“Real-time Paths Tracking/Predictions & On-Demand Route Guidance Under Uncertainty”

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focus within FM: models & optimization

research interests: online, stochastic, and data-driven optimization

Open Network
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**Overall Goal:** to develop novel algorithms/methodologies using dynamic data (from many heterogeneous sources) in order to (i) track and predict paths in transportation networks, and (ii) provide on-demand route guidance under uncertainty.

(combination of **optimization**, **machine learning**, and **behavioral modeling**)
sub-projects

- Real-time traffic prediction and on-demand route guidance (Prof. Justin Dauwels & Muhammad Tayyab & Chong Yang, NTU; Dr. Ali Oran, SMART)
- Discovery of travel patterns from data: Clustering of taxi trajectories (Xinghao Pan, DSO)
- Spatiotemporal Modeling and Prediction of Traffic Patterns (Prof. Bryan Low & Jiangbo Yu & Arik Chen & Colin Tan, NUS)
- Route choice optimization in dynamic and stochastic network incorporating risk and ambiguity measures (Prof. Melvyn Sim & Jin Qi, NUS)
- Effective siting of mobile emergency bases and units to unforeseen and time constrained requests (Ooi Boon Hooi, DSO; Dr. Ali Oran, SMART; Prof. Melvyn Sim, NUS)
- Decentralized transportation coordination through central information exchanges (Maokai Lin, MIT)
- Decentralized decision support to improve performance of a taxi fleet (Prof. Pradeep Varakantham & Asrar Ahmed & Prof. Shih-Fen Cheng, SMU)