Planning Innovative Mobility Systems with Machine Learning

Seminar summary

The exponential growth of ridesourcing services, such as Uber and Lyft, has been disrupting the transportation sector and changing how people travel. As ridesourcing continues to grow in popularity, being able to accurately predict the ridesourcing demand is essential for effective land-use and transportation planning and policymaking. In this talk, I will first discuss how my research team leverages the state-of-the-art machine learning techniques to build a direct demand model to forecast ridesourcing demand in the City of Chicago. Particularly, I will introduce a novel approach, called Clustering-aided Ensemble Method (CEM), which significantly outperforms all the popular benchmarks in the field. In the second part of my talk, I will discuss interpretable/explainable machine learning, an emerging area in Artificial Intelligence, and how it can be applied to peek into the black-box direct demand models to generate rich insights for planning innovative mobility systems. This seminar series is co-organized by Department of Landscape Architecture and Urban Planning, Transportation Institute, and Institute of Data Science at Texas A&M University.

Speaker's information

Dr. Xilei Zhao is an assistant professor in Transportation Engineering at the University of Florida, where she leads the Smart, Equitable, Resilient Mobility Systems (SERMOS) Lab. She received her master's in applied mathematics and statistics and a PhD in civil engineering from the Johns Hopkins University. Zhao's work focuses on developing and applying data and computational science methods to tackle challenging problems in transportation and resilience. Her research has been supported by multiple funding agencies, e.g., the U.S. Department of Transportation and the National Institute of Standards and Technology. Her work has also been widely published on the leading transportation journals, e.g., Transportation Research Part A, C & D and Journal of Transport Geography. Her paper, entitled "Prediction and behavioral analysis of travel mode choice: A comparison of machine learning and logit models", recently won the Travel Behaviour and Society Outstanding Paper Award 2020. She is also serving on the editorial board of the Journal of Big Data Analytics in Transportation.

Time: 8:00-9:00 p.m. US Central Time (Thursday, July 15, 2021)
Zoom Meeting ID: 732 641 0814 Passcode: 575829
Direct Link: https://tamu.zoom.us/j/7326410814?pwd=cGZKY045dmVkdzVRLy9MYWhocWorQT09

Faculty Host: Xinyue Ye, Dept. of Landscape Architecture and Urban Planning & Urban Data Science Lab

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