

RAGAVARSHINI R

STAFF SOFTWARE ENGINEER · PLATFORM ARCHITECTURE & TECHNICAL LEADERSHIP

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SUMMARY

Engineer with 9+ years of experience setting technical direction for high-scale fintech and enterprise SaaS platforms. Architects distributed systems that hold 99.9% availability under heavy traffic, leads migrations and platform rollouts across international markets, and takes new capability areas from prototype to team adoption, most recently production agentic AI tooling. Works across engineering, product, and enterprise customers to turn business problems into systems that ship.

SELECTED IMPACT

- Drove checkout platform releases adopted across 52+ EU countries, coordinating across teams through rollout.
- Introduced agentic AI to production diagnostics: architected a BigQuery- and Datadog-backed agent that autonomously surfaces root causes of user drop-offs, replacing manual funnel investigation.
- Executed zero-downtime database migrations on a system serving millions of users, with no customer-visible impact.
- Set the observability standard across distributed services, reducing MTTR by 20% team-wide.
- Served as Scrum Master and mentor, running Agile ceremonies and raising delivery predictability.

EXPERIENCE

Senior Software Engineer | PayPal | Chennai 05/2025 – Present

- Architected an agentic AI system over BigQuery and Datadog that surfaces root causes of user drop-offs, giving the team a diagnostic capability it did not have before.
- Owned conversion strategy for enterprise merchants end to end, identifying friction points across checkout, prioritizing the fixes, and driving them to release.
- Led performance optimization of the checkout module, delivering measurable conversion gains and latency reduction.
- Re-engineered Amex delegation flows to minimize authentication overhead, improving transaction success rates and simplifying the user journey.
- Delivered checkout features full-stack, from React and Next.js interfaces through Java/Spring and Node.js services over REST and GraphQL APIs, for platform versions adopted across 52+ EU countries.
- Built automated real-time conversion monitoring and custom Datadog reporting, cutting the time to identify production funnel leakage.
- Served as Scrum Master, facilitating Agile ceremonies and driving team productivity.

Member of Technical Staff | Zoho Corporation | Chennai 05/2017 – 05/2025

- Architected low-latency solutions for encounter functionality, improving system responsiveness and stability by 30%.
- Led scalability work on the Marketplace framework, reducing query execution time by 25%.
- Owned zero-downtime database migrations for a platform serving millions of users.
- Set query optimization and load-management practices for high-traffic paths, sustaining 99.9% uptime SLAs.
- Introduced Apache Kafka for asynchronous, event-driven communication and real-time webhook processing across services.
- Standardized distributed service logging, improving traceability and reducing MTTR by 20%.
- Partnered with product and customers to translate requirements into technical strategy, aligning the roadmap with business objectives.
- Owned critical dependency and framework upgrades protecting platform security and performance.

TECHNICAL SKILLS

Architecture: Distributed systems, microservices, REST and GraphQL API ecosystems, event-driven design, high-availability & SLA design, zero-downtime migration strategy, performance engineering

Languages: Java, Python, TypeScript, SQL

Frameworks & Platforms: Spring Boot, Spring Framework, Struts, Node.js, Express.js, React, Next.js

API Design: REST and GraphQL API ecosystems, versioning, lifecycle management, reusable components

Data & Messaging: MySQL, MongoDB, BigQuery, Apache Kafka, Zookeeper

Infrastructure & Delivery: Docker, Kubernetes, Jenkins, Maven, Gradle, Bitbucket

Observability: Datadog, Kibana, distributed tracing, production diagnostics

Agentic AI: Agentic RAG and retrieval routing, MCP server design, CrewAI, AutoGen, LangChain, multi-agent orchestration, tool binding and guardrails, Pinecone, LangSmith

Leadership: Technical strategy, cross-team collaboration, mentoring, Scrum Master, stakeholder & customer engagement

