

HESAM RASHIDI

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WORK EXPERIENCE

Purolator Inc.

Toronto, ON

Research Science Intern

May 2025 – Aug 2025

Designed a framework for pickup–delivery VRP with time windows (PDP-TW).

Learned a supervised “driver-affinity” score from historical routes and conformance signals; integrated this score into the pricing/acceptance logic to prioritize practically executable routes.

Estimated recipient-availability by zone/time from past delivery outcomes; minimized expected failed-attempt (“door-knocker”) penalties by embedding availability probabilities into the route cost.

Interactive-OR

Toronto, ON

Product Developer

Jul 2023 – Present

Led a web-based tactical planner for municipal winter maintenance that solves capacitated arc-routing variants (CARP/route-inspection) under storm scenarios and depot placement choices.

Encoded field constraints: required pass counts by road class, turn penalties, one-way/priority corridors, spreader refills, shift balancing, and contractor vs. in-house assignment.

Implemented a heuristic MIP + local-improvement stack (route-first/cluster-second, path-scanning, 2-opt on arcs) for scenario analysis with KPI outputs (lane-km serviced, dead-head ratio, hours).

Delivered an interactive map UI for “what-if” comparisons across snowfall intensities and service levels, with exportable route sheets for operations.

PUBLICATIONS

Rashidi, H., Nourinejad, M., & Roorda, M. (2025). Generating Practical Last-mile Delivery Routes using a Data-informed Insertion Heuristic. *Transportation Research Part C: Emerging Technologies*, 179, 105278. doi.org/10.1016/j.trc.2025.105278.

Rashidi, H., Ahmed, U., Ghizzawi, F., Nourinejad, M., & Roorda, M. (2024). A GNN for Estimating Tour Lengths in Last-Mile Logistics. (Under review at *NeurIPS*)

Rashidi, H., & Kashani, H. (2023). Bayesian Modeling of Labor Earnings in Construction. *Journal of Construction Engineering and Management*, 149(2), 04022168. doi.org/10.1061/JCEMD4.COENG-12392.

Rashidi, H., Keshavarz, S., Pazari, P., Safahieh, N., & Samimi, A. (2022). Modeling the accuracy of traffic crash prediction models. *IATSS research*, 46(3), 345-352. doi.org/10.1016/j.iatssr.2022.03.004.

TECHNICAL SKILLS

Programming Languages: Python (Advanced), JavaScript (Advanced), R (Intermediate), SQL (Intermediate)

Systems and Tools: AWS, Git, Gurobi, OR-Tools

EDUCATION

University of Toronto

Toronto, ON

PhD in Transportation Engineering

Sharif University of Technology

Tehran, IR

BSc in Civil and Environmental Engineering, Valedictorian

SELECTED PROJECTS

Adaptive Parking Pricing Using Machine Learning: Developed a production-level adaptive parking pricing model for the City of Toronto’s Transportation Services Department. The model, guided by a Graph Neural Network, adjusts parking rates based on real-time transaction data. The results show an expected 13.9% reduction in congestion in high-occupancy zones and a 15% increase in overall parking availability.

Data-driven Tactical Design of Last-mile Logistics: Developed a Graph Neural Network to predict practical delivery route travel times under driver behaviour uncertainty, facilitating fleet sizing and composition decisions. Achieved 17.2% improvement in Mean Squared Error over benchmarks using real-world courier data.

SERVICE

President, University of Toronto Institute of Transportation Engineers Student Chapter

Conference Organizer Assistant, Canadian Transport Research Forum (CTRF)

Graduate Student Ambassador, University of Toronto

Peer Mentor, Sharif University of Technology

HONOURS

TAC Foundation Scholarship

Winner of the Scotiabank Big Data & AI Competition for Anti-Money Laundering

Roschlau Graduate Fellowship in Sustainable Urban Mobility

School of Graduate Studies Conference Grant

NSERC Canada Graduate Scholarship-Doctoral (CGS-D)

Ontario Graduate Scholarship

Richard Soberman Graduate Student Fellowship

Tavakoli Prize in Recognition of Academic Excellence