

Transportation Network Companies' Impacts and Potential on Airport Access

Abstract: When Transportation Network Company (TNC) services first emerged, there was extensive discussion in the popular press and among academics about the benefits that these “shared” services would bring. TNC as a form of ground transportation to and from the airport in contrast, is less often studied or permitted. At Los Angeles International Airport for example, Uber and Lyft could not conduct pick-ups until about seven years after they were founded. TNC operations at airports are highly controversial, yet research on both airports and TNC’s rarely intersect. This study aims to fill the gap in the literature and address such questions as: which and how many airports have various types of TNC service (standard, pooled)? How do they impact other modes, vehicle-occupancy, curb congestion, and access at airports? Can their service be modified (i.e. through pricing or service improvement) to encourage higher uses of shared modes? We simulated a TNC price increase (to match the cost of taxis) as well as a price cut and travel time increase (to mimic Uber Pool and Lyft line which are carpool versions of TNC’s). We also assessed how a pooled TNC service to the airport would operate by applying the pick-up and delivery problem to airport access requests. The motivation for understanding the consequences of making private TNC’s more expensive, or pooled TNC’s less expensive and more efficient (with shorter detours or travel time) is to identify effective tools to encourage modal shifts to vehicles with higher occupancy.

Karina Hermawan



Karina Hermawan is a 2018 SMART Scholar, working under the supervision of Prof. Chris Zegras. Her research focuses on the policy and operational implications of future mobility services, including Transportation Network Companies. She holds a Ph.D. in Transportation Science from the University of California, Irvine, an MA in Economics from the University of California, Irvine, and a BA in Economics from the University of California, Berkeley.

Thursday, 22nd Nov 2017

3:00 pm

SMART-FM Seminar Space @ Level 9

Route choice modeling via Markov decision process?

Abstract: My talk concerns models used to identify which routes would be taken by a traveler to go from a specific location to another one in a transport network. Such models are important in many transportation applications, as they can be used to predict path choices or to assess travelers' preferences of various route characteristics. In this talk, I will show how to capitalize on the dynamic discrete choice framework, also known as parametric Markov decision processes, to design route choice models that can be consistently estimated and easily used for prediction without sampling of alternatives. I will also present methods that have been used to efficiently estimate those models with large-scale transportation networks.

Mai Anh Tien



Tien Mai recently joined FM in October 2018 as a SMART scholar. He holds a Ph.D. in Demand Modeling and Operations Research from University of Montreal. Prior to SMART, he was a postdoc fellow under the Canada Excellence Research Chair in Data Science for Real-Time Decision-Making. His work has been recognized by the INFORM-TSL Dissertation Prize for best doctoral dissertation in the area of transportation science and logistics, and the Eric Pas Dissertation Prize for best doctoral dissertation in travel behaviour research.

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