Bahar Viniche

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Education

Postdoctoral Fellow in Operations Management — Toronto, Canada
Rotman School of Management, University of Toronto — September 2025 - Current
Working with Prof. Sheng Liu and Prof. Nooshin Salari.

PhD in Transportation Engineering and Management — Toronto, Canada
York University and Rotman School of Management, University of Toronto — 2021 – 2025
Thesis: Parametric Design of Multi-Echelon Last-Mile Delivery Systems Using Emerging Technologies.
Nominated for the Best Thesis Award in Transportation Engineering and Management (TBA Feb 2026).
Supervisors: Prof. Mehdi Nourinejad, Prof. Opher Baron, Prof. Oded Berman.
Researcher at Interactive-OR lab: Interactive last-mile logistics platforms using data analysis, ML, and Operations Research.

MSc in Air Transportation — Tehran, Iran
Sharif University of Technology — 2016 – 2018
Thesis: Airline Development Model based on Sub-Systems Dependencies. Graduated with Distinction. (Thesis Grade: Excellent)

B.S.c in Aerospace Engineering — Tehran, Iran
Sharif University of Technology — 2011 – 2015
Graduated with Distinction (Thesis Grade: Excellent)

Publications and Presentations

Journal Publications

Recipient-Dependent Last-Mile Delivery Routing With Autonomous Vehicle Applications.
Bahar D Viniche, Mehdi Nourinejad, Opher Baron, Oded Berman. *Major Revision at Transportation Science Journal*

Parametric Design of Time-Sensitive Routing With Recipient-Dependent Contributions.
Bahar D Viniche, Mehdi Nourinejad, Opher Baron, Oded Berman. *Published at Transportation Research: Part C Journal*

Tactical Routing and Fleet Planning in Drone-Assisted Last-Mile Delivery.
Bahar D Viniche, Mehdi Nourinejad, Opher Baron, Oded Berman. *Under Revision at Operations Research Journal*

Mobile Network Design for Automated External Defibrillators Using Ride-Hailing Platforms.
Bahar D Viniche, Sheng Liu, Nooshin Salari. *Working Paper*

Equitable Territory Planning for Last-Mile Routing with Temporal Flexibility
Bahar D Viniche, Ahana Malhorta, Elkafi Hassini, Mehdi Nourinejad. *Working Paper*

Evaluating Drone-Delivery Efficiency in Different Urban Settings Using GNNs.
Bahar D Viniche, Mehdi Nourinejad, Opher Baron. *Working Paper*

Conference Presentations

Tactical Routing and Fleet Planning in Drone-Assisted Last-Mile Delivery
MSOM Conference, 2025, London, UK

Evaluating Drone-Delivery Efficiency in Different Urban Settings Using Graph Neural Networks (GNNs)
18th INFORMS Computing Society (ICS) Conference, 2025, Toronto, Canada

Strategic Fleet Composition and Efficiency Prediction for Drone-Enabled Last-Mile Delivery.
INFORMS Annual Meeting, 2024, Seattle, US

Tactical Fleet Planning in Drone-Enabled Deliveries and Predicting Drone Delivery Efficiency in Urban Areas using GNNs.
Purdue Operations Conference, 2024, West Lafayette, US

Autonomous Vehicle Applications in Recipient-Dependent Deliveries.
Canadian Operational Research Society (CORS), 2023, Montreal, Canada

Tactical Fleet Planning in Drone-Enabled Deliveries.
INFORMS Annual Meeting, 2023, Phoenix, US

Fleet Composition Optimization in Drone-Enabled Deliveries.
102nd Annual meeting of Transportation Research Board (TRB), 2023, Washington D.C., US

Fleet Composition Optimization in Drone-Enabled Deliveries.
Canadian Operational Research Society (CORS), 2022, Vancouver, Canada

Airline Dynamic Modeling for Uniform Development Based on Sub-Systems Dependencies.
Third Annual Workshop on System Dynamics in Transportation Modelling, 2020, Palermo, Italy

Teaching Experience

Teaching Assistant at Rotman School of Management 2025 – 2026
Statistics for Management, Tools for Probabilistic Models and Prescriptive Analytics, Business Operations Executive MBA (EMBA) Program University of Toronto

Teaching Assistant at Lassonde School of Engineering 2021 – 2025
Teaching Assistant Excellence Award in Civil Engineering
Capstone Design Project, Project Management, Civil Engineering Design Project, Material and Design, Mysteries of Everyday Materials, Traffic Simulation Modelling. York University

Teaching Assistant at Graduate School of Business and Management 2017 – 2018
System Dynamics (Graduate Course). Sharif University of Technology

