

Special Session of ICACI 2018 Call for Papers:

**Advanced Intelligent Control of Autonomous Systems
(AICAS/ICACI 2018, March 29-31, 2018, Xiamen)**

Nowadays, autonomous systems are playing an increasingly important role in both control community and engineering applications. For example, millions of autonomous robots are impacting our daily life by working on assembly lines, construction sites, and even intelligent home furnishing. More interestingly, the unmanned aerial, ground, surface and/or underwater systems provide more efficient ways to execute various challenging tasks. However, the autonomous systems are usually featured with dynamics coupling, actuator saturation, underactuated structure, time-varying disturbance, etc., thereby resulting in great challenges and difficulties in system analysis and controller design. Recently, by employing intelligent approaches, advanced control methodologies for autonomous systems have been rapidly developed. Note that the dynamic environment is usually changing and the autonomous systems should adapt themselves accordingly. In this context, on one hand, more efforts should be focused on the methodology of the learning system. For example, the fast adaptation and self-organizing capability are essentially required. On the other hand, the great advantage of advanced analysis tools should be taken to enhance the control performance. Thus, deep intelligence should be integrated tightly with nonlinear design for complex control tasks of autonomous systems.

The main goal of this special session is to address latest original results in advanced intelligent control of autonomous systems, including both theoretical advances and practical implementations, which are becoming more and more popular in industry and in our lives. Potential topics of this invited session mainly focus on Autonomous Systems and Vehicles, and include, but are not limited to:

A. Advanced Intelligent Control

- Composite Learning Based Intelligent Control
- Disturbance Observer Based Intelligent Control
- Self-organizing Intelligent Control
- Reinforcement Learning Based Control
- Adaptive Dynamic Programming Based Optimal Control

B. Computational Intelligence

- Computational Intelligence-based Optimization
- Computational Intelligence-based Modelling and Identification
- Deep Learning
- Pattern Recognition
- Image Processing

C. Applications to Autonomous Systems

- Unmanned Surface Vehicles
- Unmanned Aerial Vehicles
- Spacecrafts and Robotic Systems
- Flexible Manipulators and Missiles

Prospective authors are invited to submit original technical papers for presentation and publication. Accepted and presented technical papers will be published in the IEEE ICACI 2018 Conference Proceedings and submitted to IEEE Xplore.

Important Dates:

Paper Submission.....Nov.15, 2017
Notification of acceptanceDec.15, 2017
Camera-ready copy and author registrationJan. 15, 2018

Keywords:

Intelligent Control, Autonomous System, Computational Intelligence.

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Ning Wang received his B.Eng. degree in Marine Engineering and the Ph.D. degree in control theory and engineering from the Dalian Maritime University (DMU), Dalian, China in 2004 and 2009, respectively. From September 2008 to September 2009, he was financially supported by China Scholarship Council (CSC) to work as a joint-training Ph.D. student at the Nanyang Technological University (NTU), Singapore. In the light of his significant research at NTU, he received the Excellent Government-funded Scholars and Students Award in 2009. From August 2014 to August 2015, he worked as a visiting scholar with the University of Texas at San Antonio, TX, USA. He is currently a Professor with the Marine Engineering College, Dalian Maritime University (DMU), Dalian 116026, China. Dr. Wang received the Nomination Award of Liaoning Province Excellent Doctoral Dissertation, the DMU Excellent Doctoral Dissertation Award and the DMU Outstanding Ph.D. Student Award in 2010, respectively. He also won the Liaoning Province Award for Technological Invention and the honour of Liaoning BaiQianWan Talents, Liaoning Excellent Talents, Science and Technology Talents, the Ministry of Transport of the P R China, Youth Science and Technology Award of China Institute of Navigation, and Dalian Leading Talents. His research interests include fuzzy logic systems, artificial neural networks, machine learning, nonlinear control, self-organizing fuzzy neural modeling and control, ship intelligent control, and dynamic ship navigational safety assessment. He currently serves as an Associate Editor of the NEUROCOMPUTING and INTERNATIONAL JOURNAL OF FUZZY SYSTEMS.

Defeng Wu received his BE degree in Automatic Control and the Ph.D. degree in Control Theory and Control Engineering in 2005 and 2010 respectively both from Dalian Maritime University, China. From 2008 to 2009, he was financially supported by China Scholarship Council (CSC) as a visiting Ph.D. student at School of System Engineering (SSE), University of Reading, UK. In 2011, he received the 1st place award of first SSE internal competition for Best Research Output. From December 2015 to December 2016, he worked as a visiting scholar with the ECE department at Illinois Institute of Technology, Chicago, IL, USA. He is currently an Associate Professor with the School of Marine Engineering, Jimei University, Xiamen, China. Dr. Wu also won the honour of New Century Excellent Talents in Fujian Provincial University in 2016. His research interests include computational intelligence and its applications in engineering. He also served as a Guest Editor of *International Journal of Modelling, Identification and Control*.