

講演会のご案内

Controls and Estimation of Vehicle Systems toward Clean, Efficient, and Safe Ground Transportation

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ABSTRACT

In the ever-lasting efforts of reducing emissions, improving efficiencies, and enhancing safety for ground vehicles, importance of control systems has been growing rapidly due to the substantially elevated system complexities contributed by the fast technological advances in various relevant fields. Accompanied with the quick evolution of vehicle technologies, designs of vehicle estimation and control systems have become much more challenging and critical as well. Synergistic combinations of physical insight into vehicle system characteristics, computational and communication capabilities, and theories of estimation and control may offer effective means for tackling such challenges. This talk introduces a variety of vehicle system estimation and control research activities aiming to clean, efficient, and safe ground transportation. Innovative syntheses of estimation and control theories with physical understanding of engine, aftertreatment, vehicle chassis, and transportation systems for conventional and electrified vehicles will be emphasized through examples. Along with the system analytical designs, experimental and simulation results will be given to demonstrate the importance and efficacy of the control systems for current and future ground vehicles.

BIOGRAPHY

Prof. Junmin Wang is a Full Professor in mechanical engineering at Ohio State University. He joined Ohio State University and founded the Vehicle Systems and Control Laboratory (VSCL) in 2008. He was early promoted to Associate Professor with Tenure in September 2013 and then very early promoted to Full Professor in June 2016. Prof. Wang has a wide range of research interests covering control, modeling, estimation, optimization, and diagnosis of dynamical systems, especially for automotive, vehicle, transportation, and sustainable mobility applications. Prof. Wang's research contributions embrace the development of control and estimation methods that advance efficiency, cleanliness, and driving safety of conventional and electrified vehicles. Dr. Wang is the author or co-author of more than 240 peer-reviewed papers including 118 journal articles and 11 U.S. patents. He serves as a Senior Editor/Editor/Technical Editor/Associate Editor for IEEE Transactions on Vehicular Technology, IEEE Vehicular Technology Magazine, IEEE/ASME Transactions on Mechatronics, IFAC Control Engineering Practice, IFAC Mechatronics, ASME Transactions Journal of Dynamic Systems, Measurement and Control, and SAE International Journal of Engines. Prof. Wang is a recipient of the Ohio State University Harrison Faculty Award for Excellence in 2015, National Science Foundation CAREER Award in 2012, SAE International Vincent Bendix Automotive Electronics Engineering Award in 2009, and Office of Naval Research Young Investigator Award in 2009. Prof. Wang is an IEEE Vehicular Technology Society Distinguished Lecturer, SAE Fellow, and ASME Fellow.



Dr. Wang received the B.E. in Automotive Engineering and his first M.S. in Power Machinery and Engineering from the Tsinghua University, Beijing, China in 1997 and 2000, respectively, his second and third M.S. degrees in Electrical Engineering and Mechanical Engineering from the University of Minnesota, Twin Cities in 2003, and the Ph.D. degree in Mechanical Engineering from the University of Texas at Austin in 2007.