Dr. Xueping Li

Professor, Dan Doulet Faculty Fellow

Dept. of Industrial & Systems Engr.

University of Tennessee, Knoxville

Date: Friday, April 21, 2023

Time: 1 - 1:50 pm

Location: L2 D2

Uber Meets Bus – An Agent-based Simulation Model for Ride-Hailing Public Transit

Abstract: The past decade witnessed thriving ride-hailing services by transportation network companies (TNCs) such as Uber and Lyft. At the same time, the ridership of public transit has declined. In this study, we develop an agent-based simulation model (ABM) to assess the feasibility of a ride-hailing public transit and how to optimize its operations toward the future of mobility. Specifically, we build an ABM framework to model the existing bus system, a dial-a-ride system, and a ride-sharing system. We generate different scenarios by varying the stochastic ride requests, the ride-hailing fleet size, and other operating parameters to evaluate the performance of these systems. We verify and validate the models using the Knoxville Area Transit (KAT) system as a case study.

Biography: Xueping Li is a Professor and Dan Doulet Faculty Fellow in the Department of Industrial and Systems Engineering, Co-Director of the Health Innovation Technology and Simulation (HITS) Lab, and the Director of the Ideation Laboratory (iLab) at the University of Tennessee - Knoxville. His research areas include complex system modeling, simulation, and optimization with broad applications in supply chain logistics, healthcare, and energy systems. His research has been sponsored by federal agencies, including NSF, NIH, DOE, HRSA, and other industry partners. He has over 140 peer-reviewed publications and ten invention disclosures. He is a member of IISE, IEEE, and INFORMS.