

Md. Bipul Islam

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Research Interests

Artificial Intelligence · Machine Learning · Pattern Recognition · Data Science, Data Visualization · Deep Learning · Computer Vision
Natural Language Processing · Data Mining and Big Data Analytics · Large Language Models (LLMs) · Explainable AI (XAI)

Academic Credentials

M.Sc. (Engineering) in Computer Science and Engineering,

July 2026 (Expected)

Hajee Mohammad Danesh Science and Technology University, Dinajpur, Bangladesh

Thesis Supervisor: [Dr. Ashis Kumar Mandal](#)

CGPA: 3.85/ 4.00 (First Semester)

B.Sc. (Engineering) in Electrical and Electronic Engineering,

December 2019

Hajee Mohammad Danesh Science and Technology University, Dinajpur, Bangladesh

CGPA: 2.92 / 4.00

Technical Strengths Standardized Test Scores

- **AI & Data Science:** NumPy, Pandas, Matplotlib, Seaborn, SciPy, Scikit-learn, PyTorch, Tensorflow, Hugging Face Transformers, spaCy, OpenCV, PySpark, Keras, NLP, DASK, XAI
- **Programming Languages:** C, C++, Java, Kotlin, Python, Swift, Dart, R, SQL, SAS
- **Research & Data Tools:** Jupyter Notebook, Google Colab, LaTeX, MATLAB, R, Excel, SPSS, Minitab, TORA, NetworkX, ggplot2, plotly, Zotero, Mendeley
- **Database:** MySQL, PostgreSQL, MongoDB, Hadoop, Spark
- **Software Development:** Android App (Java, Kotlin, Flutter), iOS App (Swift, Objective-C, Flutter)
- **REST API Development:** Spring Boot (Java, Kotlin), Ktor (Kotlin), Django, Fast API (Python)
- **Additional Skills:** Statistical Analysis, Data Processing, Feature Engineering, Technical Writing, Academic Presentations

Standardized Test Scores

Graduate Record Examination (GRE) – 15th February, 2024

Total	Quantitative	Verbal	Analytical Writing
305	159	146	3.5

Duolingo English Test (DET) – 13th January, 2024

Overall	Literacy	Comprehension	Conversation	Production
120	115	135	110	95

Work Experiences

1. Software Engineer (Android & iOS) – Team Leader

Walton Digi-Tech Industries Ltd, Dhaka, Bangladesh

Mar 2022 – Dec 2024

- Led development of cross-platform apps, including Bench Educational App & HRMS, for internal use and clients.
- Built IoT-based Android apps for Walton Tick Smart Watch and FitPro Smart Weight Scale, enabling real-time device communication and data analytics.
- Managed app lifecycle, REST API integration, cloud sync, and mentored junior developers.

2. Android Application Developer

Hovata Technologies, Dhaka, Bangladesh

Jan 2020 – Feb 2022

- Developed IoT-based Android apps including Digital Petrol Pump (Petrol ERP & POS), Smart Parking Management System (Hovata Parking), and Smart Wallet Management App (Linn Books).
- Implemented real-time device communication, secure transactions, and cloud integration for digital solutions.

Research Experience

Graduate Research Assistant, Computer Science Lab, HSTU

Jan 2025 - Present

- Conducting research in AI, Machine Learning, and Deep Learning, focusing on representation learning and transfer learning across diverse datasets.
- Evaluating pre-trained models (Kinetics-400, MiT, LLMs) using strategies such as full fine-tuning, linear probing, and few-shot learning.
- Applying methods in Computer Vision and NLP with PyTorch, TensorFlow, Hugging Face, spaCy, and PySpark for large-scale experiments and analysis.

Research Assistant, Walton ICT Lab (R&D Lab), Walton

Mar 2023 - Dec 2024

- Researched and developed cross-platform mobile and IoT software products, including educational systems, HR management tools, and smart device applications

Independent Researcher

Jan 2024 - Present

- Conduct independent and collaborative research on AI, ML, and DL, focusing on interdisciplinary approaches, quantum machine learning, explainable AI, and computer vision.
- Develop novel methodologies integrating electrical engineering and genomics, publishing findings on trustworthy AI, uncertainty quantification, and efficient deep learning.

Research Publications

[1] **Md. Bipul Islam**, Abdur Rakib, Md. Hafizul Islam, “Decoding Public Perceptions of the July Revolution in Bangladesh: A Multimodal Social Media Sentiment Analysis Using Hybrid Transformer Models” – 2025 17th International Conference on Electronics, Computers and Artificial Intelligence (ECAI)

[2] **Md. Bipul Islam**, Md. Hafizul Islam, Dino Nath Roy, “Leveraging Machine Learning for Child Education: Insights from the Bangladeshi Context” – Proceedings of the 27th International Conference on Computer and Information Technology (ICCIT), 2024

[3] **M. Bipul Islam**, M. Azad and M. Ashik-Uz-Zaman, “Smart IoT Framework for Real-Time River Pollution Tracking and Flood Forecasting in Bangladesh”, International Conference on Innovation in Engineering and Technology (ICIET). IEEE, 2024, pp. 1–5, Dhaka

Teaching Experience

Assistant DSA Instructor

Jan 2025 - Present

- I assist Dr. Ashis Kumar Mandal to teach Data Structures and Algorithms to 2nd year undergraduate students in the Computer Science and Engineering department at the HSTU

Private Instructor

Jan 2023 - Present

- Mentor students individually and teach Computer Programming (C, C++, Java, Python) to undergraduate and high school level students.
- I teach professional Android & iOS app development with projects and help my students to secure jobs.
- I design and deliver coursework on Data Structures and Algorithms, focusing on problem-solving and optimization techniques.
- I provide hands-on training in Python for Data Science and Machine Learning, including NumPy, Pandas, Scikit-learn, and visualization libraries.

