

# Aranya Saha

✉ aranyasaha932@gmail.com ☎ +8801531531335 🌐 Website in Aranya Saha 🔄 thisisAranya

## Research Interests

---

Efficient AI, Theoretical ML, Trustworthy AI, Information Theory, Multimodal Learning, Reinforcement Learning

## Education

---

- PhD** **University of Maryland, College Park** Incoming  
(Fall'26)  
Electrical and Computer Engineering  
◇ Research Advisor: [Prof. Sanghamitra Dutta](#)
- BSc** **Bangladesh University of Engineering and Technology** March 2025  
Electrical and Electronic Engineering  
◇ Thesis: [Development of a Vision Language Model for Dermatological Assistance](#)  
◇ Thesis Supervisor: [Prof. Mohammad Ariful Haque](#)

## Employment

---

- Bangladesh University of Engineering and Technology** [\[Website\]](#) Dhaka, Bangladesh  
Nov 2025 Present  
Adjunct Lecturer, Department of EEE  
◇ **Courses:** Wireless Communication Laboratory, Robotics & Automation Laboratory, Digital Signal Processing Sessional, Basic Electrical & Electronic Circuit Sessional, etc.
- Advanced Chemical Industries Limited** [\[Website\]](#) Dhaka, Bangladesh  
Apr 2025 Present  
Machine Learning Engineer, Department of MIS  
◇ **Projects:** AI-based Defective Product Detection System [Ongoing], AI-based Tabular Data Analysis Tool, Automatic Document Sorting System, etc.

## Publications

---

\* = Equal Contribution, [U] = Under Review, [P] = Preprint, [C] = Conference, [J] = Journal

- [U] I. N. Swapnil\*, **A. Saha\***, T. A. Khan\*, M. A. Haque, “GRPO++: Enhancing Dermatological Reasoning Under Low-Resource Settings”, Under Review at *IEEE Journal of Biomedical and Health Informatics*. [\[Preprint\]](#)
- [P] **A. Saha\***, T. A. Khan\*, I. N. Swapnil\*, M. A. Haque, “CLARIFY: A Specialist–Generalist Framework for Accurate and Lightweight Dermatological Visual Question Answering”. [\[Preprint\]](#)
- [P] T. A. Khan, **A. Saha**, I. N. Swapnil, M. A. Haque, “Compression Strategies for Efficient Multimodal LLMs in Medical Contexts”. [\[Preprint\]](#)
- [C] S. Sobhan, **A. Saha**, T. A. Khan, A. Zami, “Skin Cancer Classification Using Pre-trained CNNs: A Transfer Learning Approach Addressing Imbalanced Data Challenges”, published at the 2<sup>nd</sup> Int’l Conf. on Next-Gen Computing, IoT and Machine Learning (NCIM), June 2025. [\[Link\]](#)
- [C] S. Sobhan, A. Zami, M. Ahmed, T. M. Zihan, T. A. Khan, **A. Saha**, “A Multi-Stage Deep Learning Approach to Tuberculosis Detection with Explainable Insights”, published at the 2<sup>nd</sup> Int’l Conf. on Next-Gen Computing, IoT and Machine Learning (NCIM), June 2025. [\[Link\]](#)

## Selected Projects

---

Efficient Frame Selection for Long Egocentric Video Understanding	<a href="#">GitHub</a>
EchoLens: Multimodal Conversational AI Engine	<a href="#">GitHub</a>
Simple MedQA-GPT: GPT Tailored for Medical Q&A	<a href="#">GitHub</a>
Autonomous Delivery Drone for Remote and Inaccessible Areas	<a href="#">Report</a>
IoT-Based Patient Health Monitoring System	<a href="#">GitHub</a> <a href="#">Report</a>
Designing a 4-bit ALU with Memory	<a href="#">Report</a>
Multi-Functional CNC: Pen Plotter, Cutter, and Engraver	<a href="#">Report</a>
MATLAB-Based Fingerprint Recognition System	<a href="#">GitHub</a> <a href="#">Report</a>

## Extracurricular Experience

---

<b>Robotics Bootcamp 2025</b> [ <a href="#">Website</a> ]	<i>Dhaka, Bangladesh</i>
Instructor, Institute of Robotics and Automation, BUET	<i>June 2025</i>
♦ <b>Delivered Lecture:</b> <a href="#">PID Control for Robotics</a>	
<b>Association for Computing Machinery (ACM)</b> [ <a href="#">Website</a> ]	<i>Remote</i>
Student Executive, ACM SIGCOMM [ <a href="#">Certificate</a> ]	<i>Apr 2024 Feb 2025</i>
♦ <b>Activities:</b> Developed the official SIGCOMM Website and co-founded the SIGCOMM paper reading group, worked under direct guidance of the chair, <a href="#">Prof. Matthew Caesar (UIUC)</a> .	

## Technical Skills

---

- ♦ **Hardware:** Microcontrollers, IoT Devices, Sensors.
- ♦ **Circuit Simulation and Design:** PSpice, LTSpice, Proteus.
- ♦ **Programming:** Python, MATLAB, C/C++, Pandas, NumPy.
- ♦ **ML/DL/NLP:** PyTorch, TensorFlow, Hugging Face Transformers, CNNs.
- ♦ **DevOps & Tools:** Docker, FastAPI, Git, LaTeX, Microsoft Office.

## Honors and Awards

---

- ♦ **1st Runner-Up, Poster Competition (AI)** - BEAR Summit 2025 [[Poster](#)] [[Certificate](#)]
- ♦ **University Merit Scholarship** (4 semesters) BUET, for outstanding academic performance
- ♦ **Dean's List Award** (Years 1-2) BUET, for high cumulative GPA achievement
- ♦ **29th Rank out of 10,000+** candidates in BUET Undergraduate Admission Test (2019)
- ♦ **31st Rank (Male Category) out of 300,000+** in Dhaka Board HSC; **Talent Pool Scholarship** recipient; with 96.83% in Physics, Chemistry, Mathematics and 91.15% overall
- ♦ **Perfect Attendance Certificate** Notre Dame College, for flawless attendance during Classes 11-12

## References

---

**Sanghamitra Dutta, PhD** [[Profile](#)]  
Assistant Professor, Department of ECE  
University of Maryland, College Park  
Email: sanghamd@umd.edu

**Mohammad Ariful Haque, PhD** [[Profile](#)]  
Professor, Department of EEE  
Bangladesh University of Engineering and Technology  
Email: arifulhoque@eee.buet.ac.bd