Rashik Iram Chowdhury

rashikiramchowdhury@gmail.com | rashikiram.github.io | Google Scholar | ORCID | GitHub

EDUCATION

North South University   Dhaka, Bangladesh
Bachelor of Science in Computer Science and Engineering   *Dec 2024*
Summa Cum Laude (GPA 3.98 / 4.00)

Oxford International School   Dhaka, Bangladesh
GCE A Level (3A*), GCE O Level (4A*, 4A)   *Jun 2018 – Jun 2020*

RESEARCH INTERESTS

Computer Vision, Multimodal Learning, Explainable AI, Graph Neural Networks, Edge Intelligence for Healthcare and Assistive Technologies

PUBLICATIONS

Journals

- Md. Ishan Arefin Hossain, Jareen Anjom, **Rashik Iram Chowdhury**. (2025). Towards walkable footpath detection for the visually impaired on Bangladeshi roads with smartphones using deep edge intelligence. *Array* (Q1, IF 4.5).
- **Rashik Iram Chowdhury**, Jareen Anjom, Md. Ishan Arefin Hossain. (2024). A novel edge intelligence-based solution for safer footpath navigation of visually impaired using computer vision. *Journal of King Saud University – Computer and Information Sciences* (Q1, IF 6.1).
- **Rashik Iram Chowdhury**, Nujhat Kabir Nuha, Mohammad Junayed Hasan, M. R. C. Mahdy. (2025). TabFusion: Lightweight early fusion of tabular and image data with graph convolutional networks for skin cancer detection. *Knowledge-Based Systems*. **Conditionally Accepted**.
- **Rashik Iram Chowdhury**, Shakirul Islam Leeon, Tarbia Hasan, Suhra Noor, Sifat Momen. (2025). Explainable and lightweight deep learning for oral disease diagnosis: An ensemble and knowledge distillation approach. *Biomedical Signal Processing and Control*. **Under Review**.
- **Rashik Iram Chowdhury**, Md. Mutasim Farhan, Md. Adham Wahid, Zarin Akter, Mohammad Sadman Wasif, Riasat Khan. (2025). OpenSetWaste: Open-Set Recognition in Waste Management Leveraging Graph Convolutional Networks. *Ain Shams Engineering Journal*. **Under Review**.

Conferences

- Irfan Ali Sadab, Md Arafat Islam, **Rashik Iram Chowdhury**, Md. Ishan Arefin Hossain. (2024). Monocular Depth Estimation using Deep Edge Intelligence. *2024 IEEE International Conference on Sustainable Technologies for Industry 5.0 (STI)*.

WORK EXPERIENCE

Adjunct Faculty (Lecturer)   *Mar 2025 – Present*
Department of Computer Science and Engineering, Southeast University   Dhaka, Bangladesh

- Delivered undergraduate courses and labs, prepared lesson plans, and graded assessments
- Contributed to Outcome-Based Education (OBE) initiatives aligned with BAETE (IEB) accreditation requirements
- Assisted in curriculum development and departmental lab improvement efforts

Teaching Assistant   *Aug 2024 – Jan 2025*
Department of Electrical and Computer Engineering, North South University   Dhaka, Bangladesh

- Evaluated assignments and invigilated exams for **160+** students in Discrete Mathematics and Database Systems courses
- Guided students on topics such as propositional logic and database systems, including hands-on lessons on MySQL and transforming relational designs into physical databases
- Prepared lecture materials and managed administrative tasks, including documentation and grade distribution using MS Excel and Google Sheets

Research Assistant   *Feb 2024 – Aug 2024*
Department of Electrical and Computer Engineering, North South University   Dhaka, Bangladesh
Supervisor: Md. Ishan Arefin Hossain

- Co-authored a funded NSU CTRG 2023–2024 proposal ($5,000) on AI-based navigation assistance for the visually impaired
- Published two Q1 journal papers, including one as first author, derived from this research
- Developed real-time navigation modules integrating segmentation-based obstacle detection and heuristic BFS path planning
- Deployed lightweight deep learning models on Android using ONNX and LiteRT for on-device inference

PROJECTS

Optimizing Neural Network Training with Genetic Algorithms for CIFAR-10
PyTorch, timm, NumPy, Matplotlib   [O]

- Designed a novel Genetic Algorithm (GA) to evolve weight update strategies for CNNs and Transformers, outperforming baseline optimizers by 2–5%
- Conducted extensive hyperparameter tuning and benchmarking against SGD, Adam, and RMSprop

Comparative Analysis of Fine-Tuned BERT Variants to Identify Hate Speech
Hugging Face Transformers, PyTorch, LoRA, NumPy   [O]

- Fine-tuned three encoder-based LLMs (BERT, RoBERTa, and AlBERTa) for hate speech classification
- Implemented Low-Rank Adaptation (LoRA) to reduce weight parameters, achieving lightweight models with <110ms response time and over 90% accuracy

AuthentiTaka: A Lightweight Counterfeit Detection Application
Google Colab, TensorFlow, Android Studio, Grad-CAM   [O]

- Designed a lightweight deep neural network for Bangladeshi currency classification and counterfeit detection, achieving 99.92% accuracy and 99.94% F1 score
- Reduced model size by 90% through quantization techniques, enabling efficient smartphone deployment
- Implemented Grad-CAM visualization to provide explainable predictions through intuitive heatmaps

SKILLS

Programming: Python, C/C++, Java, PHP
Machine Learning & Deep Learning: PyTorch, TensorFlow, Keras, scikit-learn, Hugging Face
Computer Vision & Data: OpenCV, NumPy, Pandas, Matplotlib, Seaborn
DevOps & Databases: Git, Docker, MySQL
Documentation & Visualization: LaTeX, Google Workspace, Microsoft Office, Power BI
Languages: Bengali (Native), English (IELTS 8.0: L 8.5, R 8.5, W 7.5, S 7.5; *2025*)

PROFESSIONAL SERVICE

Reviewer: *Biomedical Signal Processing and Control (Elsevier)*, 2025

HONORS & AWARDS

Innovation Challenge Season 15: Champion   *Dec 2024*
North South University   [🌐]

- Awarded first place for an explainable, lightweight deep learning system for oral disease diagnosis
- Developed a smartphone-ready solution with on-device deployment and quantized inference, validated by an orthodontist for clinical plausibility and usability

Merit Scholarship   *Feb 2021 – Dec 2024*
North South University   [🌐]

- Received full-merit scholarship (top 1% of class)

REFERENCES

Dr. Sifat Momen   *Professor*
PhD, University of Sheffield, UK   *North South University, Bangladesh*
Email: sifat.momen@northsouth.edu

Dr. Riasat Khan   *Associate Professor*
PhD, New Mexico State University, USA   *North South University, Bangladesh*
Email: riasat.khan@northsouth.edu