Relevant Coursework and Certifications - [Certificates](#)

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|---|--|
| • Machine Learning Scientist in Python | • Algorithms 1 & 2 (Princeton University) |
| • Data Scientist Certification | • Discrete Mathematics (Shanghai Jiao Tong University) |
| • Associate Data Scientist Certification | • Data Structures and Algorithms Through C in Depth |
| • AI Fundamentals | • Computer Organization and Architecture |
| • Data Manipulation in Python | • Principles of Computer Operating Systems |
| • Mathematics for Machine Learning and Data Science | • Theory of Computation |
| • Python 101 for Data Science provided by IBM | • Compiler Design |
| • AI for Everyone (DeepLearning.AI) | • Digital Logic Design |
| • IBM Machine Learning Professional Certificate | • Programming for Everybody (University of Michigan) |
| • Python Programming Fundamentals (13 Hours) | • OOP in Java (University of California, San Diego) |
| • Java Fundamentals (16 Hours) | • HarvardX: CS50's Introduction to Computer Science |
| • Build APIs in Python (FastAPI) | • |

Relevant Coursework with Achieved Grade Point - [Transcripts](#)

M.Sc. in CSE Coursework

- Advance Artificial Intelligence (3.75/4.00)
- Advanced Synthetic Pattern Recognition (3.75/4.00)
- Computer Arithmetic (4.00/4.00)
- Research Methodology (4.00/4.00)
- Advanced Database Systems (3.75/4.00)

B.Sc. in EEE Coursework

- Linear Algebra (3.00/4.00)
- Basic Statistics and Probability Theory (3.75/4.00)
- Basic Statistics and Probability Practical (3.50/4.00)
- Calculus – I (3.25/4.00)
- Calculus – II (3.00/4.00)
- Computer Programming (2.50)
- Microcontroller Based System Design (3.00/4.00)
- Mobile Cellular Communication (3.50/4.00)
- Signal and Systems (3.75/4.00)
- Electrical Circuit - I (3.50/4.00)
- Electrical Circuit – II (2.75/4.00)
- Digital Electronics Theory (2.50/4.00)
- Digital Electronics Practical (3.25/4.00)
- Digital Signal Processing (3.00/4.00)
- Communication Theory (2.50/4.00)

Research Projects – [All Research Projects](#)

Sentiment Analysis on Social Media Data:

- Analyze social media posts to classify sentiment (positive, negative, neutral).
- NLP preprocessing (spaCy, NLTK) + transformer models (BERT, RoBERTa).
- Achieved high F1-scores with strong generalization across diverse topics.
- Tools/Technology: Python, Hugging Face Transformers, spaCy, NLTK.
- Source Code: [GitHub](#), [Live Demo](#)

Anomaly Detection in Network Traffic:

- Detect anomalies in network traffic for cybersecurity, performance monitoring, and compliance.
- Isolation Forest (unsupervised ML) with temporal feature engineering; deployed via Streamlit dashboard
- Accurate detection of unusual traffic patterns with low false positives; real-time inference suitable for monitoring
- Tools/Technology: Python, Scikit-learn, Pandas, Streamlit, Plotly
- Source Code: [GitHub](#), [Live Demo](#)

Bangladeshi Flower Image Classification using Deep Learning:

- Deep learning–powered web app for classifying 13 types of Bangladeshi flowers.
- Transfer learning with MobileNetV2 (fine-tuned last 50 layers), augmented dataset (rotation, shift, shear, zoom, flip).
- Achieved 99.87% validation accuracy; real-time classification with confidence scores and published in Streamlit app.
- Tools/Technology: Python, TensorFlow/Keras, Streamlit, OpenCV, PIL, NumPy, Pandas
- Source Code: [GitHub](#), [Live Demo](#)

Leadership and Voluntary Activities

- **Class Representative (M.Sc. in Computer Science):** (January 2025 – Present)
- **Mobile App Development Team Leader:** (April 2023 – Dec 2024)
- **IEEE HSTU Student Branch:** Member (2017)
- **Skill Development Club Of HSTU:** Executive Member (2017–2018)
- **EEE CLUB of HSTU:** Member (2015–present)
- **Prothom-Alo Bondhushava, HSTU:** General Secretary (2019), Member (2018)
- **HSTU-OSN:** IT Secretary (2016-2017)
- **Programmers Arena:** Program Manager (2016-2018)