

Md Motaleb Hossen Manik

Google Scholar (456+ Citations, h-index: 8) | LinkedIn

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Research Statement

I develop benchmarks, agent frameworks, and evaluation methods for multimodal AI systems in safety-critical domains — with a focus on medical imaging education, workflow auditability, and emergent norm-formation in synthetic agent societies. My work spans the full pipeline from dataset construction (MILU, MEDI-SLATE) to system design (ALIVE, OpenClaw/Moltbook) to formal risk valuation, grounded by blockchain-based provenance for reproducibility and accountability. I am seeking a tenure-track faculty position or a research scientist role where I can build on this foundation to advance trustworthy, interpretable AI.

Academic Credentials

August 2024 – **Ph.D. in Computer Science**
Present

Rensselaer Polytechnic Institute (RPI), Troy, NY - 12180, USA.

Advisor: Prof. Ge Wang, Department of Biomedical Engineering, RPI.

Research Group: Wang-AXIS Lab, RPI, USA.

September 2020 – **M.Sc. Eng. in Computer Science and Engineering**
March 2023

University: Khulna University of Engineering & Technology (KUET), Khulna, Bangladesh.

Result: CGPA 4.00 out of 4.00.

Advisor: Prof. Dr. Kazi Md. Rokibul Alam, Department of Computer Science and Engineering, KUET.

Thesis: *A Study on a Blockchain-Based Secure Framework for Multi-party Skyline Queries.*

November 2015 – **B.Sc. Eng. in Computer Science and Engineering**
March 2020

University: Khulna University of Engineering & Technology (KUET), Khulna, Bangladesh.

Result: CGPA 3.93 out of 4.00 (average GPA 4.00 in the last 3 semesters).

Position: Ranked 1st out of 134 graduates.

Advisor: Prof. Dr. M. M. A. Hashem, Department of Computer Science and Engineering, KUET.

Thesis: *A Study on Sentiment Analysis of Bangla and Phonetic Bangla Reviews.*

Teaching Experience

August 2024 – Present – **Teaching Assistant**, Department of Computer Science, Rensselaer Polytechnic Institute (RPI), Troy, NY.

Courses:

- CSCI 2600 *Principles of Software* (Spring 2025, Summer 2025, Spring 2026)
- CSCI 4430 *Programming Languages* (Fall 2025)
- CSCI 4440 *Software Design and Documentation* (Summer 2025)
- CSCI 1700/2700/4968/4970 *RCOS* (Fall 2024, Spring 2025)

June 2024 – Present – **Assistant Professor** (On Study Leave), Dept. of Computer Science and Engineering, KUET, Bangladesh.

February 2022 – May 2024 – **Lecturer**, Dept. of Computer Science and Engineering, KUET, Bangladesh.

Courses:

- CSE 2103/2104 *Microprocessors and Microcontrollers* (theory and lab)
- CSE 3206 *Robotics Laboratory* (lab)
- CSE 3217 *Mobile Computing* (theory)
- CSE 4120 *Technical Writing and Seminar* (lab)
- CSE 4223/4224 *Digital System Design* (theory and lab)

Research Experience

Multimodal Learning & LLMs
(*PhD, RPI, 2024–*)

Designed MEDI-SLATE, a slide-lecture aligned text ensemble for medical imaging education, and MILU, a consensus ensemble benchmark for multimodal lecture understanding — both accepted in 2026 to top-tier venues. Built ALIVE, a content-aware avatar-lecture interaction engine supporting real-time retrieval. Introduced SlideChain, a blockchain-anchored semantic provenance framework for lecture content, and N-ReLU, a zero-mean stochastic activation function. Current focus: risk evaluation and auditability in workflow agents for safety-critical domains.

AI Safety & Synthetic Agent Systems
(*PhD, RPI, 2025–*)

Designed OpenClaw, an agent-only social network (Moltbook) to study risky instruction propagation and emergent norm enforcement among LLM agents. Developed ADAPT, an AI-driven decentralized publishing framework with a U.S. provisional patent (No. 63/975,609, 2026). Investigating decentralized self-regulation in purely synthetic societies, submitted to *Scientific Reports*.

