

MOHAMMED HAMAD ALMANNAA, Ph.D.

Associate Professor of Traffic Engineering & Transportation Systems

Supervisor — Traffic Simulation Laboratory, King Saud University (2026 – Present)

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EXECUTIVE PROFILE

Senior transportation systems and road safety expert combining a decade of academic research with executive and advisory leadership across leading Saudi government bodies. Proven track record in directing data-driven research units, building evidence-based policy frameworks for national road safety, and translating advanced analytics — machine learning, AI, and crash modeling — into actionable decisions for transport regulators and operators. Currently serves as Part-Time Consultant at the General Administration of Studies, Research, and Land Crash Investigations at the National Center for Transport Safety (since August 2026), following his previous tenure as Head of the Data Analysis Unit at the National Road Safety Center, where he established national crash analysis frameworks and delivered policy-grade recommendations to senior decision-makers.

Additionally serves as Associate Professor of Civil Engineering at King Saud University, Supervisor of the Traffic Simulation Laboratory, Convener of the Transportation Group, and Chairman of the Scientific Advisory Council at Aman Association for Traffic Accident Prevention. Previously served as Head of Research and Innovation at the KSU AI Center (2024–2025). Classified as a Professional Engineer by the Saudi Council of Engineers; holder of Saudi Patent No. SA368033; author of 24 peer-reviewed journal articles, 32 peer-reviewed conference papers, one book chapter, and two U.S. DOT research reports. Brings a rare blend of strategic research leadership, multi-stakeholder governance experience, and applied technical depth aligned with Saudi Vision 2030 and national transport-safety targets.

LEADERSHIP & IMPACT HIGHLIGHTS

- **National Transport Safety Advisory** — Part-Time Consultant, General Administration of Studies, Research, and Land Crash Investigations, National Center for Transport Safety (August 2026–Present); leads advisory work on improving crash investigation reports methodology, developing safety studies frameworks, and building institutional knowledge base for evidence-based transport safety.
- **National Research Leadership** — Founded and led the Data Analysis Unit at the National Road Safety Center (2020–2021); established national crash data analysis frameworks and applied AI/ML algorithms to predict crash patterns and inform safety policy.
- **Scientific Advisory Leadership** — Chairman, Scientific Advisory Council, Aman Association for Traffic Accident Prevention (2025–Present); leads cross-sector research and policy initiatives bridging government, academia, and civil society on traffic-injury prevention.
- **Research Governance** — Supervisor of the Traffic Simulation Laboratory at KSU (2026–Present); former Head of Research and Innovation at the KSU AI Center (2024–2025); Convener of the Transportation Group; serves on 13+ university and external committees.
- **International Recognition — Times Higher Education Awards** — Led the academic-advising project shortlisted in the 'Outstanding Support for Students' category at the Times Higher Education (THE) Arab World Awards 2026 —

one of four King Saud University projects and initiatives to reach the shortlist. Served as Team Leader for 'Transforming Academic Advising into a Student-Centered, Data-Driven Ecosystem.

- **National Flagship Projects** — Principal Investigator of the Riyadh Chamber-sponsored study on traffic congestion in Riyadh, Jeddah, and Dammam (October 2025), with findings to be presented at the Riyadh Economic Forum 2026. Principal Investigator of the Smart EMS System for the Saudi Red Crescent Authority (November 2025).
- **National Subject-Matter Authority** — Item Writer for the Saudi Education and Training Evaluation Commission (ETEC) — Engineering Readiness Exam, Traffic and Transportation Engineering Track (2026); a national recognition of subject-matter expertise in transportation engineering.
- **Innovation & IP** — Holder of Saudi Patent No. SA368033 — E-scooter for Extremely Hot Weather, granted by the Saudi Authority for Intellectual Property (SAIP, October 2025).
- **Government Advisory** — Part-time technical advisor to Alriyadh Municipality (2021–2024); reviewed traffic impact studies, contributed to operational manuals, and supported the establishment of the Riyadh City Traffic Crash Observatory.
- **International Presence** — Founder of the Saudi Chapter of IEEE Intelligent Transportation Systems Society (2026); Judge for the Ministry of Transport & Logistic Services Innovation Award (2025)
- **Awards & Funded Research** — U.S. Department of Transportation-funded researcher; First Place winner, UAS4T Competition, 23rd IEEE ITSC, Greece (2020); Lifesavers Traffic Safety Scholar, VTTI (2019).

