

SHERIF MOUSTAFA GAWEESH, Ph.D., P.E., RSP₁

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PROFILE

- Assistant Professor of Civil Engineering Department at the University of North Dakota (UND);
- Over 17 years of practical and research experiences in the field of transportation and traffic engineering with a focus on traffic safety; research interests include traffic safety analysis, Connected Vehicle (CV), Intelligent Transportation Systems (ITS), and Big data analysis.
- Recognized as a Professional Engineer by the State of Wyoming (PE 17177)
- Recognized as a Road Safety Professional (RSP1) by the Transportation Professional Certification Board Inc.
- Strong writing experience gained by authoring peer-reviewed scientific manuscripts.
- Possess solid teaching experience for graduate and undergraduate level classes.
- Wide experience in geometric roadway design; worked in industry for more than seven years as a roadway designer engineer / a senior roadway design engineer in Egypt.

EDUCATION

Ph.D. in Civil Engineering, graduated in 2018

- Thesis: "The Impact of Freight Trucking on Traffic Safety: Are We Ready for the Era of Connected And Automated Vehicles?"

University of Wyoming (UW), Laramie, WY- USA

M.Sc. in Civil Engineering, graduated in 2013

- Thesis: "The Effect of Resilient Modulus on Flexible Pavement Layers Constructed on Fine Soil" Shoubra Faculty of Engineering, University of Banha, Cairo, Egypt

B.Sc. in Civil Engineering, graduated in 2006

- Graduated with a degree of Honor (Equivalent to cum laude) Shoubra Faculty of Engineering, University of Banha, Cairo, Egypt

ACADEMIC EXPERIENCE

Assistant Professor

University of North Dakota (UND), Grand Forks, ND
Dept. of Civil Engineering, College of Engineering & Mines

Aug.2023 – Present

Assistant Professor of Research

Tennessee Technological University (TTU), Cookeville, TN
Center for Energy Systems Research (CESR)

Feb. 2023 – July2023

Research Associate

University of Cincinnati (UC), Cincinnati, OH
Dept. of Civil and Architectural Engineering and Construction Management

Nov. 2022 – Feb. 2023

Postdoctoral Research Associate / Deputy Director of the Driving Simulator Lab (WyoSafeSim)

University of Wyoming (UW), Laramie, WY
Dept. of Civil and Architectural Engineering

Sept. 2018 - Oct. 2022

Graduate Research Assistant

University of Wyoming (UW), Laramie, WY
Dept. of Civil and Architectural Engineering

Aug. 2014 - Aug. 2018

Instructor of Civil Engineering

Banha University (BU), Shoubra, Cairo, Egypt
Dept. of Civil and Architectural Engineering

May. 2007 - Aug. 2014

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PROFESSIONAL ENGINEERING EXPERIENCE

Senior Highway Engineer at HAMZA Associates, Cairo, Egypt

Sept 2006 - Jan 2010

Projects involved in:

- “Upgrade of Cairo-Alexandria-Matrouh desert road from the Cairo toll station till Matrouh, Egypt”
- “Upgrade Cairo-Alexandria Road from km 21 to km 26, Egypt”
- “Upgrade Cairo-Alexandria Road from Alexandria toll station to Al-Tameer Freeway, Egypt”
- “Sohar International Airport, Sultanate of Oman”
- “Modifying and redesigning of Tagoraa interchange in Beyar El Osta Melad, Libya”
- “Designing and grading the new Egyptian airport cargo area, Egypt”

Transportation and Highways Consulting Engineer at POLARIS International Industrial Parks (PIIP), Dokki, Giza, Egypt

June 2009 - Dec 2012

Projects involved in:

- POLARIS International Industrial Park in 6th of October city, Egypt
- POLARIS AL ZAMIL Industrial Park (PZIP) in 6th of October city, Egypt.
Preparing the geometric design, supervising the road construction and material testing, and reviewed technical and financial reclaim documents of the main contractor of the

Head of Highway Engineering and Transportation Systems at Senior Consulting Engineers (SCE), Egypt

June 2013 - Aug 2014

Projects involved in:

- Extending and upgrading several cities (e.g. Al Buqayq, Al Nairia, Al Mubarraz, Shaqra) in KSA.

