Mahmudul Haque Sakib

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Summary

Computer Science graduate specializing in Data Science, Machine Learning, and Computer Vision with hands-on experience in deep learning model development, CNN architectures, image classification, and transformer-based NLP. Skilled in PyTorch, TensorFlow, and modern AI workflows, with a strong background in research-driven experimentation, data preprocessing, model evaluation, and reproducible ML pipelines. Dedicated to advancing AI through publication-focused research, problem-solving, and real-world deployment of intelligent systems.

Education

East West University Feb 2022 – Dec 2025
B.Sc. in Computer Science and Engineering (Major: Data Science) *Dhaka, Bangladesh*
- CGPA: 3.68

Narsingdi Model College 2020
Higher Secondary Certificate *Narsingdi, Bangladesh*
- GPA: 4.83

Bhuim High School 2018
Secondary School Certificate *Narsingdi, Bangladesh*
- GPA: 4.78

Technical Skills

Languages: Python, C, C++, Java, SQL

Technologies: LangChain, Hugging Face Transformers, Pinecone, FAISS, PyTorch, TensorFlow, scikit-learn, Streamlit, Gradio, NumPy, Pandas, Matplotlib, YOLOv10

Modeling & Research Skills: CNNs, Transfer Learning, Vision Transformers (ViT), Feature Extraction, Image Classification, Data Augmentation, Hyperparameter Tuning, RAG, LLM Fine-tuning

Concepts: Artificial Intelligence, Machine Learning, Deep Learning, Natural Language Processing, Computer Vision, Neural Networks, Data Analysis & Visualization

Research Papers

KidneyStoneNet: A Deep Learning Approach for Kidney Stone Detection with Transfer Learning and Explainable AI

Status: Accepted to ICIDA 2025

- Trained and evaluated CNN-based transfer learning models (ResNet, DenseNet, NASNet) for kidney stone detection using PyTorch and explainable AI (XAI) techniques.
- Developed an interactive Gradio-based web application for real-time medical image inference and visualization.

MediLeafNET: An AI-Driven Multimodal System for Medicinal Plant Discovery and Ethnobotanical Knowledge Retrieval in Bangladesh

Status: In Preparation

- Developed and evaluated a custom Vision Transformer (ViT) model for medicinal leaf image classification, comparing performance with 10+ deep learning baselines through cross-validation.
- Integrated large language models (BERT, LLaMA) for ethnobotanical text generation and knowledge retrieval from multimodal inputs.
- Developed and deployed an interactive Gradio-based application with explainable AI (XAI) to visualize predictions and improve model interpretability.

Aspect-Based Sentiment Analysis for Smart Devices: A Transformer-Based Approach

Status: In Preparation

- Developed a hybrid sentiment analysis framework combining fine-tuned transformer models (BERT, RoBERTa) with auxiliary features for aspect-level classification of IoT and smart device text data.
- Applied explainable AI (XAI) techniques and deployed an interactive Gradio-based application for real-time sentiment inference and interpretation.

Selected Projects

Retrieval-Augmented Generation (RAG)–Based Document Question Answering Chatbot [HF Space]

- Built a RAG-based PDF question answering chatbot enabling users to upload documents and receive context-grounded answers using semantic retrieval, LangChain, Streamlit, and Docker.

Medicinal Leaf Classification Using Swin Transformer and Gradio Web App [HF Space]

- Achieved 98% accuracy using a Swin Transformer model on the BD Medi-Leaves dataset and deployed the system as a Gradio app on Hugging Face for real-time image inference.

AI Pathfinding Simulation Using A* and Uniform Cost Search [GitHub]

- Implemented A* and Uniform Cost Search for optimal grid-based pathfinding using **Python** and **Pygame**.

Lemon Leaf Disease Detection using Ensemble CNN Models with Explainable AI [GitHub]

- Implemented ensemble CNN-based lemon leaf disease classification with Grad-CAM explainability.

Emotion Classification using Transformer-based NLP Models [GitHub]

- Fine-tuned mBERT and XLM-RoBERTa models for Bangla emotion classification with SHAP-based explainability.

Professional Experience

Undergraduate Teaching Assistant Spring-2025

East West University, Dhaka

- Conducted programming lab sessions on MS Word, Excel, and HTML for 50+ students, assisting them in debugging and improving code efficiency.

Key Achievements

Earned **Merit Scholarship** (Spring 2025) for maintaining GPA 3.90+ across three consecutive semesters.

Awarded **Medha Lalon Scholarship** (Spring 2024) for maintaining GPA 3.50+ across three consecutive semesters.

Achieved 2-star rating on **CodeChef** and Pupil rank on **Codeforces**.

Extracurricular Activities

East West University Sports Club 2023 – 2024

Senior Associate Member

- Planned and coordinated university-level sports events, including tournaments and friendly matches, to enhance student engagement.
- Executed on-field and operational coordination for university and inter-university sports events, ensuring smooth event flow and protocol compliance.
- Supported logistics and field operations for large-scale events such as EWU Run 5K (2022, 2024) and EWU Cricket Cup 2022, including field setup and crowd management.
- Collaborated with team leads and volunteers to assign tasks and ensure timely execution of event activities.
- Assisted in recruiting, onboarding, and training new members to improve team coordination and operational efficiency.

Additional Information

Certificate: Hugging Face Projects — SkillUp by Simplilearn (Completion Certificate, 2025)

Soft Skills: Leadership, Team Collaboration, Problem-Solving, Adaptability, Time Management, Critical Thinking

References

Dr. Md. Nawab Yousuf Ali
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Dr. Mohammad Rifat Ahmmad Rashid
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