Sayed Shahriar Islam Lamun

+880 1759-542327 u2101093@student.cuet.ac.bd linkedin.com/in/shahriarlamun github.com/Lamun365

Education

Bachelor of Science – Department of Civil Engineering **2023 – Present**
Chittagong University of Engineering and Technology (CUET) *Chattogram, Bangladesh*

Research Interests

My main research interests are applying **machine learning** (ML) and **artificial intelligence** (AI) in **transportation** and **structural engineering** to develop data-driven solutions for **traffic optimization** and **structural health monitoring**.

Selected Publications (Full List on Google Scholar)

IICAIET 2025 Mahbub Hassan, Syeda Tamzida Akter, Sayed Shahriar Islam Lamun, Touhid Bhuiyan, and Md Maruf Hassan. ***Explainable Machine Learning for Understanding Trip Mode Choice: Evidence from the 2022 U.S. National Household Travel Survey.*** IEEE International Conference on Artificial Intelligence in Engineering and Technology, 2025.

SPICSCON 2025 Sayed Shahriar Islam Lamun, Syeda Tamzida Akter, Jeba Tahsin, Sanupa Sarkar. ***Explaining Household Access to Heavy Rail Services Using Interpretable Machine Learning: Evidence from the 2022 U.S. National Household Travel Survey.*** IEEE International Conference on Signal Processing, Information, Communication and Systems, 2025.

Under Review Submissions

Concrete Surface Deterioration Detection and Classification Using YOLOv11: An AI-Driven Approach
Status: Under review at AI in Civil Engineering
Preprint: [SSRN]

Engineering Projects

Assessing CAV Penetration Effects on a 2-km Expressway with SUMO: A Case Study **June 2025**

- Quantify operational impacts across CAV penetration levels (25/50/75/100%)—average speed, travel time, delay, and throughput with statistical significance testing.
- Assess traffic stability and safety surrogates from FCD.
- Estimate environmental effects by computing per-vehicle-km and network-total fuel and emissions (CO_2, NOx, PM), normalized by throughput to detect diminishing returns.

Source: [github]

Accident Risk Prediction in Melbourne, Australia **June 2025**

- Analyzed Victoria Road Crash Dataset to identify accident patterns.
- Developed chatbot for real-time warnings on high-risk zones.
- Provided safety insights (severity, fatalities, crash types) and personalized driving recommendations.

Source: [Chatbot]

ML-Driven Chatbot for Concrete Corrosion Prediction **April 2025**

- Applied ML and image processing to predict corrosion in reinforced concrete.
- Developed a software tool enabling engineers to input field data and get real-time corrosion risk predictions.
- Supported infrastructure maintenance planning and long-term durability forecasting.

Source: [Chatbot]

Technical Skills

Programming Languages: Python, C/C++, Java, Kotlin
Tools & Others: PyTorch, TensorFlow, SUMO, YOLO, ArcGIS, ETABS, Scikit-Learn, Gym/Gymnasium, Pandas, NumPy, Matplotlib, OpenCV, Autocad, Git, LATEX, Android Studio, VS Code