MUSFIRA RAHMAN
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SUMMARY

Experienced Transportation Engineer with expertise on managed lane demand forecasting and choice modeling, travel behavior, traffic and revenue study, transportation planning models, traffic signal design and optimization. Experienced in applying data-driven decision-making, machine learning, and statistical modeling to address challenges complex transportation engineering challenges.

Check my PORTFOLIO here: https://musfirarahmanporfolio.de/

SKILLS

Programming languages and data analysis packages: C++, MATLAB, Python (Scikit-learn, Keras, PyTorch, TensorFlow, geopandas), R, MATLAB, SQL, SAS, R-studio, SAS, Microsoft Excel (Experienced in VLOOKUP, and Pivot Table), Power BI, Tableau

Simulation & Visualization Software: ArcGIS, AutoCAD, Open Street Map (OSM), Abaqus CAE, PTV VISSIM, CORSIM, SYNCHRO

Project & Stakeholder Management: TxDOT coordination, public engagement, & grant proposal writing.

EDUCATION

Texas A & M University, College Station, TX, U.S.A **Sept 2021 - Dec 2025 (Anticipated)**
Doctor of Philosophy in Civil Engineering (Transportation)|GPA: 3.67/4.00

University of Texas at San Antonio, TX, U.S.A **Sept 2019 – May 2021**
Degree: Master of Science in Civil Engineering (Transportation)|GPA: 4.00/4.00

Bangladesh University of Engineering & Technology, Dhaka, Bangladesh **May 2012 - Feb 2017**
Bachelor of Science in Civil Engineering |GPA: 3.65/4.00

RESEARCH AND PROJECT EXPERIENCE

Texas A & M Transportation Institute, Bryan, TX **Feb 2024- August 2025**

Graduate Assistant Researcher |Division- Freight Analysis

Projects

- Conducted statistical and data driven modeling and GIS-based analysis and visualizations to assess multimodal freight transportation corridors
- Analyzed freight accessibility analysis using population data from US Census and American Community Survey (ACS) and socio-demographic data in Harris County
- Calculating freight accessibility metrics (O-D cost metrics and service area) using Network Analyst tool
- Machine learning based approach in analyzing the traffic impact analysis at the port areas
- Performing geospatial analysis using Geographic Information System (GIS) software ArcGIS and ArcMap and Creating maps

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Graduate Assistant Researcher |Division- Infrastructure Investment Analysis **Jan 2022- Jan2024**

- Incorporated behavioral perspective of drivers in express lane choice-based demand modeling using real-world data via GPS tracking using a custom TTI app
- The methodology includes data extraction from RITIS (NPMRDS data) and backend website from a smartphone app developed by TTI using Python
- Analyzed Qualtrics based travel survey data and demographic data, real-word GPS based data from respondent tracking

- Developed advanced deep learning model and discrete choice models (e.g., hybrid choice model, mixed logit model)
- Incorporating travelers' experience-based learning models using Bayesian Inference and Stochastic Learning Automata (SLA).
- Performed data analysis, visualization and GIS tasks using Python, ArcGIS, QGIS and MS Excel.

Equity analysis in Vehicle Miles Traveled (VMT) Fee system (Independent project)

- Generated the project idea to conduct equity analysis of VMT fee system for people in different income groups and geographic regions (URBAN/RURAL) using NHTS (National Household Travel Survey) data and published two journal papers.
- Experienced in National household travel survey data.

Texas A & M Transportation Institute, Bryan, TX **Sept 2021- Dec 2021**

Graduate Student Worker

- Highway Safety Project; Assisting with literature review and data collection.

Graduate Teaching and Research Assistant**,** The University of Texas at San Antonio **Aug 2019- May 2021**

- Assisted in teaching and mentoring
- Designed a skid-resistant, high-transparency material as a solar panel surface, with self-cleaning properties.
- Created a Finite Element Model to analyze the solar module's performance under traffic loads.
- Conducted data analysis on a large geographical urban infrastructure database.

Undergraduate Research Assistant**,** Bangladesh University of Engineering & Technology **Jan 2016 - Dec 2016**

- Optimized the mix at 10% fly ash replacement, improving its engineering properties and minimized the risk of leaching heavy metal from the landfill and for developing an efficient waste management strategy.

Other Important Projects

- Evaluating Public Transit Equity and Accessibility using GTFS data for Dallas County using ArcGIS Pro Network Analyst tool
- Analysis of the traffic movement patterns and traffic flow performance on 11th Street Huntsville, TX at the 5 intersections: SH 75 North/Ave Q, Ave O, Ave M, Sam Houston Ave/SH 75 South, and University Ave using TransModeler traffic simulation software
- Develop and evaluate signal timing plan using SYNCHRO, HCS and VISSIM.
- Analysis of the Operational efficiency of a Protected-Permitted Left Turn Over Protected Only Left Turn Movement

LEADERSHIP and Organizations

Member**,** ASCE Student Chapter [**March 2022- Present**]

Officer**,** Institute of Transportation Engineers (ITE) Student Chapter *[**February 2022 – December 2022**]*

Social Media Officer**,** Women Transportation Seminar (WTS) Student Chapter *[**October 2022 – November 2023**]*

Other Volunteering Activities

- Working as a TRB reviewer
- Working as a Champion volunteer for the "TRM Intl. Symposium on Managed Lane".

AWARDS AND HONORS

- Obtained "2025 Andy Mullins Transportation Planning Fellowship" by Texas A&M Transportation Institute.
- Won the prestigious "WTS Helene M. Overly Memorial Scholarship of $7000 for the 2023-2024 cycle" by WTS-Houston Mother chapter:
- Won the 3rd place at TAMID student data challenge 2024.

- First prize in Science Fair BCSIR (Bangladesh Council for Scientific Research and Development.
- Technical merit scholarship, BUET, Bangladesh