

Nikhil Rai

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Summary

Backend Software Engineer with **2.5+ years** building scalable, distributed systems serving **10M+ users**. Skilled in **Java, Spring Boot, Kafka, AWS**, and **System Design** with proven success **leading teams** and driving **revenue growth**.

Experience

Limeroad

Software Development Engineer 2

Gurgaon

Nov 2022 – present

Search and Recommendation

- **Led 3 engineers** to build a scalable semantic search & recommendation system for **5M+ products** at **50K+ RPM**.
- Architected and **migrated legacy Solr** to a distributed cloud setup with **HTTP-proxy caching** using Varnish and **real-time updates** using Kafka, reducing response times to **sub-30 ms** (75% improvement).
- **Boosted search CTR by 20%** using a hybrid **vector search** model combining text and image embeddings.
- **Optimized infra costs by 50%** with an auto-scaling strategy leveraging **AWS spot instances** for Solr cluster.

Ads Monetization Platform

- **Spearheaded** development of a real-time bidding system enabling **5K+ vendors** to compete for premium spots.
- Designed scalable **bidding engine** with **Vickrey auctions**, integrated with search and recommendation pipelines.
- **Increased revenue by 12%** and **vendor engagement by 35%** via real-time bidding and analytics dashboards.
- Implemented **high-availability architecture** using **Redis Cluster** for caching and Kafka for event streaming.

Payment Service

- **Built payment-gateway agnostic service** with Spring Boot and strategy pattern, supporting **5+ providers**.
- **Enhanced system resilience** with **circuit breakers**, reducing failures by 90% and achieving **99.2% success rate**.
- Optimized payment flows with **Server-Sent Events**, **reducing server load by 23%** and improving user experience.
- Introduced **‘Pay with Rewards’** feature boosting **checkout conversions by 8%** and **retention by 15%**.

Technical Skills

Backend Development: Java (8+), Spring Boot, Spring Security, Hibernate/JPA, Kafka, RabbitMQ, RESTful APIs, GraphQL, JavaScript, Node.js

Databases & Storage: MySQL, PostgreSQL, Amazon Redshift, Amazon RDS, MongoDB, Redis Cluster, Apache Solr, Aerospike, ZooKeeper

Cloud & Infrastructure: AWS (EC2, S3, Lambda, RDS, CloudWatch, IAM, Auto Scaling), Docker, Kubernetes, Nginx, Varnish Cache, Jenkins CI/CD

System Architecture: Microservices, Event-driven architecture, Distributed systems, Caching strategies (Redis, CDN), Rate limiting, Load balancing, API Gateway patterns

Monitoring & DevOps: NewRelic, CloudWatch, Grafana, ELK Stack, Git, Maven, Gradle, JUnit, Mockito, Integration Testing

Core Engineering: Data Structures & Algorithms, System Design, Design Patterns (Strategy, Observer, Circuit Breaker), CAP theorem, Eventual consistency, Database sharding

Education

Delhi Technological University

B.Tech in Mechanical Engineering (Minor in Computer Engineering)

New Delhi

July 2019 – June 2023

- CGPA: 9.30/10.00, ranked **3rd in the Department**
- **Merit-Cum-Means scholarship** recipient from Delhi Government for all **4 years**

Achievements

- **Led cross-functional initiatives** resulting in **\$2M+ annual revenue impact** and **50% infrastructure cost reduction**.
- Recognized as a Smart India Hackathon (**SIH**) **finalist** for developing an **innovative solution** for the **Indian Coast Guard** addressing maritime security challenges.
- Led a team of **4** to secure **2nd place** overall in **Vihaan 2021**, a national-level hackathon organized by **IEEE DTU**.
- Scored in the top **3.7 percentile** of JEE Mains 2019 among **1.2 million qualified candidates**.
- **Mentored 2 junior developers** in system design principles and best practices, improving team productivity by **25%**.