EDUCATION

Ph.D., Civil Engineering (Transportation Systems)

2019

Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, VA, USA

- Dissertation: Bike-Sharing System Optimization Through Machine Learning and Statistical Techniques.
- Advisor: Prof. Hesham A. Rakha; Co-Advisor: Dr. Mohammed Elhenawy.
- Produced 4 journal articles, 8 peer-reviewed conference papers, and one book chapter.

Graduate Certificate in Urban Computing

2019

Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, VA, USA

Graduate Certificate in Preparing the Future Professoriate

2018

Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, VA, USA

M.Sc., Civil Engineering (Transportation Engineering)

2016

Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, VA, USA

B.Sc., Civil Engineering (Magna cum Laude)

2011

King Saud University, Riyadh, Saudi Arabia

GOVERNMENT & ADVISORY EXPERIENCE

Part-Time Consultant — Studies, Research, and Land Crash Investigations

Aug 2026 – Present

National Center for Transport Safety | Riyadh, Saudi Arabia

- Provides expert academic and technical advisory to the General Administration of Studies, Research, and Land Crash Investigations.
- Reviews and improves the methodology, structure, and technical quality of crash investigation reports produced by the Center.
- Develops methodological frameworks for safety studies and evidence-based recommendations.

- Delivers targeted training workshops for the Center's technical teams on international best practices in crash investigation and reporting.
- Contributes to building an institutional knowledge base and standardized templates for crash investigation.

Head — Data Analysis Unit

2020 – 2021

National Road Safety Center | Riyadh, Saudi Arabia

- Led the establishment and operations of the Unit as a dedicated team for statistical and AI-driven analysis of national crash data.
- Designed and implemented crash-analysis frameworks combining machine-learning and statistical modeling to identify risk factors and predict crash patterns at national scale.
- Delivered evidence-based policy recommendations to senior decision-makers in the road-safety sector.
- Built and delivered specialized training programs on human behavior (RSP-1), travel safety, and crash investigation methodologies for technical and field personnel.
- Established operational partnerships with concerned government entities to ensure data quality and inter-agency information integration.

Item Writer — Engineering Readiness Exam, Transportation Engineering Track

2026

Education & Training Evaluation Commission (ETEC) | Riyadh, Saudi Arabia

- Authored assessment items for the national Engineering Readiness Exam under the Traffic and Transportation Engineering specialization.
- Contributed to defining the national standard for evaluating traffic-engineering competency among newly graduated engineers in the Kingdom.

Judge & Mentor — Disability Hackathon Award

Aug 2026

King Salman Center for Disability Research | hackathon.kscdr.org

- Served as judge evaluating innovative solutions in the disability hackathon competition.
- Provided mentorship to participating teams on transportation accessibility and mobility solutions for persons with disabilities.

Part-Time Consultant & Advisor — Traffic Engineering Department

2021 – 2024

Alriyadh Municipality | Riyadh, Saudi Arabia

- Reviewed and validated traffic impact studies for major development projects, assessing technical soundness and regulatory compliance.
- Provided technical input on traffic-related manuals and operational guidelines adopted by the Traffic Engineering Department.
- Contributed to the establishment of the Riyadh City Traffic Crash Observatory as a data platform supporting operational decision-making.

Part-Time Consultant — Deanship of Admission & Registration Affairs

2023 – 2025

King Saud University | Riyadh, Saudi Arabia

- Reviewed and contributed to university-level policies and legislation, including reference guides and newly established academic programs.
- Supported the development of absenteeism monitoring services and academic-advising automation, improving institutional governance.
- Served as Team Leader for 'Transforming Academic Advising into a Student-Centered, Data-Driven Ecosystem, shortlisted in the 'Outstanding Support for Students' category at the THE Arab World Awards 2026.

Member — Permanent Higher Committee for Traffic Safety & Transportation

2022 – Present

King Saud University | Riyadh, Saudi Arabia

- Provides strategic oversight on traffic-safety and transportation matters at the institutional level.

Member — Permanent Higher Committee for Academic, Educational & Research Activities **2025 – Present**

King Saud University | Riyadh, Saudi Arabia

- Contributes to governance frameworks overseeing the implementation of academic, educational, and research strategies across the university.

Member — AI Committee, College of Engineering

2025 – Present

King Saud University | Riyadh, Saudi Arabia

- Contributes to shaping the college's AI strategy, including research, education, and industry partnerships within engineering disciplines.

