ANKIT ARAYAN TRIPATHY

Bhubaneswar, India | +91 8908233590
x2ankittripathy@gmail.com | github.com/x2ankit | linkedin.com/in/ankit-tripathy

Professional Summary

AI Systems Engineer building production-grade LLM applications, multi-agent workflows, and ML pipelines. Experienced in designing end-to-end architectures for semantic retrieval, telemetry anomaly detection, and embedded AI systems. Currently developing Quarry (LLM RAG backend), Aeroguard (ML anomaly detection), Agriguard (CNN vision inference), and OnboardAI (agentic automation). Strong foundation in Python, scalable backend design, and applied machine learning.

Technical Skills

- **Programming:** Python, SQL, C, C++
- **AI/ML:** RAG Systems, Embeddings, CNNs, Anomaly Detection, Time-Series ML, LLM Workflows
- **Libraries:** NumPy, Pandas, Scikit-learn, OpenCV, TensorFlow
- **Tools:** FastAPI, PostgreSQL, Redis, Docker, Git, GitHub

Projects

Quarry: AI Knowledge Infrastructure Platform **In Progress**
AI Systems Engineering Project

- Engineered FastAPI backend for high-speed document ingestion and RAG pipeline formulation.
- Designed embedding-based semantic search across unstructured datasets utilizing Redis caching.
- Integrated PostgreSQL for structured data persistence to accelerate query resolution.
- Developed document chunking pipeline, directly improving downstream LLM token utilization.
- Enables context-aware retrieval for enterprise LLMs via Docker containerized microservices.

Aeroguard: AI Flight Anomaly Detection System **2025**
Hackathon Project, Winner, Hack For Tomorrow 2.0 (VSSUT Burla)

- Developed unsupervised anomaly detection pipeline utilizing PCA and DBSCAN algorithms.
- Processed 191 NASA flight parameters to identify systemic faults during landing phases.
- Implemented sensor fault isolation mechanism providing actionable confidence scoring.
- Improves automated anomaly detection and proactive flight safety via Streamlit telemetry visualizations.

Agriguard: AI-Based Precision Agriculture System **2025**
SIH 2025

- Trained CNN crop disease detection model in TensorFlow for automated health analysis.
- Integrated drone vision capabilities to facilitate precision pesticide application.
- Built full-stack dashboard for remote environmental tracking and system monitoring.
- Deployed edge AI inference models utilizing Raspberry Pi and Coral TPU hardware.
- Automates crop classification via aerial computer vision, significantly reducing chemical waste.

OnboardAI: Agentic Client Onboarding System **2025**
Agentic AI System

- Constructed autonomous multi-agent system powered by Gemini LLM planning workflows.
- Built Plan → Action → Result → Decision agent loop for dynamic multi-agent control.
- Implemented modular Planner, Executor, and Validator roles for scalable task distribution.
- Integrated programmatic tool calls automating cloud provisioning and email orchestration.
- Supports deterministic workflow continuity utilizing fallback handlers and traceability logging.

Experience

Smart India Hackathon Project **2025**

Machine Learning & Systems Developer

- Developed AI crop monitoring pipeline using deep learning for disease classification.
- Deployed low-latency CNN inference model optimized for edge deployment environments.
- Connected ML endpoints to web dashboard triggering precision pesticide spraying.
- Configured continuous deployment workflows ensuring scalable and automated field health analysis.

Education

Silicon University **2025 – Present**

Bachelor of Technology, Computer Science & Engineering *Bhubaneswar*

CGPA: 9.20

Jupiter Public School **2024**

Higher Secondary Education (CBSE)

94.2% (PCM, Computer Science)

Achievements

- Winner, Hack For Tomorrow 2.0, VSSUT Burla (Aeroguard Project)
- Smart India Hackathon 2025 Contributor
- Developed four end-to-end AI systems spanning LLM retrieval (Quarry), ML anomaly detection (Aeroguard), AI vision (Agriguard), and multi-agent orchestration (OnboardAI)