



IEEE USYS 2016

**2016 IEEE 6TH INTERNATIONAL
CONFERENCE ON UNDERWATER SYSTEM
TECHNOLOGY: THEORY & APPLICATIONS**

CONFERENCE SCHEDULE

**TORAY-USM KTC, USM PULAU PINANG
13TH – 14TH DECEMBER 2016**

IEEE USYS 2016 - CONFERENCE SCHEDULE

Day 1: 13th December 2016

Time	Events
8.00 am – 8.30 am	Registration (Foyer, Ground Floor)
8.30 am – 9.10 am	Opening Ceremony (Seminar Room, Level 1)
9.10 am – 10.10 am	Keynote Speech 1 (Seminar Room, Level 1): By Mr. Roy Wyatt (Seiche Measurements Ltd, United Kingdom) <i>“Role of Unmanned Surface Vehicles in Monitoring the Oceans”</i>
10.10 am – 10.30 am	Break (Foyer, Level 1)
10.30 am – 11.30 am	Keynote Speech 2 (Seminar Room, Level 1): By Dr. Venugopalan Pallayil (National University of Singapore) <i>“Seabed Characterisation using Acoustic Technology and Autonomous Platforms”</i>
11.30 am – 1.00 pm	Technical Session 1 (Seminar Room, Level 1) D1 S1: UVT1_1 – UVT1_6
1.00 pm – 2.00 pm	Lunch (Foyer, Level 1)
2.00 pm – 3.45 pm	Technical Session 2 (Seminar Room, Level 1) D1 S1: MI_1 – MI_7
3.45 pm – 4.00 pm	Break (Foyer, Level 1)
4.00 pm – 6.00 pm	Technical Session 3 (Seminar Room, Level 1) D1 S1: CS1_1 – CS1_9
6.00 pm	End of Day 1 Event

Day 2: 14th December 2016

Time	Events
8.00 am – 10.15 am	Technical Session 4 (Seminar Room, Level 1) D2 S1: CS2_1 – CS2_9
10.15 am – 10.30 am	Break (Foyer, Level 1)
10.30 am – 11.30 am	Keynote Speech 3 (Seminar Room, Level 1): By Assoc. Prof. Dr. Xianbo Xiang (Huazhong University of Science and Technology, China) <i>“Guidance and Control of Autonomous Marine Vehicles: Theory and Applications”</i>
11.30 am – 12.30 pm	Keynote Speech 4 (Seminar Room, Level 1): By Professor Khoo Boo Cheong (National University of Singapore) <i>“The Hydrodynamics of the WIG (Wing-In-Ground) Effect Craft”</i>
12.30 pm – 2.00 pm	Lunch (Foyer, Level 1)
2.00 pm – 3.30 pm	Technical Session 5 (Seminar Room, Level 1) D2 S1: UVT2_1 – UVT2_6
3.30 pm – 3.45 pm	Break (Foyer, Level 1)
3.45 pm – 5.30 pm	Technical Session 6 (Seminar Room, Level 1) D2 S1: IA_1 – IA_7
5.30 pm – 5.45 pm	Closing Ceremony – Foyer, Level 1 (Best Paper Award)
5.45 pm – 6.30 pm	High Tea (Foyer, Level 1)

