

Nael Alsaleh

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Mobility Network,
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EDUCATION

Toronto Metropolitan University (TMU) Toronto, ON

Doctor of Philosophy (Ph.D.) in Civil Engineering/Transportation September 2019 – December 2022

Dissertation: "On-Demand Public Transit Systems: Demand Analysis, Network Modelling, and Sustainability Evaluation".

CGPA: 4.33/4.33 - Outstanding

Academic advisor: *Prof. Bilal Farooq*

Jordan University of Science and Technology (JUST) Irbid, Jordan

Master of Science in Civil Engineering/ Transportation

February 2016 – October 2017

Dissertation: "Turbo Roundabout Usage In Lieu of Conventional Roundabouts for the Jordanian Traffic Conditions".
Awarded as the best Master thesis at Jordan University of Science and Technology for the year of 2018.

CGPA: 4.17/4.00 - Distinguished

Academic advisor: *Prof. Mohammad Ali Khasawneh*

Jordan University of Science and Technology (JUST) Irbid, Jordan

Bachelor of Engineering, Civil Engineering

September 2011 – August 2015

CGPA: 85.2% - Excellent

Academic advisor: *Prof. Mohammad Ali Khasawneh*

HONOURS AND AWARDS

Ontario International Graduate Scholarship (OGS) Award (*Merit Based*) for the 2022-2023 academic year, Ministry of Colleges and Universities, Ontario. The award is \$15,000 provided to Ontario's top international graduate students who demonstrate a high level of academic, research, and leadership achievements.

International PhD Tuition Fees Conversion Scholarship (*Competitive Based*), Yeates School of Graduate Studies, Toronto Metropolitan University, from Fall 2021 to Summer 2023. The scholarship is provided as a recognition of the outstanding academic and research achievements.

The First Place Award in The Best Master Thesis at JUST for the 2017-2018 academic year (*Competitive Based*), Faculty of Graduate Studies, Jordan University of Science and Technology.

Full-Funded Masters Scholarship Award (*Competitive Based*), Scientific Research Support Fund, Ministry of Higher Education, Jordan.

2014-2015 Dean's Honour List, Faculty of Engineering, Jordan University of Science and Technology, in recognition of the outstanding academic performance.

2011-2012 Dean's Honour List, Faculty of Engineering, Jordan University of Science and Technology, in recognition of the outstanding academic performance.

RESEARCH AND WORK EXPERIENCE

Mobility Network, University of Toronto (UofT)

Toronto, ON

Postdoctoral Research Fellowship, Autonomous Vehicles

January 2023 - Present

I am working with Professor Eric Miller to investigate the potential influence of various zero-occupant vehicle operating strategies on network congestion, the environment, and parking demand. This research project is intended to assist the City of Toronto in developing its Automated Vehicles Tactical Plan and upcoming Micromobility Strategy.

Academic advisor: Professor Eric Miller

Laboratory of Innovations in Transportation (LiTrans), Toronto Metropolitan University

Graduate Research Assistant

September 2019 – December 2022

I worked on several emerging on-demand public transit projects, including:

- On-Demand Transit Service offered by Pantonium Inc., City of Belleville, Ontario.
 - Perform an in-depth spatio-temporal demand and supply analysis.
 - Develop data-driven models for trip production and distribution.
 - Explore factors affecting the demand levels.
 - Establish advanced discrete choice models to explain public transit user's service preference between the fixed-route transit and on-demand transit services.
- On-Demand Transit Service offered by Uber Technologies Inc., Town of Innisfil, Ontario.
 - Analyzing and modelling the impact of the COVID-19 pandemic on the spatio-temporal patterns of demand.
 - Develop a micro-simulation model aimed at:
 - * Analyzing the sustainability of several on-demand public transit designs from the perspective of efficiency, environmental footprint, and social equity and inclusion.
 - * Identifying the demand switching point between several on-demand public transit designs, e.g., crowdsourced, dedicated fleet, and hybrid transit systems.

Academic advisor: Professor Bilal Farooq

Dar Al Omran Company

Amman, Jordan

Traffic Simulator Consultant

April 2018 – January 2019

Part-time traffic simulator consultant at Irbid City Center Upgrading Project. Main responsibilities:

- Evaluate, analyze, and simulate the existing traffic conditions.
- Propose and simulate different traffic scenarios to enhance the level of service of Irbid city.
- Preparing a fully detailed traffic report.

Advisor: Professor Lina Shbeeb

Consolidated Contractor Company (CCC)

Doha, Qatar

Trainee Engineer

June 2015 – August 2015

Professional engineering training as a prerequisite for obtaining a bachelor's degree in civil engineering.

