# **LAHARI KARROTU**

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### **Professional Summary**

A versatile and results-driven Software Engineer with a Master's degree and over 4 years of experience architecting, building, and deploying large-scale, distributed systems. Proven expertise across the full technology stack, with a specialization in building robust Data Engineering pipelines using Python, Spark, and Kafka; scalable AI/ML systems featuring Generative AI, RAG, and MLOps; and engaging Full-Stack applications with Java, Python, and React. Excels at solving complex challenges in cloud-native environments (AWS, Azure) and leading projects through the entire Software Development Lifecycle (SDLC).

### **Core Competencies**

* Programming Languages: Python, Java, C++, JavaScript, TypeScript, SQL, Scala, Go
* AI & Machine Learning: Generative AI, Large Language Models (LLMs), RAG Pipelines, Agentic Systems, MLOps, Prompt Engineering, TensorFlow, PyTorch, Scikit-learn, NLP, Computer Vision (OCR)
* Data Engineering & Big Data: Apache Spark, Kafka, Airflow, ETL/ELT Pipelines, Data Modeling, Data Warehousing, Real-Time & Batch Processing, AWS Glue, S3 Data Lake, Databricks
* Full-Stack Development: React, NodeJS, FastAPI, Django, SpringBoot, HTML5, CSS3
* Cloud & DevOps: AWS (S3, EC2, Lambda, EMR, SageMaker, EKS, SQS), Azure, GCP, Terraform (IaC), Docker, Kubernetes, CI/CD (Jenkins), Serverless Architecture
* Backend & Databases: System Design, Microservices, REST APIs, SQL, NoSQL (Cassandra, MongoDB, DynamoDB), PostgreSQL, Oracle
* Tools & Methodologies: Git, Jira, Agile, Scrum, Technical Troubleshooting, Performance Tuning

### **Professional Experience**

**Full Stack AI Engineer | Arkatech Solutions, Remote | May 2025 - Present**

* Led the architecture and development of a scalable, full-stack AI application on Azure, serving thousands of concurrent users.
* Automated the entire cloud infrastructure provisioning using Terraform, reducing deployment time by 40% and ensuring 99.9% uptime.
* Wrote high-quality, maintainable backend code in Python (FastAPI) and drove high code quality standards through rigorous code reviews.

**AI/ML Full Stack Developer | Anguliyam, Atlanta, GA | Aug 2024 - May 2025 (10 mos)**

* Engineered a next-generation agentic system using a Generative AI model (Gemini) that automated complex user tasks through intelligent, multi-step orchestration.
* Developed an industry-leading Retrieval-Augmented Generation (RAG) system that provided intelligent search capabilities over a large corpus of private documents.
* Deployed the application using containerization tools like Docker on AWS, ensuring a scalable and resilient production environment.

**Big Data Engineer | Cognizant | Jan 2022 - Aug 2022 (8 mos)**

* Designed and implemented mission-critical ETL pipelines using AWS services (S3, Glue, Redshift), processing terabytes of data efficiently for enterprise clients.
* Leveraged AWS Lambda and S3 to build serverless data processing pipelines, automating data transformation and reducing operational overhead by 30%.

**Data Analyst | EPAM Systems | Dec 2020 - Mar 2021 (4 mos)**

* Developed automated data ingestion workflows using PySpark on AWS EMR and orchestrated complex job schedules with Airflow.
* Cleaned and analyzed complex datasets using SQL, identifying and resolving over 500 critical data integrity errors.

### **Key Projects**

* **Full-Stack AI-Powered "Virtual Try-On" Application (Blinds & Boundaries)**
  + Architected and built a production-grade, end-to-end AI application on Azure from the ground up. Developed a responsive front-end with React and TypeScript and engineered a high-performance backend using Python (FastAPI) to serve an AI model for intelligent image overlay. Automated the entire cloud infrastructure with Terraform, leading to a 70% increase in user interactivity and purchasing confidence.
* **Generative AI Application for Enterprise (SmartBuy)**
  + Designed and developed a full-stack eCommerce application featuring an AI Agent powered by an LLM. This project involved architecting and building a complete RAG pipeline that ingested product documentation into a vector store, which allowed the agent to provide personalized, trusted, and context-aware knowledge to users, improving query accuracy by 40%.
* **End-to-End ML System at Scale (Railway Predictive Maintenance)**
  + Engineered a fault-tolerant, real-time anomaly detection system on AWS. The solution involved creating a Spark data pipeline to process streaming sensor data, training and deploying a TensorFlow model for prediction, and exposing the results via a low-latency API from a serverless Lambda architecture.

### **Education**

**M.S. in Computer Science Florida Institute of Technology, Melbourne, FL | Graduated May 2024**

**B.S. in Computer Science (Big Data Analytics & Data Science) KL University, Vijayawada, India | Graduated May 2022**

### **Certifications**

* AWS Certified Solutions Architect – Associate
* CCNA - Cisco Certified Network Associate
* ServiceNow Developer
* Oracle Database SQL Certified Associate