

Jensen, W. & Birkholm, K.
06/02/2015
4 items of Media coverage

Lam teenager i robotdragt skal sparke VM i gang

Jensen, W.
12/06/2014
1 item of Media coverage

Medicinske muligheder

Jensen, W.
25/08/2015
1 item of Media coverage

Moderne mirakler

Struijk, L. N. S. A., Bentsen, B., Jensen, W. & Lontis, E. R.
27/03/2017
1 Media contribution

Navnenyt

Graven-Nielsen, T., Arendt-Nielsen, L., Andersen, O. K. & Jensen, W.
21/10/2014
1 item of Media coverage

Nye medlemmer af ATV

Jensen, W. & Kanstrup, A. M.
07/05/2014
5 items of Media coverage

Nye medlemmer af ATV

Kanstrup, A. M. & Jensen, W.
28/05/2014
1 item of Media coverage

Nyt forskningsprojekt skal komme fantomsmerter til livs

Jensen, W.
13/12/2013
1 item of Media coverage

Nyt forskningsprojekt skal komme fantomsmerter til livs

Jensen, W.
25/03/2014
1 item of Media coverage

Ny viden om nerverne kan genskabe organer og sanser

Rijkhoff, N., Struijk, J., Jensen, W. & Sinkjær, T.
13/12/2008
2 items of Media coverage

Når de lamme skal gå

Jensen, W.
24/06/2014
1 item of Media coverage

Professorer modtager ridderkorset

Duedahl, P., Jensen, W. & Kørnøv, L.
20/11/2024 → 21/11/2024
2 items of Media coverage

Robotteknologi: Dansker føler med kunstig hånd

Jensen, W.
05/02/2014
13 items of Media coverage

Rotter skal løse blodprop-gåde

Jensen, W.
16/06/2011
2 items of Media coverage

Spørg Scientariat: Hvor meget elektricitet kan menneskekroppen holde til?

Jensen, W.
06/05/2017
1 item of Media coverage

Stor bevilling skal mindske antallet af invalide efter slagtilfælde

Andersen, O. K. & Jensen, W.
24/06/2014
10 items of Media coverage

Sundhedsteknologi: Så tæt er vi på at være cyborgs

Jensen, W.
16/10/2012
2 items of Media coverage

Superkroppe og fantomsmerter

Jensen, W.
03/02/2025
1 item of Media coverage

Supermennesker

Jensen, W.
24/10/2014
1 item of Media coverage

Vanførefondens Forskerpris til AAU forsker

Jensen, W.
15/06/2016
3 items of Media coverage

Vanførefondens Forskerpris til AAU-professor

Jensen, W.
24/05/2016
12 items of Media coverage

Winnie Jensen

Jensen, W.
05/10/2011
2 items of Media coverage

Winnie Jensen - returned associate professor at Aalborg University

Jensen, W.
05/02/2009
1 item of Media coverage

Aalborg-forskere fjerner fantomsmerter med strøm

Jensen, W.
14/11/2016
2 items of Media coverage

Aalborg Universitet vil behandle fantomsmerter

Jensen, W.
01/02/2016
2 items of Media coverage

Projects

Advancing Peripheral Nerve Interfaces in a Large Animal Model

Rettore Andreis, F. (PI), Jensen, W. (Project Manager) & Nielsen, T. G. N. D. S. (Supervisor)
01/04/2019 → 01/07/2022

Bevica Center for NeuroEngineering Solutions in Stroke Rehabilitation

Andersen, O. K. (PI), Jensen, W. (PI), Jørgensen, H. R. M. (Project Participant), Moeslund, T. B. (Project Participant), Mrachacz-Kersting, N. (Project Participant), Nielsen, J. F. (Project Participant), Petrini, L. (Project Participant), Spaich, E. G. (Project Participant), Modrau, B. (Project Participant), Svaneborg, N. (Project Participant), Larsen, B. (Project Participant) & Knudsen, G. H. (Project Participant)
01/09/2014 → 31/08/2019

Construction of a Research Indicator for Aalborg University

Stoustrup, J. (PI), Jensen, W. (Col), Kristensen, T. N. (Col), Larsen, B. (Col), Müller, C. (Col), Nielsen, T. (Col), Albretsen, J. (Col), Bjerg Bennike, K. (Col), Melchiorsen, P. M. (Col) & Sivertsen, G. (Col)
Aalborg University
14/09/2022 → 31/12/2023

EPIONE: EPIONE- Natural sensory feedback for phantom limb modulation and therapy

Jensen, W. (PI), Nielsen, T. G. N. D. S. (Project Participant), Lontis, E. R. (Project Participant), Geng, B. (Project Participant) & Harreby, K. R. (PI)
01/07/2013 → 01/07/2017

Neural Mechanisms in Ischemic Stroke

Jensen, W. (PI), Nielsen, T. G. N. D. S. (Project Participant) & Nielsen, R. K. (Project Participant)
01/04/2005 → ...

Phantom Limb Pain - Neural Mechanisms And Innovative Treatments

Jensen, W. (PI), Lontis, E. R. (CoI), Jadidi, A. F. (Project Participant) & Zarei, A. A. (Project Applicant)
01/09/2015 → 01/09/2025

Translational Animal Models of Pain

Jensen, W. (PI), Meijs, S. (Project Participant), Rettore Andreis, F. (Project Participant), Atchuthan, N. A. (Project Participant), Nielsen, T. G. N. D. S. (Project Participant), Janjua, T. (Project Participant), Tøttrup, L. (Project Participant) & Nielsen, R. K. (Project Participant)
01/09/2015 → 01/09/2025

TIME: Transverse, Intrafascicular Multichannel Electrode system for Induction of sensation and treatment of phantom limb pain in amputees

Jensen, W. (Project Participant), Geng, B. (PI), Kundu, A. (Project Participant), Harreby, K. R. (Project Participant) & Lontis, E. R. (Project Applicant)
01/05/2008 → 30/04/2012

TEST

TEXT SECTION can be added.