TEACHING EXPERIENCE

University of Wyoming, Laramie, WY

Sept 2018 - May 2020

Department of Civil and Architectural Engineering

- Instructor for Geometric Design course, Jan 2020-May 2020: class had 23 students, 6 graduate students and 17 undergraduate students. A quote from an email received by one of the students that took the two courses I taught in the UW *“As a graduating senior, I want you to know that I have learned a lot through your courses. I appreciate the work you put in to facilitate a positive learning environment and your willingness to answer questions.”*
- Instructor for Traffic Engineering Operation course, Sept 2019-Dec 2019: class had 25 students, 5 graduate students and 20 undergraduate students.
- Teaching Assistant for Geometric Design class, Sept 2018-Dec 2018: class had 15 undergraduate students and 8 graduate students. The mean value for the course evaluation sheet was 4.08 out of 5. A quote from one of the student’s evaluation notes was *“...both Ahmed and Sherif were very knowledgeable about this subject and did a good job answering my questions.”*

Banha University, Cairo, Egypt

May 2007 - Aug 2014

Civil Engineering Department, Shoubra Faculty of Engineering

Courses that I taught as an instructor and teaching assistant:

- Graduation Project - Transportation Eng., Transportation Planning, Geometric Design, Traffic Operation, Pavement Materials, Pavement Design, Structural Analysis (1)-A, and Computer Applications (1)

AWARDS, LEADERSHIPS, ORGANIZATIONAL SERVICES

Winner for the 2022 High Value Research Project, Received recognition in the Safety, Security, and Emergencies supplemental category for the High Value Research Projects for 2022. Research Project entitled Human Machine Interface for Connected Vehicle: Requirements, Development, and Assessment.

Winner of the first “Student of the Year” award for the Institute of Transportation Engineers (ITE) CO/WY Section, 2018.

Institute of Transportation Engineers UW Chapter, President 2017-2018, Treasurer 2016-2017.

Islamic Center of Laramie, Vice President Jan 2017-Jan 2019.

Laramie United Soccer Club, Certified coach in the United Academy Division. Responsible of coaching the U09/U10 boys.

INVOLVEMENT IN FUNDED PROJECTS

National Level

1. (2022-2023) Evaluation of Advanced Vehicle and Communication Technologies through Traffic Microsimulation – Phase 2. STRIDE UTC, U.S. DOT – the Federal Highway Administration (FHWA).
2. (2016-2022) Application Development and Participant Training for Wyoming Connected Vehicle Pilot Deployment Program, U.S. DOT – the Federal Highway Administration (FHWA).
3. (2016-2022) Performance Measures and Independent Evaluation Support for Connected Vehicle Pilot Deployment Program, U.S. DOT – the Federal Highway Administration (FHWA).
4. (2016-2018) Driver Performance and Behavior in Adverse Weather Conditions: An Investigation Using the SHRP2 Naturalistic Driving Study Data, U.S. DOT – the Federal Highway Administration (FHWA).

State Level

5. (2021-2023) Rapid Safety Assessment Tool for Non-Conventional Roadway Design and Emerging Technologies: Innovative Artificial Intelligence Application, Wyoming Department of Transportation.
6. (2019-2021) Impacts of Cooperative Automated Transportation on Wyoming Highway Infrastructure. Wyoming Department of Transportation (WYDOT).
7. (2018-2021) Human Machine Interface for Connected Vehicle: Requirements, Development, and Assessment. Wyoming Department of Transportation (WYDOT).
8. (2017-2018) Hazardous Materials Flow Study, Natrona County Emergency Management Agency.
9. (2016-2017) Developing an Automated Hazardous Materials Placard Recognition System, Wyoming Homeland Security.
10. (2015-2018) Calibration and Validation of the Crash Modification Factors – Highway Safety Manual (Part D) - in Wyoming, University Transportation Centers (UTC)/ Mountain Plain Consortium (MPC).
11. (2015-2017) Calibrating Crash Modification Factors for Wyoming-Specific Conditions: Application of the Highway Safety Manual - Part D, Wyoming Department of Transportation (WYDOT).
12. (2015-2016) Hazardous Materials Flow Study, Laramie County Emergency Management Agency, Wyoming Office of Homeland Security.
13. (2015-2016) Exploring an Effective Field Data Collection Methodology for Hazardous Materials Transportation, Albany County Emergency Management Agency.
14. (2015) Wyoming Commodity Flow Study, Gillette and Douglas County Emergency Management Agency, Wyoming Office of Homeland Security.
15. (2014-2019) Safety Effectiveness of Regulatory Headlights Signs in Wyoming (Phase-I and II). Wyoming Department of Transportation (WYDOT).

