The 2018 IEEE Intelligent Vehicles Symposium (IV'18)
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IV'18 Special Session Proposal

- **Title of the Proposal:**

  The Special Used Unamnned Ground Vehicle in China

- **Code: dk5wn**

- **Organizers:**


Prof. Jibin HU

Jibin HU received the B.E. degree in mechanical engineering from Beijing Institute of Technology, Beijing, China in 1992, and the Ph.D. degree from Beijing Institute of Technology in 2003. He is currently a professor at Beijing Institute of Technology. He serves at the vice dean of School of Mechanical Engineering at Beijing Institute of Technology.

Jibin's research interest includes vehicle transmission system design and control, vehicle dynamics and control, as well as autonomous vehicle control. He has published over 80 papers and hold over 20 Chinese and international patents in these fields. He is currently serving as the vice director of the Chinese National Vehicle Transmission System Key Lab. He is also served as the advisor of the BIT Formula Student Racecar team. He was the co-organizer of many international conferences, including IEEE Transportation Electrification conference of ASIA-PACIFIC, et al. He has been supported by the program for New Century Excellent Talents in Chinese Universities. He has won the National Science and Technology Reward for three times. His email address is hujibin1970@163.com.


Dr. Jun NI.

Jun NI received the B.E. degree in mechanical engineering from Beijing Institute of Technology, Beijing, China, in 2013. He is currently a Ph.D. candidate with the school of Mechanical Engineering at Beijing Institute of Technology. He is also a visiting Ph.D. student in Vehicle Dynamics and Control Lab at University of California, Berkeley.

Jun's research interest is the intelligent control for the UGV or mobile robots. He has published a book and over 40 papers. He holds 10 Chinese patents in this field. He serves as the president of the BIT Special UGV Innovation Center and BIT Formula Student Racecar team. He is the co-organizer of several international conferences, such as the special workshop of the 19th APAC SAE Congress. Jun won the National Award of Science and Technology for Youth in 2013, which was awarded by the vice president of China. He was selected into the National Support Program for Youth Talent in 2016. Jun's email address is nijun_bit@163.com. Jun's IEEE membership number is 93950655.


Prof. Hui ZHANG.

Hui Zhang received the B.Sc. degree in mechanical design manufacturing and automation from the Harbin Institute of Technology at Weihai, Weihai, China in 2006, the M.Sc. degree in automotive engineering from Jilin University, Changchun, China in 2008, and the Ph.D. degree in mechanical engineering from University of Victoria, Victoria, BC, Canada in 2012.

Dr. Zhang's research interests include diesel engine aftertreatment systems, vehicle dynamics and control, mechatronics, robust control and filtering, networked control systems, and multi-agent systems. He is an author/co-author of over 80 peer-reviewed papers on journals and conference proceedings. Dr. Zhang has served on the IFAC Technical Committee on Automotive Control, ASME Automotive and Transportation Systems Technical Committee, SAE Commercial Vehicle Committee, and International Program Committee for the IASTED International Conference on Control and Applications. Dr. Zhang serves as an Associate Editor for Neurocomputing, SAE International Journal of Vehicle Dynamics, Stability, and NVH; Board member of International Journal of Hybrid and Electric Vehicles, Mechanical Systems and Signal Processing; Guest Editor of Mechatronics, IEEE Access, ISA Transactions, Mechanical Systems and Signal Processing, Journal of the Franklin Institute, and International Journal of Vehicle Design; Conference Editorial Board of ASME Dynamic Systems and Control Division, American Control Conference, and ASME Dynamic Systems and Control Conference. Dr. Zhang is a recipient of 2017 IEEE Transactions on Fuzzy Systems Outstanding Paper Award.

- **Technical Outline of the Session and Topics:**

In recent years, the development of the special used UGVs is attracting increasing research focus from all over the world, such as the logistics UGV, military used UGV, or autonomous racecar. It has been widely accepted that the emergence and application of the special used UGVs is going to greatly change our lives in the future.

For example, the logistics UGV are supposed to be used in the closed environment, such as the campus or village, to significantly improve the efficiency of the logistics. In military field, it has been widely accepted that the emergence of the military UGV will greatly change the form of the combat in the future. Therefore, the research of the military UGV has been greatly focused by many

research institutes and universities all over the world. In addition, the autonomous racecar competition is also rapid emerging in recent years. The autonomous racecar requires high speed. Therefore, it requires more advanced environment perception and vehicle dynamics control techniques.

To this end, a special session of the special used UGV will be very interesting, since the special used UGV requires very different environment perception, path planning, and dynamics control techniques compared to the conventional intelligent passenger car. This session aims at showing the latest research and development of special used UGV. The topics include, but not limited to:

- Environment Perception and Path Planning in Field Environments for Military UGV
- Vehicle Dynamics Control for X-by-wire Special-used UGV
- Development of New-configured Military UGV or Heavy-class Mobile Robot
- Development of High-speed Autonomous Racecar
- Dynamics Control of Limit Driving for Autonomous Racecar
- Other Achievements for Special-used UGV.