Teaching Assistant at Mechanics and Aerospace Engineering Departments 2015 – 2018
CAD, Aircraft Performance (Graduate Course), Mechanics of Materials. Sharif University of Technology

Volunteer Tutor at Yarigaran Group 2011 – 2013
Providing free education to students from underserved families. Sharif University of Technology

Industry Experience

Research and Development Engineer Aug 2019 – Jul 2020
Sepehran Airline (FlySepehran) Tehran, Iran
•Conducted research on airline cost management, focusing on optimizing maintenance department expenses. •Using Matlab for cost analysis and statistical modeling. •Contributed to a major project on airline reliability, utilizing data-driven approaches to identify cost-saving opportunities. •Analyzed airline operations through statistical modeling and optimization techniques, developing insights for sustainable growth and long-term operational improvements.

Aviation Intern Jun 2014 – Aug 2014
Isfahan International Airport Isfahan, Iran
•Analyzed operational workflows to understand the logistical challenges and decision-making processes in time-sensitive transportation environments. •Gained firsthand experience in the high-speed operations of the control tower.

Honors and Awards

Best Dissertation Prize Nomination Toronto, Canada
Lassonde School of Engineering, York University 2025

Teaching Assistant Excellence Award in Civil Engineering Toronto, Canada
Lassonde School of Engineering, York University 2025

Women in Transportation Graduate Student Award Toronto, Canada
WTS Women in Transportation Society 2023

Graduate Representative - *The Learning Curriculum and Students (LCS) Committee* Toronto, Canada
Lassonde School of Engineering, York University 2023 – 2024

Graduate Representative - Equity, Diversity, and Inclusion (EDI) Subcommittee Toronto, Canada
York University 2021 – 2022

Academic Excellent Award Toronto, Canada

Selected Projects

Equitable Territory Planning for Last-Mile Routing Toronto, Canada
Project Lead in Academic–Industry Collaboration with Purolator 2024
Developed a strategic territory-planning framework balancing delivery efficiency, driver workload equity, and route familiarity using Purolator operational data. Conducted in collaboration with Smart Freight Centre (SFC) and DeGroote School of Business at McMaster University; results presented at the Purolator Innovation Showcase and SFC Symposium.

Drone Sidekick – Drone-Assisted Routing and Fleet Planning Tool Toronto, Canada
Interactive Decision-Support Tool 2023
Designed analytical models for optimal truck-and-drone fleet composition and co-developed an interactive web-based platform enabling scenario analysis on real urban networks, bridging theoretical optimization with deployable logistics planning.

Multimodal Transit Improvement Toronto, Canada
Teaching Assistant and Project Lead 2022
Advised and led a two-semester capstone design project with a 10-student team focused on improving multimodal transit in Southeast Toronto. Guided traffic simulation using VISSIM and ensured technically rigorous, practice-oriented final deliverables.

ET3 – Estimated Travel Time Tool (Vision Zero) Waterloo, Canada
Project Manager in Academic–Industry Collaboration for Public-Sector Deployment 2022
Led the development and deployment of the ET3 tool for travel-time estimation under varying speed limits, supporting road-safety analysis and public engagement for the City of Waterloo. Coordinated analytics and software teams in a joint project between York University and TraffMobility Engineering Inc.

Technical Skills

Programming Languages and Software: Python, Gurobi, Matlab, Wolfram Mathematica, JavaScript, HTML, CPLEX, Stata, LATEX, AnyLogic, PowerBI, Vensim, Vissim, ArcGIS.

Service Records

Session Chair Oct 2023
2023 INFORMS Annual Meeting Pheonix, US

Session Chair Jun 2023
2023 Canadian Operation Research Conference (CORS) Montreal, Canada

Mentor in the Hack ITE York University Feb 2022
Institute of Transportation Engineers - York University Student Chapter Toronto, Canada

Moderator in CLUE Symposium Jan 2022
City Logistics and Urban Economics (CLUE) Toronto, Canada

CLUE Research-in-Progress Monthly Cafe Jan 2022 – Jan 2024
City Logistics and Urban Economics (CLUE) Toronto, Canada

SFC Graduate Research Assistance Jan 2021 – 2025
Smart Freight Center Toronto, Canada

Central Council Member of Sharif University Mountaineering Group Sep 2011 – Aug 2016
Sharif University of Technology Tehran, Iran

Extracurricular Interests

Reading: Avid reader. INFORMS book club and WORMS book club member.

Climing and Hiking: Certified mountaineer and rock climber (top-rope).

Music: Playing Piano and Harmonica.