

A. K. M Foyshal Sarkar

AI Engineer | LLM & RAG Applications | Full-Stack Python and TypeScript

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SUMMARY

Computer Science graduate who builds LLM applications in Python and full-stack web products. Built a fully local RAG and CrewAI question-answering system (FastAPI, FAISS, 37 tests), delivered a live booking and workshop platform for a Dhaka repair shop (Next.js, PostgreSQL), and co-authored a B.Sc. thesis on transformer attention for brain fMRI classification (97.67% accuracy, 3 seeds).

EDUCATION

B.Sc. in Computer Science and Engineering, BRAC University, Dhaka Sep 2022 - Sep 2026
CGPA 3.71 / 4.00 | University Merit List Scholarship | Coursework: Machine Learning, Artificial Intelligence, NLP, Algorithms
HSC (2021) and SSC (2019), Science: GPA 5.00 / 5.00 in both

EXPERIENCE

Freelance Full-Stack Developer | Repair By Engineer, Dhaka Sep 2026

Next.js 16, JavaScript, Auth.js, PostgreSQL, Vercel | AI-assisted (Claude Code) | Live: [repair-by-engineer-inky.vercel.app](#)

- Built and deployed the public website and staff console for an earbud and headphone repair shop: online booking, repair tracking, a 7-stage job workflow, payment records, and printable invoices and receipts.
- Replaced a single-JSON-row prototype with a 10-table PostgreSQL schema, atomic job numbering and self-running idempotent migrations that carried the shop's existing records across.
- Moved authorization to the server: finance, staff and settings routes are admin-only, engineers' job edits and status changes are checked against their assignments, and staff and admin changes are audit-logged.

PROJECTS

Phone Advisor - Local RAG and Multi-Agent System (take-home assessment) Aug 2026 - Sep 2026

Python, FastAPI, FAISS, sentence-transformers, Qwen2.5-1.5B, CrewAI, SQLAlchemy | [github.com/pialXVII/SamsungAI-PhoneAdvisor](#) | Demo: [huggingface.co/spaces/pialXVII/phone-advisor](#)

- Built a fully local pipeline with no paid APIs: GSMArena scraper, SQL database (MySQL, PostgreSQL or SQLite), retrieval and generation, served by an 11-endpoint FastAPI REST API (Pydantic validation, Swagger docs) with a web UI.
- Routed questions by intent before retrieval: superlatives become SQL rankings over parsed specs, comparisons load both spec sheets, and lookups use FAISS vector search filtered by phone and aspect.
- Built a 188-question labelled evaluation set with a held-out test split: routing fixes raised intent accuracy from 78% to 96% and answer fact recall from 91% to 99% with no false declines; Dockerised, with GitHub Actions running 49 tests and the evaluation.

Buildora - Construction Platform (university team project, contributor) Jul 2026 - Sep 2026

TypeScript, WebRTC, Socket.IO, Express, MongoDB, Next.js, Zustand | [github.com/monirakib/Buildora/pull/1](#)

- Built one-to-one WebRTC voice calling: JWT-authenticated Socket.IO signaling that relays offer, answer and ICE only between call participants, a Zustand call-state machine with ICE-candidate buffering, and MongoDB call history.

RESEARCH

GC-JEPA: Graph-Conditioned Attention for Task-fMRI Classification - B.Sc. thesis (team of 4) Oct 2025 - Jun 2026

PyTorch | Supervisor: Prof. Chowdhury Mofizur Rahman | Code: [github.com/shoumikarc/jepa-research](#) (team repository)

- Method: a learnable functional-connectivity bias inside transformer attention to classify 7 cognitive tasks from fMRI brain networks (Human Connectome Project: 7,443 graphs, 400 regions).
- Results: the supervised model reached $97.67 \pm 0.08\%$ test accuracy over 3 seeds, above the best result reported on the NeuroGraph HCP benchmark (96.25%, not re-run on our split); the self-supervised variant reached $96.73 \pm 0.17\%$.
- My part: attention-bias integration, region-relationship analysis, hyperparameter tuning, fine-tuning, LaTeX thesis.

SKILLS

Languages: Python, TypeScript, JavaScript, SQL, C, C++

AI / ML: LLMs, RAG, AI agents (CrewAI), vector search (FAISS), deep learning, NLP, PyTorch, TensorFlow/Keras, scikit-learn, Hugging Face Transformers, sentence-transformers, pandas

Backend and data: FastAPI, REST APIs, Node.js/Express, Socket.IO, WebRTC, PostgreSQL, MySQL, MongoDB, SQLAlchemy, Auth.js

Frontend and tools: React, Next.js, Tailwind CSS, Zustand, Docker, GitHub Actions (CI), Git, Vercel, unittest, AI coding tools (Claude Code)

Spoken: Bengali (native), English (professional), Mandarin Chinese (basic)