

# Fahad Siddique Faisal

SOFTWARE ENGINEER · AI RESEARCHER

Dhaka, Bangladesh

☎ +8801611346769 | ✉ fahadsid1770@gmail.com | 🏠 fahadsid1770.github.io | 📺 fahadsid1770

| 📄 fahadsiddique1770 | 📁 fahadsid1770 | 🎓 Fahad Siddique Faisal



“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

SOFTWARE ENGINEER(AI/ML)

New York, USA

Jun. 2025 - Present

- Designed a multi-agent orchestration framework with CrewAI, Instruct, and Agno to orchestrate AI agents for collaborative task execution for a complete NIW petition drafting, personalized Recommendation Letter drafting and CV evaluation.
- Preprocessed the data with Pandas and Numpy, implemented Chunking techniques, Indexing, and vectorizing with embedding models and RAG-Techniques to develop a conversational Chat service.
- Gained Proficiency in NoSQL (MongoDB) and Vector DBs (Lancedb, Qdrant, Milvus).

### Walton Hi-Tech Industries PLC (R&D)

AI RESEARCHER & SENIOR DEPUTY ASSISTANT DIRECTOR

Dhaka, Bangladesh

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

DATA ENGINEER

Remote

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 LLM models
- Gained extensive knowledge regarding data curation and the importance of quality data for training AI models.

### Riseup Labs

SOFTWARE ENGINEER INTERN

Uttara, Dhaka

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

## 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. [\[Paper\]](#)
- 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. [\[Paper\]](#)
- M. S. H. Sarker, **F. S. Faisal**, A. Istiaque and T. Taher, "Design and Comparative Analysis of 1-BIT ALU and Full Adder using MGD1 Technique for High-Performance PLC Applications," *27th International Conference on Computer and Information Technology (IEEE ICCIT)*, 2024. [\[Paper\]](#)
- 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!**
- Mithila Arman, Reduanul Bari Shovon, Sonet Barua Emon, Jannatul Asma Sameha, **Fahad Siddique Faisal**, Moshir Rahman Sayem, "Automated Chest X-Ray Report Generation Using Vision-Language Models: A LLaMa 3.2 Based Approach", *IEEE 2nd International Conference on Quantum Photonics, Artificial Intelligence & Networking (QPAIN)*, 2026. **Accepted!**

## Projects

---

### AIOT-Based-Smart-Fridge [\[Code\]](#)

TECH STACK: RASPBERRY PI 4B X3, TEMPERATURE AND HUMIDITY SENSORS, YOLO, PYTHON

2026

- Smart Fridge monitors your fridge about temperature and humidity, alerts you when food is about to expire, or when someone steals your food. In addition, it can generate a recipe based on items in the fridge with the help of OpenAI API

### Voice Command Fingerprinting - Attack and Defense [\[Code\]](#)

TECH STACK: WIRESHARK, BUFL0, SCIKIT-LEARN

2026

- Implemented the VCFP (Voice Command Fingerprint) attack and BuFLO defense to analyze voice assistant network traffic, showing how encrypted packets can reveal voice commands and how BuFLO mitigates this traffic analysis.

### MedConvFormer : Hybrid CNN-Transformer to Distinguish COVID-19, Normal, and Pneumonia from chest X-ray images [\[Code\]](#)

TECH STACK: PYTHON, EFFICIENTNET-B0, VISION TRANSFORMER (ViT)

2025

- Implemented a novel hybrid deep learning architecture that uniquely combines the strengths of Convolutional Neural Networks (CNNs) and Vision Transformers (ViT) for medical image classification.

### Walton-AI: Local conversational AI and Cosine Similarity based Knowledge Management System

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

2025

- Optimized a high-performance RAG pipeline(Corrective RAG) 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.

### AI Long-Term Memory (ALTM) [\[Code\]](#)

TECH STACK: PYTHON, MONGODB ATLAS, PAGEINDEX

2025

- ALTM has Agentic Routing (PageIndex), Dynamic Importance Decay, and Automated Memory Merging to ensure your agents remember what matters and forget what doesn't.

### Automated Chest X-Ray Report Generation Using Vision-Language Models [\[Code\]](#)

TECH STACK: PYTHON, MONGODB ATLAS, PAGEINDEX

2025

- A research project exploring automated generation of chest X-ray diagnostic reports using various Vision-Language Models (VLMs) and CNN backbones with distillation and finetuning.

### Real Time Image Pattern Detection and Recognition using OpenCV and CLIP Embeddings [\[Code\]](#)

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.

## Control Sequencer for SAP-1 Architecture

LOGISIM

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

---

### CLHF-Med-AI: Medical Conversational AI Model Development with Continuous Learning (CLHF)

AUTHOR

Jul 2025 - Present

- High-performance medical assistant based on the Qwen2-0.5B-Instruct architecture. It is optimized via 4-bit QLoRA and implements a sophisticated continuous learning pipeline that refines model behavior through real-time human preference data.

## 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:** Fundamentals of computer programming, 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 **Coding Problem Setter**, 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.