

Saumik Chakraborty

saumik17rkl@gmail.com — +91-96682-92738

<https://linkedin.com/in/saumik-chakraborty-51a499257> — github.com/Saumik17rkl

Portfolio: saumikportfolio-nine.vercel.app

Profile Summary

Multidisciplinary Computer Science Engineer with expertise across Artificial Intelligence, Machine Learning, Python Development, Web Development, and Network Security Engineering. Experienced in developing intelligent systems, analyzing data pipelines, designing efficient backend services, building scalable web applications, and applying ML to cybersecurity workflows such as anomaly detection and packet analysis. Passionate about building solutions that blend AI reasoning, automation, system design, and secure infrastructure principles.

Core Skills

AI/ML: ML/DL Models, Transformers, PyTorch, TensorFlow, Embeddings, XAI

LLM Engineering: Prompt design, multi-agent orchestration, RAG, reasoning optimization

Python Development: Backend APIs, automation scripts, data pipelines, OOP, utilities

Web Development: FastAPI, Flask, Streamlit, REST APIs, JSON, Deployment

Networking & Cybersecurity (ML): Malware detection, packet inspection, anomaly detection, Scapy, PyShark

Tools/Databases: Git, FAISS, HuggingFace, LangChain

Programming Languages: Python, Java, SQL

Experience

AI/ML Intern — Nirveon X Omnicare Pvt. Ltd.

Feb 2025 – Sep 2025

- Engineered prompt and retrieval workflows improving AI robustness across clinical triage, summarization, and response validation modules.
- Developed backend microservices using FastAPI with PostgreSQL, enabling secure authentication, LLM processing endpoints, and high-performance inference.
- Optimized RAG pipelines reducing hallucination tendencies by **19%**.

AI Research Intern — Finessefleet Foundation

Jan 2025 – Jul 2025

- Created multilingual reasoning prompts for complex domain-specific tasks involving logic, finance, and information-heavy contexts.
- Used XAI-based evaluations to improve semantic consistency and factual reliability by **14%**.
- Researched long-context handling, knowledge routing, and structured output verification.

Key Projects

- Indian Regional Language Translator (GenAI)** — Multilingual speech-to-text and text-to-text translation system for English/Hindi/Regional languages using transformer-based sequence models and contextual embedding alignment.
- Network Traffic Analysis & Packet Inspection using ML** — It is a lightweight, reproducible research project for network traffic analysis, intrusion detection, anomaly localization, and policy enforcement using compact ML models and an agentic finite-state controller.
- Malware Detection using ML + Behavioral Signatures** — Developed a malware classifier using opcode-level features, entropy analysis, and ML-powered anomaly scoring; integrated network behavior analysis for enhanced threat intelligence.
- AI Breakup Agent (Mental Health Conversational Support)** — Built empathetic AI agent designed for emotional support, using sentiment scoring, contextual memory, adaptive prompt structures, and response safety checks to simulate guided conversational therapy.
- Generative LLM Workflow Engine** — Multi-step LLM orchestration engine using LangGraph, enabling reasoning loops, memory graphs, tool-calling, and automated task execution.
- RAG Conversational Assistant** — Context-aware assistant with FAISS-based semantic retrieval, optimized ranking, long-term memory, and multi-turn reasoning for improved relevance.
- Face Recognition + Identity Reasoning System** — FaceNet embedding model combined with LLM-based disambiguation logic achieving **95% accuracy** in identity verification.
- Autonomous AI Calling Agent** — STT/TTS powered agent with dynamic memory, real-time intent detection, interruption handling, and tone-adjusted conversational flow.

Certifications

Amazon ML Summer School — Microsoft AI-900 — Google Data Analytics

AWS GenAI — AWS NLP — AWS Cloud Web App Builder

Tata & PwC Virtual Data Internships — Oracle Cloud HCM Essentials

Achievements

- 2nd Runner-Up** — Infosys Global Hackathon 2025 (Hyderabad Grand Finale)
- Finalist** — Hack4Bihar National Innovation Challenge 2025