ACADEMIC EXPERIENCE

Associate Professor — Department of Civil Engineering

2023 – Present

King Saud University | Riyadh, Saudi Arabia

- Supervisor, Traffic Simulation Laboratory (2026–Present) — oversees laboratory operations, research activities, and applied simulation projects.
- Convener, Transportation Group (2023–Present); former Head of Research and Innovation, AI Center (2024–2025).
- Teaches: Applications of Machine Learning and AI in Transportation, Traffic Engineering, Transportation Systems and Planning, Engineering Economy, Introduction to Computer Programming, Graduation Project I & II.
- Supervises and co-supervises graduate students across the Civil Engineering Department; serves as examiner for additional theses at KSU and partner universities.

Assistant Professor — Department of Civil Engineering

2019 – 2023

King Saud University | Riyadh, Saudi Arabia

- Built the Transportation Group research portfolio; established collaborations with national entities including the National Road Safety Center, Ministry of Transport, and Aman Association.
- Served as President of the Students Guidance and Counseling Committee, College of Engineering (2021–2022).

Graduate Research Assistant — Virginia Tech Transportation Institute (VTTI)

2014 – 2019

Blacksburg, Virginia, USA

- Conducted federally funded research on eco-cooperative adaptive cruise control, bike-share optimization, and AI-based traffic clustering.
- Co-authored publications in IEEE Transactions on ITS, Transportation Research Part D, International Journal of Sustainable Transportation, and Sustainability.

AWARDS & RECOGNITION

- **Shortlisted, Times Higher Education (THE) Arab World Awards 2026** — 'Outstanding Support for Students' category — Team Leader, 'Transforming Academic Advising into a Student-Centered, Data-Driven Ecosystem,' Deanship of Admission and Registration Affairs, King Saud University (July 2026); one of four KSU projects shortlisted this year.

- **Saudi Patent No. SA368033** — E-scooter for Extremely Hot Weather, Saudi Authority for Intellectual Property (SAIP, 2025).
- **First Place, UAS4T Competition** — 23rd IEEE International Conference on Intelligent Transportation Systems, Greece (2020).
- **Lifesavers Traffic Safety Scholar** — Virginia Tech Transportation Institute (VTTI, 2019).
- **Travel Funding Program Award** — Virginia Tech (2017–2018, 2018–2019).
- **Second Place, Student Research Award** — ITSVA International Conference (2016).
- **KSU Graduate Scholarship** — Full scholarship for M.Sc. and Ph.D. at Virginia Tech.
- **First in Undergraduate Cohort** — Magna cum Laude, King Saud University.

CORE COMPETENCIES

Research & Institutional Leadership

- Building and directing specialized research units; leading multi-disciplinary teams across academic, government, and industry domains.
- Strategic research planning aligned with national priorities and Saudi Vision 2030 transport-safety objectives.
- Managing research portfolios funded by domestic and international agencies.
- Multi-stakeholder governance: serving across 13+ university and external committees and councils.

Traffic Safety & Crash Analytics

- Crash-severity modeling, root-cause analysis, and risk-factor identification using both classical statistics and machine learning.
- Application of the Safe System Approach in framing safety policies and intervention design.
- Design of national-scale crash data infrastructures, observatories, and dashboards.
- Peer review and quality improvement of crash investigation reports against international standards (NTSB, NHTSA, UK RDIM).

AI & Data Science in Transportation

- Machine-learning and deep-learning models for crash prediction, demand forecasting, mode classification, and clustering.
- Spatial and temporal data modeling; crowdsourcing approaches for transport data.
- Development of AI-powered tools and decision-support systems.

Intelligent Transportation Systems & Mobility

- Connected and automated vehicles; vehicle-to-infrastructure (V2I) communication; eco-cooperative adaptive cruise control.
- Micro-mobility — bike-share and e-scooter operations, demand modeling, optimization, and rebalancing.
- Emergency Medical Services (EMS) optimization at national scale.
- Traffic congestion analysis at city-, corridor-, and network-level.

GRADUATE STUDENT SUPERVISION & EXAMINATION

Supervised, co-supervised, or examined 10 graduate students (4 chair/co-chair MS, 2 co-chair PhD, 4 examiner roles) across King Saud University, the University of Sharjah, and the United Arab Emirates University.

