A Multi-Day Activity Based Model Considering Inter-Household Interactions: The Case of India

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Monday, September 26, 2022, 3:00–4:00 pm (MST)

Hybrid Attendance Options:
In-person: College Avenue Commons (CAVC) Room 559
Register for Virtual Attendance: **https://bit.ly/3KvMYpV**

About the Talk

Despite being mainly restricted to developed nations, decades of rigorous research have resulted in a wide range of sophisticated activity-based travel demand modeling (ABM) frameworks. Recent developments in advanced technology adoption, real-time traffic information, rising vehicle ownership, emerging modes, and increased online activity, particularly during the pandemic, have significantly altered the behavioral dynamics and trade-offs for daily activity-travel patterns in developing nations. The Activity Based Travel and Land Use Simulator (ATLAS), a newly proposed comprehensive ABM framework for India will be introduced in this seminar. The discussion will focus on activity sequence generation, a prime component of ATLAS, due to its ability to capture hidden behavioral dynamics in activity participation decisions. ATLAS utilizes various advanced machine learning algorithms like eXtreme gradient boosting, decision trees, natural language processing, and decision rule-based ad-hoc algorithms. Through its novel, hybrid, and flexible modeling approach, ATLAS is capable of making joint and simultaneous forecasts of multiday activity-travel patterns as well as capturing inter-household interactions for joint activity participation, without any computational challenges. The model estimation results using a 2021 activity-travel behavior dataset for India will be presented in the seminar. This talk will provide insights into novel modeling techniques and the travel behaviors of urban commuters in a developing country context.

About the Speaker

Suchismita Nayak is a doctoral candidate in the Department of Architecture and Regional Planning, Indian Institute of Technology – Kharagpur, India. She is currently a visiting scholar at Arizona State University under the IIT Kharagpur USA Foundation (IITKGPF) International Internship Award Scheme. Suchismita's research focuses on building models and simulation frameworks to understand and predict the activity-travel behavior and associated spatio-temporal choices of urban commuters, using various statistical, econometric, machine learning, and natural language processing techniques. She has also worked in the areas of multimodal and sustainable transportation policy evaluation, with a focus on activity-based and agent-based demand modeling, as well as land-use and travel demand forecasting. She served as a teaching assistant in several architectural design and urban planning courses. She also assisted in the course "Urban landuse and transportation planning" as a part of the National Programme on Technology Enhanced Learning (NPTEL) initiative by the Ministry of Human Resource Development, Government of India to promote quality education within and outside India.

This seminar will be presented in-person and webcast live to a worldwide audience using Zoom.

To register for the webinar, please visit: **https://bit.ly/3KvMYpV**

Recordings of all sem(web)inars may be accessed by semester at **https://www.tomnet-utc.org/seminars.html**.
For any assistance, please contact: Irfan Batur, at **ibatur@asu.edu**

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