

# Kunal Janjirala

AI Engineer | MLOps Specialist

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## PROFESSIONAL SUMMARY

Innovative **AI Engineer** with extensive experience architecting scalable **Agentic AI** systems and **Machine Learning** pipelines. Expert in deploying **Multi-Agent Orchestrations** using **LangGraph** and **Google Vertex AI**, delivering measurable efficiency gains. Proven track record in optimizing **Advanced RAG** architectures and **LLMOps** workflows to drive business value and reduce latency in enterprise environments.

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## TECHNICAL SKILLS

- **Agentic AI & Orchestration:** LangGraph, LangChain, CrewAI, AutoGen, Google Vertex AI Agent Builder, ReAct Pattern, Chain-of-Thought (CoT), Multi-Agent Systems, Semantic Kernel, Agentic Workflows.
- **GenAI & LLMs:** Large Language Models (GPT-4o, Claude 3.5, Llama 3), Retrieval-Augmented Generation (RAG), Prompt Engineering (DSPy), Vector Embeddings, Fine-tuning (LoRA/QLoRA), Hallucination Detection.
- **Machine Learning & DL:** Python, PyTorch, TensorFlow, Scikit-learn, Computer Vision (OpenCV, YOLO), NLP (spaCy, Hugging Face Transformers), Reinforcement Learning, Predictive Modeling.
- **Cloud & MLOps:** Google Cloud Platform (Vertex AI, BigQuery), Azure (Machine Learning, Databricks), AWS (SageMaker, Bedrock), Docker, Kubernetes, CI/CD, MLflow, Weights & Biases, RAGAS, DeepEval.
- **Data Engineering:** SQL, NoSQL, Vector Databases (Pinecone, Milvus), Apache Spark, Kafka, ETL Pipelines, Data Governance.

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## PROFESSIONAL EXPERIENCE

PayPal | AI Engineer | June2023 – Present

- **Architected** and deployed a fault-tolerant **Agentic AI** system using **LangGraph**, enabling decision-making for complex workflows and reducing manual process intervention by **40%**.
- **Engineered** an enterprise-grade **Retrieval-Augmented Generation (RAG)** pipeline integrating **Vector Databases** (Pinecone) and **Hybrid Search** (Keyword + Semantic), improving information retrieval accuracy by **35%** and significantly reducing model hallucinations.
- **Orchestrated** collaborative multi-agent workflows using **CrewAI** to automate data synthesis tasks, resulting in a **3x increase** in operational throughput, enabling precise role-based task delegation.
- **Optimized** LLM inference costs by **25%** through strategic **System Prompt Design** and the

implementation of **Token Usage Monitoring** via **LLMOps** dashboards, ensuring sustainable scaling.

- **Developed** and productionized **Computer Vision** models for document intelligence, utilizing Google Document AI to achieve **98% extraction accuracy** and integrating seamlessly with edge deployment infrastructure.
- **Spearheaded** novel research on **Natural Language Processing (NLP)** and predictive modeling, developing algorithms that outperformed baseline models by **15%** on environmental benchmark datasets.
- **Designed** and validated **Deep Learning** architectures using **PyTorch**, collaborating with a team of 5 researchers to enhance high-fidelity visualization in CAVE environments.
- **Implemented** scalable data preprocessing pipelines using **Pandas** and **NumPy** to sanitize and normalize large-scale datasets (>1TB), ensuring high-fidelity input for model training.

#### Accenture | Data Analyst | July 2021 – June 2022

- **Developed** and maintained mission-critical predictive analytics solutions on **Azure Cloud** for **Global 500 clients**, ensuring **99.9% system uptime** through rigorous automated testing and CI/CD implementation.
- **Automated** legacy business processes by building custom scripts in **Python** and **SQL**, reducing manual labor hours by **20 hours per week** and minimizing human error in sales forecasting.
- **Led** the strategic migration of on-premise databases to **Azure Data Lake**, enhancing data accessibility and security while strictly adhering to enterprise **governance and compliance** standards.
- **Collaborated** with cross-functional teams to integrate modern API architectures, facilitating seamless digital transformation and reducing infrastructure maintenance costs by **15%**.

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## EDUCATION

**Master of Science in Computer Science:** Southern University and A&M College, Baton Rouge, USA | 2024  
**Bachelor of Technology in Computer Science :** JNTU, Hyderabad, India | 2021

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## CERTIFICATIONS

- **AWS Certified Solutions Architect – Associate**
- **Microsoft Certified: Azure Data Scientist Associate**

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## AWARDS & RESEARCH

- **Winner, HBCU Hackathon (2023) — American Airlines**  
*Predictive Maintenance System using Cloud APIs*
- **Runner-Up, HBCU Hackathon (2024) — American Airlines**  
*Passenger Experience Optimization Platform*