Selected Supervised Theses & Dissertations

- Ayoub Alzabidi (PhD, Co-chair, 2025) — Developing a Smart Emergency Medical Service System for Saudi Red Crescent Authority Using Machine Learning Algorithms.
- Aref Ahmed (PhD, Co-chair, 2026) — Effect of Socio-demographic Characteristics, Mental Status, and Distractions on Driver Behavior in Saudi Arabia.
- Md Nail Jawad (MS, Chair, 2024) — Prediction of Crash Severity on Intercity and Major Intracity Roads in Saudi Arabia Using Spatial, Temporal, and Road Condition Factors.
- Omar Kabboush (MS, Chair, 2022) — Assessing the Effect of COVID-19 on Traffic Safety of Intercity and Major Intracity Roads in Saudi Arabia.
- Hamad Al Mehthel (MS, Co-chair, 2025) — Safety Evaluation of Truck Crashes in the Kingdom of Saudi Arabia.

External Examination

- Ahmed Elawady (MS) — University of Sharjah, UAE: Connected & Autonomous Vehicles in Adverse Weather (2022).
- Nadia Maksoud (MS) — UAE University: Methodological Framework for Prioritizing Micro-Mobility Infrastructure Improvements (2023).
- Turki Alamoudi (MS, KSU) — Roadside Clear Zone Criteria & Roadway Departure Crashes (2024).
- Abdulraaof Al-Qaili (PhD, KSU) — Flexible Pavement Design and Management (2025).

RESEARCH PROJECTS

Ongoing

- Investigating the Causes and Mitigation of Traffic Congestion in Major Saudi Cities (Riyadh, Jeddah, Dammam) — sponsored by the Riyadh Chamber (October 2025); Principal Investigator; to be presented at the Riyadh Economic Forum 2026.
- Developing a Smart Emergency Medical Services (EMS) System for the Saudi Red Crescent Authority Using Machine Learning Algorithms — sponsored by the Deanship of Scientific Research, KSU (November 2025); Principal Investigator.

Completed Research Projects

- Traffic State Prediction: A Traveler Equity and Multi-Modal Perspective — Urban Mobility and Equity Center, Morgan State University, USA (2019).
- Developing and Field Implementing an Eco-Cruise Control System in the Vicinity of Traffic Signalized Intersections — U.S. Department of Transportation, University Transportation Centers Program (2017).
- Applying Cluster Analysis Techniques to Traffic Operations — Virginia Department of Transportation, USA (2017).

Institutional & Governance Projects

- Transforming Academic Advising into a Student-Centered, Data-Driven Ecosystem (2025) — submitted by the Deanship of Admission and Registration Affairs, KSU. Shortlisted, 'Outstanding Support for Students' category, THE Arab World Awards 2026.
- Automation of Academic Advising Services at King Saud University (September 2023 – September 2025).
- Developing the Service and Mechanism for Monitoring Absenteeism at King Saud University (2025).
- Enhancing Academic Advising: A Comprehensive Assessment and Improvement Initiative, KSU (2025).
- Maturing 'Aman Association for Traffic Accident Prevention' (2024).

PUBLICATIONS

Author or co-author of 24 peer-reviewed journal articles, 32 peer-reviewed conference papers and presentations, one book chapter, and two U.S. DOT research reports. The complete list is provided below in reverse chronological order.