TEACHING EXPERIENCE

Instructor

Al-Ahliyya Amman University (AAU)

Amman, Jordan

Lecturer of Civil Engineering

October 2017 – September 2019

Preparing and teaching the following civil engineering courses:

- Transportation Engineering.
- Computer Applications in Civil Engineering.
- Engineering Statistics.
- Numerical Analysis.
- Geotechnical Engineering.
- Geotechnical Engineering Laboratory.
- Civil Engineering Drawing.

Al Hussein Technical University (HTU)

Amman, Jordan

Lecturer of Civil Engineering

February 2019 – July 2019

Part-time lecturer at HTU School of Construction Technology and Built Environment that follows Pearson BTEC (Business and Technology Education Council) qualifications and standards, where my responsibilities include:

- Teaching Geotechnics & Soil Mechanics course.
- Developing the assignment brief & conducting both formative and summative assessments.

Teaching Assistant

Toronto Metropolitan University

Toronto, ON

Graduate Teaching Assistant

Winter 2020 & Winter 2021

Main Responsibilities:

- Preparing written materials for Transportation Engineering tutorial classes.
- Demonstrating and explaining Transportation Engineering course material.
- Helping students perform and solve Transportation Engineering course assignments.

- Grading students' assignments.

PUBLICATIONS

Published

- 1) Ansar, S. M., **Alsaleh, N.**, & Farooq, B. Behavioural Modelling of Automated to Manual Control Transition in Conditionally Automated Driving. *Transportation Research Part F: Traffic Psychology and Behaviour*. Url: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4006056
- 2) **Alsaleh, N.**, & Farooq, B. (2022). The Impact of COVID-19 Pandemic on Ridesourcing Services Differed Between Small Towns and Large Cities. *PLoS ONE* 17(10): e0275714. Url: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0275714>
- 3) **Alsaleh, N.**, & Farooq, B. (2021). Interpretable data-driven demand modelling for on-demand transit services. *Transportation Research Part A: Policy and Practice*, 154, 1-22. Url: <https://arxiv.org/pdf/2010.15673.pdf>
- 4) Sanaullah, I. (equal contribution), **Alsaleh, N. (equal contribution)**, Djavadian, S., & Farooq, B. (2021). Spatio-temporal analysis of on-demand transit: A case study of Belleville, Canada. *Transportation Research Part A: Policy and Practice*, 145, 284-301. Url: <https://arxiv.org/pdf/2012.02600.pdf>
- 5) Khasawneh, M. A., Aljarrah, M., & **Alsaleh, N.** (2021). Artificial Neural Network (ANN) Approach to Predict LWST Values from Friction and Texture Measurements. *International Journal of Engineering and Technology*, 13 (3), 31-35.
- 6) Khasawneh, M. A., & **Alsaleh, N.** (2018). Turbo roundabout usage in lieu of conventional roundabouts for the Jordanian traffic conditions. *International Journal of Civil Engineering*, 16(12), 1725-1738.
- 7) **Alsaleh, N.**, & Shbeeb, L. (2018). Turbo, flower and conventional roundabouts in Jordan. *In Proceedings of 6th Annual international Conference on Architecture and Civil Engineering (ACE 2018)*, May (pp. 14-15).
- 8) Shbeeb, L., & **Alsaleh, N.** (2018). Evaluation of School Zone Improvement Schemes. *In Proceedings of 6th Annual International Conference on Architecture and Civil Engineering (ACE 2018)*, May (pp. 14-15).

In Review

- 1) **Alsaleh, N.**, & Farooq, B. Sustainability Analysis Framework for On-Demand Public Transit Systems. Url: <https://arxiv.org/pdf/2303.06007>
- 2) **Alsaleh, N.**, Farooq, B., Zhang, Y., & Farber, S. On-Demand Transit User Preference Analysis using Hybrid Choice Models. Url: <https://arxiv.org/pdf/2102.08256>

PRESENTATIONS**Conference Presentations**

Transportation Research Board (TRB) 102nd Annual Meeting. *"Sustainability Analysis of Shared On-Demand Transit with a focus on Equity, Diversity, and Inclusion."* January 8-12, 2023. Washington DC, USA.

Transportation Research Board (TRB) 102nd Annual Meeting. *"Exploring Impacts of Covid-19 Pandemic on Ridesourcing Services in Small Towns and Big Cities."* January 8-12, 2023. Washington DC, USA.

16th International Conference on Travel Behaviour Research (IATBR 2022). *"Sustainability Analysis of Shared On-Demand Transit with a focus on Equity, Diversity, and Inclusion."* December 11-15, 2022. Santiago, Chile.

Transportation Research Board (TRB) 101st Annual Meeting. *"Analysis of Driver Behaviour Towards CAV Control Transition in Mixed Traffic Environment."* January 9-13, 2022. Washington DC, USA.

