

Fadi Alhomaidat

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EDUCATION

WESTERN MICHIGAN UNIVERSITY, Michigan, USA.

Ph.D. of Civil Engineering/ Transportation, May 2019

- Research topic: "Impact of Freeway Speed Limit on Safety and Operation Speed of Adjacent Arterial Roads."

UNIVERSITY OF TEXAS AT ARLINGTON, Texas, USA.

Master of Civil Engineering / Transportation, May 2015

- Research topic: "Application of moving observer method for estimation of speed and traffic flow in the DFW region in 2015."

MUTAH UNIVERSITY, Mutah, Al-Karak

B.S. in Civil Engineering, Jan 2011

- Senior project: "Improve soil stabilization for base and sub-base road by using chemical material."

WORK EXPERIENCE

Associate Professor

- Department of Civil Engineering, Al-Hussein Bin Talal University.

Nov 2023 – Present

Dean Assistant for Quality Assurance

- College of Engineering, Al-Hussein Bin Talal University.

Sep 2023 – Present

Chair of Civil Engineering Department

- Department of Civil Engineering, Al-Hussein Bin Talal University.

Sep 2020 – Sep 2022

Assistant Professor

- Department of Civil Engineering, Al-Hussein Bin Talal University.

Jul 2019 – Nov,2023

Transportation Modeler

- The Southeast Michigan Council of Governments (SEMCOG), Detroit, Michigan, USA
- Analyze commercial vehicle and freight data survey to develop a model to assist regional freight planning activities. Review the implementation of Activity Based Modeling (ABM) approach instead of four-step model.

Jan 2019– Jul 2019

Teaching Assistance

- WESTERN MICHIGAN UNIVERSITY, Michigan, USA.
- Helping to teach and grade transportation planning, survey lab, and Engineering research design.

Jan 2018–Dec 2018

Research Assistance

- WESTERN MICHIGAN UNIVERSITY, Michigan, USA.
- RESEARCH PROJECTS:

May 2015–Jan 2018

- FY2017 Data Analysis for Overtime Traffic Enforcement 2017- 2018
Data analysis, generate maps, literature review, and writing report
- An Experimental Investigation of Rider-Influenced Bicycle Dynamics in a Transportation Environment. 2015-2016

Determine and specify details of the study survey, including sources of information, procedures to be used, and the design of survey. Determine and specify details of the experiment. Monitor and evaluate the experiment progress and performance.

- Integrated Crowd Sensing Platform to Investigate Non-Motorized Behavior and Risk Factors on Walking, Running and Cycling Routes 2015-2016

Collaborate with other researchers in the planning, implementation, and evaluation the study survey. Consult with bicyclists in order to identify survey needs. Review literature in order to determine and specify details' of study survey. Conduct the survey and collect data. Prepare and present summary and analysis of survey data.

Site Engineer

Nov 2011–Jan 2013

- *DURRAT ALQASSEM CONTRACTOR COMPANY, Jordan*

- Manage and direct staff members and the construction, operations, or maintenance activities at project site.
Provide technical advice regarding design, construction, or program modifications and structural repairs to industrial and managerial personnel.
- Inspect project sites to monitor progress and ensure conformance to design specifications and safety or sanitation standards.
- Estimate quantities and cost of materials, equipment, or labor to determine project feasibility.
- Test soils or materials to determine the adequacy and strength of foundations, concrete, asphalt, or steel. Compute load and grade requirements, water flow rates, or material stress factors to determine design specifications.
- Analyze survey reports, maps, drawings, blueprints, aerial photography, and other topographical or geologic data to plan projects.
- Direct or participate in surveying to lay out installations or establish reference points, grades, or elevations to guide construction.

Site Engineer

Sep 2010–Oct 2011

- *HESCO ENGINEERING & CONSTRUCTION COMPANY, Jordan*

- Test soils or materials to determine the adequacy and strength of foundations, concrete, asphalt, or steel. Analyze survey reports, maps, drawings, blueprints, aerial photography, and other topographical or geologic data to plan projects.
- Direct engineering activities to ensure compliance with environmental, safety, or other governmental regulations.
Inspect project sites to monitor progress and ensure conformance to design specifications and safety or sanitation standards.