Peer-Reviewed Journal Articles

- ▶ Ahmed, A., Alessa, F., Almannaa, M., Alkahtani, M. (2026). Effect of Gender, Cognitive Distraction, and Environmental Conditions on Young Drivers' Behavior: A Study Using Physiological Sensors and a Driving Simulator. IEEE Access. (Accepted).
- ▶ Al-Zabidi, A., Almannaa, M., Elhenawy, M., Gharbi, A. (2025). Multi-criteria facility location for emergency medical services using AHP and GIS: Public sector supply chain case in Riyadh. Journal of Engineering Research.
- ▶ Zawad, M., Almannaa, M., Alkhtani, K. (2025). Investigating Factors Influencing Fatalities and Injuries in Animal-Vehicle Crashes Using a Random Parameters Logit Model and Ensemble Machine Learning Approaches. PLOS One.
- ▶ Almannaa, M., Alyahya, A., Ashqar, H. I., Elhenawy, M. (2024). Temporal Shifts in E-Scooter Rider Perspectives: A Longitudinal Investigation in Riyadh, Saudi Arabia. Sustainability, 16(9), 3759.
- ▶ Woodson, C., Ashqar, H. I., Almannaa, M., Elhenawy, M., Buehler, R. (2024). Factors influencing bikeshare service and usage in a rural college town: A case study of Montgomery County, VA. International Journal of Sustainable Transportation, 18(4), 291–300.
- ▶ Ashqar, M. I., Ashqar, H. I., Elhenawy, M., Almannaa, M., Aljamal, M. A., Rakha, H. A., Bikdash, M. (2023). Evaluating a signalized intersection performance using unmanned aerial data. Transportation Letters.
- ▶ Kabbush, O., Almannaa, M., Alarifi, S. A., Alghamdi, A. (2023). Assessing the Effect of COVID-19 on the Traffic Safety of Intercity and Major Intracity Roads in Saudi Arabia. Arabian Journal for Science and Engineering.
- ▶ Almannaa, M., Zawad, M. N., Moshawah, M., Alabduljabbar, H. (2023). Investigating the effect of road condition and vacation on crash severity using machine learning algorithms. International Journal of Injury Control and Safety Promotion.
- ▶ Masoud, M., Elhenawy, M., Liu, S. Q., Almannaa, M., Glaser, S., Alhajyaseen, W. (2023). A Simulated Annealing for Optimizing Assignment of E-Scooters to Freelance Chargers. Sustainability, 15(3), 1869.
- ▶ Almannaa, M., Woodson, C., Ashqar, H., Elhenawy, M. (2022). The COVID-19 impacts on bikeshare systems in small rural communities: Case study of bikeshare riders in Montgomery County, VA. PLoS ONE, 17(12).
- ▶ Al-Zabidi, A., Almannaa, M., Elhenawy, M., Gharbi, A. (2022). Statistical modeling of emergency medical services' response and rescue times to road traffic crashes in the Kingdom of Saudi Arabia. Case Studies on Transport Policy, 10(4).
- ▶ Almannaa, M. H., Bareiss, M. G., Riexinger, L. E., Guo, F. (2022). In-Depth Evaluation of Association between Crash and Hand Arthritis via Naturalistic Driving Study. Applied Sciences, 12, 12079.
- ▶ Ashqar, H., Elhenawy, M., Rakha, H., Almannaa, M., House, L. (2021). Network and station-level bike-sharing system prediction: a San Francisco bay area case study. Journal of Intelligent Transportation Systems.
- ▶ Elhenawy, M., Komol, M., Masoud, M., Liu, S., Ashqar, H., Almannaa, M., Rakha, H., Rakotonirainy, A. (2021). A Novel Crowdsourcing Model for Micro-mobility Ride-sharing Systems. Remote Sensing.
- ▶ Almannaa, M., Alsahhaf, F., Ashqar, H., Elhenawy, M., Masoud, M., Rakotonirainy, A. (2021). Perception Analysis of E-scooter Riders and Non-riders in Riyadh, Saudi Arabia: Survey Outputs. Sustainability.
- ▶ Elhenawy, M., Ashqar, H., Masoud, M., Almannaa, M., Rakotonirainy, A., Rakha, H. (2020). Vulnerable Road Users Classification of Smartphone Sensors Data Using Deep Transfer Learning. Remote Sensing.
- ▶ Almannaa, M., Ashqar, H., Elhenawy, M., Masoud, M., Rakotonirainy, A., Rakha, H. (2020). A Comparative Analysis of E-Scooter and E-Bike Usage Patterns: Findings from the City of Austin, TX. International Journal of Sustainable Transportation.
- ▶ Masoud, M., Elhenawy, M., Almannaa, M., Liu, S., Glaser, S., Rakotonirainy, A. (2019). Heuristic Approaches to Solve E-Scooter Assignment Problem. IEEE Access.

- ▶ Almannaa, M., Elhenawy, M., Rakha, H. (2019). Optimizing Bike Share System Utilization using Markov Chain Modeling. *Transport Findings*.
- ▶ Almannaa, M., Chen, H., Rakha, H., Loulizi, A., El-Shawarby, I. (2019). Field Implementation and Testing of an Automated Eco-Cooperative Adaptive Cruise Control System in the Vicinity of Signalized Intersections. *Transportation Research Part D: Transport and Environment*.
- ▶ Almannaa, M., Elhenawy, M., Rakha, H. (2019). A Novel Supervised Clustering Algorithm for Transportation System Applications. *IEEE Transactions on Intelligent Transportation Systems*.
- ▶ Almannaa, M., Elhenawy, M., Rakha, H. (2019). Dynamic Linear Models to Predict Bike Availability in a Bike Sharing System. *International Journal of Sustainable Transportation*.
- ▶ Ashqar, H., Almannaa, M., Elhenawy, M., Rakha, H., House, L. (2018). Smartphone Transportation Mode Recognition Using a Hierarchical Machine Learning Classifier and Pooled Features from Time and Frequency Domains. *IEEE Transactions on Intelligent Transportation Systems*.
- ▶ Almannaa, M., Chen, H., Rakha, H., Loulizi, A., El-Shawarby, I. (2017). Reducing Vehicle Fuel Consumption and Delay at Signalized Intersections: Controlled-Field Evaluation of Effectiveness of Infrastructure-to-Vehicle Communication. *Transportation Research Record: Journal of the Transportation Research Board*.

