Nael Alsaleh

Assistant Professor of Civil Engineering,
School of Engineering & Computing,
American International University - Kuwait
Saad Al Abdullah, Jahraa, Kuwait
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EDUCATION

University of Toronto (UofT)   Toronto, ON

Postdoctoral Research Fellow   January 2023 – August 2023
Academic advisor: *Prof. Eric Miller*

Toronto Metropolitan University (Formerly Ryerson University)   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 (M.Sc.) 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 2017-2018.*
CGPA: 4.17/4.00 - Distinguished
Academic advisor: *Prof. Mohammad Ali Khasawneh*

Jordan University of Science and Technology (JUST)   Irbid, Jordan
Bachelor of Science (B.Sc.), 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 was $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

American International University - Kuwait (AIU-K)   Kuwait
Assistant Professor of Civil Engineering   August 2023 - Present
I am currently an assistant professor of civil engineering at AIU-Kuwait. In my current role, I am teaching undergraduate courses, conducting independent research on sustainable transport systems, mentoring and advising students, and actively participating in university and community service activities.

Mobility Network, University of Toronto (UofT)   Toronto, ON
Postdoctoral Research Fellowship, Autonomous Vehicles   January 2023 - August 2023
I worked with Professor Eric Miller on investigating the potential influence of zero-occupant vehicles on the transportation network. This research project also involved exploring the spatio-temporal demand and supply patterns for Vehicle-for-Hire services in the Greater Toronto Area (GTA) and the development of data-driven models to gain insight into their operations as a representation of how autonomous vehicles may function in the future.
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

American International University - Kuwait   Jahraa, Kuwait
Assistant Professor of Civil Engineering   August 2023 – Present
Preparing and teaching the following civil engineering courses:

- Transportation Engineering.

- Transportation Design.

- Highway Design.

- Geotechnical Engineering.

- Mechanics of Materials.

- Civil Engineering Materials.

- Civil Engineering Seminar.

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) **Alsaleh, N.**, & Farooq, B. (2023). Sustainability Analysis Framework for On-Demand Public Transit Systems. *Nature Scientific Reports,* 13, 13488.
`https://doi.org/10.1038/s41598-023-40639-y`]

2) **Alsaleh, N.**, Farooq, B., Zhang, Y., & Farber, S. (2023) On-Demand Transit User Preference Analysis using Hybrid Choice Models. Journal of Choice Modelling, 49, 100451. Url:
`https://arxiv.org/pdf/2102.08256`

3) Ansar, S. M., **Alsaleh, N.**, & Farooq, B. (2023). Behavioural Modelling of Automated to Manual Control Transition in Conditionally Automated Driving. *Transportation Research Part F: Traffic Psychology and Behaviour, 94, 422-435.* Url:
`https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4006056`

4) **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`

5) **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

6) 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

7) 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.*

8) 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.*

9) **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).*

10) 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) Ansar, S. M., **Alsaleh, N.**, & Farooq, B. Modelling Unobserved Heterogeneity in Willingness to Give Control to Conditional Automation. [Under Review at *Transportation Research Part F: Traffic Psychology and Behaviour*]

In Preperation

1) Shuoyan, X., **Alsaleh, N.**, Hamzaev, T., & Miller, EJ. Comprehensive Spatio-temporal Demand and Supply Analysis for Vehicle-for-Hire Services in the Greater Toronto Area.

2) **Alsaleh, N.**, Shuoyan, X., Hamzaev, T., & Miller, EJ. Exploring Performance and Competition in the VfH Industry: A Comparative Analysis of Platforms.

3) **Alsaleh, N.**, Losada-Rojas, LL., & Miller, EJ. Interpretable Data-Driven Models for Vehicle-for-Hire Dynamic Pricing.

4) Losada-Rojas, LL., **Alsaleh, N.**, & Miller, EJ. A Roadmap for Urban Sustainability: Evaluating Policies and Strategies to Manage the Impacts of Zero-Occupant Vehicles.

PRESENTATIONS

Conference Presentations

Transportation Research Board (TRB) 103nd Annual Meeting. *"Understanding the Dynamics of Ride-Hailing Services in the Greater Toronto Area: A Comprehensive Study of Demand And Supply Patterns."* January 7-11, 2024. Washington DC, USA.

Transportation Research Board (TRB) 103nd Annual Meeting. *"Does Willingness to Give Control to Automation Differ Among Drivers? Modelling the Differences Between Internalizers and Externalizers."* January 7-11, 2024. Washington DC, USA.

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

The Centre for Automated and Transformative Transportation Systems (CATTS), University of Toronto, *"Understanding the Dynamics of Vehicle for Hire Services in the Greater Toronto Area"*. 6th annual CATTS Symposium, July 6, 2023. Canada.

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.

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 several international journals:

- Nature Scientific Reports. (1 Review Invitation).

- Transportation Research Part C: Emerging Technologies. (1 Review Invitation).

- Transportation Research Part A: Policy and Practice. (1 Review Invitation).

- Transportation Research Part F: Traffic Psychology and Behaviour. (2 Review Invitations).

- Transportation. (1 Review Invitation)

- Data Science for Transportation. (1 Review Invitation).

- Journal of Transport Geography. (1 Review Invitations).

- Transportation Research Record (TRR). (5 Review Invitations).

- Transportation Research Board (TRB) Annual Meeting. (11 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   Toronto, ON
Moderator, Innovative Sessions   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