

SANJOY CHATTOPADHYAY

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Masters of Technology, Computer Science and Engineering, National Institute of Technology, Durgapur

SUMMARY

AI/ML Engineer specializing in **Large Language Models, RAG pipelines, multi-agent systems, vector search, and predictive analytics**. Experienced in building end-to-end GenAI applications using **LangChain, GPT-4/3.5, HuggingFace Transformers, FAISS, FastAPI, Streamlit**, and scalable microservices. Strong background in time-series modeling, NLP, and backend systems. Seeking roles in **GenAI Engineering, LLM Development, and Applied AI**.

EDUCATION

- National Institute of Technology, Durgapur** 2024-2026
 - M.Tech in Computer Science and Engineering* CGPA: 9.00
- Birbhum Institute of Engineering And Technology** 2018-2022
 - B.Tech in Computer Science and Engineering* CGPA: 9.32

EXPERIENCE

- Indian Army**
 - Data Science Intern — Panagarh Military Station* May 2025 – Jul 2025
 - Built an **AI-driven predictive maintenance system** for **1K+ military vehicles** using **ML pipelines** (clustering, regression, anomaly detection) with **Streamlit-FastAPI microservices** for **real-time analytics** and operational insights.
 - Engineered **telemetry-processing ETL workflows** for **time-series forecasting, vehicle health scoring, and mission-capability prediction**, improving maintenance efficiency by **65%**.
- HCLTech**
 - Graduate Engineer Trainee — Noida, Sector-126* Jul 2022 – Nov 2023
 - Built and deployed **scalable microservices architecture** using Java, Spring Boot, Hibernate, and MSSQL, improving reliability and throughput across enterprise-grade financial systems.
 - Developed and optimized the **Bank of India Workitem Approval System**, implementing multi-level approval workflows, high-volume transaction routing, and Kafka-based asynchronous processing for robust workflow automation.
 - Enhanced inter-service communication via **Eureka Service Discovery**, Feign clients, REST APIs, and load-balanced routing, reducing end-to-end latency by **30%**.
 - Improved backend stability through SQL procedure tuning, caching strategies, API optimization, and **CI/CD-driven DevOps practices**, ensuring fault tolerance and smooth deployments across SIT/UAT environments.

PROJECTS

- Multi-Agent AI Research System** Code | Demo
 - LangChain, GPT-4, FastAPI, Tavily API, React*
 - Built a **multi-agent ReAct LLM system** integrating **6+ autonomous tools, FastAPI microservices**, real-time web search, contextual memory, and automated reasoning workflows supporting **20+ concurrent users** with 99% uptime.
- Army Medical RAG Chatbot (LLM + FAISS)** Code | Demo
 - LangChain, FAISS, HuggingFace, Groq, Streamlit*
 - Developed a **domain-specific RAG pipeline** using **FAISS vector search, semantic chunking, reranking, Groq-accelerated inference**, and HuggingFace embeddings over **10K+ medical guideline pages**, achieving **92% retrieval accuracy** with **0.12s latency**.
- Intelligent Vehicle Maintenance & Fault Prediction System** Code | Demo
 - LSTM/GRU, CNN, Python, MongoDB, Streamlit*
 - Built an **AI-driven predictive maintenance platform** using **LSTM/GRU forecasting, CNN feature extraction, 10-year telemetry analytics**, delivering **87% failure prediction accuracy** with real-time **Streamlit dashboards** for anomaly detection and fleet readiness insights.

TECHNICAL SKILLS

GenAI & LLMs: Prompt Engineering, RAG, Multi-Agent Systems, LangChain, LlamaIndex, Transformers, FAISS, ChromaDB, HuggingFace, Groq, OpenAI, Anthropic
Machine Learning: Time-Series (LSTM/GRU), CNN, Regression/Classification, Feature Engineering
Backend & MLOps: FastAPI, Docker, Kafka, Spring Boot, Microservices, CI/CD
Languages & Databases: Python, C++, Java, MySQL, MSSQL, MongoDB, Vector Databases (FAISS)

ACHIEVEMENTS

- Finalist — Indian Army Innovation Contest 2025:** Designed a **RAG-based defense knowledge retrieval system** ranked among the **top 20 national innovations** showcased to military R&D units.
- Competitive Coding:** Solved **700+ DSA problems** — **GFG Rank 120 (Score 1100)** and **LeetCode Rating 1599**, consistently ranking in the **top 5%** in national contests.
- Top Performer — IIT Delhi RENDEZVOUS EN LIGNE:** Recognized for high-performance **Python + Data Science** solutions under timed evaluation.