SEMINAR

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Friday, May 5, 2017
2:00 – 3:00 pm
Refreshments 1:30-2:00 pm
Seminar Room, 4080 AIR Building

MULTI-MODAL PUBLIC TRANSPORTATION WITH APPLICATION TO MACROSCOPIC CONTROL AND OPTIMIZATION

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Abstract

We describe a Markov-chain-based approach to modelling multi-modal transportation networks. An advantage of the model is the ability to accommodate complex dynamics and handle huge amounts of data. The transition matrix of the Markov chain is built and the model is validated using the data extracted from a traffic simulator. A realistic test-case using multi-modal data from the city of London is given to further support the ability of the proposed methodology to handle big quantities of data. Then, we use the Markov chain as a control tool to improve the overall efficiency of a transportation network, and some practical examples are described to illustrate the potentials of the approach.

Mahsa Faizrahnemoon received her M. Sc. Degree in Applied Mathematics from Chalmers University of Technology/ University of Gothenburg in Gothenburg, Sweden in 2012. She received her Ph.D. from the Hamilton Institute at the National University of Ireland Maynooth in Maynooth, Ireland in 2015. Her PhD thesis was about optimizing and modelling Intelligent Transportation Systems and her paper won the best scientific paper award of the European ITS Congress in 2013 in Dublin, Ireland. She has been a Postdoctoral Fellow at the Department of Mathematics at Simon Fraser University since January 2016. She has been active in industrial projects in collaborative mobility, including smart transportation and public transportation networks, as well as production channel scheduling. Her main field of theoretical research is optimization and operations research.