KEYNOTE SESSIONS

KEYNOTE SESSION 1:	
Date:	13 th December 2016
Time:	9.10 am – 10.10 am
Venue:	Seminar Room, Level 1, Toray-USM KTC
Keynote Title:	Role of Unmanned Surface Vehicles in Monitoring the Oceans
Keynote Speaker:	Mr. Roy Wyatt
Keynote Session Chair:	Assoc. Prof. Dr. Rosmiwati Mohd Mokhtar
KEYNOTE SESSION 2:	
Date:	13 th December 2016
Time:	10.30 am – 11.30 am
Venue:	Seminar Room, Level 1, Toray-USM KTC
Keynote Title:	Seabed Characterisation using Acoustic Technology and Autonomous Platforms
Keynote Speaker:	Dr. Venugopalan Pallayil
Keynote Session Chair:	Dr. Mohd Ikhwan Hadi Yaacob
KEYNOTE SESSION 3:	
Date:	14 th December 2016
Time:	10.30 am – 11.30 am
Venue:	Seminar Room, Level 1, Toray-USM KTC
Keynote Title:	Guidance and Control of Autonomous Marine Vehicles: Theory and Applications
Keynote Speaker:	Assoc. Prof. Dr. Xianbo Xiang
Keynote Session Chair:	Dr. Muhammad Nasiruddin Mahyuddin
KEYNOTE SESSION 4:	
Date:	14 th December 2016
Time:	11.30 am – 12.30 am
Venue:	Seminar Room, Level 1, Toray-USM KTC
Keynote Title:	The Hydrodynamics of the WIG (Wing-In-Ground) Effect Craft
Keynote Speaker:	Professor Dr. Khoo Boo Cheong
Keynote Session Chair:	Dr. Khalid Isa

TECHNICAL SESSION 1

Session Chair: Ir. Dr. Addie Irawan Hashim

Day 1: Tuesday (13 th December 2016)		
Venue : Seminar Room, Level 1 Track 1. D1 S1 UVT1: Underwater Vehicle Technology 1 Time : 11:30 am - 1:00 pm		
Time	Paper ID	Paper Title, Authors
11.30am-11.45am	D1 S1 UVT1_1 [PID8]	Development of a Buoyancy Control Device for Autonomous Underwater Vehicle <i>[Lia Syafie*, Zulkifli Zainal Abidin, Nahrul Khair Alang Md Rashid]</i>
11.45am-12.00pm	D1 S1 UVT1_2 [PID9]	Reconfigurable Foot-to-Gripper Leg for Underwater Bottom Operator, Hexaquad <i>[Addie Irawan*, Tan Yee Yin, Wan Mohd Nafis Wan Lezaini, Akhtar Razul Razali, Mohamad Shafik Md Yusof]</i>
12.00pm-12.15pm	D1 S1 UVT1_3 [PID14]	Thruster Modeling for a Hovering Autonomous Underwater Vehicle Considering Thruster-Thruster and Thruster-Hull Interaction <i>[Yoong Siang Song*, Mohd Rizal Arshad]</i>
12.15pm-12.30pm	D1 S1 UVT1_4 [PID15]	Autonomous Underwater Vehicles Navigation Method Based on Ultra Short Base Line and Dead Reckoning <i>[Yidi Wu*, Zhenzhong Chu, Daqi Zhu, Chaomin Luo, Chunni Zhong]</i>
12.30pm-12.45pm	D1 S1 UVT1_5 [PID28]	Investigation on the Dynamic Stability of an Underwater Glider Using CFD Simulation <i>[Mark Ovinis, Muhammad Yasar Javaid*, Syed Saad Ali, F.M. Hashim, Adi Maimun, Syed Amjad Ahmed]</i>
12.45pm-1.00pm	D1 S1 UVT1_6 [PID42]	Control system of a mini-AUV prototype: design and implementation <i>[Hui Liu, Shuaiqi Gan, Jialei Zhang, Xianbo Xiang*]</i>