AREAS OF INTEREST:

- Motorized and non-motorized traffic safety, simulation and operations
- Application of intelligent transportation systems
- GIS application in transportation engineering
- Travel behavior and forecasting (Macroscopic level),
- Machine learning
- Sustainability in transportation and civil engineering

TEACHING EXPERIENCE

- **Transportation Engineering**, Transportation systems, urban public transportation, transit system classification, vehicle characteristics and characteristics of public transportation, modes of public transportation vehicles, energy consumption, efficiency, transportation system analysis (capacity, productivity, efficiency, utilization). Design and operation of urban transportation systems. Intercity transportation: (land, air and water modes), introduction to urban goods movement, introduction about airport design

- **Traffic Engineering**, Characteristics of road system elements, spot speed, traffic volume, travels time and delay, parking, accidents. Fundamental principles of traffic flow, speed-volume-density relationships, intersection control, traffic signal design, capacity and level of service calculations for highway sections and intersections, traffic control devices.
- **Transportation Planning**, Types of planning, land use and transportation model. Transportation studies, data collection, and surveys of current demand, highway capacity studies, land use studies, and traffic volume studies. Environmental impact of transportation. Transportation modeling: trip penetration, trip distribution, modal split traffic assignment. Evaluation of transportation planning options, traffic impact analysis.
- **Highway Geometric Design**, Importance of highways. characteristics of highways, types and classification of highways, investigation of highway route, factors affecting the geometric design of highways, stopping and passing sight distances elements and design horizontal alignment, lateral clearance on horizontal curves, super elevation, transition curves, rotation diagrams, coordination of horizontal alignment, characteristics, types and design of vertical alignment, sight distance on vertical curves, highest and lowest points on vertical curves, coordination of vertical alignment
- **Materials and Pavement Design**, Types of pavements, materials used in flexible and rigid pavements, preparation of the sub-grade, area calculation, preparation of volume sheet and mass-hole diagram, strength properties of pavement structural layers, axle loads, design methods of highway flexible and rigid pavement, marshal method for hot mix design.
- **Probability and Engineering Statistic**, Descriptive Statistics. Probability, Random Variables, Discrete and Continuous distributions, Sampling Distributions and Confidence Intervals, Simple Linear regression, Correlation Analysis, Testing of hypothesis.
- **Engineering Economy**, Economic studies in engineering, Utility and time value of money, Cost concepts and classifications, Interest formulas, Economic equivalence, Bases for comparison of economic alternatives, and Rules of decision-making among alternatives..
- **Supervision of Graduate Projects**, Dr. Alhomaidat supervised/ co-supervised graduation projects of many undergraduate students (senior design projects).

MASTER THESIS SUPERVISION

- **Main Advisor** Master thesis: Sajedah Alosifat, "Utilizing Phosphate Mine Waste Rocks as Natural Aggregate in Asphalt Mixture: A Case Study from Jordan", July 2023
- **Co-Advisor** Master thesis, Rahaf zakria Enhancing Pedestrian Safety in Aqaba, Jordan with an Innovative Bollard Enhancing PedestSystem: A Statistical and Numerical Analysis, Expected July 2024

GRADUATION PROJECT SUPERVISION

- Traffic Impact Analysis for Ma'an Military Hospital, 2024
- Evaluation And Enhancing the Aqaba Roundabout, 2023
- Traffic Alternative Solution for Alsilawi Intersection, 2022
- Evaluation And Improvement of Signalized Intersection In Ma'an, Jordan, 2021
- Hydrological Study of Sharah Mountain Case Study - Tanks Design as a Solution for Floods in Wadi Musa, 2021
- Develop a safety performance function for multilane highway: A Case study from Amman, 2020

PROFESSIONAL TRAINING BACKGROUND

- **Al-Hussein Bin Talal University**
 - o Management of the university classroom, modern trends in teaching
 - o Subject file for study plan preparation
 - o Academic exchange with European universities

ACADEMIC SERVICE ACTIVITIES

- **Al-Hussein Bin Talal University**
 - o Member, Class schedule committee, civil engineering department 2019-2024
 - o Member, Academic Curriculum Committee, Civil Engineering Department 2019-2024
 - o Chair, Academic Curriculum Committee, Civil Engineering Department 2021-2022
 - o Member, Graduation Projects Committee, Civil Engineering Department, 2019-2023
 - o Chair, Committee on Requirements of Establishing the Rehabilitation in Civil Engineering Master Program in the Civil Engineering Department. , 2023
 - o Chair, Committee for the receipt of central tender No. (18/2023) for the renovation of the College of Engineering Auditorium 2024
 - o Chair, Committee for the receipt of central tender No. (11/2023) for the supply of materials and necessities for maintenance purposes, 2024
 - o Chair, Committee for supervision of the tender No. (2/2023) for the construction of the service and maintenance building, in 2024

FUNDED PROJECTS

- **Measuring usefulness of crash fact signs on speeding behavior: a case study from sahwai highway.** \$7,000. *Principal investigator*. Sponserd by AHU, Jordan, 2022.
- **Web crippling Numerical Investigation of Roll-formed Aluminum Channel Section with an opening.** \$37,000. Sponserd by AHU, Jordan, 2021.

