ICIT 2023

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ICIT 2023 Special Session Proposal

Title of the Proposal:

Advanced Decision-Making, Control and Estimation Technologies for Intelligent Vehicles

Outline of the Session:

In recent years, we have witnessed how emerging technologies have expanded the possibilities in intelligent transportation systems. The intelligent vehicle is a transformative technology that is expected to improve the safety and efficiency of mobilities. However, the complexity of such systems has introduced new challenges for academia and industry, where the necessity of suitable planning algorithms and efficient control and estimation methods are becoming essential.

In this regard, the aim of this Special Session is to compile recent research and development efforts contributing to advances in decision-making, control, and estimation for intelligent vehicles. This Special Section also welcome contributions addressing the state-of-the-art in associated developments and methodologies, and the perspectives on future developments and applications.

Topics of the Session:

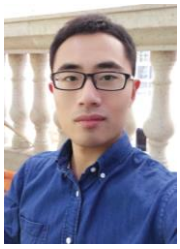
- Advanced decision-making and planning algorithms for intelligent vehicles
- Advanced control algorithms for intelligent vehicles
- Advanced estimation methods for intelligent vehicles
- Control, and testing for intelligent and connected vehicles
- Fault diagnosis and fault-tolerant control of intelligent vehicles
- Security and privacy of intelligent vehicles
- Human–automation collaboration for intelligent vehicles
- Environment perception, localization, and navigation of intelligent vehicles
- Planning, control and estimation for multimodal vehicles (e.g., ground, aerial, underwater)

Short bio and contact details of the Session Organizers

- **Organizer 1**: Henglai Wei, University of Victoria, Canada. henglaiwei@uvic.ca

Henglai Wei (Member, IEEE) received his B.S. and M.Sc. degrees in control theory from Northwestern Polytechnical University, and the Ph.D. degree in mechanical engineering from the University of Victoria, Canada. He is currently a research fellow with the faculty of engineering and computer science, University of Victoria. His current research interests include model predictive control, and distributed control and optimization of intelligent systems. He is an active reviewer for more than 10 international journals and conferences.

- **Organizer 2***:* Kai Jiang, Nanyang Technological University, Singapore. kai.jiang@ntu.edu.sg



Kai Jiang received his B.S. degrees in nuclear engineering and technology from South China University of Technology, M.Sc. degree in thermal engineering from Shanghai Maritime University, and the Ph.D. degree in mechanical engineering from the McMaster University, Canada. He is currently a research fellow with the School of Electrical and Electronics Engineering, Nanyang Technological University. His current research interests include machine learning, reinforcement learning, model predictive control, and connected and automated vehicles.

- **Organizer 3**: Anh-Tu Nguyen, Université Polytechnique Hauts-de-France, tnguyen@uphf.fr

Anh-Tu Nguyen (Senior Member, IEEE) received the degree in engineering and the M.Sc. degree in automatic control from the Grenoble Institute of Technology, Grenoble, France, in 2009, and the Ph.D. degree in automatic control from the University of Valenciennes, Valenciennes, France, in 2013. He is currently an Associate Professor with the INSA Hautsde-France, Valenciennes, France. His research interests include robust control and estimation, cybernetics control systems, and human-machine-shared control with a strong emphasis on mechatronics applications. Dr. Nguyen is an Associate Editor for the IEEE Transactions on Intelligent Transportation Systems and IFAC journal Control Engineering Practice, the IET Journal of Engineering, the SAE International Journal of Vehicle Dynamics, Stability, and NVH, the Springer journal Automotive Innovation.

- **Organizer 4***:* Hui Zhang, Beihang University, huizhang285@gmail.com

Hui Zhang (Senior Member, IEEE) received the B.Sc. degree in mechanical design manufacturing and automation from the Harbin Institute of Technology at Weihai, Weihai, China, the M.Sc. degree in automotive engineering from Jilin University, Changchun, China, and the Ph.D. degree in mechanical engineering from University of Victoria, Victoria, BC, Canada in 2012. He was a research associate at the Department of Mechanical and Aerospace Engineering of The Ohio State University, Columbus, Ohio, USA. His research interests include Diesel engine aftertreatment systems, vehicle dynamics and control, mechatronics, robust control and filtering, networked control systems, and signal processing. He is an author/co-author of over 80 peer-reviewed papers on journals and conference proceedings. Dr. Zhang is a recipient of 2017 IEEE Transactions on Fuzzy Systems Outstanding Paper Award, 2018 SAE Ralph R. Teetor Educational Award, IEEE Vehicular Technology Society 2019 Best Vehicular Electronics Paper Award, and 2019 SAE International Intelligent and Connected Vehicles Symposium Best Paper Award. He is a member of SAE International, a senior member of IEEE and a member of ASME. Dr. Zhang serves as an Associate Editor for IEEE Transactions on Vehicular Technology, Journal of The Franklin Institute, SAE International Journal of Vehicle Dynamics, Stability, and NVH, SAE International Journal of Connected and Automated Vehicles, and ASME Transactions Journal of Dynamic Systems, Measurement and Control.