HESAM RASHIDI

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WORK EXPERIENCE

Purolator Inc. Toronto, ON
Research Scientist Intern *May 2025 - Present*
Developing and deploying a human-centred routing algorithm combining machine learning and optimization methods to enhance route efficiency while prioritizing driver preferences and operational constraints.
Collaborating closely with stakeholders, data scientists, and the route optimization team to translate driver experience into practical model parameters and ensure alignment with business objectives and user requirements.

Interactive-OR Toronto, ON
Product Developer *July 2023 - Present*
Led the development of an integer programming-based heuristic optimization application designed for the Town of Aurora, enabling dynamic and tactical route optimization for snow plowing and ice control operations.
Collaborated directly with municipal stakeholders to incorporate real-world operational constraints, such as minimizing difficult vehicle maneuvers (e.g., left-hand turns), and optimizing internal vs. external driver resource allocation.
Developed a scenario-driven decision support system providing the municipality with strategic insights for proactive resource planning, significantly improving their readiness and operational decision-making capabilities under various snowfall conditions.

PUBLICATIONS

Rashidi, H., Nourinejad, M., & Roorda, M. (2025). Generating Practical Last-mile Delivery Routes using a Data-informed Insertion Heuristic. dx.doi.org/10.2139/ssrn.4830661. (Accepted at *Transportation Research Part C*)
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, GPA: 4/4

Sharif University of Technology Tehran, IR
BSc in Civil and Environmental Engineering, GPA: 3.98/4, 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

Winner of the UofT IMI Big Data & AI Competition
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