



## Future Urban Mobility Symposium 2017

July 10-11, 2017

NUS University Hall Auditorium  
National University of Singapore  
21 Lower Kent Ridge Road, Singapore 119077  
Level 2, Lee Kong Chian Wing

The Symposium will take place on

- July 10 from 9:00 to 17:00 and
- July 11 from 9:00 to 17:00

**Registration will start at 8:30am.**

Taxi Directions:

If you are traveling by cab, ask the driver to bring you to NUS (National University of Singapore) via the NUH (National University Hospital) route. Travel along Lower Kent Ridge Road. The University Hall of NUS is on the left hand (south) side of Lower Kent Ridge Road after Science Drive 4. When you alight at the University Hall, you will see Lee Kong Chian Wing. Take a lift to level 2 and get to the Symposium's Auditorium.

Map: [http://www.streetdirectory.com/asia\\_travel/travel/travel\\_id\\_22753/travel\\_site\\_7154/](http://www.streetdirectory.com/asia_travel/travel/travel_id_22753/travel_site_7154/)

Lunch and morning and afternoon coffee/tea breaks will be provided on each day.

**Agenda:** Please see below.

**RSVP:** If you plan to attend, please register at <https://fm-symposium2017.eventbrite.sg>

## Day 1 (July 10, 2017)

8:30: Registration

9:00: Welcome and Intro

[Chris ZEGRAS, MIT]

### Session 1 [9:10 – 10:20]: Safe & Autonomous Mobility: Technologies of Supply

[Chair: Daniela RUS]

9:10: Autonomy Overview

[Marcelo ANG, NUS]

9:25: Car Detection for Autonomous Vehicle: A Deep Learning Approach

[Xinxin DU, SMART]

9:40: A General Framework for Multi-vehicle Cooperative Localization Using Pose Graph [Xiaotong SHEN, SMART]

9:55: Trajectory Optimization for Autonomous Overtaking with Visibility Maximization [Hans ANDERSEN, NUS]

10:10: Q&A, Discussion

10:20: Break

### Session 2 [10:35 – 11:15]: Real Time Mobility Estimation and Prediction

[Chair: Marcelo ANG]

10:35: Copula Graphical Lasso Based Estimation of Travel Times from GPS Data

[Justin DAUWELS, NTU]

10:50: DynaMIT2.0 Overview: Real Time Multi-modal Traffic Prediction and Network Control System

[Ravi SESHADRI, SMART]

11:05: Q&A, Discussion

### Session 3 [11:15 – 12:15]: Real Time Mobility Control Strategies I

[Chair: Moshe BEN-AKIVA]

11:15: Data-Efficient Probabilistic Machine Learning

[Bryan LOW, NUS]

11:32: Fleet Management for Multi-class Autonomous Vehicles

[Malika MEGHJANI, SMART]

11:49: Ride Sharing

[Daniela RUS, MIT]

12:06: Q&A, Discussion

12:15: Lunch, and Interactive Demos and Poster Session

### Session 4 [13:15 – 14:40]: Real Time Mobility Control Strategies II

[Chair: Francisco PEREIRA]

13:15: TRIPOD: Minimizing Energy Consumption in an App-Based System

[Carlos AZEVEDO, MIT]

13:30: Real-Time Road Pricing: ERP2 on the Singapore Highway System

[Hossein HASHEMI, SMART]

13:45: Tolls versus Mobility Grants: A Comparative Analysis

[Ravi SESHADRI, SMART]

14:00: Online Redeployment of Bikes to Improve Efficiency in Bike Sharing Systems

[Pradeep VARAKANTHAM, SMU]

14:15: BISOS: Backwards Incremental System Optimum Search Algorithm for Fast Socially Optimal Traffic Assignment

[Jordan IVANCHEV, TUM-CREATE]

14:30: Q&A, Discussion

**Session 5 [14:40 – 15:55]: Freight Mobility Sensing**

**[Chair: Lynette CHEAH]**

*14:40: Understanding Freight Movement and its Impact in Singapore*  
*14:55: A Future Freight Survey Platform*  
*15:15: Freight Survey Application: Integrated Commodity Flow Survey*  
*15:30: Freight Survey Application: Heavy Vehicle Activity Analysis*  
*15:45: Q&A, Discussion*

*[Wen Tung CHIU, URA]*  
*[Fang ZHAO, SMART]*  
*[Surya RAVIKUMAR, SUTD]*  
*[Fangping LU, SUTD]*

