Exponent®
Engineering & Scientific Consulting

Moein Hosseini, Ph.D.

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Professional Profile

Dr. Moein Hosseini works with clients to provide data-driven solutions to complex, interdisciplinary problems. He has 9+ years of experience applying statistical, optimization, and machine learning methods to provide solutions in the mobility, transportation, and civil infrastructure industries that include data visualization and dashboarding, robotic process automation (RPA), and natural language processing. His extensive experience includes working across all stages of the data science lifecycle, including data collection, data mining, data wrangling, exploratory data analysis, and machine learning implementation. Dr. Hosseini's interdisciplinary background spanning civil engineering, transportation engineering, and data science enables him to provide valuable and actionable support to clients facing complex and high-stakes business challenges.

Dr. Hosseini received his Ph.D. in Civil Engineering at Northwestern University, where his research used data analytics, data-driven optimization, and machine learning to address challenges caused by the continuous growth in travel demand on roadways and highways. As a research assistant in the Transportation Systems Analysis and Planning program, he worked on the opportunities created by vehicle automation technologies and advanced traffic management strategies to overcome these challenges caused by the continuous growth in travel demand.

Dr. Hosseini is experienced with data-oriented hardware and software development. He provides improved and customized solutions with long-lasting value that meet the current and anticipated future business needs of the client. His experience includes:

- Leading studies to achieve optimal alignment between the client's product or service and their customers;
- Optimizing data collection procedures through automation scripts;
- Software verification and validation; and
- Building software, data quality requirements, and testing plans to ensure the reliability and stability of the product.

Academic Credentials & Professional Honors

Ph.D., Civil and Environmental Engineering, Northwestern University, 2022

M.S., Transportation Engineering and Planning, University of Toronto, Canada, 2016

B.Sc., Industrial and Civil Engineering, Sharif University of Technology, Iran, 2014

Prior Experience

Transportation Analyst Intern, Kairos Air, 2017

Publications

Huang, Z., Hale, D. K., Shladover, S. E., Lu, X., Liu, H., Li, Q., Li, X., Mahmassani, H. S., Talebpour, A., Hosseini M., Elfar, A. Developing Analysis, Modeling, and Simulation Tools for Connected and Automated Vehicle Applications. No. FHWA-HRT-21-077. United States. Federal Highway Administration. Office of Operations Research and Development, 2021.

Hosseini, M., Mahmassani, H. S., Hale, D. K. Calibration framework for simulation tools to manage uncertain future conditions. Transportation Research Record, 2020;12: 348-359.

El-Diraby, T., Shalaby, A., Hosseini, M. Linking social, semantic and sentiment analyses to support modeling transit customers' satisfaction: towards formal study of opinion dynamics. Sustainable Cities and Society, 2019; 49: 101578.

Hosseini, M., El-Diraby, T., Shalaby, A. Supporting sustainable system adoption: socio-semantic analysis of transit rider debates on social media, Sustainable cities and society, 2018; 38: 123-136.

Bakht, M. N., El-Diraby, T. E., Hosseini, M. Game-based crowdsourcing to support collaborative customization of the definition of sustainability, Advanced Engineering Informatics. 2018; 38: 501-513.

Attarian, A., Hosseini, K., Abdi, H., Hosseini, M. The effect of the step height on energy dissipation in stepped spillways using numerical simulation, Arabian Journal for Science and Engineering, 2014; 39(4): 2587-2594.

Presentations

Hosseini, M., Mahmassani, H.S., Hale, D. A calibration framework for simulation tools to manage uncertain future conditions, 99th Annual Meeting of the Transportation Research Board, Washington, D.C., United States, 2020.

Hosseini, M., Shalaby, A., El-Diraby, T. Measuring customer satisfaction in public transit using online social media, 96th Annual Meeting of the Transportation Research Board, Washington, D.C., United States, 2017.

Hosseini, M., Nik-Bakht, M., El-Diraby, T. Social sentiment for sustainability of infrastructure mega-projects, CIB W78 Information Technology for Construction: 33rd International Conference, Brisbane, Australia, 2016

Hosseini, M., El-Diraby, T., Shalaby, A. A standard lexicon to measure the level of service of public transportation services through online transit-oriented discussions, Canadian Society for Civil Engineering (CSCE) Conference, London, Canada, 2016.

Hosseini, M., El-Diraby, T. Socio-semantic analysis of online discussions on public transit service, The 36th Sunbelt Conference of the International Network for Social Network Analysis, New Port Beach, California, United States, 2016.

Nik-Bakht, M., Hosseini, M., El-Diraby, T. Sustweetability: infrastructure sustainability-related topic classification in social media, CIB W78 Information Technology for Construction: 32nd International Conference, Eindhoven, Netherlands, 2015.

Hosseini, M., Hosseini, K. Hydraulic performance of the aqua-historical structures of Shoushtar, International Conference on Traditional Knowledge for Water Resources Management, Yazd, Iran, 2012.