Md Nasiat Hasan **Fahim**

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Education

Shahjalal University of Science and Technology *Sylhet, Bangladesh*

B.Sc.(Engg.) in Computer Science & Engineering *03/2022 – 07/2026*

CGPA: **3.89** / 4.00 · Class Rank: **3rd** of 111

Experience

BRAC Tech & SELP-RHRN AI Fellowship *Dhaka, Bangladesh*

Backend Software Engineer *07/2025 – 12/2025*

- A specialized AI fellowship to engineer a gamified platform addressing gender discrimination mindsets for BRAC, the world's largest NGO. FastAPI backend for a gamified social platform, Multi-LLM pipelines (GPT-4o, Gemini) for real-time Bengali content like book, research paper web search and suggestions, PostgreSQL (JSONB) schemas, deployment via Docker for containerized microservices.

Shahjalal University of Science and Technology *Sylhet, Bangladesh*

Research Assistant *01/2025 – 06/2026*

- Worked under Dr. Ahsan Habib on Crime Pattern Analysis. Analyzed spatiotemporal crime patterns in Sylhet using K-means clustering to identify high-risk temporal hotspots and time series forecasting for future crime prediction with newspaper reporting and police data. Developed 3D visualization tools to map crime clusters and victim-offender relationships.

Publications

Real-Time Earthquake Magnitude Classification from Initial P-Waves: Models, Dataset, and Comparative Analysis for South Asia
M. N. Hasan Fahim, M. A. Ullah Muhib, R. A. Tanvir, and A. Al Noman. *2025 28th International Conference on Computer and Information Technology (ICCIT)*, Cox's Bazar, Bangladesh, 2025, pp. 5175–5180. doi: 10.1109/ICCIT68739.2025.11489542.

- Curated 7,318 South Asian earthquake events and benchmarked six models using 7-second single-station P-waves; the Transformer achieved 76.23% accuracy, 81.56% adaptive accuracy, and 4.8 ms inference latency.

Protein-Based Fish Species Identification: Dataset, Models, and Insights from Native Bangladeshi Fish
N. H. Fahim, A. U. Muhib, and M. S. Rahman. *2026 IEEE 2nd International Conference on Quantum Photonics, Artificial Intelligence, and Networking (QPAIN)*, Chittagong, Bangladesh, 2026, pp. 1–6. doi: 10.1109/QPAIN69676.2026.11546620.

- Curated 2,845 protein sequences from nine native Bangladeshi fish species and benchmarked seven architectures; MotifCNN-Transformer+TA-PE achieved 79.80% accuracy with GPU-free inference while running 5× faster and 42× smaller than ProtBERT.

Manuscripts Under Consideration

Parameter-Efficient Preference Optimization and Supervised Fine Tuning of ProGen2 for Thermophile Sequence Space
Md Nasiat Hasan Fahim, Md. Abid Ullah Muhib, and Mohammad Shahidur Rahman. *PLOS ONE*. **Submitted; 2026.**

- Adapted ProGen2 toward thermophile-associated protein sequences using LoRA-based SFT, DPO, and KTO, revealing distinct likelihood–preference trade-offs under controlled compute and homology-controlled evaluation.

Spatiotemporal Crime Dynamics and Recidivism Analysis in Urban Bangladesh: A Hybrid K-Means Approach
Ahsan Habib, Md. Mehedi Hasan, Rayhanul Amin Tanvir, Abu Sayeid Sawon, **Md Nasiat Hasan Fahim**, and Nixon Deb Antu. *SUST Journal of Science and Technology*. **Submitted, 2026.**

- Analyzed Sylhet crime patterns using newspaper and police data, combining spatiotemporal clustering, recidivism analysis, and forecasting to identify hotspots, predict future crime trends, and derive public-safety insights.

Active Research

Protein Language Model

- 'De-average' evolutionary signals in protein language models from universal average-protein translators to lifestyle-specific models. This research utilizes SOTA finetuning approaches and Explainable AI to recover biophysical adaptation rules for extremophiles.

SAR Semantic Segmentation

- Developing cross-regional Sentinel-1 water-segmentation models while investigating geographic and biome bias, backscatter variability, radar noise and shadow effects, and model behavior through systematic evaluation and explainable AI.

Earthquake Early Warning

- Developing globally generalizable early-warning models from initial P-waves, linking waveform characteristics with earthquake shaking, energy, and source information while studying cross-region generalization and model behavior using explainable AI.

Competitive Programming

Codeforces

Specialist · Max Rating: 1431 · Handles: MasterofTheSEA, EnBugger

CodeChef

3 Star Coder · Max Rating: 1735 · Handle: masterofthesea

Codeforces, CodeChef, LightOJ, AtCoder, Leetcode

1500+ problems solved across platforms

Competed in 2 national inter-university programming onsite contests

Projects

Multimodal AI Search & Recommendation Engine *GitHub*

FastAPI · OpenAI Vision · ChromaDB · Redis · PostgreSQL · Docker

- Full-stack e-commerce platform featuring an AI-powered search and recommendation system. Multimodal search microservice (FastAPI) utilizing OpenAI Vision and ChromaDB for hybrid text/image retrieval, Redis caching and a robust PostgreSQL-to-vector synchronization pipeline deployed in Docker.

COWTRAIN: Cattle Weight Estimation

YOLOv8 · Instance Segmentation · Regression · FastAPI

- End-to-end ML product for weight prediction from images. A computer vision pipeline utilizing YOLOv8 for instance segmentation of cow and the reference object and regression to accurately predict weight, FastAPI backend.

Achievements

Champion, AI MEETS CLIMATE Hackathon — *Oxfam*

Real-time climate-reporting pipeline with ASR and NER models

Awarded, SUST Rising Team — *SUST*

Best-performing junior team in CSE Carnival 2024

2nd Runner Up, AI-FICATION 2025 — *CUET*

ASR for converting 10 regional languages into standard Bengali

3rd Place, Robi Datathon 3.0 Qualifier — Problem 3 — *Robi*

Future purchase-probability forecasting with time-series analysis

4th Place, DL Enigma 1.0: SUST CSE Carnival — *SUST*

Bangladeshi roadside object detection

5th Place, Code Samurai Hackathon 2024 — *DU and BJIT*

Optimal garbage-collection routing and service planning

Skills

Languages	C, C++, Python, Java
AI & Data Science	Machine Learning, Deep Learning, Computer Vision, NLP, LLMs, PyTorch, TensorFlow, LangChain
Backend & Database	FastAPI, SQL, PostgreSQL, RAG, Vector Database, AWS Services, Docker, Git

Certifications

IBM Data Science Professional Certificate — *IBM (Coursera)*

Data science lifecycle and Generative AI

Machine Learning Specialization — *Stanford University (Coursera)*

Supervised, unsupervised and reinforcement learning

AWS Certified Solutions Architect - Associate — *AWS Training and Certification*

Certified Solutions Architect - Associate (SAA-C03)

Cloud Foundations — *AWS Academy*

Core cloud computing concepts

Cloud Developing — *AWS Academy*

Technical expertise in development with cloud technologies

Referees

Mohammad Shahidur Rahman, PhD
Professor
Department of CSE, SUST
Undergraduate Thesis Supervisor & Course Instructor
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Dr. Ahsan Habib
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