Abhinav Pathak

P: +91 9839655006 | pathakabhinav.cw@gmail.com | GitHub | LinkedIn | CV

Backend Engineer with 4.5+ years designing fault-tolerant, event-driven architectures using **Java 21, Spring Boot 3, and Kafka**. Highly skilled in deploying scalable clusters on **Kubernetes (AKS)** and extending traditional microservices capabilities through the integration of **Generative AI and RAG (Agentic Workflows)** pipelines.

Work Experience

Cognizant Technology Solutions — Bengaluru, India
Associate Software Developer — Aug 2021 – Present

- Designed and deployed scalable Spring Boot 3 microservices on **Azure Kubernetes Service (AKS)**. Secured endpoints using **Spring Security (OAuth2/JWT/RBAC)** and ensured **99.9% availability** by implementing **Horizontal Pod Autoscaling (HPA)**, resilience patterns (**Circuit Breakers**), and distributed tracing (**Zipkin/Micrometer**).
- Achieved a **40-45% reduction in latency** by eliminating N+1 query bottlenecks, leveraging **Redis distributed caching**, and optimizing complex data processing pipelines using **Spring Data JPA** projections and **Java Stream API**.
- Engineered a **Python-based automation pipeline** for DSpace workflows, eliminating **8 hours of manual processing weekly**, and built a robust **MQTT telemetry handler** (integrated with ECU-Test) capable of processing **1,000+ daily messages** with near real-time reliability.
- Developed an automated test reporting system integrating **LLM APIs** to increase data accuracy to **85%**, while maintaining a **99.5% uptime** for OTA data ingestion pipelines.

Side Project

TicketBlitz – High-Concurrency Event Ticketing Platform (Java 21, Spring Boot 3)

Technologies: Java 21, Spring Boot 3, Kafka, Kubernetes, Redis, LangChain, PostgreSQL, pgVector

- **Concurrency & Integrity:** Architected an **8-service system** utilizing **Pessimistic Locking** to guarantee **0% over-selling** and strict **transactional integrity**.
- **Distributed Patterns:** Orchestrated **Kafka Choreography Sagas** with automated compensating transactions to ensure eventual consistency across a **Database-per-Service** topology.
- **Modernization & Quality:** Implemented a "Survival Mode" recommendation engine using **LangChain** to serve personalized suggestions via Vector Search when primary inventory services are under load.

RAG Support Bot – Intelligent Q&A Agent (Python, FastAPI)

Technologies: Python, FastAPI, LangGraph, Chroma DB, LLMs, Docker

- **Stateful AI Workflow:** Built a Retrieval-Augmented Generation (RAG) chatbot using **LangGraph** to manage complex conversational states and context retention.
- **Architecture:** Designed a **FastAPI** backend to handle document ingestion and query processing, reducing Level 1 support ticket volume by automating technical Q&A.

Technical Skills

Languages: Java (21), Python, SQL
Frameworks: Spring Boot 3 (Core, Data, Security, Cloud), Microservices, Resilience4j, FastAPI, LangChain, LangGraph
Databases: PostgreSQL, MySQL, MongoDB, Redis, Vector DB
Cloud & DevOps: Docker, Kubernetes (AKS), Kafka, CI/CD (Azure DevOps, GitHub Actions), Testcontainers, Jaeger/Zipkin
AI & Automation: Generative AI (LLMs), RAG, Prompt Engineering, Agentic Workflows

Achievements

- MLEU Top Guns Award: Awarded for critical contributions to complex delivery pipelines at Cognizant.
- Client Appreciation: Recognized for resolving high-priority production incidents during the 3M engagement.

Education

DIT University — Dehradun, India
Bachelor of Technology (B.Tech.) - Computer Science & Engineering — Sep 2017 – Jun 2021