*15:55: Break*

**Session 6 [16:10 – 17:05]: Freight Mobility Demand & Supply: Interactions**

**[Chair: Carlos AZEVEDO]**

*16:10: SimMobility Freight Model/Simulation Platform*  
*16:25: Freight Modelling Case Study: Heavy Vehicle Overnight Parking*  
*16:40: Freight Modelling Case Study: Urban Freight Consolidation*  
*16:55: Q&A, Discussion*

*[Andre ALHO, SMART]*  
*[Raja GOPALAKRISHNAN, SUTD]*  
*[Rakhi MANOHAR, SUTD]*

*17:05: Interactive Demos and Poster Session*

**Day 2 (July 11, 2017)**

**Session 7 [9:00 – 10:25]: Personal Mobility Sensing I: Technological Innovations**

**[Chair: Jinhua ZHAO]**

*9:00: Personalized Travel Activity Detection on Resource-Constrained Wearables*  
*9:15: Quantifying Social Potentials of Urban Space Using Mobile Phone Data*  
*9:30: Opportunities and Challenges of Trip Generation Data Collection Techniques*  
*9:45: Reconstructing Human Mobility from Social Media Data*  
*10:00: Surrogate Trajectory Data Synthesis through Iterative Multiple Histogram Matching*  
*10:15: Q&A, Discussion*

*[Kartik SANKARAN, NUS]*  
*[Yang XU, SMART]*  
*[Iva BOJIC, SMART]*  
*[Aliksandr BELY, SMART]*  
*[Pieter FOURIE, FCL]*

*10:25: Break*

**Session 8 [10:40 – 12:00]: Personal Mobility Sensing II: Empirical Evidence**

**[Chair: Carlo RATTI]**

*10:40: FMS Pilots: SP Flexible Mobility on Demand (FMOD) and Happiness*  
*11:00: Using FMS Data to Enrich Behavior Modelling*  
*11:15: FMS in the Global South: the Dar es Salaam Experiment*  
*11:30: The National Science Experiment: Evidence on Students' Active Commuting*  
*11:45: Q&A, Discussion*

*[Fang ZHAO, SMART]*  
*[Bat-hen NAHMIAS, SMART]*  
*[Chris ZEGRAS, MIT]*  
*[Shin Bin TAN, MIT]*

*12:00: Lunch, and Interactive Demos and Poster Session*

**Session 9 [13:00 – 14:00]: Personal Mobility Demand**

**[Chair: Fang ZHAO]**

- 13:00: *Individual Mobility Prediction in Urban Transportation Systems* [Zhan ZHAO, MIT]  
13:15: *Residential Mobility: Household Moving Evidence from a Recent-Mover Survey* [Jingsi SHAW, MIT]  
13:30: *Understanding the Usage of Stationless Bike Sharing in Singapore* [Yu SHEN, SMART]  
13:45: *Q&A, Discussion*

**Session 10 [14:00 – 15:15]: Personal Mobility Supply & Demand Interactions**

**[Chair: Joseph FERREIRA]**

- 14:00: *Overview of SimMobility Interactions* [J. FERREIRA, MIT & K. BASAK, SMART]  
14:15: *SimMobility Application: Simulating Autonomous Mobility on Demand* [Andrea ARALDO, MIT]  
14:30: *SimMobility Application: Car-Lite Impacts on Housing Market and Vehicle Ownership* [Diem-Trinh LE, SMART]  
14:45: *Simulating Human-Driven and AV Mixed Traffic: Challenges and the Current State* [David ECKHOFF, TUM-CREATE]  
15:00: *Q&A, Discussion*

15:15: *Break*

**Session 11 [15:30 – 17:00]: Smart Mobility: Institutional Innovations**

**[Chair: Chris ZEGRAS]**

- 15:30: *Disruptive Technologies in Mobility Markets: Regulatory and Institutional Implications* [Jason JACKSON, MIT]  
15:45: *Towards an AV Future: Key Issues* [Kay AXHAUSEN, ETH]  
16:00: *An Urban Agenda for AV Deployment* [Jinhua ZHAO, MIT]  
16:15: *An Economic Approach to the Mobility of the Future* [Andre de Palma, ENS CACHAN]  
16:35: *Q&A, Discussion*

16:50: *Closing Remarks* [Khiang Wee LIM, NRF]