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

Marketing Specialist Volunteer, ITE University of Alberta Student Chapter, Edmonton, Canada [2026]

- Develop promotional materials, including posters, flyers, and announcements
- Collaborate with the executive team to increase event participation
- Support event publicity through photography, documentation, and external communications

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

TRB 106th Annual Meeting, Washington, DC, USA [2027]

- Invited to present research on AI-driven highway maintenance prioritization, integrating LiDAR-derived pavement marking and traffic sign conditions with Large Language Models (LLMs).

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., Sakr, A. M., & El-Basyouny, K. (2026). Automated measurement of rural highway widths using transformer-based models and point cloud analysis. Engineering Applications of Artificial Intelligence, 185, 116441.
- Elmasry, H., Shah, K., Chhabra, J., Sakr, A. M., & El-Basyouny, K. (2026). Assessing the Impact of Intersection Geometry and Driver Eye Position on A-Pillar-Induced Pedestrian Occlusion during Left Turns. Transportation Research Record. https://doi.org/10.1177/03611981261476656
- 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://cdnsciencepub.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