

“Seventy Years of Travel Forecasting: Charting the Next Frontier with AI”

ABSTRACT

Travel forecasting provides essential insights into the movement patterns of people and goods within regions, playing a crucial role in guiding **infrastructure development**, informing **policy decisions**, and supporting **strategic growth planning**. In this talk, we will briefly review the transformative journey of travel forecasting methods over the past seven decades and examine the emerging role of artificial intelligence in this field, highlighting its potential to revolutionize model development. Our focus will be on advocating for a multi-scale modeling approach and **exploring two AI-driven applications** to transform this paradigm: **(1)** an end-to-end learning approach that leverages extensive empirical traffic data to construct integrated network equilibrium models for light-duty policy analysis and prescription, and **(2)** the application of large language models to enable generative agents to enhance activity-based microsimulation for in-depth, comprehensive analysis of plans and policies.

21 March 2025

Meldrum Civil Engineering Building (MCE)
Layton Auditorium (MCE 1001)
12:00 PM - 1:00 PM

*Pizza, Beverages, and
Cookies will be served at
11:30am outside of Layton
Auditorium!*

DR. YAFENG YIN



Dr. Yafeng Yin is Donald Cleveland Collegiate Professor of Engineering, and Professor and Donald Malloure Department Chair of Civil and Environmental Engineering, and Professor of Industrial and Operations Engineering at University of Michigan, Ann Arbor. His research aims to analyze and enhance multimodal transportation systems towards efficiency, resilience and environmental sustainability. Currently he focuses on developing innovative mobility solutions and services by leveraging vehicle connectivity and automation. Dr. Yin has published over 150 refereed papers in leading academic journals. He was the Editor-in-Chief of Transportation Research Part C: Emerging Technologies between 2014 and 2020 and currently serves as Area Editor of Transportation Science and Associate Editor of Transportation Research Part B: Methodological, another two flagship journals in the transportation domain. Dr. Yin received his Ph.D. from the University of Tokyo, Japan in 2002, his master's and bachelor's degrees from Tsinghua University, Beijing, China in 1996 and 1994 respectively.

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