Mehdi Meshkani

Transportation Engineer, AI Engineer, Data Scientist

mehdi.meshkani@gmail.com
www.linkedin.com/in/mehdi-meshkani

Montreal, Quebec; Tel: +647 236 5766
Permanent Resident
Open to relocation

An Experienced transportation and AI engineer specializing in smart mobility and system optimization. I provide innovative, data-driven solutions to enhance urban and suburban mobility systems, with a strong focus on planning & policy development, network design, operations & service optimization, and technology-driven innovations.

Skills:

- +10 years of experience in transportation engineering & planning (public transit, on-demand & shared mobility, delivery and logistics, first-mile/last-mile)
- P.Eng status: licensure process ongoing (exams pending)
- Valid driving licence
- Proficient in:
  - Simulation and modelling
    - Methods: Macro-simulation, micro-simulation, agent-based simulation, simulation-based optimization, scenario modelling and forecasting.
    - Tools: PTV Visum, Vissim, SUMO
  - Optimization methods
    - Methods: Exact/heuristic/metaheuristic methods (Linear programming, Mixed-integer linear programming, Greedy methods, Genetic algorithm, Simulated annealing), Dynamic & real-time optimization (algorithms for online decision-making in ride-matching, routing and vehicle relocation)
    - Tools: Groubi, MATLAB
  - AI and data-driven methods
    - Methods: Reinforcement Learning (RL) & Deep RL, Machine Learning (ML), Markov Decision Processes
    - Tools: Python (Pandas, Numpy, Scikit-Learn)

- Project management: Experienced in developing proposals, managing budgets and controlling costs, scheduling and allocating resources, and monitoring and evaluating performance.

- Leadership: Strong leadership through guiding cross-functional teams, mentoring and coaching junior engineers, and fostering a collaborative environment by resolving conflicts and motivating team members.

- Communication: I excel in communication by engaging effectively with diverse clients and stakeholders, managing contracts and tracking deliverables, and preparing clear progress reports and summaries.

Computer skills: Visum, Vissim, SUMO, Open Street Map, Python, MATLAB, BIOGEME, AutoCAD, Office (Word, Excel, PowerPoint), Latex

Experience:

Transportation & AI Engineer   January 2023 - Present
Buspas Inc., Montreal, Canada
- Optimized a hybrid transit service (on-demand and bus transit) to reduce vehicle kilometer travelled using a reinforcement learning approach.
- Designed an on-demand transit service for first-mile trips in suburban areas and simulated its performance using SUMO.
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- Developed a hybrid transit service combining fixed-route buses and on-demand transit for first-mile trips in suburban areas, simulated in SUMO.
- Conduced a cost-benefit and net present value analysis comparing fixed-route bus transit and on-demand transit.
- Proposed an optimization model for bus stop selection to maximize on-demand transit coverage in suburban areas.

Transportation Research Assistant   May 2018 - Aug 202
Toronto Metropolitan University, Toronto, Canada

- Developed a distributed ride-matching framework for on-demand carpooling service using vehicle-to-infrastructure (V2I) and intersection-to-intersection (I2I) connectivity within a network of intelligent intersections in downtown Toronto as a congested network.
- Designed a ride-matching algorithm for a sustainable on-demand carpooling service in downtown Toronto as a congested network.
- Designed a routing algorithm for an on-demand carpooling service in downtown Toronto as a congested network.
- Developed a multi-modal autonomous last-mile delivery system using drones and ground robots, focusing on design and application.
- Analyzed demand for shared mobility as a replacement for private vehicles using connected and automated vehicles (CAVs).
- Examined demand for shared mobility as a complement to public transportation, considering both human-driven and autonomous vehicles (AVs).

Transportation Engineer, Transportation Planner   April 2013 - April 2018
Tarrahan Parseh Transportation Research Institute, Tehran, Iran

- Evaluation of road network performance in a disaster situation
- Transportation master plan for different cities
- Bus network redesign
- Bus Rapid Transit (BRT) feasibility studies
- Traffic signal optimization
- Fare policy and ridership forecasting studies

Education:

Ph.D. in Transportation Engineering   May 2018 - July 2022
Toronto Metropolitan University (Formerly Ryerson University), Toronto, Canada

Master of Science in Highway and Transportation Engineering
Tarbiat Modares University, Tehran, Iran   Sep 2010 - Jan 2013

Bachelor of Science in Civil Engineering   Sep 2005 - Aug 2010
University of Sistan & Baluchestan, Iran

Languages: English (Fluent), French (Basic), Persian (Native)