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On-Demand Shared Mobility Management for Smart Cities

Prof. Xiqun CHEN
Department of Civil Engineering,
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Date: August 8, 2023 (Tuesday)

Time: 11:00 a.m. – 12:00 p.m.

Venue: Room 612B, 6/F Haking Wong Building, The University of Hong Kong

Abstract

On-demand ride-sourcing services (e.g., Uber, DiDi) receive praises from consumers and investors. This presentation focuses on the ride-sourcing system optimization modeling and behavioral analysis for smart cities. Under governmental regulation of ride-sourcing platforms, pricing and subsidies on passengers and drivers have become an effective incentive to coordinate supply and demand. A multi-stage game-theoretic model is formulated to reveal the coupling game among heterogeneous passengers, heterogeneous drivers, and the ride-sourcing platform in the on-demand ride services market regulated by the government. Ride-sourcing platforms offer incentive subsidies and set pricing strategies to ensure stable supply capacity for on-demand ride services. Understanding the causal effects is a prerequisite for deploying related activities, as well as the heterogeneous and stochastic responses to subsidy and pricing. Data-driven agent-based modeling and simulation for large-scale transportation networks are implemented to investigate how regulatory policies impact the ride-sourcing market, which goes beyond existing approaches by employing data-driven multi-objective deep learning to train ride-sourcing drivers' offline/online behavior. Those research initiatives of the presenter's research team have the potential to help decision-makers and ride-sourcing platforms to optimize regulatory policies and operations management strategies in the era of shared mobility.

About the Speaker

Dr. Xiqun (Michael) Chen is Tenured Professor of Zhejiang University, Director of Institute of Intelligent Transportation Systems, Vice Dean of Zhejiang University-UIUC Institute, and Deputy Director of Zhejiang Provincial Engineering Research Center for Intelligent Transportation. Prof. Chen's research interests include shared mobility on demand, simulation-based optimization, transportation big data analytics, and intelligent transportation systems. He received the National Excellent Young Scholars Award of National Natural Science Foundation of China and Distinguished Young Scholars Award of Zhejiang Provincial Natural Science Foundation, and was an awardee of Young Elite Scientists Sponsorship Program by China Association for Science and Technology. Currently, he serves as the Chairman of Transportation Management and Control of World Transport Convention, Transportation Consultant for World Bank, Board Member of ASCE Greater China Section, Board Member of Society of Management Science and Engineering of China, Associate Editor of IEEE Transactions on Intelligent Vehicles, Editorial Advisory Board Member of Transportation Research Part C: Emerging Technologies, and Senior Associate Editor of Digital Transportation and Safety. Prof. Chen has published 1 book, 3 book chapters, over 110 peer-review international journal papers on Nature Sustainability, Cell Press journal Patterns, Cell Press partner journal The Innovation, Management Science, Manufacturing & Service Operations Management, Transportation Science, Transportation Research Part B, etc. In 2022, he was ranked in the list of World's Top 2% Scientists by Stanford University. He received the Science and Technology Innovation Youth Award of China Communications and Transportation Association, Science and Technology Award of China Intelligent Transportation Systems Association, Best Ph.D. Dissertation Award of IEEE Intelligent Transportation Systems Society, and Best Paper Awards at seven international conferences.