

Md. Saiful

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🏠 Saiful's Homepage | 📍 Dhaka, Bangladesh

EDUCATION

BRAC University

M.Sc. in Computer Science and Engineering; GPA: 3.90/4.00

Thesis: Chained Semantic Retrieval for Phenotype-to-Genotype Identification

Dhaka, Bangladesh

Oct 2024 – Oct 2025

Supervised by Dr. Alam

East West University

B.Sc. in Computer Science and Engineering; GPA: 3.65/4.00

Capstone: MedicalBERT: A Medical Chatbot Built Using BioBERT and GPT-2

Dhaka, Bangladesh

May 2019 – May 2023

Supervised by Dr. Ripon

RESEARCH INTERESTS

Data Science, Bioinformatics, Artificial Intelligence, Machine Learning, Computer Vision, Natural Language Processing

EXPERIENCE

Software Engineer

NeuroGen Healthcare Ltd.

Dhaka, Bangladesh

July 2024 – October 2025

- Developed an **AI-driven intelligence platform** integrating rare disease and pan-cancer genomic databases with large language models and AI agents to support variant interpretation.
- Reduced variant analysis time by **40%** by optimizing the Single Nucleotide Variant Analysis Module with asynchronous lookups and in-memory caching, enhancing efficiency of large-scale genomic studies.
- Led **ISO 13485:2016 certification** for medical device quality management system, establishing comprehensive documentation, standard operating procedures, and regulatory compliance framework for clinical genomics software.
- Analyzed **single-cell transcriptomic data** and integrated multi-omics datasets (genomic, transcriptomic, proteomic) to extract actionable insights for precision medicine applications.
- Contributed to **secondary analysis workflows** (FASTQ to VCF) at **GMMC**, supporting clinical genomics diagnostics and variant annotation pipelines.

Graduate Teaching Assistant

East West University

Dhaka, Bangladesh

June 2023 – September 2024

- Courses:** Machine Learning, Statistics for Data Science
- Conducted lab sessions on Python programming and machine learning algorithms, prepared quizzes, and assisted students in understanding core concepts.

Undergraduate Teaching Assistant

East West University

Dhaka, Bangladesh

June 2022 – May 2023

- Courses:** Cyber Security, Structured Programming (C), Information System Design and Analysis
- Mentored students in developing web applications, writing SQL queries, implementing cybersecurity projects, and guiding hands-on labs and project work.

PUBLICATIONS

- Md. Saiful**, Sakib Haidar, S. M. Arafat Rahman, Nahid Reza, Ahmed Wasif Reza, and Mohammad Samsul Arafin, *MRI-Based Brain Tumor Classification Using Various Deep Learning Convolutional Networks and CNN*, 6th International Conference on Intelligent Computing and Optimization (ICO 2023), LNNS 729, pp. 177–188, 2023. [DOI](#).
- Md. Saiful**, Arpita Saha, Faria Tabassum Mim, Nafisa Tasnim, Ahmed Wasif Reza, and Mohammad Samsul Arafin, *Brain MRI Classification for Alzheimer's Disease Based on Convolutional Network*, ICO 2023, LNNS 729, pp. 1–9, 2023. [DOI](#).
- Md. Saiful**, Nahid Reza, Maisha Mahajabin, Syada Tasfia Rahman, Farhana Alam, Ahmed Wasif Reza, and Mohammad Samsul Arafin, *Green Banking Through Blockchain-Based Application for Secure Transactions*, ICO 2023, LNNS 729, pp. 924–937, 2023. [DOI](#).
- Mahamudul Hasan and **Md. Saiful**, Taskeed Jabid, Maheen Islam, Md Ali, Riaz Murshed Rifat, Rubaya Bari, Nusrat Jahan, and Tanni Rani Pal, *Solving Hamiltonian Path Problem Using DNA Computing*, International Conference on Green Energy, Computing and Intelligent Technology (GEn-CITY 2023), 10–12 July 2023, University of Southampton Malaysia. [DOI](#).

