

Hesham Mohamed Taha Elmasry

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EDUCATION

- Doctor of Philosophy (PhD), University of Alberta (UoA), Edmonton, Canada** [2023-Present]
- Department: **Civil and Environmental Engineering** - Major: **Transportation Engineering**
- Master of Science (M.Sc.), Ain Shams University (ASU), Cairo, Egypt** [2018-2022]
- Department: **Civil** - Major: **Public Works – Traffic Engineering and Transportation Planning** -GPA: **3.9**
- Thesis: Introduction of Small Vehicles to Urban Road Networks: Concept and Traffic Impact
- Bachelor of Engineering, Ain Shams University (ASU), Cairo, Egypt** [2012-2017]
- Department: **Civil** - Major: **Public Works** - Grade: **Excellent (Class rank: 1)**
- Graduation Project: **Highways and Airports**

WORK EXPERIENCE

- Graduate Research Assistant, Faculty of Engineering, University of Alberta (UoA), Edmonton, Canada** [2023-Present]
- Taking a leadership position within the research group, providing support to my supervisor, fellow students and interns
 - Actively participating in transportation engineering research projects
 - Contributing to a research project between UoA and CoE on the new Residential Parking Program (RPP)
 - Planning and scheduling data collection before and after the program's implementation
 - Training CoE crews on using stereo cameras and computer vision techniques for monitoring parked cars in residential neighborhoods
 - Participated in a collaborative research project between UoA and the City of Edmonton (CoE) on assessing the effectiveness of speed limit reductions in Edmonton
 - Conducted safety and statistical analyses
 - Contributed to publishing findings in *Accident Analysis & Prevention* Journal
- Teaching Assistant, Faculty of Engineering, University of Alberta (UoA), Edmonton, Canada** [2024-Present]
- Lead TA for the Transportation Engineering course (CIV315), managing the roles and responsibilities of other Teaching Assistants and markers to ensure smooth course operations and consistent grading
 - Tutoring CIV315 to students enrolled in the Civil Engineering Program
 - Formulating comprehensive lesson plans and generating supplementary materials students
 - Designing assignments, providing assistance with inquiries, and evaluating examinations
- Teaching Assistant, Faculty of Engineering, Ain Shams University (ASU), Cairo, Egypt** [2018-2022]
- Tutored Traffic Engineering and Transportation Planning courses for students of Civil Engineering Program
 - Tutored AutoCAD Lab course for Freshmen students
 - Prepared lesson outlines and creating worksheets for teachers to hand out to students
 - Developed quizzes, monitoring tests, answering questions as needed and grading tests
- Research Assistant, Center of Mobility Research (CMOR), Faculty of Engineering (ASU) Cairo, Egypt.** [2020-2022]
- Contributed to research projects related to traffic safety
 - Participated in publishing research papers in prominent conferences
- Design Review Engineer, General Authority for Roads, Bridges and Land Transport (GARBLT), Cairo, Egypt** [2021-2022]
- Reviewing and giving approvals for highway projects and traffic studies in Egypt
- Highway Design Engineer, Khatib and Alami (K&A), Cairo, Egypt** [2018-2021]
- Planned and designed interchanges at various freeway projects in KSA, UAE and Kuwait
 - Created designs for new development and the upgrade of existing highway structures
 - Designed urban sites (rough grading and intersection grading) at Housing Projects in KSA and Qatar
 - Generated design reports of flexible pavement
 - Contributed to making of traffic signs and pavement markings for various projects in Qatar
- Highway and Airport Design Engineer, Consultant office - Prof.: Khaled Kandil (KK), Cairo, Egypt** [2017]
- Designed urban roads including their intersections (urban networks) in new urban communities in Egypt
 - Generated calculation sheets and design reports of flexible and rigid pavement of rural highways
 - Planned and designed interchanges at the New Administrative Capital
 - Contributed to the smooth grading design of parts of runways and taxiways of civil airports
 - Worked on quantity surveying for roads projects
 - Created shop drawings for various freeway and highway projects

