# Aakash Kumar

Lead Software Engineer|H-1B (4 yrs available)

*aakash.kumar1980@yahoo.com*
*https://www.linkedin.com/in/aakash-kumar1980*
*https://github.com/aakashkumar1980?tab=repositories*
*+1 623 268 7048*
*Phoenix, Arizona, 85023, USA, Phoenix, Arizona, 85023, USA*

Accomplished Senior/Lead Backend Engineer with 12+ years experience and specializing in cloud-native microservices with Java 21, Spring Boot, Kafka, and AWS (EKS / Kubernetes), skilled in building scalable, high-throughput applications.

Microservices and Foundational Architecture:
Led the implementation of a microservices architecture for critical financial functions, utilizing CQRS patterns to separate read/write responsibilities and significantly enhance system focus and scalability.

Event-Driven Systems:
Implemented a decoupled, event-driven architecture using Kafka, enabling asynchronous communication independent service deployments.

Distributed Transaction Management (Saga):
Implemented Saga compensation patterns to resolve data consistency challenges in multi-step, distributed transactions.

Performance and Concurrency:
Boosted throughput by over 30% and significantly reduced tail latency by migrating a high-load microservice to a reactive Vert.x framework.
Enhanced data processing efficiency using Java Streams, implementing single-pass aggregations and complex filter/map logic to improve performance for critical services.

Data & Caching:
Accelerated reads with Redis cache, persisted documents in NoSQL Couchbase; defined REST APIs with OpenAPI/Swagger for consistent contracts.

Resilience and Reliability:
Mitigated system failures and improved operational awareness by deploying resilience patterns (timeouts, retries with backoff) and creating automated failure alerts in ServiceNow.

Comprehensive Security and Compliance:
Secured applications and APIs by implementing a multi-layered defense with Okta (OIDC scopes / OAuth2), API Gateway protections (rate limits, request signing), and Vault for secrets management.

Big Data Ingestion:
Built Amazon S3, AWS Lambda, Apache Spark pipelines to ingest merchant master, redemption transactions, and authorization data.

Cloud Delivery and Automation:
Automated CI/CD on AWS EKS using GitHub Actions, integrating quality gates, progressive delivery, and centralized observability using AWS CloudWatch for reliable releases.

## Work Experience

### Lead Software Engineer
Apr 2023 - Present

*American Express | Phoenix, Arizona, United States*

As a Cloud-Native Solutions Architect and Lead, designed and developed a resilient and scalable microservices-based platform on AWS, leveraging an event-driven architecture with Kafka for decoupled communication and state management. Implemented performance-enhancing strategies like Redis caching and reactive programming with Vert.x to handle high transaction volumes. The role involved establishing robust security measures using Okta behind an API Gateway and ensuring system resilience with circuit breakers and automated failure handling. Furthermore, orchestrated big data ingestion pipelines from S3 to Spark for data processing and analytics, and managed the entire application lifecycle on Kubernetes (EKS) through a modern CI/CD pipeline.

### Technology Architect
Aug 2016 - Apr 2023

*Infosys | Pune, Maharashtra, India*

- Architected scalable software solutions, leading the design of comprehensive architectural blueprints and system diagrams.
- Developed responsive web interfaces using React.js and robust backends with Java and Spring Boot to enhance user experience.
- Implemented event-driven microservices utilizing Kafka and adhered to industry frameworks, improving system reliability and performance.

### Lead Software Engineer
Oct 2011 - Aug 2016

*Trimble Mobility Solutions India Pvt. Ltd. | Pune, Maharashtra, India*

- Designed and developed a robust system for handling large-scale streaming GPS data, utilizing JBoss Netty 3 Sockets and a JBoss Hornet Queue.
- The system included a Complex Event Processing (CEP) module for generating real-time alerts for events such as overspeeding, consignment dispatch, pre-delivery status, and accident-prone areas.
- Additionally, a batch processing module was implemented for various critical system data using the Java 5 Executors framework, and complex algorithms were developed within the SQL Server database via stored procedures.

## Core Skills

**CORE BACKEND & FRAMEWORKS:** Java, Java Streams, Java Concurrency, REST API, Spring Boot, Spring Data, Python, Vert.X

**ARCHITECTURE & PATTERN:** Microservices, Event-Driven Architecture, Saga Pattern,
Command Query Responsibility Segregation (CQRS), Circuit Breaker (Resilience4j), Caching, Reactive Programming

**DATA, MESSAGING & STORES:** Kafka, Apache Spark, Redis Cache, NoSQL Couchbase, AWS S3

**SECURITY:** OAuth 2.0, OpenID Connect (OIDC), Okta (OIDC/OAuth2), HashiCorp Vault, AWS API Gateway

**CLOUD & PLATFORMS:** Amazon Web Services (AWS), Kubernetes, Docker, AWS Lambda, AWS EKS, Terraform

**CI/CD & QUALITY:** GitHub Actions, SonarQube, SAST/DAST Security Scanning, JUnit/Mockito

**OBSERVABILITY & OPS:** AWS Cloudwatch, Incident Management (ServiceNow), Performance Tuning

## Education

### Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
Aug 1997 - Jun 2002

**Bachelor's degree** Electrical, Electronics and Communications Engineering

## Languages

**English, Hindi**

## Certificates

**Certified REST API Developer** Aug 2020
*HackerRank*

**AWS Certified Solutions Architect Associate** Jan 2021
*Amazon Web Services (AWS)*