5. **Md. Saiful**, Md. Sohel Rana, Hasanul Ferdaus, and Ahmed Wasif Reza, *Education Certificate Storage and Verification using Blockchain and IPFS*, 7th International Conference on Intelligent Computing and Optimization (ICO 2023). DOI

6. Joy Bissas, Mahamudul Hasan, **Md. Saiful**, Faria Tabassum Mim, and Nafisa Tasnim, *A Review on Mitigating Security Risks: Effective Strategies to Prevent Cross-Site Request Forgery Vulnerabilities*, 2nd International Conference on Cyber Intelligence and Information Retrieval (CIIR 2023). DOI

JOURNAL PUBLICATIONS

1. Mariam Eldesouky, Suhana Shiyas, Amirul Islam, Md Nahid Hasan, Md Tanvir Hossain, Hosneara Akter, **Md. Saiful**, Bakhrom K Berdiev, Wolfgang M Kuebler, Proton Rahman, Marc Woodbury-Smith, Syed M Hasan, Nasna Nassir, Mohammed Uddin, Horizon: CNV interpretation through rapid automated ACMG-aligned pathogenicity analysis *Journal of Human Genetics* — Under Review

SYMPOSIUM & PRESENTATIONS

Detection of Diabetic Retinopathy Using Texture Features, Ensemble Learning, and Deep Learning, Presented at *IEEE Computer Society Bangladesh Chapter Symposium 2024*

Smart Traffic Management Solutions for a Sustainable and Efficient Urban Bangladesh, Presented at *IEEE Computer Society Bangladesh Chapter Symposium 2023*

An Alternative Implementation in Register Renaming Logic, Presented at *IEEE Computer Society Bangladesh Chapter Symposium 2023*

AWARDS & ACHIEVEMENTS

2nd Runner-Up, IEEE Computer Society Bangladesh Chapter Symposium 2024 — Presentation at Jagannath University, Dhaka, Bangladesh

Merit Scholarship, BRAC University — Spring 2025 & Summer 2025 (academic results).

Merit & Dean’s List Scholarships, East West University — Summer 2021 to Spring 2023 (academic results).

TECHNICAL SKILLS

Programming Languages: Python, Java, C, C++, JavaScript, Bash.

AI/ML Frameworks: PyTorch, TensorFlow, Scikit-learn, Hugging Face, Transformers, LangChain.

Deep Learning & Models: Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), Graph Neural Networks (GNNs), Large Language Models (LLMs).

Databases: MySQL, MongoDB, PostgreSQL.

Tools: Docker, Git, MLflow, VS Code, Jupyter Notebook.

PROJECTS

Genomics Intelligence (RAG-based AI Assistant) 2025
GitHub
Stack: Python, FastAPI, RAG, LLM
Developed an advanced Genomics Intelligence system integrating Retrieval-Augmented Generation (RAG) and Large Language Models (LLMs) to deliver real-time genomic insights using FastAPI. For Rare Disease Detection.

Single Cell RNA-seq Analysis using Scanpy 2025
GitHub
Stack: Python, Scanpy, Pandas, NumPy
Performed comprehensive single-cell RNA sequencing analysis to identify cell types and gene expression patterns. Implemented quality control, normalization, dimensionality reduction, and clustering workflows for cellular heterogeneity analysis.

OTHER SKILLS & ACTIVITIES

Languages: Bengali, English (Duolingo 110).

Competitive Programming: Solved 300+ problems on online judges, proficient in DSA. Codeforces, Codechef

REFERENCES

Dr. Shamim H Ripon Professor, East West University Profile dshr@ewubd.edu +8801928891978	Dr. Golam Rabiul Alam Professor, BRAC University Profile rabiul.alam@bracu.ac.bd +8801797347635	Rashedul Islam Tuhin Senior Lecturer, East West University Profile mcctuhin@ewubd.edu +8801719356588
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