

SHAMIM AHAMED

AI/ML Engineer | Production LLM, RAG & Clinical AI Systems

Bangladesh, relocating to Germany

shamim.aiexpert@gmail.com · +880 1324 143904

shamimahamed.com · linkedin.com/in/shamimah

github.com/dataraptor · kaggle.com/sahamed · Google Scholar

Summary

AI engineer who **builds and runs a clinical LLM platform in daily production for a US healthcare company**: retrieval over curated clinical sources, tool-using agent pipelines, PHI handled on Azure OpenAI, built to HIPAA requirements, owned end to end from retrieval and fine-tuning through cloud deployment. Also **publishes on how such systems are evaluated**, including a first-author study on using LLMs as automated judges of medical chatbots.

26.9 points fewer incorrect answers than the Llama-3 8B baseline on a clinician-scored medical LLM | **first-author paper**, Elsevier 2025 | **9 peer-reviewed publications**, 3 first-author | **Kaggle Gold Medal**, top 2%

Work authorisation: Bangladeshi national; degree recognised in Germany via **anabin** (institution **H+**, degree “**Entspricht**”). Eligible for the **EU Blue Card** (§18g AufenthG). **Documents ready to file the week a contract is signed**.

Professional Experience

AI Engineer

Dec 2023 – Present

FRQ Technologies

Massachusetts, USA (remote)

- Build and run the **clinical AI platform** of a US healthcare technology company: a **multi-stage tool-using agent pipeline** covering patient support, medical Q&A and care-workflow automation, in **daily production use at a US clinic**. Every response reaches a real patient over real PHI, in a setting where a wrong answer is a clinical liability rather than a bug ticket.
- Own the **retrieval layer** that grounds every patient-facing answer in curated clinical sources, indexed in a production vector store with chunking and query handling tuned for clinical questions. Questions outside the approved clinical scope are **refused rather than answered**.
- Own the platform end to end on **Azure and AWS**: **FastAPI** services in **Docker**, PHI-bearing **PostgreSQL**, **CI/CD**, and LLM inference on **Azure OpenAI** under an agreement covering **PHI**, chosen over a direct API for exactly that reason. In production since launch.

Research Engineer, then Research Associate

Nov 2023 – Present

AIMS Lab, United International University

Dhaka, Bangladesh

- Built and deployed **SuSastho.AI**, an evidence-based multimodal medical copilot (Llama-3 8B fine-tuned on 8,614 clinician-authored examples, RAG over a clinically validated knowledge base). In a clinician-scored pilot over 428 questions it produced **26.9 points fewer incorrect answers** and **16.1 points higher correctness** than the baseline Llama-3 8B. First-author paper, *Informatics in Medicine Unlocked* (Elsevier, 2025).
- Designed the **human evaluation protocol** behind those numbers (two independent clinical evaluators, third-party adjudication, scoring correct refusal as correct so safe behaviour is not penalised), and now lead the first-author follow-up on **LLM-as-a-judge** evaluation of medical chatbots (under review). Co-author of an ML/LLM **health-triage benchmark**, IEEE ICDM Workshops 2025.

Skills

LLM systems: RAG (chunking, embeddings, vector search), agent pipelines and tool use, fine-tuning (Llama-3 8B, instruction tuning), quantisation, prompt design. Python, PyTorch, Hugging Face Transformers, LangChain, Azure OpenAI.

LLM evaluation: clinician-adjudicated gold sets, inter-rater protocols, LLM-as-a-judge, refusal and out-of-scope safety testing.

Backend & cloud: FastAPI, async Python, PostgreSQL, Redis, Docker, CI/CD, Azure, AWS (EC2, S3, VPC), Linux, Git.

Regulated-domain AI: PHI handling and HIPAA-aware design, clinical NLP, safety guardrails, human-in-the-loop clinical review.

Languages: English (full professional proficiency, daily work with a US team since 2023); German (A1, in progress).

Awards

- Kaggle Gold Medal, top 2%**, March Machine Learning Mania 2022 (Google-sponsored); **Silver Medal**, Bengali.AI Speech Recognition (26th of 744 teams).

Education

B.Sc. Eng. in Computer Science and Engineering

2018 – 2023

Khulna University of Engineering & Technology (KUET)

Khulna, Bangladesh

Publications

9 peer-reviewed publications (3 as first author) on medical AI, LLM evaluation and applied ML; 2 further manuscripts under review.

Full list: Google Scholar. Selected:

- SuSastho.AI: A Multimodal Medical Copilot for Adolescents Using Evidence-Based Medicine and LLMs** (first author). *Informatics in Medicine Unlocked* (Elsevier), 2025. doi:10.1016/j.imu.2025.101720
- A Benchmark and Optimization Framework for ML and LLM-based Health Triage** (co-author). IEEE ICDM Workshops 2025, Washington D.C.