Mahmudul Hoque

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EDUCATION

Morgan State University Ph.D., Advanced & Equitable Computing (started August 2025)
2025 **M.S.**, Advanced Computing, GPA: 3.77/4.0
North South University 2022 **B.S.**, Computer Science and Engineering, GPA: 3.73/4.0
Dhaka, Bangladesh

RESEARCH EXPERIENCE

My research interests lie in the development of generative and vision-language models that are more interpretable and practical for high-stakes domains.

Morgan State University Computer Science Department (Baltimore, MD, USA)	8/2023 – present	**Graduate Research Assistant** Supervisor: Dr. Md Mahmudur Rahman
National Institute of Standards and Technology (Gaithersburg, MD, USA)	6/2024 – 6/2025	**Research Associate** Supervisor: Dr. Felix Hoyean Kim Engineering Laboratory

TEACHING EXPERIENCE

Morgan State University Computer Science Department (Baltimore, MD, USA)	08/2025 – present	**Graduate Teaching Assistant** Introduction to Data Science Supervisor: Dr. Md Mahmudur Rahman
North South University Mathematics & Physics (Dhaka, BD)	08/2021 – 04/2022	**Undergraduate Teaching Assistant** Physics II, Probability and Statistics Supervisors: Dr. Zaid Bin Mahbub, and Israt Jahan

INDUSTRY EXPERIENCE

iFarmer Ltd. (Dhaka, BD)	05/2023 – 08/2023	**Intern, Data Analyst** Supervisor: NM Tanvir Siddiki

PUBLICATIONS AND PAPERS

All papers listed are published except where indicated as under review.

- Comparative Analysis of Fine-Tuned Multimodal Models in Radiology Image Captioning. Hoque, M., Hasan, Md. R., Emon, Md. I. S., Oluwafemi, E. P. O., Rahman, Md. M., and Khalifa, F. In *Proceedings of the 2025 IEEE 4th International Conference on Computing and Machine Intelligence* (**ICMI**), 2025.
- A novel vision transformer-based approach to detect generative model fingerprint. Emon, Md. I. S., Hoque, M., Hasan, Md. R., Khalifa, F., and Rahman, Md. M. In *Medical Imaging 2025: Imaging Informatics, Proceedings of SPIE*, 2025.
- Colonoscopy Image Synthesis: Transforming Medical Image Classification With Enhanced Quality and Computational Efficiency. Oluwafemi, E. P. O., Tunde, B. D., Hoque, M., Briggs, D., Rahman, Md. M., and Khalifa, F. In *Proceedings of the 2025 IEEE 4th International Conference on Computing and Machine Intelligence* (**ICMI**), 2025.
- Solving Medical Data Limitations Through AI: Multi-Modal Vision-Language Learning for Gastrointestinal VQA and Synthetic Training Data Generation. Oluwafemi, E. P. O., Hoque, M., Akor, E. F., Chowdhury, R. N., Umar, A., and Rahman, Md. M. In *CLEF 2025 Working Notes, CEUR Workshop Proceedings*, Madrid, Spain, 2025.
- Modality-Guided Radiology Caption Prediction with Small Vision-Language Models and Image Classifier. Chowdhury, R. N., Hoque, M., Hasan, Md. R., Oluwafemi, E. P. O., and Rahman, Md. M. In *CLEF 2025 Working Notes, CEUR Workshop Proceedings*, Madrid, Spain, 2025.
- Generative modeling of additive manufacturing lack-of-fusion defects using three-dimensional adversarial network: Dataset development and applications in XCT simulation. Hoque, M. and Kim, F. H. *NIST Advanced Manufacturing Series*, in review, 2025.

AWARDS

- Best Thesis in MS, Department of Computer Science, Morgan State University, 2025.
- IBM Masters Fellowship Award, 2024.
- Undergraduate Merit Scholarship, North South University, 2018.

SERVICE

- Peer reviewer, IEEE Journal of Biomedical and Health Informatics, 2025–present.
- Peer reviewer, IEEE Access, 2025–present.
- Executive Board Member, Bangladesh Student Association, Morgan State University, 2024–present.
- Executive Board Member, Graduate Student Association, School of Computer, Mathematical & Natural Sciences Representative, Morgan State University, 2024–2025.
- Sub-Executive Body Member, North South University Young Entrepreneurs Society, 2018–2021.