DEPARTMENT OF MECHANICAL ENGINEERING WILLIAM MAXWELL REED SEMINAR SERIES

"Internet of Mobility: Cloud-Facilitated Privacy-Aware Collaborative Sensing and Control in Connected Mobile Systems."

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Abstract:

With the advent of 5G technology, there is a renewed interest in utilizing cloud computing to revolutionize mobility systems with big data and high-performance computing capabilities. Meanwhile, modern vehicles are equipped with advanced sensing and connectivity functionalities. Seamless integration of cloud and onboard resources is a key enabler for next-gen vehicles with improved safety, comfort, and energy efficiency. In this talk, I will present a cloud-facilitated collaborative sensing and control paradigm for cloud-enabled connected vehicles. I will first talk about a privacy-aware collaborative sensing framework that utilizes multiple heterogeneous vehicles as mobile sensors to crowdsource important road and traffic information while preserving privacy. I will then talk about a privacy-preserved cloud-assisted control scheme where we systematically integrate a cloud controller and a local controller with improved performance while guaranteeing stability and preserving privacy. In addition, an efficient tree fruit harvesting robot recently developed in my lab will be discussed.

Speaker Bio
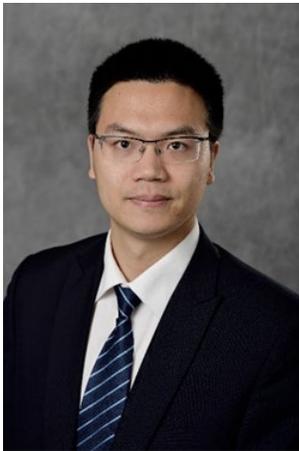
Dr. Zhaojian Li is an Assistant Professor in the Department of Mechanical Engineering at Michigan State University. He obtained M.S. (2013) and Ph.D. (2015) in Aerospace Engineering (flight dynamics and control) at the University of Michigan, Ann Arbor. As an undergraduate, Dr. Li studied at Nanjing University of Aeronautics and Astronautics, Department of Civil Aviation, in China. Dr. Li worked as an algorithm engineer at General Motors from January 2016 to July 2017. His research interests lie in the intersection between control theory and machine learning, with applications to intelligent vehicles and robotics. His research has been funded by National Science Foundation, National Institute of Health, US Department of Agriculture, Army, Office of Naval Research, Ford, DENSOR, T-Mobile, among others. He is a senior member of IEEE and a recipient of the NSF CAREER award.

Date: Friday, September 16, 2022   **Time:** 3:00 PM EST
Place: Whitehall Classroom Building 110   **Contact:** Dr. Jesse Hoagg

Attendance open to all interested persons

College of Engineering