ADDITIONAL WORK EXPERIENCE & VOLUNTEERING

- Volunteer, Campus Food Bank, Edmonton, Canada** [2025]
- Drive Campus Food Bank's van to and from the Edmonton Food Bank for weekly donation pickups
 - Collaborate with a buddy to select, load, and unload high-need food items
 - Conduct pre-trip vehicle safety checks and completed mileage reports
- Volunteer, IEEE International Conference on Intelligent Transportation Systems, Edmonton, Canada** [2024]
- Selected and awarded as one of the top 20 volunteers out of 60
 - Provided technical support and assisted with setting up and troubleshooting audiovisual equipment
 - Directed attendees to their workshops and provided necessary materials
 - Monitored session times and notified presenters when their time was nearing an end
- Volunteer, Conversation Club, English Language School, UoA, Edmonton, Canada** [2024-2025]
- Helped English-Second-Language students to practice and improve their listening and speaking skills
 - Provided chance to explore international students' cultures, and develop new communication skills
- Volunteer, Resala, Cairo, Egypt** [2012-2020]
- Took part in the organization of clothes fairs
 - Participated in the painting and interior maintenance works of schools and orphanages in Egyptian villages
 - Contributed to Math teaching lessons for preparatory stage students
- HR member, Brain Storm student activity, Cairo, Egypt** [2013-2014]
- Participated in organizing different events related to enhancing undergraduate students' soft skills
 - Contributed to evaluating and motivating the activity's members
 - Took part in leading group discussion interviews for accepting participants

CONFERENCE AND INTERNSHIPS

- IRF Global R2T Conference & Exhibition, Long Beach, CA, USA** [2025]
- Presented my research showcasing innovative methodologies for automating highway infrastructure measurements
- Road Safety & Sustainability Conference, International Road Federation (IRF), Riyadh, Saudi Arabia** [2024]
- Presented my research on *Evaluating Semantic Segmentation-Based Scene Descriptions for Rural Highway Point Clouds*, showcasing innovative methodologies in highway infrastructure analysis
 - Participated in expert-led workshops addressing global best practices in road safety and sustainable mobility solutions
- IEEE International Conference on Intelligent Transportation Systems, Edmonton, Canada** [2024]
- Attended sessions, workshops, and poster presentations related to my PhD research, including developments in LiDAR and applications of point clouds in Transportation Engineering
- Life After University Conference, UoA, Edmonton, Canada** [2023]
- Engaged in sessions focused on enhancing financial acumen
 - Cultivating professional competencies essential for post-graduation career readiness
- 100th Annual Meeting of the Transportation Research Board (TRB) held virtually in Washington, D.C.** [2021]
- Made significant contributions to the preparation and presentation of our research paper: *Investigating the Willingness to Purchase and Use Small Vehicles: An Empirical Study Through Internet-Based Survey*
 - Assisted in the creation of a poster and effectively communicating the key concepts to the audience
- Intern, Arab Contractors, Cairo, Egypt** [2016]
- Explored the field construction of Rod El-Farag Corridor and its foundations in the River Nile
- Trainee, Armed Forces Engineering Authority, Cairo, Egypt** [2016]
- Visited the new Administrative Capital and Galala Plateau construction sites
- Intern, Orascom, Cairo, Egypt.** [2015]
- Attended the process of maintenance of runway (05L-23R) and taxiway at Cairo International Airport
 - Visited the lab and observed quality control tests
- Intern, Wadi El-Nil, Cairo, Egypt** [2015]
- Followed bored piles construction process of Azhar University stocks
- Intern, Engineering Consultants Group (ECG), Cairo, Egypt** [2014]
- Attended four sessions and one-day site visit to Madinaty
 - Learned some basics of SAP2000 software and its applications
- Trainee, GARBLT, Cairo, Egypt** [2014]
- Identified different labs used in quality control of highway construction

