

# Application of Julia + Gurobi for Optimization Problems, and E-commerce Simulation & Modelling

**Abstract:** This presentation will cover two topics. The first one is the application of Julia for solving optimization problems using the Gurobi solver. A modeling example for Autonomous Vehicles (AV) will be presented to demonstrate the method. The objective of the problem is to minimize the fleet size of AV to satisfy the customer demand. A mathematical model is developed considering the time windows of customers, limited number of charging stations and also the limited number of trips an AV can conduct in a day. In the second part, a brief introduction of e-commerce simulation and modelling framework will be provided. The framework will address the demand generation model, the impacts of e-commerce on passenger trips, and the additional freight demand caused by e-commerce.

## Cheng Cheng



Cheng Cheng is a Postdoctoral Associate at the Singapore-MIT Alliance of Research and Technology (SMART). Her research focuses on the relationship between e-commerce demand and passenger and freight trips. She is also interested in using Operations Research to solve problems. She holds a Ph.D. in Civil Engineering from the University of Melbourne, Master's and Bachelor's degree from Huazhong University of Science and Technology.

**Tuesday, 26<sup>th</sup> Mar 2017**

**11:30 am**

**SMART-FM Seminar Space @ Level 9**