TECHNICAL SESSION 2

Session Chair: Dr. Zainah Md Zain

Day 1: Tuesday (13 th December 2016)		
Venue : Seminar Room, Level 1 Track 2. D1 S1 MI: Mapping and Imaging Time : 2:00 pm - 3:45 pm		
Time	Paper ID	Paper Title, Authors
2.00pm-2.15pm	D1 S1 MI_1 [PID6]	Tilt Compensated Mechanical Measurement Mechanism for Very Shallow Water USV Bathymetry <i>[Muhammad Irsyad Sahalan*, Mohammad Hilmi Mat Idris, Zulkifli Zainal Abidin, M.A.A. Che Kamarudin]</i>
2.15pm-2.30pm	D1 S1 MI_2 [PID12]	Detection Strategy for Kidnapped Robot Problem in Monte Carlo Localization Based on Similarity Measure of Environment <i>[Iksan Bukhori*, Zool Hilmi Ismail]</i>
2.30pm-2.45pm	D1 S1 MI_3 [PID20]	Improved Simultaneous localization and Mapping (SLAM) Algorithms for Aerial Vehicle under Dynamic Sea Surface Environment <i>[Herdawatie Abdul Kadir*, Mohd Rizal Arshad]</i>
2.45pm-3.00pm	D1 S1 MI_4 [PID35]	Real-time Underwater 3D Scene Reconstruction Using Commercial Depth Sensor <i>[Atif Anwer*, Syed Saad Ali, Fabrice Mériaudeau, Amjad Khan]</i>
3.00pm-3.15pm	D1 S1 MI_5 [PID39]	Subsea Infrastructure Inspection: A Review Study <i>[Christian Mai*, Simon Pedersen, Leif Hansen, Kasper L. Jepsen, Zhenyu Yang]</i>
3.15pm-3.30pm	D1 S1 MI_6 [PID46]	Underwater Surveying and Mapping using Rotational Potential Fields for Multiple Autonomous Vehicles <i>[Atif Anwer*, David McIntyre, Wasif Naeem, Syed Saad Ali]</i>
3.30pm-3.45pm	D1 S1 MI_7 [PID59]	Underwater Image Enhancement by Wavelet Based Fusion <i>[Amjad Khan*, Syed Saad Ali, Aamir Saeed Malik, Atif Anwer, Fabrice Mériaudeau]</i>

TECHNICAL SESSION 3

Session Chair: Ir. Dr. Zool Hilmi Ismail

Day 1: Tuesday (13 th December 2016)		
Venue : Seminar Room, Level 1 Track 3. D1 S1 CS1: Control Systems 1 Time : 4:00 pm - 6:00 pm		
Time	Paper ID	Paper Title, Authors
4.00pm-4.15pm	D1 S1 CS1_1 [PID3]	Neural-Network Prediction of Riser Top Tension for Vortex Induced Vibration Suppression [Lee Kee Quen*, Collin Howe-Hing Tang, Hooi Siang Kang, Gang Ma]
4.15pm-4.30pm	D1 S1 CS1_2 [PID4]	Broadcast Control of Multi-agent Systems with Instability Phenomenon [Mohamad Hafizulazwan Mohamad Nor*, Zool Hilmi Ismail, Mohd Ashraf Ahmad]
4.30pm-4.45pm	D1 S1 CS1_3 [PID10]	River Navigation System using Autonomous Surface Vessel [Chee Sheng Tan*, Mohd Rizal Arshad, Rosmiwati Mohd Mokhtar]
4.45pm-5.00pm	D1 S1 CS1_4 [PID13]	Underactuated Nonlinear Adaptive Control Approach Using U-Model for Multivariable Underwater Glider Control Parameters [Nur Afande Ali Hussain*, Syed Saad Ali, Mohamad Naufal Mohamad Saad, Nadira Nordin]
5.00pm-5.15pm	D1 S1 CS1_5 [PID18]	Underwater Acoustic Source Localization Strategy by a Group of Autonomous Surface Vehicles [Helmi Majid*, Mohd Rizal Arshad]
5.15pm-5.30pm	D1 S1 CS1_6 [PID33]	Disturbance Observer Based Finite-Time Trajectory Tracking Control of Unmanned Surface Vehicles [ShuaiLin Lv, Ying Gao, Ning Wang*, Meng-Joo Er]
5.30pm-5.45pm	D1 S1 CS1_7 [PID40]	Vertical Plane Path Following Control of an Under-actuated Autonomous Underwater Vehicle [Caoyang Yu*, Xianbo Xiang]
5.45pm-6.00pm	D1 S1 CS1_8 [PID51]	Robust-Save Energy Controller on an Autonomous Underwater Vehicle with Obstacles Avoidance [Zool Hilmi Ismail*, Vina Wahyuni Putranti]