Secure Information Retrieval & Blockchain
(*M.Sc., KUET, 2020–2023*)

Developed a blockchain-based secure framework for user-centric multi-party skyline queries as M.Sc. thesis, extended to a pruned-and-prioritized variant submitted to *Future Generation Computer Systems* (IF 6.1, Q1). Applied Hyperledger Fabric and IPFS to academic credential verification, crime record storage, medical data sharing, and GDPR-compliant personal data management across five published works.

Machine Learning & NLP
(*Undergraduate & early career, 2019–2022*)

B.Sc. thesis on sentiment analysis of Bangla and phonetic Bangla text; extended to a hybrid ML framework for unified sentiment and emotion recognition. Developed adversarial robustness methods for Bangla text classifiers. Applied CNN-based architectures to COVID-19 facial mask detection and genomic feature-based pandemic prediction. These projects produced 1 publication in an IEEE conference.

Publications

Journals

2026

- **Manik, M. M. H.**, Islam, M. Z., and Wang, G. “MEDI-SLATE: A slide-lecture aligned text ensemble for medical imaging education.” *Visual Computing for Industry, Biomedicine, and Art*, (in press). [IF: 6.0, ESCI, Springer]
- **Manik, M. M. H.**, Islam, M. Z., and Wang, G., “MILU: A Consensus Ensemble Benchmark for Multimodal Medical Imaging Lecture Understanding.” *Journal of Medical Imaging*. [Vol. 13, No. 6, 062202, 2026; IF: 1.7, Q2, SCIE/Scopus, SPIE] Link.

2025

- **Manik, M. M. H.**, Muldowney, W., Islam, M. Z., and Wang, G. “Development of an Optically Emulated CT (OECT) Scanner for College Education.” *Visual Computing for Industry, Biomedicine, and Art*. [IF: 6.0, ESCI, Springer] Link.
- Ahmed, M. R., Aziz, A., **Manik, M. M. H.**, and Habib, M. A., “Blockchain-aided comparative study of heart disease detection using machine learning-based approaches with an expanded dataset,” *Computers in Biology and Medicine*. [IF: 7.0, Q1, SCIE, Elsevier] Link.
- Habib, M. A., and **Manik, M. M. H.**, “ShaEr: A Blockchain-Based Framework for Secure Medical Data Sharing and Monetisation,” *IET Blockchain* (2025). [Q2, Scopus, Wiley/IET] Link.

2023

- **Manik, M. M. H.** (2023). “A Novel Approach in Determining Areas to Lockdown During a Pandemic: COVID-19 as a Case Study,” *International Journal of Information Engineering and Electronic Business*, 15(2), 30. Link.

2021

- Rahman, M. M., Islam, M., **Manik, M. M. H.**, Islam, M. R., and Al-Rakhami, M. S. (2021). “Machine learning approaches for tackling novel coronavirus (COVID-19) pandemic,” *SN Computer Science*, 2, 1–10. [IF: 2.38, Q2, Scopus, Springer] Link.

Conferences

2025

- **Manik, M. M. H.**, Sagor, A. H., Mondal, F. A., Touhid, M. M., and Islam, M. Z. (2025, January). “Unifying Sentiment Analysis and Emotion Recognition for Bangla Text: A Hybrid Approach,” in *2025 International Conference on Electrical, Computer and Communication Engineering (ECCE)*. Link.

2024

- Atik, A. I., Rahman, A., Sami, S. A., and **Manik, M. M. H.** (2024, December). “An Android application for healthcare management system with ML-driven solution,” in *Proceedings of the 27th International Conference on Computer and Information Technology (ICCIT)*. Link.
- Saha, A., Majumder, S., **Manik, M. M. H.**, and Hashem, M. A. (2024, December). “Enhancing Hyperledger Fabric: A scalable framework for optimized blockchain performance,” in *Proceedings of the 27th International Conference on Computer and Information Technology (ICCIT)*. Link.
- Islam, M. R., Alam, K. M. R., and **Manik, M. M. H.** (2024, December). “Decentralized GDPR compliance: A blockchain framework for personal data management,” in *Proceedings of the 27th International Conference on Computer and Information Technology (ICCIT)*. Link.

