



Mohammad Elayan, MSc

Graduate Research/Teaching Assistant
Department of Civil & Environmental Engineering
University of Nebraska-Lincoln



melayan2@nebraska.edu
mselayan.github.io

PROFILE

I am a PhD Student and a Graduate Research Assistant affiliated with the University of Nebraska-Lincoln. With over 9 years of distinguished experience as a transportation engineering professional in Dubai, UAE, I have actively contributed to more than 100 projects throughout my career. My academic pursuits have led me to engage in numerous research projects encompassing diverse facets of transportation engineering. I have co-authored six publications, further substantiating my commitment to scholarly contributions.

EDUCATION

| No. | Degree | Program | Institution | Grade | Year | Status |
|-----|--------|--|--|----------------|--------------|-----------|
| 1 | PhD | Civil Engineering – Transportation Engineering | University of Nebraska-Lincoln, Lincoln, NE, USA | 4.000 | 2023-Present | Ongoing |
| 2 | MSc | Civil Engineering – Transportation Engineering | Jordan University of Science and Technology, Irbid, Jordan | 91.6% Rank: 1 | 2011-2013 | Completed |
| 3 | BSc | Civil Engineering – Transportation Engineering | Jordan University of Science and Technology, Irbid, Jordan | 82.3% Rank: 16 | 2006-2011 | Completed |

RESEARCH

Google Scholar: [4ypH5kAAAAAJ](https://scholar.google.com/citations?user=4ypH5kAAAAAJ) **ORCID:** [0009-0001-2562-5694](https://orcid.org/0009-0001-2562-5694) **ResearchGate:** [Profile](https://www.researchgate.net/profile/Mohammad-Elayan)

Total Citations: 80

Peer-Reviewed Publications (5)

- Elayan, M.**, Karki, S. and Hawkins, J. (2025) "*Better Safety Analyses through Smarter Data: Adding Open-Street-View and Traffic Calibrated-LBS Data to Pedestrian Crash Analysis in Lincoln, NE.*" Transportation Research Record: Journal of the Transportation Research Board (Accepted). [↗](#)
- Elayan, M.**, Aldridge, N., Hawkins, J., & Nam, Y. (2025). "*Integrating StreetLight, EPS Smart Location Data and Road Attributes: A Random Forest Approach to Multi-Modal Traffic Calibration in Lincoln, Nebraska.*" Journal of Transportation Engineering, Part A: Systems, Vol. 151 (8). [↗](#)
- Al-Khateeb, G., Al-Suleiman, T., Khedaywi, T. and **Elayan, M.** (2016) "*Studying Rutting Performance of Superpave Mixtures Using Unconfined Dynamic Creep and Simple Performance Tests.*" Road Materials and Pavement Design, Vol. 19 (2). [↗](#)
- Alsheyab, M., Khedaywi, T., and **Elayan, M.** (2013) "*Laboratory Study on Solidification/ Stabilization of Unwanted Medications Using Asphalt as a Binder.*" Journal of Material Cycles and Waste Management, Vol. 15 (2). [↗](#)
- Al-Suleiman, T. and **Elayan, M.** (2013) "*Gap Acceptance Behavior at U-turn Median Openings – Case Study in Jordan.*" Jordan Journal of Civil Engineering, Vol. 7 (3). [↗](#)

Other Publications (3)

- Elayan, M.**, & Kontar, W. (2025). "The Empirical Pareto Frontier of Automated Driving: Consensus Across Safety, Interaction, and Traffic." [↗](#)
- Elayan, M.**, & Kontar, W. (2025). "Consensus-Aware AV Behavior: Trade-offs Between Safety, Interaction, and Performance in Mixed Urban Traffic." arXiv preprint arXiv:2505.04379. [↗](#)
- Nam, Y., Hawkins, J., Butler, D., Aldridge, N., **Elayan, M.** and Yoo, J. (2024) "*Modeling Pedestrian and Bicyclist Crash Exposure with Location-Based Service Data.*" Nebraska Department of Transportation, Technical Report No. SPR-FY23(025). [↗](#)

Conference Papers and Presentations (3)

1. **Elayan, M.**, Kontar, W. (2026) "*A Unified Framework for Consensus-Aware AV Behavior: Trade-offs Across Traffic Contexts.*" Accepted for presentation at the TRB 105th Annual Meeting, Washington, DC.
2. **Elayan, M.**, Kontar, W. (2025) "*Consensus-Aware AV Behavior: Trade-offs Between Safety, Interaction, and Performance in Mixed Urban Traffic.*" Presented at the IEEE International Conference on Intelligent Transportation Systems (ITSC), Gold Coast, Australia.
3. **Elayan, M.**, Karki, S. and Hawkins, J. (2025) "*Better Safety Analyses through Smarter Data: Adding Open-Street-View and Traffic Calibrated-LBS Data to Pedestrian Crash Analysis in Lincoln, NE.*" Presented at the TRB 104th Annual Meeting, Washington, DC.