TECHNICAL SESSION 4

Session Chair: Dr. Wardiah Mohd Dahalan

Day 2: Wednesday (14 th December 2016)		
Venue : Seminar Room, Level 1 Track 4. D2 S1 CS2: Control Systems 2 & Underwater Acoustics Time : 8:00 am - 10:15 am		
Time	Paper ID	Paper Title, Authors
8.00am-8.15am	D2 S1 CS2_1 [PID16]	High-gain Observer-based Model Predictive Control for Cross Tracking of Underactuated Autonomous Underwater Vehicles <i>[Guangjie Zhang*, Weisheng Yan, Jian Gao, Changxin Liu]</i>
8.15am-8.30am	D2 S1 CS2_2 [PID19]	Position-Based Visual Servoing for Underwater Docking of an Autonomous Underwater Vehicle <i>[Mohd Faid Yahya*, Mohd Rizal Arshad]</i>
8.30am-8.45am	D2 S1 CS2_3 [PID21]	The Development of Unmanned Small-Size Double Hull Blimp For Low Altitude Surveillance System <i>[Herdawatie Abdul Kadir*, Mohd Rizal Arshad]</i>
8.45am-9.00am	D2 S1 CS2_4 [PID22]	Cooperative Formation Control Algorithm of a Generic Multi-Agent System applicable for Multi-Autonomous Surface Vehicles <i>[Swee Tiang Tan, Muhammad Nasiruddin Mahyuddin*]</i>
9.00am-9.15am	D2 S1 CS2_5 [PID25]	Speech Semantic Recognition: A Control Mechanism for Assistive Robotics <i>[Siti Nur Ateeqa Mohamad*, Ahmad Ammar Jamaludin, Khalid Isa]</i>
9.15am-9.30am	D2 S1 CS2_6 [PID27]	COLREGs Based Navigation of Riverine Autonomous Surface Vehicle <i>[Jian Hong Mei*, Mohd Rizal Arshad]</i>
9.30am-9.45am	D2 S1 CS2_7 [PID34]	Finite-Time Trajectory Tracking Control of Unmanned Surface Vehicle with Input Saturation <i>[Ying Gao, Ning Wang*, Shuailin Lv and Meng Joo Er]</i>
9.45am-10.00am	D2 S1 CS2_8 [PID11]	Shallow Water Image Enhancement using Predominant Color Scheme <i>[May Chi Lim*, Phooi Yee Lau]</i>
10.00am-10.15am	D2 S1 CS2_9 [PID30]	Massive MIMO Systems for Underwater Acoustic Communication <i>[Bello Lawal*, Syed Saad Azhar Ali, Azlan Awang]</i>