GRANTED PROJECTS

- (2021-2023) - **Principal Investigator (PI)** - Rapid Safety Assessment Tool for Non-Conventional Roadway Design and Emerging Technologies: Innovative Artificial Intelligence Application, Wyoming Department of Transportation (WYDOT). The total project grant is \$175,115.

SELECTED PUBLICATIONS (LAST FOUR YEARS)

► Refereed Journal Publications

Gaweesh, Sherif M., Irfan Ahmed, and Mohamed M. Ahmed. (2023) "Analysis Framework to Assess Crash Severity for Large Trucks on Rural Interstate Roads Utilizing the Latent Class and Random Parameter Model." *Transportation Research Record*.

<https://doi.org/03611981231158627>

Gaweesh, S., Ahmed, I., Ahmed, M., and Wulff, S. (2023). Developing a Statewide Safety Performance Functions for Commercial Trucks Transporting Hazardous Materials on Interstate Rural Roads in Wyoming. *Journal of Transportation Research Record*.

<https://doi.org/10.1177/03611981221103231>

Ahmed, I., Gaweesh, S., and Ahmed, M. (2022). Assessing the Effectiveness of Centerline Rumble Strips Accounting for Winter Maintenance Operational Levels on Wyoming Highways Using Before-After Empirical Bayes. *Journal of Transportation Engineering: Part A*.

<https://doi.org/10.1061/JTEPBS.0000714>

Houseal, L., Gaweesh, S., Dadvar, S., and Ahmed, M. (2022). Causes and Effects of Autonomous Vehicles Field Data Crashes and Disengagement Using Binary Logistic Regression, Decision Trees, and Explanatory Factor Analysis. *Journal of Transportation Research Record*.

<https://doi.org/10.1177/03611981221084677>

SELECTED PUBLICATIONS (LAST FOUR YEARS), continued

► **Refereed Journal Publications**

Gaweesh, S., Khan, N., & Ahmed, M. (2021). Development of a Novel Framework for Hazardous Materials Placard Recognition System to Conduct Commodity Flow Studies Using Artificial Intelligence AlexNet Convolutional Neural Network. *Journal of Transportation Research Record*, <https://doi.org/10.1177/03611981211026653>.

Gaweesh, S., Bakhshi, A., & Ahmed, M. (2021). Safety Performance Assessment of Connected Vehicles in Mitigating the Risk of Secondary Crashes: A Driving Simulator Study. *Journal of Transportation Research Record*, <https://doi.org/10.1177/03611981211027881>.

Bakhshi, A., Gaweesh, S., & Ahmed, M. (2021). The safety performance of connected vehicles on slippery horizontal curves through enhancing truck drivers' situational awareness: A driving simulator experiment. *Transportation Research Part F: Traffic Psychology and Behaviour*, <https://doi.org/10.1016/j.trf.2021.04.017>

Subedi, B., Gaweesh, S., Yang, G., & Ahmed, M. (2020). Connected Vehicle Training Framework and Lessons Learned to Improve Safety of Highway Patrol Troopers. *Transportation Research Record*, <https://doi.org/10.1177/0361198120957309>

Yang, G., Ahmed, M., Gaweesh, S., & Adomah, E. (2020). Connected vehicle real-time traveler information messages for freeway speed harmonization under adverse weather conditions: Trajectory level analysis using driving simulator. *Accident Analysis & Prevention*, <https://doi.org/10.1016/j.aap.2020.105707>

Ahmed, I. U., Gaweesh, S. M., & Ahmed, M. M. (2020). Exploration of hazardous material truck crashes on Wyoming's interstate roads using a novel Hamiltonian Monte Carlo Markov Chain Bayesian inference. *Transportation Research Record*, <https://doi.org/10.1177/0361198120931103>

Ahmed, M. M., Yang, G., & Gaweesh, S. (2020). Assessment of Drivers' Perceptions of Connected Vehicle–Human Machine Interface for Driving Under Adverse Weather Conditions: Preliminary Findings From Wyoming. *Frontiers in psychology*, <https://doi.org/10.3389/fpsyg.2020.01889>

Shaaban, K., Gaweesh, S., & Ahmed, M. M. (2020). Investigating in-vehicle distracting activities and crash risks for young drivers using structural equation modeling. *PLoS one*, <https://doi.org/10.1371/journal.pone.0235325>

Raddaoui, O., Gaweesh, S., & Ahmed, M. (2020). "Assessment of the Effectiveness of Connected Vehicle Weather and Work Zone Warnings in Improving Truck Driver Safety". *Journal of International Association of Traffic and Safety Science (IATSS)*. <https://doi.org/10.1016/j.iatssr.2020.01.001>

