

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering
Department of Civil and Environmental Engineering

Neda Masoud, assistant professor of civil and environmental engineering, Department of Civil and Environmental Engineering, College of Engineering, is recommended for promotion to associate professor of civil and environmental engineering, with tenure, Department of Civil and Environmental Engineering, College of Engineering.

Academic Degrees:

Ph.D. 2016 University of California, Civil and Environmental Engineering, Irvine, CA
M.S. 2011 University of Massachusetts, Physics, Dartmouth, MA
B.S. 2008 Sharif University of Technology, Industrial Engineering, Tehran, Iran

Professional Record:

2016 – present Assistant Professor, Department of Civil and Environmental Engineering,
University of Michigan

Summary of Evaluation:

Teaching: Professor Masoud has contributed significantly to the development of the Next-Generation Transportation Systems (NGTS) Program in the Department of Civil and Environmental Engineering. She has taught four different courses, two of which she developed herself. Her course evaluations are uniformly high. Letters from students commend her as a knowledgeable and passionate educator who cares about her students' learning and professional development. She has maintained a healthy research group, which currently is comprised of four students, with two more joining this year. She has also supervised one Ph.D. student to graduation. In addition, she has served as a research advisor for six M.S. students, nine undergraduate research projects, one post-doctoral researcher, and two high school students.

Research: Professor Masoud's research focuses on the development and evaluation of emerging transportation technologies, particularly related to ride-sharing systems and connected and automated vehicle (CAV) technology. Her scholarly output has been outstanding. The rigor and intellectual merit in her research and publications is consistently high. Her research work is grounded in large-scale optimization, machine learning, game theory, and mechanism design, and she has introduced new analysis methodologies that have the potential to reshape the future of transportation systems. She has published over 25 refereed journal papers with the majority of them in top-tier transportation journals. She has won more than \$2 million in externally funded research grants as the principal investigator (PI), including the NSF CAREER Award. She was engaged as the co-PI or senior personnel on an additional \$2.1 million of funding. These are all positive indicators of the success of a thriving research program that is making a significant impact on the field and bringing prestige to the University of Michigan.

Recent and Significant Publications:

- E. Zhang, N. Masoud, “Increasing GPS Localization Accuracy with Reinforcement Learning,” *IEEE Transactions on Intelligent Transportation Systems*, 22(5): 2615 – 2626, 2021.
- A. Tafreshian, M. Abdolmaleki, N. Masoud, H. Wang, “Proactive Shuttle Dispatching in Large-Scale Dynamic Dial-a-Ride Systems,” *Transportation Research Part B: Methodological*, 150: 227-259, 2021.
- A. Tafreshian, N. Masoud, “Using Subsidies to Stabilize Peer-to-Peer Ridesharing Markets with Role Assignment,” *Transportation Research Part C: Emerging Technologies*, 120: 102770, 2021.
- A. Tafreshian, N. Masoud, “Trip-Based Graph Partitioning in Dynamic Ridesharing,” *Transportation Research Part C: Emerging Technologies*, 114: 532-553, 2020.
- Y. Wang, N. Masoud, A. Khojandi, “Real-Time Sensor Anomaly Detection and Recovery in Connected Automated Vehicle Sensors,” *IEEE Transactions on Intelligent Transportation Systems*, 22.3 (2020): 1411-1421.

Service: Professor Masoud has provided outstanding services to the profession and to the University. Her service obligations comprise a good mix of research, teaching, outreach, and DEI commitments. She has served on the editorial advisory boards for multiple top journals in the field and has been actively involved in professional workshop and conference organization. As the faculty advisor for the Michigan Transportation Student Organization (MiTSO), she has led this student group including overseeing the winning of the national Transportation Technology Tournament (TTT) competition twice. She has worked with the small under-resourced community of Benton Harbor to improve mobility and enhance accessibility in the region. She’s had a multi-year relationship with the AI4ALL organization, which is a non-profit that seeks to educate and provide access to academic resources to minority high school students throughout the United States. Her commitment and contributions to diversity, equity, and inclusion both within the university and in her professional activities are also noteworthy.

External Reviewers:

Reviewer A: “There are only a few people whose research areas, career stage and contributions are similar to Dr. Masoud.”

Reviewer B: “...Professor Masoud is an outstanding scientist (among the top 3 worldwide of her age in the field of shared mobility and autonomous vehicles and probably the top female researcher) with extraordinary abilities whose contribution is of major significance in various important scientific fields related to transportation.”

Reviewer C: “...Dr. Masoud’s record to date is truly outstanding...I consider her among the top 3 transportation researchers [of her cohort] working in the areas of dynamic system operation and optimization.”

Reviewer D: “I would rank her among the best in the nation in her career stage.”

Reviewer E: “...Professor Masoud is a highly gifted transportation system analyst, and without any doubt, a shining star among her cohort...Had she been at [my institution], I would fully recommend her advancement, and she would almost certainly be granted tenure here.”

Reviewer F: “She is making a solid impact, she is properly mentoring students, and she is producing academic publications at an increasing rate.”

Reviewer G: “With no doubt, Dr. Masoud is among the top of all scholars in her peer group.”

Reviewer H: “...I would rank Dr. Masoud a top-notch researcher, particularly, she is among the few top active, solid and talented female researchers in the field of transportation.”

Summary of Recommendation: Professor Masoud is an internationally recognized leader in the optimization of dynamic shared mobility systems which she has established as an exciting, new research direction for the transportation engineering field. She has developed a strong and highly successful educational program, and she has provided outstanding services to her profession and to the university. It is with the support of the College of Engineering Executive Committee that I recommend Neda Masoud for promotion to associate professor of civil and environmental engineering, with tenure, Department of Civil and Environmental Engineering, College of Engineering.



Alec D. Gallimore, Ph.D.
Robert J. Vlastic Dean of Engineering
College of Engineering

May 2022