

Mozhgan Nasr Azadani

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EDUCATION

- University of Ottawa (GPA: 4/4)** Ottawa, CA
Ph.D. in Computer Science, Supervisor: Prof. Azzedine Boukerche Jan 2019–Dec 2023 (Defended)
– Thesis title: “Driving Behavior Analysis and Prediction for Safe Autonomous Vehicles”
- Isfahan University of Technology (GPA: 3.74/4)** Isfahan, Iran
M.S. in Software Engineering, Supervisor: Prof. Nasser Ghadiri Sep 2015–Jan 2018

RESEARCH EXPERIENCE

- Graduate Research Assistant** Ottawa, CA
University of Ottawa, Paradise Research Lab Jan 2019 –Dec 2023
– Devised a transformer-based algorithm for multimodal motion forecasting under uncertainty.
– Designed a multimodal two-step goal and motion forecasting model (validated on Argoverse 1).
– Designed a context-aware and multiagent motion forecasting model for automated vehicles using IRL.
– Created interaction-aware models for motion forecasting using Spatio-Temporal Attention Graphs.
– Designed a multimodal motion planning and path prediction system using Graph Neural Networks.
– Designed a framework to extract driver embeddings for driver identification using Temporal Neural Networks.
– Created a framework for driver verification and impostor detection using Siamese Networks.
- Summer Research Intern** Isfahan, Iran
University of Isfahan Summer 2017
– Worked as a part of a team to design and develop a software for employees health, and assisted the lead researcher to design and plan a research agenda.
– Designed and developed a machine learning framework to summarize MHR using UMLS, and FP-Growth.
- Graduate Research Assistant** Isfahan, Iran
Isfahan University of Technology, Data and Knowledge Research Lab Sep. 2015 –Jan. 2018
– Designed a novel graph-based system to extract text summaries from Medical Health Records (MHR) more accurately according to the ROUGE metric.

PEER-REVIEWED PUBLICATIONS

JOURNALS

- **M. N. Azadani**, and A. Boukerche “Hierarchical Transformers for Motion Forecasting based on Inverse Reinforcement Learning”, *IEEE Transactions on Vehicular Technology*, 2024
- **M. N. Azadani**, and A. Boukerche “CAPHA: Context-Aware Path Prediction of Heterogeneous Agents”, *IEEE Transactions on Vehicular Technology (accepted)*, 2023
- **M. N. Azadani**, and A. Boukerche “STAG: A novel interaction-aware path prediction method based on Spatio-Temporal Attention Graphs for connected automated vehicles”, *Journal of Ad Hoc Networks*, 2023

- **M. N. Azadani**, and A. Boukerche “A Novel Multimodal Vehicle Path Prediction Method Based on Temporal Convolutional Networks ”, *IEEE Transactions on Intelligent Transportation Systems*, 2022
- **M. N. Azadani**, and A. Boukerche “Siamese Temporal Convolutional Networks for Driver Identification Using Driver Steering Behavior Analysis ”, *IEEE Transactions on Intelligent Transportation Systems*, 2022
- **M. N. Azadani**, and A. Boukerche “DriverRep: Driver Identification through Driving Behavior Embeddings ”, *JPDC journal*, 2022
- **M. N. Azadani**, and A. Boukerche “Driving Behavior Analysis Guidelines for Intelligent Transportation Systems”, *IEEE Transactions on Intelligent Transportation Systems*, 2021
- **M. N. Azadani**, N. Ghadiri, and E. Davoodijam “Graph-based biomedical text summarization: An itemset mining and sentence clustering approach”, *Journal of Biomedical Informatics*, 2018

