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Distinguished Lecturer Talk

Connected and Automated Vehicles: New Advances for Energy Efficiency and Driving

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Abstract: The efficient use of The recent advances on vehicle onboard computation and communication technologies have led the ground transportation into a new era. In particular, the smart mobility technologies such as connected vehicles and automated driving have offered an unprecedented information richness and new degrees of freedom, which if utilized intelligently may enable substantial improvements on vehicle operational energy efficiency and driving safety that are of societal importance. Personalized vehicle system controls that can explicitly take into account individual drivers driving characteristics, capability, and riding preference become feasible and necessary to significantly further improve vehicle operational energy efficiency and driving safety. This talk introduces some recent work on personalized vehicle power train and motion control systems for connected and automated vehicle applications. Along with the system analytical designs, experimental and simulation results will be given to demonstrate the importance and efficacy of the personalized vehicle control for energy efficiency and driving safety enhancements.

Biography: Junmin Wang received the B.E. in Automotive Engineering and his first M.S. in Power Machinery and Engineering from Tsinghua University, Beijing, China in 1997 and 2000, respectively, and the Ph.D. degree in Mechanical Engineering from the University of Texas at Austin in 2007.

Dr. Wang is the Accenture Endowed Professor at University of Texas at Austin. In 2008, he started his academic career at Ohio State University, where he founded the Vehicle Systems and Control Laboratory, was early promoted to Associate Professor in September 2013 and then very early promoted to Full Professor in June 2016. He also gained five years of full-time industrial research experience at Southwest Research Institute (San Antonio Texas) from 2003 to 2008. Prof. Wang has a wide range of research interests covering control, modeling, estimation, optimization, and diagnosis of dynamical systems, especially for automotive, smart and sustainable mobility, human-machine, and cyber-physical system applications. Dr. Wang is the author or co-author of more than 280 peer-reviewed publications including 144 journal articles and 14 patents. Prof. Wang is a recipient of numerous international and national honors and awards including 2018 IEEE Andrew P. Sage Best Transactions Paper Award and 2017 IEEE Transactions on Fuzzy Systems Outstanding Paper Award. He is an IEEE Vehicular Technology Society Distinguished Lecturer,SAE Fellow, and ASME Fellow as well as a Chang Jiang Scholar Visiting Chair Professor.