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: 3.76 / 4.00

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

Projects

SocialAI – Autonomous Engagement Framework

- Engineered a distributed, scalable platform integrating LLM agents and resilient proxy routing for automated social media content generation and task execution at scale.

SafeRoads – Geospatial Risk Prediction

- Built a system identifying high-risk road segments using traffic, weather, and accident data.
- Supports urban planning and risk-aware navigation.
- *Methods: Geospatial ML, XGBoost, Spatial Clustering*

MeteorShield – NASA Space Apps Challenge 2025

- Developed a planetary defense visualization platform using NASA NEO datasets.
- **Champion (Barisal Division), Global Nominee, Honorable Mention**
- Focused on data storytelling and public awareness.

SaveFood – AI for Food Waste Reduction

- Trained time-series ML models to predict food spoilage from IoT sensor data (F1-score: 0.89).

AgroHub – IoT & ML Smart Agriculture

- Real-time farm monitoring and ML-driven decision support system for smallholder farmers to optimize yield.

DevBurn — Developer Analytics Engine

- A robust TypeScript-based full-stack engine designed to analyze developer workflows, integrating GitHub services with burnout tracking algorithms.

AI Learning Platform

- An AI-powered supplementary educational platform built to enhance university coursework with intelligent assistance and interactive tracking.

CryptoTracker

- A real-time cryptocurrency portfolio management application for tracking live market data and analyzing asset performance.

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.** *Accepted at BIM 2025 (Taylor and Francis Books)* [Accepted]

2. **Hasan, M. M.**, Mahin, A. A., Chakraborty, S., Afrose, M., Mia, M. A., Based, M. A. **Fraud Detection with DistilBERT A Transformer-Based Approach to Behavioral Banking Sequences.** *Accepted at BIM 2025 (Taylor and Francis Books)* [Accepted]

3. **Hasan, M. M.**, Mahin, A. A., Afrose, M., Based, M. A. **MEWC-RL++: A Modular and Adaptive Continual Reinforcement Learning Framework for Automation Systems in Structured but Evolving Environments.** *Accepted at ECCT 2026 (Taylor and Francis Books)* [Accepted]

4. Mrida, M. A. R., **Hasan, M. M.**, Ausaf, S. M. N., Ray, P. C., Based, M. A. **Impact of Social Media Usage on Academic Performance: A Hybrid Machine Learning and SEM Approach.** *Accepted at ECCT 2026 (Taylor and Francis Books)* [Accepted]

5. Biswas, S., **Hasan, M. M.**, Rakib, R., Mahin, A. A., Afrose, M., Based, M. A. **Lightweight Deep Learning for Urban Traffic Intelligence: A MobileNetV2-YOLOv8 Pipeline with Adaptive Resolution Processing.** *Accepted at ECCT 2026 (ACSR, Atlantis Press, Springer Nature)* [Accepted]

6. Asif, M., **Hasan, M. M.**, Based, M. A. **Federated and Explainable Machine Learning Framework for Cyber Attack Detection in Smart Grids.** *Accepted at ECCT 2026 (Taylor and Francis Books)* [Accepted]

7. **Hasan, M. M.**, Hossain, M. A., Mahin, A. A., Khatun, F. **Student-YOLOv8: A YOLO-Based Deep Learning Approach for Real-Time Student Detection and Face Recognition in Classroom Attendance Monitoring Systems.** *Accepted at IUB Journal of Science and Engineering (AJSE)* [Accepted]

8. Rion, A. M., Pallob, M. M. I., Rakib, R., Molla, M. A., **Hasan, M. M. Cross-Cultural Early Detection of Suicidal Ideation in Adolescents: An Ensemble Machine Learning Approach Using GSHS Data.** *Accepted at TENCON 2026-IEEE* [Accepted]

9. Molla, M. A., Rakib, R., **Hasan, M. M.**, Pallob, M. I., Rion, A. M., Based, M. A. **A Hybrid Explainable AI Framework for Concurrent Earthquake Magnitude Estimation and Severity Classification.** *Accepted at MIET 2026 (Springer Nature LNNS Book Series)* [Accepted]

10. Molla, M. A., Rakib, R., Pallob, M. I., **Hasan, M. M.**, Rion, A. M. **FairCF: Fair Counterfactual Explanations for Student Academic Performance Prediction.** *Accepted at ICAIMS 2026-Malaysia (IEEE)* [Accepted]

