Harish Kumar Samala

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linkedin.com/in/samala-harish-kumar — Portfolio

Summary

Software Engineer focused on building web applications, RESTful APIs, and AI-powered solutions. Strong experience in Python and SQL for automating complex data processing and optimizing database performance. Hands-on experience with Generative AI using OpenAI APIs and Mistral LLMs for chatbot development, embeddings, and semantic caching. Experienced in Flask-based API development, CI/CD automation, data engineering, and full-stack application delivery. Collaborative team player with experience in code reviews, documentation, and cross-functional development.

Technical Skills

Programming Languages: Python, SQL, Java
Web & Backend: Flask, Spring Boot, REST APIs, HTML, CSS, React, TypeScript
AI / ML: OpenAI APIs, Mistral LLM, Machine Learning, Deep Learning, CNN, Recommendation Systems
Libraries & Frameworks: NumPy, Pandas, SciPy, Scikit-learn, TensorFlow, PyTorch, Matplotlib, Seaborn, PySpark
Databases: PostgreSQL, MySQL, MongoDB, Oracle
Big Data & Processing: PySpark, Pandas, NumPy
DevOps & Cloud: AWS, Azure, Jenkins, Azure Pipelines, Git, GitHub, Azure DevOps
Web Scraping & Automation: Selenium, BeautifulSoup, smtplib
Infrastructure & Testing: Nginx, JMeter
Data Visualization: Tableau
Tools & IDEs: VS Code, PyCharm, Eclipse, Jupyter Notebook, Google Colab, Postman

Professional Experience

Advanced Knowledge Technologies - Python Developer Jul 2024 – Present

- Developed and deployed a production-ready Conversational RAG system using LangChain, Groq LLMs, OpenAI/HuggingFace embeddings, and Streamlit, enabling contextual PDF-based chat with persistent memory and multi-turn reasoning, reducing support response times by 40%.
- Designed and optimized modular pipelines for document ingestion, vector embedding, and semantic search (FAISS, Chroma), improving retrieval precision by 35% and reducing latency by 25%.
- Implemented history-aware prompts and session continuity using LangChain tools and Mistral LLMs, enhancing multi-turn reasoning accuracy by 30%.
- Built robust text-cleaning pipelines with OpenAI APIs and enhanced PDF onboarding with PyPDFLoader to handle complex documents including forms and tables.
- Spearheaded the development of a domain-specific GenAI chatbot, automating high-complexity workflows and saving 10 hours/week in manual operations.
- Developed RESTful APIs with Flask and Django, integrated with CI/CD pipelines via Azure DevOps for seamless deployment, and optimized database performance through indexing and caching, reducing query execution time by 40%.

- Engineered automated web scraping and data transformation pipelines using Selenium, BeautifulSoup, SQL, Pandas, and NumPy, enabling real-time analytics and actionable business insights.
- Applied the Apriori algorithm to usage logs to extract user behavior patterns, improving recommendation system relevance and personalization strategies.
- Automated stakeholder notifications using Python smtplib, implemented error-handling pipelines with dynamic routing to cloud/local storage, and maintained Agile workflow through code reviews and documentation.
- Built internal dashboards with Python Dash and performed sentiment analysis on customer reviews, providing data-driven insights to guide product and service improvements.

Technology Stack & Tools:

- **Languages & Frameworks:** Python, Flask, Django, Streamlit, LangChain, SQLAlchemy, Dash
- **LLMs & GenAI:** Mistral, Groq API, OpenAI APIs, LLaMA3, HuggingFace Embeddings, Conversational RAG, Semantic Search
- **Vector Stores & Retrieval:** FAISS, Chroma, RecursiveCharacterTextSplitter
- **Databases:** PostgreSQL, MySQL, MongoDB, SQL
- **Data Processing:** Pandas, NumPy, PySpark
- **Web Scraping & Automation:** Selenium, BeautifulSoup
- **Document Processing:** PyPDFLoader
- **Cloud & DevOps:** AWS, Azure, GCP, Jenkins, Azure Pipelines, Git (Azure DevOps), GitHub
- **Infrastructure & Testing:** Nginx, JMeter, dotenv
- **Analytics & ML:** Sentiment Analysis, Apriori Algorithm, Data Visualization

SparkleClean – Full-Stack Service Booking Platform Aug 2025 – Oct 2025

- Developed a production-ready full-stack booking platform with customer and admin portals.
- Built responsive, mobile-first frontend using React, TypeScript, Tailwind CSS, and React Router.
- Implemented secure admin dashboard with full CRUD operations and role-based authentication.
- Designed multi-step booking workflows and real-time booking status tracking.
- Integrated QR code generation and Web Share API for enhanced user experience.
- Built backend services using Java 17 and Spring Boot with RESTful APIs.
- Implemented automated booking number generation and controlled booking status workflows.
- Used Spring Data JPA (Hibernate) with MySQL for reliable data persistence.
- Deployed backend on Railway and frontend on Vercel.

Superior Limousine LLC – Corporate Website Oct 2025 – Nov 2025

- Designed and developed a modern, fully responsive website for a luxury transportation company.
- Built high-performance frontend using TypeScript and ViteJS.
- Implemented mobile-first responsive layouts and accessibility-focused UI design.
- Integrated Framer Motion for smooth animations and user interactions.
- Optimized media delivery using Cloudinary CDN.
- Applied SEO best practices and structured metadata.
- Deployed the application on Vercel and configured DNS via BigRock.

Case Notes (Hospital) – NJIT

- Developed a system to summarize and analyze patient case documents.

- Built backend services using NestJS, TypeScript, Prisma, PlanetScale, and AWS Lambda.
- Designed APIs and tested integrations using Postman.

Evaluating Student Performance – NJIT

- Built machine learning models to predict student performance based on examination data.
- Generated performance trend insights to identify strengths and improvement areas.
- Used Pandas, NumPy, and Matplotlib for data analysis and visualization.

Crop Yield Prediction – NJIT

- Built linear regression models to forecast agricultural crop yields.
- Analyzed weather, temperature, and pesticide datasets to improve prediction accuracy.
- Achieved a mean squared error of approximately 1.75.

Vulnerability Scanning using Nessus – NJIT

- Performed network vulnerability scanning using Tenable Nessus.
- Generated reports and remediation recommendations to improve organizational security posture.

Certifications

- Data Structures and Algorithms with Python
- AWS Certified Cloud Practitioner
- Generative AI Foundations

Education

New Jersey Institute of Technology, Newark, NJ — May 2024
Master of Computer Science, GPA: 3.1/4.0

Siddhartha Institute of Technology (SITS), Hyderabad, India — Aug 2021
Bachelor of Engineering in Computer Science, CGPA: 6.9/10