10th Conference on Scientific Research in Jordan. *"Demand Modelling Framework for Emerging Shared On-Demand Mobility Services in Low Density Areas."* November 27, 2021. Amman, Jordan.

6th Annual international Conference on Architecture and Civil Engineering. *"Turbo, flower and conventional roundabouts in Jordan."* May 14-15, 2018. Singapore.

6th Annual international Conference on Architecture and Civil Engineering. *"Evaluation of School Zone Improvement Schemes."* May 14-15, 2018. Singapore.

8th International Conference on Engineering, Project and Product Management. *"Turbo roundabout usage in lieu of conventional roundabouts for the Jordanian traffic conditions."* September 19-21, 2017. Amman, Jordan.

Invited Presentations

University of Toronto Institute of Transportation Engineers Student Chapter (UT-ITE), University of Toronto, *"Sustainability Analysis of Shared On-Demand Transit Systems"*. March 10, 2023. Toronto, ON, Canada.

Martin Centre for Architectural and Urban Studies, University of Cambridge, *"Sustainability Analysis of Shared On-Demand Transit with a focus on Equity, Diversity, and Inclusion."* Applied Urban Modelling Conference (AUM2022), June 28 – July 1, 2022. United Kingdom.

Town of Innisfil, Ontario, *"Exploring On-demand Transit Options for The Town of Innisfil."* Uber Transit Project - Monthly Updates, February 17, 2022.

Martin Centre for Architectural and Urban Studies, University of Cambridge, *"Spatio-Temporal Demand Modelling for On-Demand Transit Services."* Applied Urban Modelling Conference (AUM2020), January 28, 2021. United Kingdom.

STUDENT SUPERVISION

Co-supervise **Shuoyan Xu**, a PhD student, with Professor Eric Miller, University of Toronto, April 2023 – Present.

Co-supervise **Timur Hamzaev**, an undergraduate research assistant, with Professor Eric Miller, University of Toronto, April 2023 – Present.

Co-supervise **Muhammad Sajjad Ansar**, a PhD candidate, with Professor Bilal Farooq, Toronto Metropolitan University, May 2021 – Present.

Co-supervised **Maryam Elbeshbishy**, undergraduate student, with Professor Bilal Farooq, Toronto Metropolitan University, May 2021 – January 2022.

Co-supervised **Farah Al Tarifi**, M.Sc. student, with Dr. Nawal Louzi, Al-Ahliyya Amman University, January 2021 – June 2022.

Thesis title: “User preference analysis for integrated system of bus rapid transit and shared on-demand mobility services: a case study of Amman, Jordan”.

REVIEW ACTIVITIES

Invited reviewer for some international journals:

- Nature Scientific Reports. (One Review Invitation).
- Transportation Research Part F: Traffic Psychology and Behaviour. (One Review Invitation).
- Journal of Transport Geography. (One Review Invitation).
- Data Science for Transportation. (One Review Invitation).
- Transportation Research Record (TRR). (Three Review Invitations).
- Transportation Research Board (TRB) Annual Meeting. (Eight Review Invitations).

LEADERSHIP SKILLS

Toronto Metropolitan University-Institute of Transportation Engineers (TMU-ITE) student chapter

President

2021-2022 Academic Year

Responsibilities include but not limited to the following:

- Communicate with the Faculty Advisor.

- Chair business and general meetings.
- Ensure active internal and external communications.
- Plan and organize chapter activities and events.
- Supervise chapter activities and committees.
- Name any committees and appoint chairs.

**Intelligent Transportation Systems (ITS) Canada Virtual Conference
Moderator, Innovative Sessions**

Toronto, ON
June 21-22, 2021

Moderating three individual presentations. Main Responsibilities:

- Keep the discussion flowing.
- Invite people to ask questions of the presenter.
- Prepare and ask questions to fill any gaps.
- Welcome new people into the conversation with a quick recap of the discussion.

CERTIFICATIONS

- Institute for Engineering Teaching, Canadian Engineering Education Association, June 2021.
- Data Analysis and Machine Learning with Python, Cognitive Class, IBM, October 2019. [Online Course].

PROFESSIONAL MEMBERSHIPS

Institute of Transportation Engineers (ITE)	May 2021 - Present
ITE Canada	May 2021 - Present
Jordan Association of Engineers (JAE)	September 2015 - Present
Jordanian Roads Society (JRS)	February 2019 - Present

TECHNICAL

Data Analysis and Modelling
Python and MATLAB

Transport Modelling

Simulation of Urban MObility (SUMO), PTV Solutions (VISSIM, VISUM, VISTRO), MATLAB

Road and Intersection Design Tools

AutoCAD, Civil 3D, and Transoft Solutions

Geo-Spatial Modelling Techniques

GIS and Python

Programming

Python, MATLAB, and \LaTeX