



THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering
Seminar

**Throughput-Optimal Scheduling for Multi-Hop Networked
Transportation Systems with Switch-Over Delay**

by

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Time : 11:00am – 12:00noon

**Venue : Room 1009, William M.W. Mong Engineering Building
The Chinese University of Hong Kong**

Abstract

The emerging connected-vehicle technology provides a new dimension for developing more intelligent traffic control algorithms for signalized intersections. An important challenge for scheduling in networked transportation systems is the switchover delay caused by the guard time before any traffic signal change. The switch-over delay can result in significant loss of system capacity and hence needs to be accommodated in the scheduling design. To tackle this challenge, this talk discusses a distributed online scheduling policy that extends the well-known Max-Pressure policy to address switch-over delay by introducing a bias factor favoring the current schedule. We prove that the proposed policy is throughput-optimal with switch-over delay. Furthermore, the proposed policy remains optimal when there are both connected signalized intersections and conventional fixed-time ones in the system. With connected-vehicle technology, the proposed policy can be easily incorporated into the current transportation systems without additional infrastructure.

Biography

I-Hong Hou is an assistant professor in the ECE Department of the Texas A&M University. He received his Ph.D. from the Computer Science Department of the University of Illinois at Urbana-Champaign. His research interests include wireless networks, real-time systems, and cloud computing. His work has received the Best Paper Award from ACM MobiHoc 2017, and Best Student Paper Award from WiOpt 2017. He has also received the C.W. Gear Outstanding Graduate Student Award from the University of Illinois at Urbana-Champaign, and the Silver Prize in the Asian Pacific Mathematics Olympiad.

**** ALL ARE WELCOME ****