

# Aravind Vallamkonda

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## SUMMARY

**Backend Software Engineer** with **3+ years of experience** developing high-performance **Java microservices** for financial services and datacenter management systems. Specialized in **Spring Boot microservices**, **distributed systems architecture**, and **performance optimization** at scale. Proven track record of architecting fault-tolerant systems for India's national toll collection infrastructure, processing **15M+ daily transactions** with **250M+ transaction/day capacity**. Expert in **database optimization**, **Apache Kafka**, **Redis caching**, and **AWS cloud deployment** with demonstrated results reducing system response times from **800ms to 400ms** and eliminating system downtime at enterprise scale.

## TECHNICAL SKILLS

**Programming:** Java 8/17, Go, Python, JavaScript, SQL

**Backend Frameworks:** Spring Boot, Spring, Gin

**API & Web Technologies:** RESTful APIs, GraphQL, JWT, OAuth2, WebSockets, Microservices Architecture

**Cloud & DevOps:** AWS (EC2, S3, RDS), Docker, Kubernetes, Jenkins, Terraform, Prometheus

**Messaging & Event Streaming:** Apache Kafka, RabbitMQ, Amazon SQS, Event-Driven Architecture

**Databases & Storage:** PostgreSQL, MySQL, Redis, MongoDB, Database Design & Sharding

**Testing & Monitoring:** JUnit, Mockito, Cucumber, Postman, Prometheus, Grafana, ELK Stack

**Certifications** - [AWS Certified Developer – Associate](#) | [Confluent: Developer Skills for Apache Kafka](#)

## PROFESSIONAL EXPERIENCE

### Software Development Engineer

Sep '25 - Present

MSR Cosmos | Seattle, WA

- Designed and built authentication server for ticketing platform by **gathering requirements directly from end users**, now serving 3000+ employees across infrastructure, development, and operations teams.
- Implemented **Passkeys** and **Multi-Factor Authentication (MFA)** using Spring Security and WebAuthn, enhancing authentication security for enterprise users.

### Software Development Engineer

Mar '25 - Aug '25

Karios | Ashburn, VA

- Architected end-to-end update management system with **Go and Java microservices**, automating software deployment from code submission through **Jenkins CI/CD** to production with **PGP-signed releases**.
- Designed **master-slave distribution architecture** where master nodes fetch updates from **AWS S3** and propagate to child nodes, eliminating redundant downloads across datacenter deployments.
- Proactively** built deployment service with graceful shutdown and automated rollback — **recovered** a defective system during **live client demo**.
- Modified **FreeBSD kernel source code** to create a custom operating system tailored for datacenter management infrastructure.

### Associate Application Developer

Nov '20 - Dec '22

National Payments Corporation Of India | Ashburn, VA

- Led end-to-end** re-architecture of monolithic **FASTag** system into 5 Spring Boot microservices, reducing response time from 800ms to 400ms and scaling to 250M+ transactions/day.
- Diagnosed root cause** of recurring outages, replaced PostgreSQL polling with Redis caching and Spring Task Scheduler — eliminating 2 monthly outages to achieve **zero unexpected downtime**.
- Migrated batch settlement system to real-time processing using **Apache Kafka**, enabling immediate transaction settlement across **50+ banking partners** optimized.
- Optimized concurrent transaction processing using **custom thread pools and virtual threads**, increasing parallel processing capacity from **8 to 100 threads**.

### Program Analyst Trainee

Feb '20 - Jun '20

Cognizant Technology Services | Bengaluru, India

- Gained practical exposure to **Java**, **Spring MVC**, **Hibernate**, and **Salesforce** through structured training and hands-on exercises focused on REST APIs and enterprise workflows.

## Projects

### ArbStream - Real-Time Crypto Arbitrage Detector ([Github](#))

Jan '25 - Mar '25

- Architected event-driven arbitrage detection system with **Spring Boot microservices** and **Kafka stream processing**, designed to detect price discrepancies within **100ms** across multiple cryptocurrency exchanges.

### TaskFlow - Real-Time Collaboration Platform ([Github](#))

Aug '24 - Dec '24

- Developed collaborative task management platform with **Spring Boot microservices**, **WebSocket-based real-time synchronization**, and **Redis caching**, supporting **100+ concurrent users** with **sub-200ms API response times**.

## EDUCATION

Masters in Computer Science - George Mason University | 3.93/4.0

Jan '23 - Dec '24

- Awarded [Distinguished Academic Achievement](#) by the Department of Computer Science (May 2025)