

Fahad Siddique Faisal

ML/AI ENIGINEER · AI RESEARCHER

Dhaka, Bangladesh

✉+8801611346769 | 📩 fahadsid1770@gmail.com | 🌐 https://fahadsid1770.github.io/ | 🗾

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“Be the change that you want to see in the world.”

Research Interest

Human-Computer Interaction, Machine Learning, Deep Learning, Natural Language Processing, LLMs, AI

Work Experience

AI Solutions USA

New York, USA

SOFTWARE ENGINEER(AI/ML)

Jun. 2025 - Present

- Designed a multi-agent orchestration framework with CrewAI, Instruct, and Agno to orchestrate AI agents for collaborative task execution.
- Preprocessed the data with Pandas and Numpy, implemented Chunking techniques, Indexing, and vectorizing with embedding models and RAG-Techniques
- Gained Proficiency in NoSQL (MongoDB) and Vector DBs (Lancedb, Qdrant, Milvus).

Walton Hi-Tech Industries PLC

Dhaka, Bangladesh

AI RESEARCHER & SENIOR DEPUTY ASSISTANT DIRECTOR

Apr. 2025 - Present

- Developed a fully local AI-based knowledge-base and chat system using open-source AI models and Langchain and LangGraph with a Corrective-RAG pipeline, trained on internal data.
- Developed a Long-term memory system for any Conversational AI
- Developed an AI-based Real-time on-device Speech Recognition and Transcription system utilizing whisper.cpp and Open-sourced LLM models.
- Implemented distributed and Parallel GPU training and inference capability of NVIDIA GPU with PyTorch, CUDA programming and llama.cpp
- Finetuned LoRA Adapters, Developed GPT-2-based Small language model with 20M and 30M parameters with function-calling capability.

Outlier AI

Remote

DATA ENGINEER

Oct. 2024 - Feb. 2025

- Curated around 22GB of English to Bangla translated and Question Answering text
- Gained hands-on experience in developing datasets to train transformer-based and AI models
- Gained extensive knowledge regarding data curation and the importance of quality data for training AI models.

Riseup Labs

Uttara, Dhaka

SOFTWARE ENGINEER INTERN

Jun. 2023 - Jul. 2023

- Gained experience on Software development life-cycle
- Got proficient with linux, Bash, Google Cloud Platform, VM and Cloud Run Deployment
- Introduction to Big Data analysis using Hadoop and Spark

Undergraduate Thesis

Investigation and Transforming Resource-Scarce Language Question Generation: A Study on Text-to-Text Transformer Models for Bengali

Bangladesh

AUTHOR

2024

- Developed and improved an automatic FAQ generation system using text-to-text transformer models to enhance Question Generation (QG) in multilingual contexts.

Honors & Awards

INTERNATIONAL

2024	Best Technical Paper in a Session on AI , 27th International Conference ICCIT2024	Cox's Bazar
2022	Winner , scholarship for CSCA (Certified Supply Chain Analyst)	Ohio, U.S.A
2022	Winner , ISCEA Prize Global Supply Chain	Ohio, U.S.A

DOMESTIC

2025	Champion among 170 Engineering Team , Walton AI Creative Award 2025	Bangladesh
2024	Winner , University Semester Scholarship for Outstanding Result	Bangladesh
2020	Winner , University Semester Scholarship for Outstanding Result	Bangladesh
2019	Winner , University Semester Scholarship for Outstanding Result	Bangladesh

Publications

- **F. S. Faisal**, S. N. Islam, M. F. Hossain and M. A. Hossain. "Optimizing Resource-Scarce Language Question Generation on Bengali: A Comparative Study of Transformer-Based Models," *27th International Conference on Computer and Information Technology (IEEE ICCIT)*, 2024. [Link](#)
- S. N. Islam, **F. S. Faisal**, M. F. Hossain and M. A. Hossain, "Enhancing Bilingual Sarcasm Detection with an Advanced Ensemble Model: A Dual-Language Deep Learning Framework," *27th International Conference on Computer and Information Technology (IEEE ICCIT)*, 2024. [Link](#)
- M. S. H. Sarker, **F. S. Faisal**, A. Istiaque and T. Taher, "Design and Comparative Analysis of 1-BIT ALU and Full Adder using MGDI Technique for High-Performance PLC Applications," *27th International Conference on Computer and Information Technology (IEEE ICCIT)*, 2024. [Link](#)
- A. R. Akand, M. M. H. B. Nipu, I. Das, G. Ali, A. Hossain, **F. S. Faisal**. "A Federated and Explainable Machine Learning Framework for Robust Intrusion Detection and Network Security Enhancement in Industrial Internet of Things (IIoT) Environments," *International Conference on Electrical, Computer & Telecommunication Engineering (IEEE ICECTE)*, 2026. [Accepted!](#)

Projects

Early and Late Fusion For Multimedia Hateful Meme Classification

TECH STACK : PYTHON, RESNET, VGG19, DENSENET, TRANSFORMERS

2025

- Optimized a high-performance RAG pipeline utilizing the Llama-3.2-3B LLM, achieving a 70% reduction in memory requirements (from 12GB to 3.5GB) using 8-bit quantization (llama.cpp backed) while maintaining 99.5% of the original model's performance.