Book Chapter

- ▶ Rakha, H. A., Elhenawy, M., Ashqar, H., Almannaa, M., Ghanem, A. (2018). Smart Bike-Sharing Systems for Smart Cities. In: *Data Analytics Applications for Smart Cities*.

U.S. DOT Research Reports

- ▶ Rakha, H., Chen, H., Almannaa, M., El-Shawarby, I., Loulizi, A. (2017). Developing and Field Implementing an Eco-Cruise Control System in the Vicinity of Traffic Signalized Intersections. U.S. Department of Transportation, University Transportation Centers Program.
- ▶ Rakha, H., Chen, H., Almannaa, M., Kamalanathsharma, R. K., El-Shawarby, I., Amara, L. (2016). Field Testing of Eco-Speed Control Using V2I Communication. U.S. Department of Transportation, University Transportation Centers Program.

Peer-Reviewed Conference Papers & Presentations

- ▶ Almannaa, M. (2026, sole author). 'Ramadan as a Natural Experiment in Urban Mobility: Evidence of Network-Level Peak Redistribution from Probe Traffic Data.' *IEEE International Forum on Research and Technologies for Society and Industry (RTSI 2026)*, Espoo, Finland, August 16–18, 2026.
- ▶ Almannaa, M., Althonayan, A., Alotaibi, T., Alsharef, A., Alarifi, S. (2026). 'Campus Roundabout Safety Assessment and Mitigation: A Case Study at King Saud University.' *10th International Road Safety & Simulation Conference (RSS 2026)*, Naples, Italy, June 23–26, 2026.
- ▶ Al-Zabidi, A., Almannaa, M., Elhenawy, M., Gharbi, A. (2025). 'Optimizing Spatial Distribution of Emergency Medical Service Centers in Response to Urban Growth Using AHP and GIS.' *Rotterdam, The Netherlands*, May 25–28, 2025.
- ▶ Zawad, M., Almannaa, M., Alkhtani, K. (2025). 'Investigating Factors Influencing Fatalities and Injuries in Animal-Vehicle Crashes.' *Rotterdam, The Netherlands*, May 25–28, 2025.
- ▶ Almannaa, M. (Keynote, 2025). 'Developing A Smart Emergency Medical Service (EMS) System for Saudi Red Crescent Authority Using Machine Learning Algorithms.' *1st IUT-International Conference on Core Engineering & Technology (IUT-ICCET 2025)*, Gazipur, Bangladesh, April 25–27, 2025.
- ▶ Almannaa, M. (Panel Moderator, 2025). 'Future Trends & Challenges in Road Safety in the GCC.' *Roads, Bridges, and Tunnels KSA Conference*, Jeddah, April 30 – May 1, 2025.

