

Arun Balaji M

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[LinkedIn](#) | [Portfolio](#) | [GitHub](#)

Experience

Software Engineer | ATHMA - Narayana Health

Jun 2023 – Present

Applied / Generative AI Contributions

- **Designed a RAG-powered patient summary system** using LangChain that automatically queries historical EMR data, medical notes, and documents upon scheduling, generating a **top-5 insight summary for physicians and saving 5 minutes per consultation**.
- Developed an AI-OCR pipeline to extract and classify invoice details **across 500+ vendor formats** using Python and Azure OpenAI, automating warehouse data entry with **95% accuracy and significantly reducing manual processing effort**.
- Built a conversational AI voice agent to handle inbound patient calls for appointment booking and management, **reducing unattended calls by 90%** and directly increasing clinic revenue through automated 24/7 scheduling coverage.
- Engineered a **Natural Language Query (NLQ) system** using LangGraph enabling 20+ non-technical business users to query databases directly in **plain English**, processing 50+ queries daily and **reducing data retrieval time from 5-6 hours (IT ticket) to under 10 minutes**.

Software Development

- **Engineered and scaled RESTful and event-driven microservices** using Kafka, Redis, and Docker, sustaining **2000+ requests per second with 99% uptime** through performance optimization and resource tuning.
- Developed a dedicated document delivery microservice integrated with Azure Blob Storage, reducing patient report wait **time from 1-2 hours to under 10 minutes** by eliminating manual handoffs through a fully orchestrated delivery workflow.
- Built and optimized high-volume data pipelines with targeted PostgreSQL query redesign and indexing strategy, **reducing execution time from 4s to 100ms (97.5% improvement) while processing 5M+ records daily** to support business analytics via CI/CD pipelines.

Skills

Applied / Generative AI: Python, FastAPI, LangChain, LangGraph, LlamaIndex, PyTorch, Scikit-learn, Azure OpenAI, Hugging Face, LLM Engineering, RAG, Weaviate, ChromaDB, OCR, Streamlit

Backend: Java, Spring Boot, Hibernate/JPA, REST APIs, Microservices, PostgreSQL, Elasticsearch, ClickHouse, Kafka, Redis, Docker, Kubernetes, Jenkins, Maven, JHipster, Swagger, Kibana, Linux, Git/GitHub, JIRA, Data Structures, System Design

Frontend: HTML, CSS, Bootstrap, JavaScript, Next.js

Projects

Patient Relationship Management System

- Independently conceptualized and built a multi-agent AI system handling appointment scheduling, follow-ups, pre-assessment intake, referrals, and patient education.
- Implemented end-to-end patient communication workflows using conversational AI and LangGraph, reducing manual coordination overhead and improving patient accessibility across care touchpoints.

Education

Bachelor of Engineering – Information Technology

Annamalai University

2019 – 2023

CGPA: **9.13 / 10**