Walton-AI: Local AI Assistant and AI-based Knowledge Management System

TECH STACK : PYTHON, LANGCHAIN, LANGGRAPH, LLAMA.CPP

2025

- Optimized a high-performance RAG pipeline utilizing the Llama-3.2-3B LLM, achieving a 70% reduction in memory requirements (from 12GB to 3.5GB) using 8-bit quantization (llama.cpp backed) while maintaining 99.5% of the original model's performance.

Real Time Image Pattern Detection and Recognition using OpenCV and CLIP

Embeddings

TECH STACK: OPENCV, CLIP EMBEDDINGS, YOLOv8, QDRANTDB

2025

- Developed an end-to-end computer vision system combining YOLOv8 for real-time refrigerator detection, CLIP embeddings for feature extraction, and Qdrant vector database for similarity search.

Development of a 400M Parameter Small Language Model with Function-Calling and ONNX Deployment

TECH STACK : PYTHON, PYTORCH, ONNX

2025

- Developed an end-to-end computer vision system combining YOLOv8 for real-time refrigerator detection, CLIP embeddings for feature extraction, and Qdrant vector database for similarity search.

Multi-class Bangla News Classification using Early Fusion and Late Fusion

TECH STACK: PYTHON, BI-LSTM, CNN

2022

- Developed an end-to-end computer vision system combining YOLOv8 for real-time refrigerator detection, CLIP embeddings for feature extraction, and Qdrant vector database for similarity search.

Control Sequencer for SAP-1 Architecture

LOGISM

2022

- Designed a control sequencer incorporating a 6-bit ring counter to facilitate efficient loading of two data values into registers.
- Integrated user-friendly buttons for voting and ensured accurate tallying and display of results in real time.

Microcontroller and IoT Projects

TECH STACK: MOSQUITTO MQTT, ESP32, ARDUINO, WHISPER.CPP, AC RELAY & WIFI MODULE.

2022

- Developed an AI-based-voice controlled over-the-internet Automatic Warehouse Switching and Monitoring system.
- Real-time Weather Monitoring and Forecasting system

Ongoing Researches

Automated Chest X-Ray Report Generation Using Vision-Language Models: A LLaMa

3.2 Based Approach

Co-AUTHOR

- The combination of structured visual classification via EfficientNetB7 & reasoning through the LLaMA 3.2 Vision-Instruct model.

Conversational AI Model for the Medical Domain Adapted Using QLoRA on Qwen2-0.5B

AUTHOR

Jul 2025 - Present

- The project adapts the model using the ruslanmv/ai-medical-chatbot dataset of patient–doctor conversations, optimizing training with cosine scheduling, gradient accumulation, and Hugging Face integration

Education

Chittagong University of Engineering and Technology

B.S. IN ELECTRONICS AND TELECOMMUNICATION ENGINEERING

Chittagong, Bangladesh

Feb. 2019 - Jul. 2024

- Obtained CGPA of 3.44 out of 4.0 with last semester GPA 3.73

Relevant Coursework

- **Programming Related:** C/C++, Object-Oriented Programming, Numerical Analysis, Algorithms
- **Data Management:** Data Structures, Database Management (SQL, NoSQL, VectorDB)
- **Machine Learning:** Advanced Python Programming, Linear Algebra and Statistics
- **Microprocessor Related:** Microcontroller, Microprocessor, VLSI Technology.

Extracurricular Activities

2022 **Problem Writer**, 2022 ETE DecaHertz Programming Contest

Bangladesh

2023 **Organizer & Program Co-ordinator**, Infixon

Bangladesh

2023 **Organizer**, Tarunner Uthsob by CUET Debating Society

Bangladesh

Leadership Experiences and Affiliations

CUET Debating Society

VICE-PRESIDENT

Chittagong, Bangladesh

July. 2023 - Sept. 2024

- Arranged a National Level Inter-University Debate Competition and Cultural Program.
- Participants at Inter University English Debate Competition.

House of the Language and Literature, CUET

ORGANIZING SECRETARY

Chittagong, Bangladesh

August. 2023 - Sept. 2024

- Arranged a literature fest for all the members of the university to explore books.
- Arranged weekly book reading sessions with fellow book lovers.

Test Scores

- **IELTS:** 7.5 (R-8.0, L-7.5, S-7.5, W-6.5)