PUBLICATIONS

JOURNAL PAPERS

- Al-Tarawneh, Mu'ath., **Alhomaidat, F.**, Twaissi, M., (2024) Unlocking insights from commercial vehicle data: A machine learning approach for predicting commercial vehicle classes using Michigan State data (1999–2017), *Results in Engineering*, 21, 101691
- AlTawaiha, H., **Alhomaidat, F.**, Eljufout, T., (2023) A Review of the Effect of Nano-Silica on the Mechanical and Durability Properties of Cementitious Composites, *Infrastructure* 8(9), 132
- Albdour, M., **Alhomaidat, F.**, Alrsai, M., Alsanat, H., Al-Zaidyeen, S., (2023) Proposal for Zero Energy Housing Prototypes in Jordan, *Energy, Sustainability and Society*
- **Alhomadiat, F.**, Hasan, R., Eljufout, T., Abbas, H., (2023) User's perceptions of electric, hybrid, and fuel-powered vehicles in Iraq and Jordan, *Case Studies on Transport Policy*, 12, 101004
- Eljufout, T., Hadadin, N., Haddad, A., **Alhomaidat, F.**, (2023) Correlation models for utilising rebound hammer technique in evaluating weathered limestone walls, *Australian Journal of Structural Engineering*, 24(1), 77-78
- **Alhomaidat, F.**, Hasan, R., Hananadeh, S., and Alhajyaseen, W. (2023) Using driving simulator to study the effect of crash fact signs on speeding behaviour along freeways. *International journal of injury control and safety promotion*, 30(1), 15-25
- Albdour, M. S., Shalby, M., Salah, A. A., & **Alhomaidat, F.** (2022). Evaluating and Enhancing the Energy Efficiency of Representative Residential Buildings by Applying National and International Standards Using BIM. *Energies*, 15(20), 7763.
- Hanandeh, S., Khliefat, I., Hanandeh, R., & **Alhomaidat, F.** (2022). Modeling the Free Flow Speed and 85th Percentile Speed Using Artificial Neural Network (ANN) and Genetic Algorithm.

- Hasan, R., Irshaid, H., **Alhomaidat, F.**, Lee, S., Oh, Jun-Seok, (2022) Transportation Mode Detection by Using Smartphones and Smartwatches with Machine Learning, KSCE Journal of Civil Engineering.
- **Alhomaidat, F.**, Abushattal, M., Kwayu, K., Kwigizile V., (2022) Investigating the interaction between age and liability for crashes at stop-sign-controlled intersections, Transportation Research Interdisciplinary Perspectives.
- Eljufout, T., and **Alhomaidat, F.**, (2021) Evaluation of natural building stones' characterizations using ultrasonic testing technique, Arabian Journal for Science and Engineering,
- **Alhomaidat, F.**, and Eljufout, T., (2021) Perception of cycling risks and needs associated with skill level, gender, and age, Archives of Transport
- Khlifefat, I., Naser, M., **Alhomaidat, F.**, and Hanadeh, S. (2021) Improving the Capacity and Level of Service at the Sixth Circle in Jordan by Using Traffic Signals and Roundabout Metering Approach, The Open Transportation Journal,
- **Alhomaidat, F.**, and Acosta-Rodriguez, L, (2021) How Does Pedestrian-Driver Behavior Influence in the Number of Crashes? A Michigan's Case Study, Transport and Telecommunication,22(2), 152-162
- **Alhomaidat, F.**, Kwigizile, V, and Oh, J (2020) Impacts of freeway speed limit on operation speed of adjacent arterial roads, IATSS Research, 2(4), 161-168
- **Alhomaidat, F.**, Kwigizile, V, Oh, J., and Van Houten, R. (2020) How does an increased freeway speed limit influence the frequency of crashes on adjacent roads?, Accident Analysis & Prevention, 136, 105433
- **Alhomaidat F.** and Ardekani S: A Statistical Comparison of Traffic Measurements from the Moving versus Stationary Observer Methods. Journal of Transportation Technologies, 5, 204 -2013 doi: 10.4236/jtts.2015.54019.