TECHNICAL SESSION 5

Session Chair: Dr. Mohd Shahrieel Mohd Aras

Day 2: Wednesday (14 th December 2016)		
Venue : Seminar Room, Level 1		
Track 5. D2 S1 UVT2: Underwater Vehicle Technology 2		
Time : 2:00 pm - 3:30 pm		
Time	Paper ID	Paper Title, Authors
2.00pm-2.15pm	D2 S1 UVT2_1 [PID5]	Modeling and Control of an Underwater Robot Propulsion System using Model Predictive Control [Modi Prasad*, Akhilesh Swarup]
2.15pm-2.30pm	D2 S1 UVT2_2 [PID17]	Design and Development of an X4-ROV [Zainah Md. Zain, Maziyah Mat Noh, Khairil Ashraff Ab Rahim*, NurFadzillah Harun]
2.30pm-2.45pm	D2 S1 UVT2_3 [PID23]	Performances Analysis of Underwater Remotely Amphibian Vehicle (RAV) [Mohammad Afif Kasno, Mohd Shahrieel Mohd Aras*, Nursabillilah Mohd Ali, Mohd Safirin Karis, Alias Khamis, Mohd Khairi Mohd Zambri, Mohamad Haniff Harun, Ahmad Faiez Husni@Rusli]
2.45pm-3.00pm	D2 S1 UVT2_4 [PID37]	Pitch and Depth Control of Underwater Glider Using LQG and LQR via Kalman Filter [Barkat Ullah*, Mark Ovinis, Masri B Baharom, S. S. A. Ali, Muhammad Yasar Javaid]
3.00pm-3.15pm	D2 S1 UVT2_5 [PID41]	Modelling and Simulation for Underwater Hovering Control Based on Ballast Tank [Ying Chen*, Guohua Xu, Guanxue Wang, Gang Liu, Wei Zhang]
3.15pm-3.30pm	D2 S1 UVT2_6 [PID48]	Analysis of Integrated Sensor for Unmanned Underwater Vehicle Application [Mohd Shahrieel Mohd Aras*, Muhammad Nizam Kamarudin, Iktisyam Zainal, Hasif Aziri, Mohd Khairi Mohd Zambri, Mohammad Afif Kasno, Mohd Zamzuri Ab Rashid, Hairol Nizam Md Shah]

TECHNICAL SESSION 6

Session Chair: Dr. Mohd Ikhwan Hadi Yaacob

Day 2: Wednesday (14 th December 2016)		
Venue : Seminar Room, Level 1 Track 6. D2 S1 IA: Industrial Applications Time : 3:45 pm - 5:30 pm		
Time	Paper ID	Paper Title, Authors
3.45pm-4.00pm	D2 S1 IA_1 [PID2]	Prediction on Parametric Resonance of Offshore Crane Cable for Lowering Subsea Structures <i>[Hooi Siang Kang*, Collin Howe-Hing Tang, Lee Kee Quen, Adelina Steven, Xiaochuan Yu]</i>
4.00pm-4.15pm	D2 S1 IA_2 [PID24]	Analysis Performances of Laser Distance Finders and Blue LED as Obstacle Avoidance for Unmanned Underwater Vehicle <i>[Mohd Shahrieel Mohd Aras*, Khairunnisa Mazlan, Azhar Ahmad, Nursabillilah Mohd Ali, Mohd Safirin Karis, Alias Khamis, Mohd Khairi Mohd Zambri, Muhammad Afif Kasno, Muhammad Wahyuddin Nur Azmi]</i>
4.15pm-4.30pm	D2 S1 IA_3 [PID26]	Development of a Floating Platform for Measuring Air and Water Quality <i>[Nurliyana Kafli*, Muhamad Zamani Othman, Khalid Isa]</i>
4.30pm-4.45pm	D2 S1 IA_4 [PID36]	Discrete Wavelet based Turbulent Flow Estimation <i>[Osman Ahmed*, Mark Ovinis, Fakhrudin Hashim, Ibrahima Faye]</i>
4.45pm-5.00pm	D2 S1 IA_5 [PID38]	Low Power Wireless Temperature and Humidity Sensing based on CM5000 node and SHT11 Sensor <i>[Amzar Omairi*, Zool Hilmi Ismail]</i>
5.00pm-5.15pm	D2 S1 IA_6 [PID61]	Sediment transport over Seabed with Smoothed Particle Hydrodynamics <i>[Thien Tran-Duc, Nhan Phan-Thien, B. C. Khoo *]</i>
5.15pm-5.30pm	D2 S1 IA_7 [PID49]	Theoretical Characterization of Bimorph pMUT with CuAl10Ni5Fe4 Layer for Underwater Application <i>[Mohd Ikhwan Hadi Yaacob*, Muhamad Azrin Azman]</i>