SELECTED CONFERENCES

- **M. N. Azadani**, and A. Boukerche “A Novel Transformer-Based Model for Motion Forecasting in Connected Automated Vehicles”, *IEEE International Conference on Communications (ICC)*, 2024 (accepted)
- **M. N. Azadani**, and A. Boukerche “GMP: Goal-based Multimodal Motion Prediction for Automated Vehicles”, *IEEE Global Communications Conference (GLOBECOM)*, 2023 (accepted)
- **M. N. Azadani**, and A. Boukerche “ A Context-Aware Path Forecasting Method for Connected Autonomous Vehicles”, *IEEE International Conference on Communications (ICC)*, 2023 (accepted)
- **M. N. Azadani**, and A. Boukerche “ A Social-Aware Vehicle Path Forecasting Method using Graph Neural Networks”, *ACM MSWIM*, 2023 (accepted)
- **M. N. Azadani**, and A. Boukerche “An Interaction-Aware Vehicle Behavior Prediction for Connected Automated Vehicles”, *IEEE IEEE International Conference on Communications (ICC)*, 2022
- **M. N. Azadani**, and A. Boukerche “An Internet-of-Vehicles Powered Defensive Driving Warning Approach for Traffic Safety ”, *2021 IEEE Global Communications Conference (GLOBECOM)*, 2022
- **M. N. Azadani**, and A. Boukerche “Toward Driver Intention Prediction for Intelligent Vehicles: A Deep Learning Approach”, *IEEE 46th Conference on Local Computer Networks (LCN)*, 2021
- **M. N. Azadani**, and A. Boukerche “Driver Identification Using Vehicular Sensing Data: A Deep Learning Approach”, *IEEE Wireless Communications and Networking Conference (WCNC)*, 2021

TEACHING EXPERIENCE

Graduate Teaching Assistant, University of Ottawa

Teaching, mentoring, organizing and supervising lab sessions, marking of assignments and final projects, proctoring, providing feedback for 9 courses and 500+ students

- **Corrector/Teaching Assistant** Fall 2019, 2020, 2021, 2022, Winter 2023
Cryptography and PET, Prof. Carlisle Adams
- **Teaching Assistant** Winter 2022
Natural Language Processing (NLP), Prof. Diana Inkpen
- **Teaching Assistant** Winter 2020
Data Mining and Concept Learning
- **Teaching Assistant** Spring 2020, Winter 2021, Winter 2023
Introduction to Formal Languages

Graduate Teaching Assistant, Isfahan University of Technology

Marking assignments and final projects, proctoring, providing feedback for two courses and 120+ students

- **Teaching Assistant** Winter 2016
Advanced Database Systems, Dr. Nasser Ghadiri
- **Teaching Assistant** Fall 2016
Database systems II, Dr. Maryam Lotfi Shahreza

RELEVANT SKILLS

- **Programming Languages:** Proficient with Python and LaTeX. Familiar with Java, C++, Matlab, R, Go.
- **Tools:** Pytorch, Tensorflow, Numpy, Pandas, Scikit-Learn, Matplotlib

RESEARCH INTEREST

- **Robotics**
- **Computer vision**
- **Vehicle and human motion forecasting**
- **Machine learning**

OTHER PROFESSIONAL ACTIVITIES

Peer Reviews

I have been a reviewer for several international journals and conferences including:

- IEEE Transactions on Intelligent Vehicles 2023 –present
- IEEE Access 2022 –present
- Transactions on Mobile Computing 2022 –present
- Transactions on Consumer Electronics 2022 –present
- Applied Artificial Intelligence 2022 –2023
- Open transportation journal 2022
- PIMRC 2023
- ICDCS 2022

INVITED TALKS

- **Driving Behavior Analysis Guidelines for Intelligent Transportation Systems** Feb 2023
Principle of Intelligent Transportation Systems, University of Ottawa, ON, Canada
- **Graph-based Biomedical Text Summarization** Nov 2017
Isfahan University of Technology, Isfahan, Iran

SCHOLARSHIPS AND AWARDS

- **Admission Scholarship**, University of Ottawa 2021–2023
- **International Doctoral Scholarship**, University of Ottawa 2019 –2023
- **Excellence in Graduate studies**, Isfahan University of Technology 2018