Publications Under Review (2)

1. **Elayan, M.**, & Kontar, W. (2025) "*The Empirical Pareto Frontier of Automated Driving: Consensus Across Safety, Interaction, and Traffic.*" Transportation Research Part C: Emerging Technologies (Under Review).
2. Armantalab, O., **Elayan, M.**, & Hawkins, J. (2025) "*Multi-Stage Clustering of Daily Activity Time Series: Patterns and Socio-Demographic Insights.*" ASCE Journal of Transportation Engineering – Part A: Systems (Under Review).

Research Projects (2)

1. Nebraska Department of Transportation, Nebraska, US. *Modeling Pedestrian and Bicyclist Crash Exposure with Location-Based Service Data.* 2022-2024.
2. Ministry of Higher Education and Scientific Research, Amman, Jordan. *Introducing New Technologies and Advanced Methodologies for Asphalt Mixtures of Highway Pavements in Jordan.* 2008-2012.

SCHOLARSHIPS

1. Mid-America Transportation Center (MATC) & Nebraska Transportation Center (NTC) Travel Fund Scholarship (2024)
2. University of Nebraska-Lincoln Patrick T. McCoy Fund for Engineering Excellence (2024)

EXPERIENCE

University of Nebraska-Lincoln, Lincoln, NE, USA

Graduate Research Assistant (January 2023 – Present)

Graduate Teaching Assistant (January 2024 – Present)

I am part of Dr. Wissam Kontar's research team at the Civil & Environmental Engineering Department and Nebraska Transportation Center, I focus on advanced research methodologies and technologies to address contemporary challenges in transportation engineering, particularly in automated vehicles.

I have also been the teaching assistant for the following courses:

1. CIVE 202 - Civil Engineering Analysis II: a project-based course that focuses on programming skills in civil engineering.
2. CIVE 361 - Principles of Transportation Engineering: Introduction to the principles of highway engineering, traffic operations and control, and planning.

TrafQuest, Dubai, United Arab Emirates

Senior Transportation Engineer (January 2019 – January 2023)

Transportation Engineer (June 2013 – January 2019)

My main roles included forecasting travel demand, analyzing traffic operations and roadway network performance, evaluating integration and connectivity among the different modes of transport, identifying transport-related deficiencies, simulating traffic conditions using computer models, working out sound and feasible solutions to reduce congestions, analyzing and interpreting data, identifying safety issues, conducting concept design reviews, ensuring workability and sustainability of design solutions and

preparing technical reports. My work encompassed over 100 projects including some of the most significant and strategic projects in the UAE and the MENA region. I was the project manager for most of these projects.

| Project Category | No. of Projects | Role | |
|-----------------------------------|-----------------|------------------|-----------------|
| | | Project Engineer | Project Manager |
| Transportation Master Plan | 20 | 12 | 8 |
| Traffic Impact Study | 64 | 24 | 40 |
| Transportation Integration Study | 11 | 1 | 10 |
| Strategic Freight Transport Study | 7 | 7 | 0 |
| Parking Study | 3 | 1 | 2 |
| Traffic Management Plan | 3 | 1 | 2 |
| Evacuation Plan | 1 | 0 | 1 |

Jordan University of Science and Technology, Irbid, Jordan

Graduate Research Assistant (2011-2013)

Teaching Assistant (2012-2013)

My research work included collecting data, conducting experiments, processing data, performing statistical analyses and writing technical reports and research articles. My areas of focus included optimization of traffic operations, performance characterization of highway materials and waste management.

My teaching work included the Surveying Lab, Highway Materials Lab and Engineering Statics courses.

| CORE CAPABILITIES | | SOFTWARE AND PROGRAMMING | |
|-------------------------|----------------------------|--------------------------|-------------|
| ▪ Traffic analysis | ▪ Parking analysis | ▪ Python | ▪ Lightroom |
| ▪ Transport planning | ▪ Traffic microsimulation | ▪ VISSIM | ▪ Photoshop |
| ▪ Traffic management | ▪ Travel behavior analysis | ▪ Synchro | ▪ ArcGIS |
| ▪ Transport modeling | ▪ Demand analysis | ▪ SIDRA | ▪ QGIS |
| ▪ Transport integration | ▪ Research | ▪ HCS | ▪ GeoDa |
| ▪ Crash analysis | ▪ Machine learning | ▪ VISUM | ▪ SPSS |
| ▪ Geometric design | ▪ Soft mobility | ▪ Latex | ▪ SAS |
| ▪ Statistical analysis | ▪ Systems accessibility | ▪ Julia | ▪ R |

| REFERENCES | | | |
|-------------------|---------------------|---|--|
| Name | Role | Organization | E-mail |
| Wissam Kontar | Assistant Professor | University of Nebraska-Lincoln | wkontar2@nebraska.edu |
| Jason Hawkins | Assistant Professor | University of Calgary | jfhawkin@ucalgary.ca |
| Taisir Khedaywi | Professor | Jordan University of Science & Technology | khedaywi@just.edu.jo |
| Ghazi Al-Khateeb | Professor/Chairman | University of Sharjah | galkhateeb@sharjah.ac.ae |
| Khalid Al Ghuzlan | Professor/Chairman | Ajman University | k.ghuzlan@ajman.ac.ae |
| Mohammad Braiwish | Managing Director | TrafQuest | m.younis@trafquest.com |
| Mohamad Shrayteh | Section Manager | TrafQuest | m.shrayteh@trafquest.com |