



Antu Roy Chowdhury

Researcher | Machine Learning & Computer Vision Engineer

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● PROFILE

Electronics and Telecommunication Engineering graduate with research experience in machine learning, computer vision, medical image analysis, cybersecurity, and intelligent software systems. Published work spans white blood cell classification, brain tumor analysis, Bangla sign-language recognition, SQL-injection detection, and plant-disease classification. Current interests focus on robust and generalizable deep learning, medical AI, explainable computer vision, and practical ML systems.

● RESEARCH INTERESTS

Medical Image Analysis | Generalizable Deep Learning | Computer Vision | Explainable AI | Representation Learning | Applied ML Systems

● EDUCATION AND TRAINING

05/03/2022 - 04/08/2026 Rajshahi, Bangladesh

BACHELOR OF SCIENCE IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING | Rajshahi University of Engineering & Technology (RUET)

Final CGPA: 3.41 | **Programme total:** 160 credits | **Thesis components:** 4 credits (1.5 + 2.5), corresponding to 8 credit hours

Thesis: *A Unified Cross-Dataset Benchmark for White Blood Cell Classification: Quantifying the Generalization Gap of Deep Learning Models*

Selected coursework: Machine Learning, Digital Image Processing, Data Structures, Digital Signal Processing, Computer Networks, Numerical Analysis, Microprocessors and Microcontrollers.

● RESEARCH EXPERIENCE

Undergraduate Research - Cross-Dataset White Blood Cell Classification | RUET

2024 - 2026 | Rajshahi, Bangladesh

- Built a standardized benchmark across BCCD, Raabin-WBC, and PBC to quantify in-domain versus cross-dataset generalization under microscopy domain shift.
- Evaluated ResNet50, DenseNet121, and a custom Residual CNN using macro-F1, MCC, ROC-AUC, confusion matrices, feature-space projections, and Grad-CAM analysis.
- Focused the thesis contribution on robustness and generalization analysis rather than proposing another isolated high-accuracy classifier.

● PEER-REVIEWED PUBLICATIONS

Selected conference publications. Author name is highlighted for quick review.

Antu Roy Chowdhury, Sadman Hasib Emon, Md. Abu Ismail Siddique, Saraf Anzum Shreya. **"Residual Block-Driven CNN for Accurate White Blood Cell Image Analysis and Classification."** 27th International Conference on Computer and Information Technology (ICCIT), 2024. DOI: [10.1109/ICCIT64611.2024.11021843](https://doi.org/10.1109/ICCIT64611.2024.11021843)

Saraf Anzum Shreya, Md. Abu Ismail Siddique, Antu Roy Chowdhury, Mst. Fateha Samad. **"A Hybrid Approach for Accurate Brain Tumor Detection Using Deep Learning Techniques."** 27th International Conference on Computer and Information Technology (ICCIT), 2024.

Sadman Hasib Emon, Antu Roy Chowdhury, Md. Abu Ismail Siddique, Md. Mehedi Hassan, Arif Hossen, Md. Siyam Sade. **"Real-Time Detection and Translation of Bangla Sign Language Characters Using Deep Learning."** International Conference on Quantum Photonics, Artificial Intelligence and Networking (QPAIN), 2025. DOI: [10.1109/QPAIN66474.2025.11171808](https://doi.org/10.1109/QPAIN66474.2025.11171808)

Md. Mehedi Hassan, Antu Roy Chowdhury, Rubaeat Ahammed, Arif Hossen. **"CyberBiLSTM: A Bidirectional LSTM Architecture for Cybersecurity via High-Precision SQL Injection Attack Detection."** 5th International Conference on Electrical, Computer & Telecommunication Engineering (ICECTE), 2026. DOI: [10.1109/ICECTE69292.2026.11429468](https://doi.org/10.1109/ICECTE69292.2026.11429468)

Saiful Islam, Sharaf Tasnim, Antu Roy Chowdhury, Md. Abu Ismail Siddique. **"CNN-Transformer Fusion Network for Multi-Class Leaf Disease Classification."** 5th International Conference on Electrical, Computer & Telecommunication Engineering (ICECTE), 2026. DOI: [10.1109/ICECTE69292.2026.11429198](https://doi.org/10.1109/ICECTE69292.2026.11429198)

● **SELECTED RESEARCH & TECHNICAL PROJECTS**

Bangla Sign Language Translator | Research software prototype

2025

- Developed a Flask-based real-time interface for recognizing Bangla sign characters and translating them to written Bangla.
- Worked with a 45-class image-recognition setup covering digits and alphabetic characters, with visual verification and educational support.

Ukil Chamber | Legal-tech platform

2025 - Present

- Contributed to a platform designed to connect clients with legal professionals through role-based access, lawyer discovery, and digital service workflows.
- The founding team secured 3rd position in UIHP Cohort 4 at RUET and received pre-seed funding.

● **HONORS AND AWARDS**

Champion - Intra-Department Programming Contest | Department of ETE, RUET

2022

● **PROFESSIONAL & ENTREPRENEURIAL EXPERIENCE**

Developer & Designer | Web Premium Solution (WPS)

2024 - Present

- Design and develop responsive web applications and business websites, with attention to usability, performance, and quality assurance.
- Contribute across front-end implementation, back-end integration, testing, and iterative client-facing product updates.

Co-Founder - Product & Technology | Ukil Chamber

Jan 2025 - Present | Bangladesh

- Co-develop the product and technical direction of a legal-tech platform intended to make legal services more accessible and easier to navigate.
- Supported platform architecture, web development, and product iteration; venture received UIHP pre-seed funding.

Industrial Trainee | Brain Station 23

01/03/2025 - 15/03/2025 | Dhaka, Bangladesh

- Gained industry exposure to enterprise software infrastructure, scalable systems, and modern software-architecture practices through technical workshops and team-based sessions.

● **LEADERSHIP & ACTIVITIES**

Campus Manager | University Innovation Hub Program (UIHP)

2024 - 2025 | RUET

- Coordinated operational planning, events, class logistics, and hub activities.

Assistant ICT Secretary | RUET Career Forum

2024 - 2025 | RUET

- Supported website development and digital/promotional activities for the organization.

● **TECHNICAL SKILLS**

Machine Learning & Computer Vision: Python, TensorFlow/Keras, scikit-learn, OpenCV, NumPy, pandas; CNNs, transfer learning, model evaluation, medical image analysis

Research & Analysis: Cross-dataset evaluation, statistical analysis, feature-space analysis, PCA/t-SNE/UMAP, Grad-CAM, data visualization

Software Development: JavaScript, React/Next.js, Node.js, Flask, FastAPI, PHP, MySQL/PostgreSQL/MongoDB, REST APIs

Tools: Git/GitHub, Docker, Jupyter Notebook, Linux, MATLAB, Photoshop, Illustrator

● **CERTIFICATIONS**

Supervised Machine Learning: Regression and Classification - DeepLearning.AI / Stanford University via Coursera, Apr 2024

Advanced Learning Algorithms - DeepLearning.AI / Stanford University via Coursera, Jul 2024

● **LANGUAGE SKILLS**

Bengali: Native | **English:** Professional working proficiency