- ▶ Almannaa, M. (Panel Moderator, 2025). 'Towards a Fully Integrated Urban Mobility Network: Breaking Barriers Between Modes for a Seamless, Smart, and Sustainable City Experience.' Mobility Live, Riyadh, October 19–20, 2025.
- ▶ Al-Zabidi, A., Almannaa, M., Elhenawy, M., Gharbi, A. (2024). 'Optimizing Spatial Distribution of Emergency Medical Service Centers in Response to Urban Growth.' Road Safety & Sustainability Conference (IRF), Riyadh, Saudi Arabia.
- ▶ Al-Zabidi, A., Almannaa, M., Elhenawy, M., Gharbi, A. (2024). 'Optimizing Spatial Distribution of Emergency Medical Service Centers in Response to Urban Growth.' 3rd Road Maintenance Forum, Dammam, Saudi Arabia.
- ▶ Almannaa, M., Zawad. (2024). 'Investigating the Effect of Road Maintenance on Traffic Crashes Using Machine Learning Algorithms.' 3rd Road Maintenance Forum, Dammam, Saudi Arabia.
- ▶ Bshar, H., Almannaa, M. (2023). 'Crash Severity Predictive Models Using Machine Learning Algorithms: A Case Study of Riyadh, Saudi Arabia.' 13th International Conference on Industrial Engineering and Operations Management, Manila, Philippines, March 6–9.
- ▶ Almannaa, M., Alsahhaf, F., Ashqar, H., Elhenawy, M., Masoud, M., Rakotonirainy, A. (2021). 'Analysis of Perception About E-scooter Riders and Non-riders in Saudi Arabia: Survey Outputs.' 100th Transportation Research Board Annual Meeting, Washington DC, January.
- ▶ Ashqar, H., Elhenawy, M., Masoud, M., Almannaa, M., Rakotonirainy, A., Rakha, H. (2021). 'Smartphone Sensors Transportation Mode Data Classification of Vulnerable Road Users.' 100th Transportation Research Board Annual Meeting, Washington DC, January.
- ▶ Mousa, S., Masoud, M., Elhenawy, M., Almannaa, M., Glaser, S., Rakotonirainy, A. (2020). 'A Simulated Annealing Algorithm for Solving the E-Scooter to Chargers Assignment Problem.' 99th Transportation Research Board Annual Meeting, Washington DC, January 12–16.
- ▶ Lux, T., Nagy, S., Almannaa, M., Yao, S., Bixler, R. (2019). 'A Case Study on a Sustainable Framework for Ethically Aware Predictive Modeling.' IEEE International Symposium on Technology and Society (IEEE ISTAS 2019), Boston, USA, November 15–16.
- ▶ Almannaa, M., Elhenawy, M., Mahmoud, M., Rakha, H. A. (2019). 'A New Mathematical Approach to Solve Bike Share System Station Imbalances Based on Portable Stations.' 22nd IEEE International Conference on Intelligent Transportation Systems (IEEE ITSC 2019), Auckland, New Zealand, October 27–30.
- ▶ Mahmoud, M., Elhenawy, M., Almannaa, M., Liu, S., Glaser, S., Rakotonirainy, A. (2019). 'Optimal Assignment Of E-Scooter to Chargers.' 22nd IEEE International Conference on Intelligent Transportation Systems (IEEE ITSC 2019), Auckland, New Zealand, October 27–30.
- ▶ Almannaa, M., Bareiss, M., Riexinger, L., Guo, F. (2018). 'Does Arthritis Affect the Behavior of Drivers?' 98th Transportation Research Board Annual Meeting, Washington DC, January 13–17.
- ▶ Almannaa, M., Chen, H., Rakha, H., Loulizi, A., El-Shawarby, I. (2018). 'Development and Controlled Field Evaluation of an Automated Eco-Cooperative Adaptive Cruise Control System in the Vicinity of Signalized Intersections.' Automated Vehicles Symposium, San Francisco, July 9–12.
- ▶ Almannaa, M., Elhenawy, M., Guo, F., Rakha, H. A. (2018). 'Incremental Learning Models of Bike Counts at Bike Sharing Systems.' 21st IEEE International Conference on Intelligent Transportation Systems (IEEE ITSC 2018), Maui, Hawaii, November 4–7.
- ▶ Almannaa, M., Elhenawy, M., Rakha, H. A. (2018). 'A Novel Clustering Algorithm for Traffic Operational Analysis.' 97th Transportation Research Board Annual Meeting, Washington DC, January 7–11.
- ▶ Almannaa, M., Elhenawy, M., Rakha, H. A. (2018). 'Predicting Bike Availability in Bike Sharing Systems Using Dynamic Linear Models.' 97th Transportation Research Board Annual Meeting, Washington DC, January 7–11.
- ▶ Ashqar, H., Elhenawy, M., Ghanem, A., Almannaa, M., Rakha, H. A. (2018). 'Quantifying the Effect of Various Features on the Modeling of Bike Counts in a Bike-Sharing System.' 97th Transportation Research Board Annual Meeting, Washington DC, January 7–11.