Gaweesh, S., Ahmed, M., & Piccorelli A. (2019). Developing Crash Prediction Models Using Parametric and Nonparametric Approaches for Rural Mountainous Freeways: A Case Study on Wyoming Interstate 80. *Journal of Accident Analysis and Prevention*. <https://doi.org/10.1016/j.aap.2018.10.011>

Yang, G., Gaweesh, S., & Ahmed, M. (2019). Development and Assessment of a Connected Vehicle Training Program for Truck Drivers. *Journal of Transportation Research Record*. <https://doi.org/10.1177/0361198119827904>

Ahmed, M., Gaweesh, S., & Yang, G. (2019). A Preliminary Investigation into the Impact of Connected Vehicle Human-Machine Interface on Driving Behavior. (International Federation of Automatic Control, IFAC. <https://doi.org/10.1016/j.ifacol.2019.01.051>

Gaweesh, S., & Ahmed, M. (2019). Evaluating the safety effectiveness of a weather-based variable speed limit for a rural mountainous freeway in Wyoming. *Journal of Transportation Safety & Security*. <https://doi.org/10.1080/19439962.2019.1583707>

► Refereed Conference Publications

Gaweesh, S., Ahmed, I., & Ahmed, M. (2022). Assessment of Large Trucks Crash Severity on Rural Interstate Roads in Wyoming Utilizing Decision Trees and Structural Equation Models. Proceedings of the 101st Transportation Research Board Annual Meeting (TRBAM).

Gaweesh, S., Ahmed, I., & Ahmed, M. (2022). Developing a Statewide Safety Performance Functions for Commercial Trucks Transporting Hazardous Materials on Interstate Rural Roads in Wyoming. Proceedings of the 101st Transportation Research Board Annual Meeting (TRBAM).

Lucas, H., Gaweesh, S., Dadvar S., & Ahmed, M. (2022). Causes and Effects of Autonomous Vehicles Field Data Crashes and Disengagement Using Binary Logistic Regression, Decision Trees, and Explanatory Factor Analysis. Proceedings of the 101st Transportation Research Board Annual Meeting (TRBAM).

Gaweesh, S., Khan, N., & Ahmed, M. (2021). Development of a Novel Framework for Hazardous Materials Placard Recognition System to Conduct Commodity Flow Studies Using Artificial Intelligence AlexNet Convolutional Neural Network. Proceedings of the 100th Transportation Research Board Annual Meeting (TRBAM).

Gaweesh, S., Bakhshi, A., & Ahmed, M. (2021). Safety Performance Assessment of Connected Vehicles in Mitigating the Risk of Secondary Crashes: A Driving Simulator Study. Proceedings of the 100th Transportation Research Board Annual Meeting (TRBAM).

Aleadelat, W., Gaweesh, S., Zlatkovic, M., & Maltez, R. (2020). Assessment of Operational Benefits of Connected and Automated Vehicles in Congested Facilities: A case Study of the San Francisco Bay Bridge. Proceedings of the 99th Transportation Research Board Annual Meeting (TRBAM).

Subedi, B., Gaweesh, S., Yang, G., & Ahmed, M. (2020). Connected Vehicle Technology to Protect the Safety of Highway Patrol Troopers: Training Framework and Lessons Learned from the Wyoming Connected Vehicle Pilot. Proceedings of the 99th Transportation Research Board Annual Meeting.

Ahmed, I. U., Gaweesh, S. M., & Ahmed, M. M. (2020). Exploration of hazardous material truck crashes on Wyoming's interstate roads using a novel Hamiltonian Monte Carlo Markov Chain Bayesian inference. Proceedings of the 99th Transportation Research Board Annual Meeting (TRBAM).

Yang, G., Ahmed, M., Gaweesh, S., & Adomah, E. (2020). Connected Vehicle Real-Time Traveler Information Messages for Freeway Speed Harmonization under Adverse Weather Conditions: Trajectory Level Analysis Using Driving Simulator. Proceedings of the 99th Transportation Research Board Annual Meeting (TRBAM).

► Publications Under Revision

Houseal, L., Gaweesh, S., and Ahmed, M (2022). Public Acceptability of Automated Driving Systems in Wyoming. Journal of Transportation Research Record.

Gaweesh, S., Ahmed, I., Houseal, L., and Ahmed, M. (2021). Assessing the Potential Needs and Challenges for the Deployment and Testing of Autonomous Vehicles Platooning. Journal of Transportation Research Part A: Policy and Practice.