2023

- **Manik, M. M. H.**, Mahadi, J., Touhid, M. M., and Alam, K. M. R. (2023, December). “Enhancing Robustness of Machine Learning Algorithms for Bangla Text Classification: A Defensive Approach against Adversarial Attacks,” in *2023 6th International Conference on Electrical Information and Communication Technology (EICT)* (pp. 1–6). IEEE. Link.
- **Manik, M. M. H.**, Sagor, A. H., Habib, M. A., Touhid, M. M., Ahmed, T., Islam, M. Z., and Haque, F. (2023, December). “Redefining Crime Record Storage: An Advanced Architecture Harnessing the Power of Blockchain Technology,” in *2023 26th International Conference on Computer and Information Technology (ICCIT)* (pp. 1–6). IEEE. Link.
- Majumder, S., Zaha, R., **Manik, M. M. H.**, and Alam, K. M. R. (2023, December). “A Blockchain Based Scalable Framework for Academic Document Verification,” in *2023 26th International Conference on Computer and Information Technology (ICCIT)* (pp. 1–6). IEEE. Link.
- Habib, M. A., **Manik, M. M. H.**, and Zaman, S. (2023, February). “A Blockchain-based Technique to Prevent Grade Tampering: A University Perspective,” in *2023 International Conference on Electrical, Computer and Communication Engineering (ECCE)* (pp. 1–6). IEEE. Link.
- Habib, M. A., and **Manik, M. M. H.** (2023, October). “A Technique to Avoid Blockchain Denial of Service (BDoS) and Selfish Mining Attack,” in *2023 Fifth International Conference on Blockchain Computing and Applications (BCCA)* (pp. 585–590). IEEE. Link.

2022

- **Manik, M. M. H.**, Haque, F., Hashem, M. M. A., Habib, M. A., Islam, M. Z., and Ahmed, T. (2022, December). “A Hybrid Framework for Sentiment Analysis from Bangla Texts,” in *2022 25th International Conference on Computer and Information Technology (ICCIT)* (pp. 517–522). IEEE. Link.
- **Manik, M. M. H.**, Alam, K. M. R., and Morimoto, Y. (2022, December). “A Blockchain Based Secure Framework for User-centric Multi-party Skyline Queries,” in *2022 25th International Conference on Computer and Information Technology (ICCIT)* (pp. 90–95). IEEE. Link.
- **Manik, M. M. H.**, Habib, M. A., and Ahmed, T. (2022, September). “Machine Learning Algorithms on COVID-19 Prediction Using CpG Island and AT-CG Feature on Human Genomic Data,” in *International Conference on Machine Intelligence and Emerging Technologies* (pp. 754–762). Springer Nature Switzerland. Link.

2020

- Rahman, M. M., **Manik, M. M. H.**, Islam, M. M., Mahmud, S., and Kim, J. H. (2020, September). “An automated system to limit COVID-19 using facial mask detection in smart city network,” in *2020 IEEE International IOT, Electronics and Mechatronics Conference (IEMTRONICS)* (pp. 1–5). IEEE. Link.

2019

- Haque, F., **Manik, M. M. H.**, and Hashem, M. M. A. (2019, December). “Opinion Mining from Bangla and Phonetic Bangla Reviews Using Vectorization Methods,” in *2019 4th International Conference on Electrical Information and Communication Technology (EICT)* (pp. 1–6). IEEE. Link.

Pre-prints

- **Manik, M. M. H.**, and Wang, G. (2026). “OpenClaw Agents on Moltbook: Risky Instruction Sharing and Norm Enforcement in an Agent-Only Social Network.” arXiv preprint arXiv:2602.02625. Link
- **Manik, M. M. H.**, Islam, M. Z., and Wang, G. (2025). “SlideChain: Semantic Provenance for Lecture Understanding via Blockchain Registration.” arXiv preprint arXiv:2512.21684. Link
- Islam, M. Z., **Manik, M. M. H.**, and Wang, G. (2025). “ALIVE: An Avatar-Lecture Interactive Video Engine with Content-Aware Retrieval for Real-Time Interaction.” arXiv preprint arXiv:2512.20858. Link
- **Manik, M. M. H.**, Islam, M. Z., and Wang, G. (2025). “N-ReLU: Zero-Mean Stochastic Extension of ReLU.” arXiv preprint arXiv:2511.07559. Link
- **Manik, M. M. H.**, Habib, M. A., Islam, M. Z., Ahmed, T., and Haque, F. (2024). “Analyzing the Dynamics of COVID-19 Lockdown Success: Insights from Regional Data and Public Health Measures.” arXiv preprint arXiv:2402.18594. Link