- ▶ Almannaa, M., Elhenawy, M., Ghanem, A., Ashqar, H., Rakha, H. (2017). 'Network-Wide Bike Availability Clustering Using the College Admission Algorithm: A Case Study of San Francisco Bay Area.' 5th IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS), Napoli, Italy, June 26–28.
- ▶ Ashqar, H., Elhenawy, M., Almannaa, M., Ghanem, A., Rakha, H., House, L. (2017). 'Modeling Bike Sharing Availability using Machine Learning.' 5th IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS), Napoli, Italy, June 26–28.
- ▶ Ghanem, A., Elhenawy, M., Almannaa, M., Ashqar, H., Rakha, H. (2017). 'Bike Share Travel Time Modeling: San Francisco Bay Area Case Study.' 5th IEEE International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS), Napoli, Italy, June 26–28.
- ▶ Almannaa, M., Chen, H., Rakha, H., Loulizi, A., El-Shawarby, I. (2017). 'Controlled-Field Evaluation of Effectiveness of Infrastructure-to-Vehicle Communication in Reducing Vehicle Fuel Consumption and Delay at Signalized Intersections.' 96th Transportation Research Board Annual Meeting, Washington DC, January 7–12.
- ▶ Chen, H., Rakha, H., Almannaa, M., Loulizi, A., El-Shawarby, I. (2017). 'Field Implementation of an Eco-cooperative Adaptive Cruise System at Signalized Intersection.' 96th Transportation Research Board Annual Meeting, Washington DC, January 7–12.
- ▶ Chen, H., Rakha, H., Amara, L., El-Shawarby, I., Almannaa, M. (2016). 'Development and Preliminary Field Testing of an In-Vehicle Eco-Speed Control System in the Vicinity of Signalized Intersections.' 14th IFAC Symposium on Control in Transportation Systems, Istanbul, Turkey, May 18–20.
- ▶ Bichiou, Y., Rakha, H., Almannaa, M., Roman, A. (2015). 'Optimal Intersection Control of Automated and Cooperative Vehicles.' Connected and Automated Vehicles, 9th University Transportation Centers Spotlight Conference, Washington DC, November 4–5.

PRESS & PUBLIC ENGAGEMENT

Selected Published Articles

- 'Traffic Safety and Its History in Saudi Arabia' — published in collaboration with Aman Association for Traffic Prevention (2026).
- Feature article on humanization published on the website of Prince Bin Ayyaf Humanization Award, King Saud University (2026).
- Regular contributor of opinion articles on transportation, congestion, crash investigation, and public transport in Al-Maal Saudi economic newspaper.

Selected Media Engagements

- Multiple TV appearances and press interviews on Saudi road-safety topics, congestion management, and micro-mobility.

INVITED TALKS, SYMPOSIA & NATIONAL ENGAGEMENTS

2026

- Conference Paper Presenter (Sole Author) — IEEE International Forum on Research and Technologies for Society and Industry (RTSI 2026), Espoo, Finland, August 16–18, 2026.
- Conference Paper Presenter — 10th International Road Safety & Simulation Conference (RSS 2026), Naples, Italy, June 23–26, 2026.

- Speaker — 'Leveraging Artificial Intelligence in Traffic Congestion Management.' Symposium on Managing Traffic Congestion in Riyadh, organized by the Center for Local Governance (Basaer Think Tank Complex), Prince Sultan University, Riyadh, June 17, 2026.
- Speaker — 'Foresight of the Future of Academic Advising.' University Advising Compass Forum (Bawsalat), Prince Sattam Bin Abdulaziz University, Al-Kharj, April 6, 2026.
- Speaker — Symposium 'Riyadh: The City That Moves' in partnership with Sada Company, Riyadh, January 17, 2026.

2025

- Speaker — 'Leveraging Artificial Intelligence in Enhancing Traffic Safety,' Traffic Safety Conference, Jazan, Saudi Arabia.
- Panel Moderator — Dialogue session on Data, Mobility & Artificial Intelligence, Saudi Mobility Conference.
- Panel Moderator — Dialogue session on Data, Mobility & Artificial Intelligence, Rail 2025 Riyadh Conference.
- Webinar Speaker — 'Enhancing Student Advising and Support at King Saud University,' in cooperation with the Deanship of Development and Quality, KSU, December 15, 2025.
- Panel Moderator — 'Towards a Fully Integrated Urban Mobility Network,' Mobility Live, Riyadh, October 2025.
- Panel Moderator — 'Future Trends & Challenges in Road Safety in the GCC,' Roads, Bridges and Tunnels KSA, Jeddah, May 2025.
- Keynote Speaker — 'Developing a Smart EMS System for the Saudi Red Crescent Authority Using Machine Learning,' IUT-ICCET 2025, Bangladesh, April 2025.

PROFESSIONAL AFFILIATIONS

- Founder and Committee Member, Saudi Chapter — IEEE Intelligent Transportation Systems Society (2026).
- Chairman, Scientific Advisory Council — Aman Association for Traffic Accident Prevention (2025–Present).
- Member, Saudi Council of Engineers — Classified Professional Engineer.
- Member, IEEE Intelligent Transportation Systems Society.
- Member, Transportation Research Board (TRB), USA.
- Member, Institute of Transportation Engineers (ITE).