

# AMIYA KUMAR MISHRA

Software Engineer – Generative AI

Bangalore, India

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## Professional Summary

Software Engineer with 4+ years of experience building production-grade Generative AI systems, agentic workflows, and Retrieval-Augmented Generation (RAG) pipelines for enterprise environments. Strong hands-on expertise in Python, LangChain-style orchestration, multi-agent architectures, vector databases, and semantic retrieval. Experienced in deploying secure, compliant, and explainable GenAI solutions with focus on grounding, evaluation, and operational reliability.

## Technical Skills

**Generative AI & Agentic Systems:** Multi-Agent Architectures, Tool Calling, Function Calling, Agent Graphs, LangChain, LangGraph-style orchestration, Autonomous Agents, Model Context Protocol (MCP)

**RAG & Retrieval:** Hybrid RAG Pipelines, FAISS Vector Database, Semantic Chunking (Transformer-based), Query Routing, Context Grounding, Hallucination Reduction

**LLM Ecosystem:** OpenAI APIs, Mistral Models, Prompt Engineering, Structured Outputs, Context Window Optimization

**Backend Development:** Python, Flask, REST APIs, WebSockets, JWT Authentication, Asynchronous Processing

**Frontend & AI Interfaces:** Vue.js 2/3, AI Explainability Dashboards, Agent Reasoning and Retrieval Trace Visualization

**Cloud & DevOps:** AWS EC2, Docker, Kubernetes, GitLab CI/CD, Nginx

**Data Handling:** FAISS, MongoDB, SGI Retrieval APIs, NumPy, Pandas, JSON/XML Parsing, Regex

## Professional Experience

### Dassault Systèmes Global Services — Bangalore

Software Engineering Specialist

May 2024 – Present

- Transformed an enterprise Mining Assistant into a production-grade agentic AI system using multiple autonomous agents with tool calling and function calling.
- Designed a LangGraph-style orchestration framework with planner, retriever, verifier, summarizer, and executor agents communicating through structured state transitions.
- Implemented hybrid RAG pipelines combining SGI-based semantic graph traversal with FAISS vector search to improve factual grounding and retrieval accuracy.
- Integrated secure enterprise APIs enabling real-time data retrieval with auditability and controlled access.
- Built Python/Flask backend services with asynchronous inference pipelines and JWT-secured endpoints.
- Developed AI transparency dashboards in Vue.js to visualize agent reasoning steps, tool calls, and retrieval provenance.
- Deployed containerized services using Docker, Kubernetes, and AWS EC2, ensuring reliability and observability in production.
- Applied responsible AI practices including grounding, verification, and reduced hallucination risk for enterprise GenAI use cases.

Software Engineering Associate

Jul 2022 – Apr 2024

- Built an AI-powered Aviation Chatbot platform for aerospace clients, focusing on semantic retrieval and operational intelligence.
- Developed FAISS-based semantic retrieval engines to optimize query latency and relevance across aviation datasets.
- Implemented REST APIs and structured data pipelines to support safe retrieval and controlled inference.
- Collaborated in Agile scrums with globally distributed teams to deliver iterative GenAI features.

Software Engineering Intern

Jan 2022 – May 2022

- Contributed to UI components and API prototyping for internal R&D tools.
- Gained hands-on experience in full-stack development and Agile workflows.

## **Key Projects**

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### **Agentic Hybrid RAG Mining Assistant**

2024–2025

- Designed a multi-agent GenAI system supporting coordinated reasoning, tool execution, and retrieval verification.
- Implemented hybrid retrieval using SGI graph traversal and FAISS vector search.
- Added explainability features exposing agent decisions and data sources.

### **Multi-Agent DevTool Assistant (VS Code MCP Extension)**

2025

- Built an autonomous developer assistant using Model Context Protocol (MCP) for code review, documentation, and test generation.
- Implemented agent orchestration using Python backend integrated with LLM APIs.
- Winner of internal Ideathon + Hackathon; approved for productization.

### **Predictive Aviation RAG Chatbot**

2022–2023

- Developed a semantic retrieval system for aviation manuals and datasets.
- Applied transformer-based semantic chunking for improved document understanding.

## **Education**

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### **B.Tech – Computer Science & Engineering**

Centurion University of Technology and Management

2018–2022

CGPA: 9.0

## **Certifications & Awards**

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- Building Personalized Chatbots with OpenAI & LangChain — DeepLearning.AI (2024)
- Genius Award — Dassault Systèmes (2024)
- Winner — Ideathon + Hackathon 2025 (Multi-Agent DevTool Assistant)