CONFERENCES PAPERS

- **Alhomaidat, F.**, Hasan, R.Hananadeh, S., and Alhajyaseen, W. (2022). Do Crash Fact Signs Improve the Speeding Behavior along Freeways? Driving Simulator Study. 2nd International Traffic Safety Conference, 2022, Qatar.
- **Alhomaidat, F.**, Kwigizile, V, and Oh, J. (2019). Impacts of Freeway Speed Limit on Operation Speed of Adjacent Arterial Roads. Presented at the 98th Annual Meeting of the Transportation Research Board (TRB), January 2019, Washington, D.C.
- **Alhomaidat, F.**, Kwigizile, V, and Oh, J. (2019). Cycling Risks and Needs Perception of Different Skill Levels and Age Groups. Presented at the 98th Annual Meeting of the Transportation Research Board (TRB), January 2019, Washington, D.C.
- **Alhomaidat F.**, Kwigizile V, Oh J, Al-fuqaha A, and Mohammadi S: The Relationship between Cycling Risk Perception and Skill Level of Different Age Groups. Presented By Alhomaidat at 6th Annual International Cycling Safety Conference, Davis, California, USA, September 2017.
- Acosta L, and **Alhomaidat F**: How does the pedestrian-driver behavior influence the number of crashes. Presented by Alhomaidat at Great lakes district Annual meeting, Lansing, Michigan, June 2017. –
- **Alhomaidat F**: Analyzing Grand Rapids' Pedestrian Crash Data Spatially Presented at IMGIN's 2017 Annual Conference, Travers City, Michigan, June 2017.

TECHNICAL REPORTS

- Oh, J. S., Kwigizile, V., Ro, K., Feizi, A., Kostich, B. W., Hasan, R. A. H., & **Alhomaidat, F.** (2017). Effect of Cycling Skills on Bicycle Safety and Comfort Associated with Bicycle Infrastructure and Environment (No. TRCLC 15-01). Western Michigan University. Transportation Research Center for Livable Communities. Al-Fuqaha, A., Mohammadi, S., Oh, J. S., Kwigizile, V., & **Alhomaidat, F.** (2017). Integrated Crowdsourcing Platform to Investigate Non-Motorized Behavior and Risk Factors on Walking, Running, and Cycling Routes (No. TRCLC 15-06).

OTHER RESEARCH ACTIVITIES

Reviewer for the following journal

- Accident Analysis & Prevention, Elsevier
- Ain Shams Engineering Journal, Elsevier

- Case studies on Transport Policy, Elsevier
- International Journal of Civil Engineering. Springer
- International Journal of Concrete Structures and Materials, Springer
- Energy for Sustainable Development, Elsevier
- Vehicles, MDPI
- Infrastructure, MDPI
- Sustainability, MDPI

AWARDS AND HONORS

- **ITE 2017 student paper winner** Oct 2017, Institute of Transportation Engineering Paper title "Cycling risk perception and skill level of different age groups."
- **2nd place IMAGIN's student best paper award** Apr 2017, IMAGIN "Improving Michigan Access to Geographic Information System" Paper title "Analyzing Grand Rapids' Pedestrian Crash Data Spatially"
- **2nd Place Best Poster Award** Jun 2016, Third Annual Summer Conference on Livable Communities Poster Title "An Experimental Investigation of Rider-Influenced Bicycle Dynamics in a Transportation Environment"
- **Ph.D. Full Scholarship from Al-Hussein Bin Talal University** Aug 2015, to earn Ph.D. degree in Transportation Engineering from WMU.
- **Master. Full Scholarship from Al-Hussein Bin Talal University** Aug 2015, to earn a Master's degree in Transportation Engineering from UTA

LANGUAGE PROFICIENCY

- **Arabic** Native language.
- **English** Speaking, Writing and Reading: Native level

ADDITIONAL SKILLS

- Design software: AutoCAD, HCS 2010, ArcMap GIS, and MicroStation Technical design.
- Simulation software: VISSIM, SYNCHRO, Trans CAD.
- Statistical software: STATA.
- Personal attributes: Good communication, planning, and organizational skills. Experience in working and managing within a changing environment. Self-motivator and the ability to motivate others.