

# Ananta Raha

M.Sc. (Eng.) Student, Department of Computer Science and Engineering, BUET

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## RESEARCH INTERESTS

Computer Vision – Medical Imaging – Neural Network Security – Multimodal Learning – Explainable AI

## EDUCATION

- M.Sc. in Computer Science and Engineering** 2024–Present  
Bangladesh University of Engineering and Technology Expected completion: April 2026  
Thesis in progress (Advisor: Dr. Sadia Sharmin, Associate Professor, Department of CSE, BUET)
- B.Sc. in Computer Science & Engineering** 2018–2023  
Rajshahi University of Engineering & Technology Rajshahi, Bangladesh  
CGPA **3.54** (Out of 4.00) | CGPA of Last Two Years of Graduation: **3.71**  
Thesis: Automated Detection and Segmentation of Brain Tumor Using Low-Complex RCNN and Modified UNet

## PUBLICATIONS

- Raha, A.** Lightweight COVID-19 Detection from Chest CT-Scans Using Attention-Based CNN. SN Computer Science, Vol. 6, 853 (2025). DOI: [10.1007/s42979-025-04403-5](https://doi.org/10.1007/s42979-025-04403-5)
- Raha, A., & Tasnim, Q. S.** (2025). Efficient mulberry leaf disease detection in Bangladesh: A lightweight approach for real-time applications. In 2025 Int. Conf. on Electrical, Computer and Communication Engineering (ECCE), Chittagong, Bangladesh, pp. 1–6. IEEE. DOI: [10.1109/ECCE64574.2025.11013948](https://doi.org/10.1109/ECCE64574.2025.11013948)
- Raha, A., Parvin, F., Jannat, T.** (2024). Brain Tumor Segmentation with Efficient and Low-Complex Architecture Using RCNN and Modified U-Net. In Lecture Notes in Networks and Systems, vol 867. Springer, Singapore. DOI: [10.1007/978-981-99-8937-9\\_22](https://doi.org/10.1007/978-981-99-8937-9_22)
- Raha, A., Ahmed, J., Hossain, M.S., Majumdar, S.** (2025) Defending Model Inversion Attack Using an Improved Filter-Based Approach. (Accepted, 18th Intl. Symp. on Foundations & Practice of Security–Brest, France)
- Datta, S., **Raha, A., Sharmin, S.** (2025) The Body's Whisper: A Privacy-Preserving, Reason-Aligned Micro-Break Assistant for Remote Workers. (Accepted, 28th Intl. Conf. on Human-Computer Interaction–Montreal, Canada)

## RESEARCH PROJECTS

- Defending Model Inversion Attack Using an Improved Filter-Based Approach 2025  
Academic; Model Privacy–[source](#); Effectively prevents MI attacks without altering or re-training cloud models.
- Resolving Ambiguity in Multi-Mapping Reads Using Context-Aware Deep Neural Networks 2025  
Academic; Computational Biology–[source](#); Misalignment reduced by **48.98%** (E. coli) and **63.16%** (B. subtilis)
- Gamification in E-Learning: An HCI-Focused Study on Bangladeshi University Students 2025  
Academic; Human-Computer Interaction; Surveyed among **209** students to narrow down gamified features.
- Deep Learning Based Fully Automated Malaria Diagnosis from Full-Slide Blood Smears 2024  
Academic; Medical Imaging–[source](#); Localized CHT-based cell extraction to fully-automate classification.
- Ultra-lightweight Approach for Efficient Mulberry Leaf Disease Detection in Bangladesh 2024  
Academic; Computer Vision, Precision Agriculture, XAI–[source](#); Scores **>98.50%** with only **145K** parameters.
- Lightweight COVID-19 Detection from Chest CT-Scans Using Attention-Based CNN 2023  
Individual; Medical Imaging; **≈0.25s** inference time without GPU, yet outperforms existing SOTA models.
- Efficient Sericulture Using IoT and Machine Learning 2022  
Academic; Precision Agriculture, IoT; Automates sericulture in a cost-effective, regional approach.

## LANGUAGES

Native: Bengali | Proficient (C1) in English, **IELTS Score: 7.0** (L: 7, R: 7, W: 6.5, S: 6.5)

June 2025

## TECHNICAL SKILLS

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- Research Experience in Machine Learning & Computer Vision (**OpenCV**, **TensorFlow**, **PyTorch**, NumPy, Pandas, Scikit-learn etc.)
- Proficient with **LaTeX**, Microsoft Word, Excel, PowerPoint, and related software
- Mobile Application Development: **Over 7 years** of experience, using Java and Android Studio
- Practical Experience in Robotics and IoT (Internet of Things); programming Arduino, ESP32, etc.
- Programming Languages: C/C++, Java, Python, JavaScript, Assembly
- Web Development & Scraping with BeautifulSoup4, Django, React.js, Tailwind CSS, Bootstrap, jQuery
- Fast touch typing with 90 words per minute

## OTHER PROJECTS

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- MyMoney–Personal Finance Management; Android, **Live on [Google Play Store](#), 1M+ installs** 2019–Present
- MorseBuddy–Decode Morse Code from Blinking Light Signals, Android app–[source](#) 2022
- Shopkeeper–Grocery Shop Management, Academic project–[GitHub](#) 2021

## AWARDS

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- **Fellowship–BUET MSc (April 2024)** in recognition of academic excellence; one of the three master's students awarded in October 2024 semester; stipend for 3 consecutive semesters.
- **Education Board Scholarship–Government of Bangladesh** for academic excellence in the HSC (2017), SSC (2015) and JSC (2012) Examinations, respectively.
- Participant and Finalist–National Science Olympiad, Dhaka (2014); secured 34<sup>th</sup> nation-wide.

## CERTIFICATIONS AND CONFERENCES

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- 18th Int. Symp. on Foundations & Practice of Security (FPS - 2025) November 2025  
Presented “Defending Model Inversion Attack Using an Improved Filter-Based Approach” Brest, France
- 2025 Int. Conf. on Electrical, Computer and Communication Engineering February 2025  
Presented research “Efficient Mulberry Leaf Disease Detection in Bangladesh” CUET, Bangladesh
- 2nd Int. Conf. on Big Data, IoT and Machine Learning September 2023  
Presented research “Brain Tumor Seg. with Efficient and Low-Complex Architecture” Dhaka, Bangladesh
- Regular Expressions in Python–Coursera; Certificate: [link](#) 2022
- Specialization: Python for Everybody–University of Michigan; Certificate: [link](#) 2020

## REFERENCES

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| • Dr. Md. Shohrab Hossain<br>Professor, Dept. of CSE, BUET<br>Contact: +880-2-55167100<br>Email: <a href="mailto:mshohrabhossain@cse.buet.ac.bd">mshohrabhossain@cse.buet.ac.bd</a> | • Farjana Parvin<br>Assistant Professor, Dept. of CSE, RUET<br>Contact: +880 1739 497360<br>Email: <a href="mailto:farjana@cse.ruet.ac.bd">farjana@cse.ruet.ac.bd</a> |
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