

Md. Mahamudul Hasan

Software Engineer • AI/ML Engineer • Full-Stack Developer

mahamudulh417@gmail.com | 01741856979 | Dhaka, Bangladesh | [LinkedIn](#) | [GitHub](#) | [Portfolio](#)

PROFESSIONAL SUMMARY

Software and AI Engineer with a Computer Science & Engineering background, specialising in local-first AI, retrieval-augmented generation (RAG), NLP, and computer vision. Proven ability to take AI products from research to production — building private LLM platforms, real-time data pipelines, full-stack AI assistants, and vision-based applications. Comfortable across backend services, React front-ends, ML pipelines, and model integration.

TECHNICAL SKILLS

Languages	Python, JavaScript, Java, C++, SQL
AI / LLM	LangChain, LangGraph, LlamaIndex, Ollama, Groq, OpenAI API, Whisper, RAG pipelines, prompt engineering
ML / DL	CNN, YOLO, Transformers(BERT, LSTM), PyTorch, TensorFlow, Keras, Scikit-learn, OpenCV, Hugging Face Transformers, Gensim, spaCy, NLTK, MLflow
Full-Stack Web	React, Node.js, Django, Flask, REST APIs, HTML/CSS, AngularJS, WebSockets (real-time streaming)
Databases	PostgreSQL, MySQL, MongoDB, Oracle PL/SQL, Microsoft SQL Server, Vector DBs (ChromaDB, FAISS)
Cloud / DevOps	Docker, GitHub Actions, AWS (EC2, S3, Kinesis, EMR), GCP (BigQuery, Dataproc), Vercel
Data & Viz	Pandas, NumPy, Matplotlib, Seaborn, Tableau, D3.js
Tools & Workflow	Git, Jira, Agile/Scrum, BeautifulSoup, Scrapy, SPSS

CORE PROJECTS

LocalMind AI — Private LLM Platform github.com/mahamudul-hasan-cse/localmind-ai

Stack: Ollama • LangChain • RAG (FAISS) • Whisper • Coqui TTS • React • FastAPI • Docker

- Built a fully self-hosted, cloud-free AI chat platform supporting multiple local LLMs with real-time token streaming via WebSockets.
- Implemented a RAG pipeline over private PDFs using FAISS vector search and LangChain, enabling accurate document Q&A with zero data leaving the device.
- Integrated Whisper ASR for voice input and Coqui TTS for audio responses, delivering a complete voice-to-voice AI interface.
- Packaged the system with Docker for cross-platform deployment; designed a mobile-compatible React front-end for field use.

KrishiBot — AI Agriculture Assistant krishibot-sandy-three.vercel.app

Stack: Ollama • Computer Vision • CNN • React • Vercel • Offline-first PWA

- Developed an offline-first agriculture assistant that identifies crop diseases from farmer-uploaded photos using a fine-tuned CNN model.
- Delivered bilingual (English & Bangla) chat-based treatment recommendations, reducing dependency on internet connectivity in rural areas.
- Integrated real-time weather risk alerts and a community disease-reporting feed, enabling local outbreak mapping without cloud dependencies.
- Deployed a production web interface on Vercel with Ollama powering on-device inference — making AI accessible to resource-constrained users.

Financial AI Agent — NLP Research Assistant github.com/mahamudul-hasan-cse/Financial_AI_Agent

Stack: Groq LLM • LangChain • React • FastAPI • NLP Pipeline • RAG

- Built a production-grade NLP pipeline combining Groq-hosted LLM inference with LangChain agents for financial document parsing and market Q&A.
- Designed an interactive React chat interface with streaming responses, reducing research lookup time for financial data queries.
- Implemented multi-source retrieval (SEC filings, news feeds) with citation tracking, improving answer reliability and auditability.

EXPERIENCE

Research Assistant — Deep Learning | Academic Research in North South University | ~1 year

- Conducted model experimentation and evaluation across deep learning architectures for AI/ML research problems.
- Managed data preparation pipelines, experiment tracking, and research documentation for academic publication workflows.

Freelance Software / AI Developer | Remote | Ongoing

- Delivered project-based software and AI solutions covering full-stack development, ML integration, and automation scripting.
- Translated client requirements into deployable Web or software components with attention to maintainability, performance, and usability.

EDUCATION

North South University — BSc. in Computer Science & Engineering (ECE Department) | Dhaka, Bangladesh

Shah Mokhdum College — HSC in Science | Rajshahi

Bahadurpur Secondary School — SSC in Science | Kushtia

CERTIFICATIONS & COURSES

- Machine Learning Specialization — DeepLearning.AI / Andrew Ng (Coursera) | deeplearning.ai
- Python for Software Engineers — Innovative Skills | innovativeskillsbd.com
- Data Science Landscape — Dataskool | dataskool.org

TARGET ROLES & FOCUS AREAS

Software Engineer • AI Engineer • ML Engineer • NLP Engineer • Full-Stack AI Developer

Focus: Local/private LLM systems • RAG • NLP pipelines • Computer vision • AI-powered full-stack products • Research-to-production AI