MD. MEHEDI HASAN

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Research Interests

Behavioral machine learning, social engineering detection, interpretable AI, socio-economic modeling, continual learning, and geospatial risk prediction. Focused on building AI systems that are explainable, fair, and grounded in real-world human behavior.

Education

Dhaka International University *Sep 2023 – Dec 2027*
Bachelor of Science in Computer Science and Engineering
CGPA: 3.75 / 4.00

BAF Shaheen College Jashore *Sep 2020 – Dec 2022*
Higher Secondary Certificate
GPA: 4.75 / 5.00

Research Projects

Programmer Attrition Prediction (BIM 2025)

- Developed an interpretable socio-economic ML framework to predict developer attrition using behavioral + demographic features.
- Achieved high model transparency via SHAP; evaluated with cross-validation.
- *Methods: XGBoost, SHAP, feature importance analysis*

Feature Fusion for Attrition Modeling (BIM 2025)

- Designed a complementary approach fusing behavioral traces and organizational metadata to improve prediction stability.
- Demonstrated robustness across diverse team structures.
- *Methods: Ensemble modeling, feature selection*

SafeRoads – Geospatial Risk Prediction

- Built an ML system to identify high-risk urban road segments using traffic, weather, and historical accident data.
- Supports urban planners and navigation systems with risk-aware routing.
- *Methods: Geospatial ML, XGBoost, spatial clustering*

MeteorShield – NASA Space Apps Challenge 2025

- Created a planetary defense platform using NASA NEO data with real-time 3D visualization (Three.js).
- **Champion (Barisal Division), Global Nominee, Honorable Mention**
- Focused on public education and disaster awareness through data storytelling.

SaveFood – AI for Food Waste Reduction

- Trained time-series ML model (XGBoost) to predict food spoilage from IoT sensor data (F1: 0.89).
- Integrated waste analytics dashboard and personalized recipe suggestions.

SciGenie – One-click EDA & AutoML

- Accelerated research prototyping with automated exploratory data analysis and AutoML (Random Forest, XGBoost, Auto-Sklearn).

Publications

1. **Hasan, M. M.**, Rakib, R., Molla, M. A., Borhan, R., Based, M. A. **A Socio-Economic Machine Learning Framework for Predicting Programmer Retention.** *Proceedings of BIM 2025.* [Accepted]
2. **Hasan, M. M.**, Mahin, A. A., Chakraborty, S., Afrose, M., Mia, M. A., Based, M. A. **Behavioral and Demographic Feature Fusion for Developer Attrition Modeling.** *Proceedings of BIM 2025.* [Accepted]
3. Molla, M. A., Rakib, R., **Hasan, M. M.**, et al. **Earthquake Magnitude Prediction Using USGS Seismic Records.** . [Under Review]
4. Mahin, A. A., **Hasan, M. M.**, et al. **A Modular Framework for Continual Reinforcement Learning in Dynamic Robotic Environments.** [Under Review]

Achievements

NASA International Space Apps Challenge 2025 — Champion (Barisal), Global Nominee, Honorable Mention — Team Polaris
National Data Analytics Competition (NDAC) 2025 — Daffodil International University
Eastern Bank PLC Technovation'25 National Hackathon — Participant

Professional Affiliations

IEEE — Student Member (Valid through Dec 2026)
IEEE Computer Society — Student Member (Valid through Dec 2026)

Leadership & Community

DIU CSE Speakers Club — General Secretary *May 2025 – Present*
DIU Career Development Club — Head, Research and Training Wing *Aug 2025 – Present*
BASIS Students' Forum (DIU Chapter) — Executive Member *Sep 2024 – Oct 2025*

Technical Skills

Languages: Python, C, Java, SQL (MySQL, PostgreSQL)
ML Frameworks: Scikit-learn, TensorFlow, PyTorch, Auto-sklearn
Data Tools: Pandas, NumPy, Matplotlib, Seaborn
Dev Tools: Git, GitHub, VS Code, Google Colab, Kaggle
Specialized: Interpretable AI (SHAP), Geospatial Analysis, Time-series Forecasting, AutoML