PEER-REVIEWED PUBLICATIONS

- Elmasry, H., Birhane, F., Sakr, A. M., & El-Basyouny, K. (2026). IRI Estimation Across Varying Point Densities in LiDAR-Derived Point Clouds: Effects of Profile Extraction and Transformer-Based Classification. Journal of Transportation Engineering, Part B: Pavements. 10.1061/JPEODX/PVENG-2049
- Elmasry, H., Jiang, H., Sakr, A. M., & El-Basyouny, K. (2026). Evaluating Semantic Segmentation-Based Scene Descriptions for Multilane Rural Highway Point Clouds Against Ground Truth. Journal of Transportation Engineering, Part A: Systems. 10.1061/JTEPBS/TEENG-9214
- Sakr, A. M., Elmasry, H., Birhane, F., & El-Basyouny, K. (2025). Assessing the Built Environment of Light Rail Transit Stations to Encourage Active Transportation: A Multi-Criteria GIS-Based Analysis. Transactions in GIS, 29(4), e70082.
- Jiang, H., Elmasry, H., Lim, S., & El-Basyouny, K. (2025). Utilizing Deep Learning Models and LiDAR Data for Automated Semantic Segmentation of Infrastructure on Multilane Rural Highways. Canadian Journal of Civil Engineering. <https://cdnsiencepub.com/doi/10.1139/cjce-2024-0312>
- Elmasry, H.; El Esawey, M; Osama, A. An Evaluation of the Safety and Environmental Impacts of Microcars. Presented at 104th Annual Meeting of the Transportation Research Board, Washington, D.C., 2024.
- Abohassan, A; Contini, L; Elmasry, H.; El-Basyouny, K. (2024). Assessing the effectiveness of speed limit reduction in Edmonton: A case study analysis. Accident Analysis & Prevention, 195, 107379. <https://doi.org/10.1016/j.aap.2023.107379>
- El Masry, H.; El Esawey, M; El-Araby, K.; Osama, A. (2022). Operational Impact of Microcars on Urban And Suburban Road Corridors. Transportation research record, 2676(6), 488-502. <https://doi.org/10.1177/03611981221075022>
- El Masry, H.; El Esawey, M; Osama, A; El-Araby, K. Investigating the Willingness to Purchase and Use Small Vehicles: An Empirical Study Through Internet-Based Survey. Presented at 100th Annual Meeting of the Transportation Research Board, Washington, D.C., 2021.
- Osama, A; El Masry, H.; Farrag, M; Telima, M. Street Guards: A Tool for Crowdsourcing Road Safety and Security Data in Developing Countries. Presented at 101st Annual Meeting of the Transportation Research Board, Washington, D.C., 2022.

COMPUTER SOFTWARE PROGRAMS

AutoCAD Civil 3D

- Achieved certification from Autodesk in 2016 through CAD Masters Training Center
- Applied expertise in AutoCAD Civil 3D for my graduation project
- Depend on this software for the design of highways and airports in my professional role

Vissim

- Used it in microsimulation analysis in Master of Science Thesis

Visum

- Basic knowledge for trip assignment and evaluating road network

InfraWorks

- Used it in 3D modelling of highway projects through my work at K&A

Statistical programs

- Proficient in utilizing statistical software packages such as **SPSS** and **SAS** for my master's thesis and diverse research initiatives

FAARFIELD

- Basic knowledge in designing rigid pavement of airports through my work at consultant office KK

Other

- Basic knowledge to **ArcGIS**, **QGIS**, **Python**, and **MS office** (Excel, Power Point and Word)

LANGUAGE

- **Arabic:** Mother tongue
- **English:** Fluent
- **French:** Basic

OTHER HOBBIES AND INTERESTS

- Sports and exercise (Soccer football, Running, Gym and Swimming)
- Exploration of different destinations through travel and creation of documentary YouTube videos
- Enjoyment of American films and animated movies as a form of leisure entertainment