THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering
Seminar

Designing Safe Autonomous Systems: A Driver's License Test for Driverless Vehicles

By

Dr. MANGHARAM Rahul
Associate Professor, Dept. of Electrical & Systems Engineering and Dept. of Computer & Information Science, University of Pennsylvania.

Date	**:**	**1st Aug 2019 (Thu)**
Time	**:**	**11:00am – 12:00pm**
Venue	**:**	**Room 801, Ho Sin Hang Engineering Building The Chinese University of Hong Kong**

Abstract

Autonomous vehicles (AVs) have already driven millions of miles on public roads, but even the simplest maneuvers such as a lane change or vehicle overtake have not been certified for safety. Current methodologies for testing and verification of Advanced Driver Assistance Systems such as Adaptive Cruise Control cannot be directly applied to determine AV safety as the AV actively makes decisions using its perception, planning and control systems for both longitudinal and lateral motion. These systems increasingly use machine learning for which it is fundamentally hard to derive safety guarantees across a range of driving scenarios and environmental conditions. New approaches are needed to bound and minimize the risk of AVs to assure the public, determine liability and insurance pricing and ensure the long-term growth of the domain.

Biography

Rahul is an Associate Professor in the Dept. of Electrical & Systems Engineering and Dept. of Computer & Information Science at the University of Pennsylvania. His interests are in cyberphysical systems at the intersection of formal methods, machine learning and controls. He is the Penn Director for the Department of Transportation's $14MM Mobility21 National University Transportation Center [2017-2022] which focuses on technologies for safe and efficient movement of people and goods. Rahul received the 2016 US Presidential Early Career Award (PECASE) from President Obama for his work on Life-Critical Systems. He also received the 2016 Department of Energy's CleanTech Prize (Regional), the 2014 IEEE Benjamin Franklin Key Award, 2013 NSF CAREER Award, 2012 Intel Early Faculty Career Award and was selected by the National Academy of Engineering for the 2012 and 2017 US Frontiers of Engineering. He has won several ACM and IEEE best paper awards.
He received his Ph.D. in Electrical & Computer Engineering from Carnegie Mellon University where he also received his MS and BS in 2007, 2002 and 2000 respectively.
Website: https://www.seas.upenn.edu/~rahulm/

** ALL ARE WELCOME **

Host: Prof. XING Guoliang (Tel: 3943-8474, Email: glxing@ie.cuhk.edu.hk)
Enquiries: Information Engineering Dept., CUHK (Tel.: 3943-8385)