Umair Durrani

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Summary

- Highly skilled Transportation Data Scientist and Engineering Professional with over 7 years of experience in developing traffic simulation and driver models leading to 10 publications and presentations
- Strong communication and leadership skills with the ability to translate complex transportation data to innovative solutions as demonstrated by > 10 taught courses and 1 award
- Excellent skills in collaboration and project management to motivate team members to set well-defined goals and accomplish them within deadlines as evidenced by > 5 completed projects

Work Experience

Transportation Data Scientist as Research Assistant 2013 – Present

University of Windsor

- Developed workflows for data extraction, analysis, mapping and reporting in R and Python, resulting in completion of 4 collaborative research projects with various stakeholders including Ministry of Transportation, Ontario
- Designed and conducted 5 unique driving studies to collect data in various scenarios to understand human behaviour in traffic
- Analyzed and visualized data, tackled challenging questions, performed statistical modeling, and machine learning to push the state of the art in traffic modeling, resulting in 3 peer-reviewed articles and > 5 conference presentations

Projects:

Investigating Mental Workload in Manual Driving Conditions, Government of South Korea

- Developed a driving simulator study to collect data on driver mental workload under distraction

Mitigating Distracted Driving based on Understanding of Drivers' Personality, Motivational, and Mobile Phone Dependency Characteristics. Road Safety Research Partnership Program (RSRPP), Ministry of Transportation of Ontario

- Developed and deployed a dashboard application that worked with real-time driving simulator data to evaluate driver distraction due to music and navigation tasks

Safety Impacts of a Variable Speed Limit System. Highway Infrastructure Innovation Funding Program (HIIFP), Ministry of Transportation of Ontario

- Assisted in the development of a new criterion to propose various sites for the deployment of the Variable Speed Limit System in Ontario
- Developed an interactive map application for the visualization of precipitation and proposed sites for the Variable Speed Limit System in Ontario

Traffic Simulation Modeler as Research Assistant 2015 – Present

University of Windsor

- Developed simulations with intelligent participants in traffic using R programming and PTV VISSIM, capturing real-world human behaviour, resulting in 4 peer-reviewed articles and > 5 conference presentations
- Optimized the speed of traffic simulation by developing C++ programs, gaining > 70% efficiency

Projects:

A New Car-Following Model with Incorporation of Sensorimotor Control in Sustained Motion Tasks

- Developed a new model that realistically simulated the driving behaviour in traffic

Project Manager as Instructor Jun. 2019 – Present

St. Clair College

- Lead student teams to complete machine learning and data analysis capstone projects, resulting in > 10 successfully completed projects

Education

Ph.D. Civil Engineering

University of Windsor, Windsor, Ontario, Canada

B.Sc. Transportation Engineering

University of Engineering and Technology Lahore, Pakistan

Software and Skills

R	Python	C++
PTV VISSIM	GIS	Traffic Simulation
Data Analysis	Machine Learning	