Aranya Saha

✉ aranyasaha932@gmail.com   📞 +8801531531335   🔗 Website   in Aranya Saha   ⌂ thisisAranya

Education

BSc	**Bangladesh University of Engineering and Technology**	Feb 2020 – Mar 2025

Electrical and Electronic Engineering
Major: Communication and Signal Processing

- **CGPA: 3.87/4.0**
- Relevant Coursework: Artificial Intelligence and Machine Learning, Digital Signal Processing, Digital Image Processing, Random Signals and Processes etc.

Research Interests

Applied Machine Learning   Multimodal LLM   Computer Vision   Natural Language Processing   Medical Imaging

Research Experience

Development of a Multimodal Medical Assistance Chatbot for Domain-Specific Applications, Undergraduate Thesis — Dhaka, Bangladesh — Nov 2023 – Mar 2025

- Developed a chatbot to assist in medical diagnosis and curated a dataset of rare skin conditions.
- Fine-tuned a Large Vision-Language Model and Transformer for multimodal image-text analysis.
- Employed retrieval techniques to improve the accuracy of disease-related conversations.

Supervisor: *Dr. Mohammad Ariful Haque* ↗

Professional Experience

Advanced Chemical Industries Ltd. ↗ — Dhaka, Bangladesh — Apr 2025 – Present
Machine Learning Engineer

- Projects: Bangla OCR system for structured text extraction, Truck number plate identification system.

Fiber@Home Bangladesh ↗ — Dhaka, Bangladesh — Jun 2024 – Jul 2024
Industrial Trainee

- Visited the Network Operation Center (NOC) of Fiber@Home Ltd.
- Visited Felicity IDC, a sister concern of Fiber@Home Ltd., and observed various operations of an internet data center.

Leadership Experience

Association for Computing Machinery (ACM) ↗ — Remote — Apr 2024 – Present
Student Executive

- Selected as the first Student Executive of ACM SIGCOMM, leading initiatives for a community of thousands of networking professionals and students alongside the Chair, *Dr. Matthew Caesar* ↗, and the Committee.
- Developed the official SIGCOMM website ↗ under the mentorship of the Chair.
- Co-established the official paper reading group for SIGCOMM; presented in a paper reading session ↗.

Academic Projects

Autonomous Delivery Drone for Remote and Inaccessible Areas   Report ↗
- Designed and developed a delivery drone optimized for autonomous operations in remote areas, capable of carrying payloads up to 1 kg.
- Presented the project idea at the **IEEE WIE BD Summit, 2024**.
- Showcased the complete project at the **13th ICECE Conference, 2024**.

Electrical Services Design of a 10 Storied, 2 Unit Residential Building   Report ↗
- Designed a 10-story, 2-unit residential building according to the BNBC.
- Designed the fittings and fixtures, lightning protection system, generators, transformers, and more.

IoT Based Patient Health Monitoring System   Report ↗
- Designed a system to monitor patient health parameters using IoT sensors.
- Provided real-time data visualization on a dashboard.

Skin Cancer Classification using Deep Learning Models   Report ↗
- Tested several deep learning models for classifying various types of skin cancer.
- Achieved significant accuracy while using multiple convolutional neural networks through concatenation.

Multi-functional CNC: Pen Plotter, Cutter and Engraver   Report ↗
- Developed a versatile CNC machine for drawing, cutting, and engraving tasks.
- Designed for use in various business applications.

Designing a 4-bit ALU with Memory   Report ↗
- Designed a 4-bit ALU to perform arithmetic and logical operations.
- Integrated memory system for storing and recalling data.

MATLAB Project on Fingerprint Recognition   Report ↗
- Implemented a fingerprint recognition system using MATLAB.
- Focused on feature extraction and pattern matching using signal processing techniques.

Technical Skills

Hardware: Microcontrollers, IoT Devices, Sensors.

ML/DL Tools: PyTorch, Tensorflow, Keras, Pandas, NumPy.

Circuit Simulation and Design: PSpice, LTSpice, Proteus.

Others: AutoCAD, Word, PowerPoint, LaTeX.

Honors and Awards

- **University Merit Scholarship**, Bangladesh University of Engineering and Technology (BUET) — Awarded for academic excellence in 4 semesters.
- **Dean's List Award**, Bangladesh University of Engineering and Technology (BUET) — Recognized for achieving a good GPA, in the 1st and 2nd years.
- **29th Position in BUET Undergraduate Admission Test** — Secured position among over 10,000 candidates.
- **31st Position in Dhaka Board with Talent Pool Scholarship** — Awarded for outstanding performance, achieving 96.83% in Physics, Chemistry, and Mathematics and 91.15% overall in the Higher Secondary Certificate (HSC) Examination.
- **Perfect Attendance Certificate**, Notre Dame College - Recognized for flawless attendance.