Submitted Manuscripts

- **Manik, M. M. H.**, Alam, K. M. R., and Morimoto, Y., “A Secure Framework for User-centric Multiparty Skyline Queries via Pruned and Prioritized Datasets,” submitted to *Future Generation Computer Systems* (Under Review). [IF: 6.1, Q1, SCIE]
- Habib, M. A., and **Manik, M. M. H.**, “Blockchain-Enabled Secure Land Record Management System with a New Lightweight Cryptosystem Based on Hybrid Chaotic Map,” submitted to *Knowledge-Based Systems* (First Revision in Process). [IF: 8.8, Q1, SCIE]
- **Manik, M. M. H.**, and Wang, G., “ADAPT: AI-Driven Decentralized Adaptive Publishing Transformer,” submitted to *Research Integrity and Peer Review* (Under Review).
- **Manik, M. M. H.**, and Wang, G., “Emergent Decentralized Regulation in a Purely Synthetic Society,” submitted to *Scientific Reports* (Under Review). [IF: 3.8, Q1, SCIE, Nature Portfolio]
- **Manik, M. M. H.**, and Wang, G., “Evaluating Risk and Auditability in Workflow Agents for Safety-Critical Domains,” submitted to *Journal of Information and Intelligence* (Under Review).

Other Works

- **Manik, M. M. H.** (2025). “ChatGPT vs. DeepSeek: A Comparative Study on AI-Based Code Generation.” arXiv preprint arXiv:2502.18467. [Link](#)
- Roy, S. C., and **Manik, M. M. H.** (2024). “Question-Answering System for Bangla: Fine-tuning BERT-Bangla for a Closed Domain.” arXiv preprint arXiv:2410.03923. [Link](#)
- Habib, M. A., **Manik, M. M. H.**, and Khulna, B. (2022). “Classification of DNA Sequence Using Machine Learning Techniques.” EasyChair preprint, Aug 2022. [Link](#)

Honors & Awards

- **Best Paper Award**, International Conference on Electrical, Computer and Communication Engineering (ECCE), IEEE, 2023.
- **Dean’s Award** (three consecutive years), Faculty of Electrical and Electronic Engineering, KUET — awarded for top academic performance among all CSE students.
- **Merit Scholarship**, KUET (2016–2020) — granted to students ranking in the top 5% of their cohort.

Grants & Funding

- **NVIDIA Academic Grant Program** (2025). Hardware grant: 1× NVIDIA DGX Spark. Project: *Iterative Avatar Teaching in the NVIDIA Omniverse*. PI: Prof. Ge Wang (RPI); Role: Graduate Research Collaborator.

Patents

- **Manik, M. M. H.**, and Wang, G. “ADAPT: AI-Driven Decentralized Adaptive Publishing Testbed.” U.S. Provisional Patent Application No. 63/975,609, filed February 4, 2026. Rensselaer Polytechnic Institute.

Professional Service

Peer Reviewer — Journals

- **Technology in Society**, Elsevier (2025).
- **Journal of Systems and Software**, Elsevier (2025).

Peer Reviewer — Conferences

- IEEE COMPAS 2025; EICT 2025; ICCAconf 2024; EICT 2023.

Mentorship & Student Supervision

- Supervised 3 undergraduate B.Sc. thesis groups and 2 undergraduate project groups at the Department of Computer Science and Engineering, KUET (2022–2024), covering topics in machine learning, blockchain systems, and Large Language Models.

Technical Skills

Machine Learning & AI Systems

LLMs, multimodal learning, transformer architectures, deep learning, agent-based workflows, prompt engineering, model evaluation and benchmarking; PyTorch, TensorFlow, HuggingFace Transformers, Scikit-learn, NumPy, Pandas, Matplotlib.

Blockchain & Security

Solidity, Ethereum, Hyperledger Fabric, IPFS, blockchain-based provenance, secure data-sharing, cryptographic hashing, digital signatures.

Programming & Tools

Python (primary), C/C++, Java, JavaScript, SQL; Git, L^AT_EX, Jupyter Notebook, Linux/Bash.