

Sagnik Mukherjee

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EDUCATION

International Institute of Information Technology (IIIT) Naya Raipur

Aug. 2023 – June 2027

B.Tech in Data Science and Artificial Intelligence

CGPA: 8.2/10

EXPERIENCE

Chhattisgarh State Industrial Development Corporation (CSIDC) | *MLOps+Fullstack Intern*

Feb. 2026 – Present

- Engineered a full-stack industrial land monitoring system (Next.js, FastAPI) integrating interactive satellite monitoring and an automated compliance scoring system.
- Developed a React Native mobile application featuring 9 offline-first capabilities for field inspectors, streamlining land-use tracking for 20+ industrial companies.

Samsung R&D Institute | *Machine Learning Intern*

Oct. 2025 – March 2026

- Developed a Generative Adversarial Network (GAN)-based image enhancement pipeline using PyTorch and OpenCV, enabling granular comparative quality assessment (sharpness, noise, contrast).
- Deployed the ML pipeline via a FastAPI backend, reducing inference processing time to under 2 seconds per image pair while achieving a $\geq 25\%$ improvement in PSNR.

AmbujaNeotia Group | *MLOps Intern*

May 2025 – Aug. 2025

- Architected a Retrieval-Augmented Generation (RAG) chatbot leveraging the Groq LLM API, sentence transformers, and a Pinecone vector database for real-time querying of construction rulebooks.
- Implemented an automated PDF parsing pipeline and integrated geospatial map superimposition, enabling location-aware, context-specific semantic searches for builders.

PROJECTS

ThinkSync | *AWS (Kinesis, Bedrock), LangGraph, Python, FastAPI*

Repository

- Architected a production-grade meeting analytics platform capturing live audio via Chromium headless bots, streaming chunks to AWS Kinesis and Transcribe for real-time diarization.
- Orchestrated a distributed network of 60+ LangGraph AI agents to autonomously execute downstream tasks (JIRA ticket creation, CRM updates) using AWS Bedrock and Claude models.
- Engineered a Next.js frontend featuring real-time WebSocket-driven coaching overlays and comprehensive post-meeting analytics dashboards visualizing Read Score, engagement, and sentiment trends.

IncidentCommander (Meta-RL Hack) | *FastAPI, React, Kubernetes, Qwen2.5, OpenEnv*

Repository

- Developed an OpenEnv reinforcement learning environment simulating 150 AWS services, where AI agents autonomously diagnose and mitigate 381 diverse SRE incidents using a self-improving curriculum controller.
- Designed an adversarial LLM scenario generator and a multi-persona judge with a phase-aware reward signal, training models via a GRPO pipeline (TRL + vLLM colocate).
- Configured an optional live execution mode routing RL agent write actions to a real Kubernetes cluster, alongside a holistic per-episode grader evaluating investigation thoroughness and mitigation efficiency.

CreditLens | *FastAPI, LangGraph, AWS OpenSearch, MongoDB, Next.js*

Repository

- Built a Kubernetes-native credit analysis platform utilizing 18 distinct AI agents orchestrated via LangGraph workflows for end-to-end financial assessment and 10K Monte Carlo simulations.
- Integrated hybrid vector/BM25 search via AWS OpenSearch and multi-format OCR via AWS Textract to power a robust Knowledge Curator and interactive RAG-powered chat.
- Deployed the platform using Terraform on Oracle Cloud, delivering a Next.js frontend that features real-time SSE streaming for live agent progress updates and interactive credit score visualizations.

TECHNICAL SKILLS

- **ML/DL/RL:** PyTorch, TensorFlow, Keras, Scikit-Learn, LangChain, LangGraph, Reinforcement Learning (PPO, GRPO, DQN), GANs, RAG, Sentence Transformers, LLMs (Claude, Qwen), CNNs, BERT, OpenCV, NLP.
- **Data & Cloud:** Vector DBs (Pinecone, OpenSearch), AWS (Bedrock, Kinesis, Transcribe, ECS, S3), Docker, Kubernetes, Terraform, MongoDB.
- **Languages & APIs:** Python, C/C++, SQL (PostgreSQL), TypeScript, JavaScript, FastAPI, Flask, REST APIs.

ACHIEVEMENTS

- Overall Hackathon winner of Xcelerate-Hacathon, Organized by CSIDC.
- Qualified for Meta PyTorch OpenEnv Hackathon x Scaler School of Technology on-campus Grand Finale in Bangalore.
- College Rank 3 and All India Rank 509 in ICPC India Preliminary.
- AIR 52 in Zuno's Fellowship Aptitude Test organized by Zuno by Foundit.
- Kishore Vaigyanik Protsahan Yojana (KVPY) and National Talent Search Exam (NTSE) Scholar.
- Winner of National Level Hackathon - Education for AI | Education in AI Powered by Thinkplus and SkillU.
- Winner of Software Track in NITS Hacks 8.0.