PROJECTS

Multi-Agent Conversion Diagnostics

PayPal · Internal

- Architected a multi-agent pipeline that diagnoses checkout conversion dips end to end, scoped by country, merchant, or experiment.
- Structured it as an escalation ladder: a BigQuery conversion check gates the run, a diagnostic agent localizes the dip to a checkout stage from the drop-off funnels, and an analyzer agent runs a fixed query set per known problem class.
- Reserved open-ended search for a hypothesis agent invoked only when the deterministic tiers are inconclusive, querying event tables, Datadog, and call logs within a bounded surface and retrieving from a corpus of prior incident analyses, so recurring issues are recognized rather than re-investigated.
- Closed the loop with a report agent producing stakeholder-ready output: conversion movement, drop-off stage, root cause, and supporting statistics.
- Exposed BigQuery and Datadog to the agents as typed, read-only MCP servers with argument validation and scoped credentials, keeping production access out of the agent context.
- Stack: Python, multi-agent orchestration, MCP SDK, BigQuery, Datadog API.

Payments Ledger with Read-Only MCP Server

[GitHub](#)

- Built a double-entry ledger whose five correctness invariants are enforced by PostgreSQL rather than the service: zero-sum, append-only, idempotency, derived balances and atomicity, held by deferred constraint triggers and views.
- Paired it with a read-only MCP server that holds no database credentials and reaches the ledger only through read HTTP endpoints, the same boundary any external consumer faces; deliberately omitted a raw-SQL tool, which would move the trust boundary from the API to the model's judgment.
- Tested with Testcontainers against real PostgreSQL, never H2; an invariant contract test attacks each rule through raw SQL to prove the database is what refuses the write.
- Stack: Java 21, Spring Boot 3, PostgreSQL 16, Liquibase, Python MCP SDK, JUnit 5, Testcontainers.

Agentic RAG Router (CrewAI)

[GitHub](#)

- Built an agentic RAG pipeline that routes each natural-language question to the retrieval path that fits it: semantic search over a PDF corpus, live web search, or a direct LLM answer with no retrieval at all.
- Split the system into two sequential crews, a router crew that classifies the question and a retriever plus answer crew constructed afterwards with exactly one tool bound to it, so an agent physically cannot call a tool outside its route; conditional branching sits in plain Python between the crews, since CrewAI sequential process has no native branching.
- Separated retrieval from answer generation into chained tasks so each agent output is inspectable, constrained the answer agent to the retriever evidence so out-of-scope questions return an explicit refusal, and logged question, route, reasoning, tool, evidence and answer to a CSV trace. Stack: Python, CrewAI, OpenAI GPT-4o-mini, Tavily, pandas.

AutoGen Analysis Service

[GitHub](#)

- Built a FastAPI microservice exposing an AutoGen pipeline of four AssistantAgents, and wired it into an n8n workflow so the analysis runs as an automated job rather than a manual script.
- Added a mock mode flag so the service runs end to end without hitting live LLM APIs, making the pipeline testable and demonstrable offline.
- Wrote every run to a JSON Lines log for traceability, capturing inputs and agent outputs per invocation. Stack: Python, AutoGen, FastAPI, n8n.

Flight Booking Application

[GitHub](#)

- Microservices-based booking platform covering authentication, flight scheduling, and ticketing, containerized and deployed to Kubernetes.
- Stack: Spring Boot, Docker, Kubernetes, Maven, REST microservices.

Patient Health Information on Blockchain

[GitHub](#)

- Solidity smart contracts on Ethereum for tamper-evident storage and permissioned sharing of patient health records.
- Stack: Solidity, Ethereum, Web3.

EDUCATION

M.Tech, Software Engineering, BITS Pilani

B.Tech, Information Technology, Karpagam College of Engineering, Coimbatore

CERTIFICATIONS

- Professional Certificate Program in Blockchain, IIT Kanpur
- Applied Agentic AI: Systems, Design & Impact, Microsoft & Simplilearn