11. **Hasan, M. M.**, Pallob, M. M. I., Based, M. A. **Digital Transformation for Sustainable Universities: Modeling the Convergence of MIS, IoT, and Governance.** [Under Review (Journal)]

12. **Hasan, M. M.**, Mahin, A. A., Afrose, M., Based, M. A. **War, Media Bias, and Socio-Economic Consequences: A Centennial Analysis of the Narrative-Reality Index (1914–2026).** [Under Review (Journal)]

13. **Hasan, M. M.**, Rahman, M. M., Mrida, M. A. R., Based, M. A. **A Hybrid Explainable Machine Learning Framework for Customer Lifetime Value Prediction and Its Socio-Economic Implications in Emerging Digital Markets.** [Under Review]

14. Rakib, R., **Hasan, M. M.**, Molla, M. A., Based, M. A. **A Relational Database-Driven Real-Time Cryptocurrency Portfolio Management System with Automated ETL Integration.** [Under Review]

15. Rahman, M. M., **Hasan, M. M.**, Based, M. A. **SafeRoads: AI-Driven Proactive Risk Synthesis and Data-Centric Infrastructure Audits for Road Safety in Low- and Middle-Income Countries.** [Under Review]

16. Molla, M. A., **Hasan, M. M.**, Rakib, R., Borhan, R., Based, M. A. **Urban–Rural Inequality in Tech Career Intention: A Machine Learning Perspective.** [Under Review]

17. **Hasan, M. M.**, Molla, M. A., Rakib, R., Borhan, R., Based, M. A. **Socio-Economic Determinants of Programming Skill Development in Undergraduate CS Students.** [Under Review]

18. Rakib, R., Molla, M. A., **Hasan, M. M.**, Borhan, R., Based, M. A. **Explainable AI for Understanding Motivation in Choosing Computer Science Careers.** [Under Review]

19. Afrose, M., **Hasan, M. M.**, Mahin, A. A., Based, M. A. **Fairness-Aware HIV Risk Prediction in Bangladesh Using Behavioral and Explainable AI.** [Under Review]

20. Mahin, A. A., **Hasan, M. M.**, Rakib, R., Molla, M. A., Based, M. A. **A Modular Framework for Continual Reinforcement Learning in Dynamic Robotic Environments.** [Under Review]

21. Mahin, A. A., **Hasan, M. M.**, Afrose, M., Mia, M. A., Based, M. A. **Interpretable Machine Learning for Depression Risk Classification Among Bangladeshi University Students: Identifying High-Functioning Depression.** [Under Review]

22. **Hasan, M. M.**, Rakib, R., Molla, M. A., Based, M. A. **Women's Psychology and Its Socioeconomic Impact on Male Partners and Relationships.** [Ongoing Research]

23. **Hasan, M. M.**, Molla, M. A., Rakib, R., Based, M. A. **THE DUAL PARADOX: AI Investment and Workforce Displacement in Global Corporations.** [Ongoing Research]

24. Afrose, M., **Hasan, M. M.**, Based, M. A. **MEWC-LLM: Memory-Efficient Weight Consolidation for Large Language Models – Adaptive Stability–Plasticity Optimization for Factual Continual Learning.** [Ongoing Research]

Achievements

NASA International Space Apps Challenge 2025 — Champion (Barisal), Global Nominee, Honorable Mention — Team Polaris
National Data Analytics Competition (NDAC) 2025 — Participant
Eastern Bank PLC Technovation'25 National Hackathon 2025 — Participant
BUET CSE FEST National Hackathon 2026 – Participant

Professional Affiliations

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

Leadership & Community

DIU Computer Programming Club - President *April 2026 – Present*
DIU CSE Speakers Club — General Secretary *May 2025 - March 2026*
DIU Career Development Club — Head, Research and Training Wing *Aug 2025 – Dec 2025*
BASIS Students' Forum (DIU Chapter) — Executive Member *Sep 2024–Oct 2025*

Technical Skills

Languages: Python, C, Java, SQL
ML Frameworks: Scikit-learn, TensorFlow, PyTorch, Auto-sklearn, LLMs / GenAI
Automation & Bots: Workflow automation, intelligent bots, web automation (Selenium, Playwright), API automation, task scheduling, RPA concepts, proxy engineering, logging & exception handling
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