

ALOK SINGH

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[Portfolio](#) | [Github](#) | [Linkedin](#) | [Leetcode](#)

PROFESSIONAL SUMMARY

Backend-focused Software Engineer and IIT BHU alumnus specialized in architecting high-availability distributed systems and AI-powered product features. **Expert in Java and Spring Boot** with a deep focus on system design, low-latency data handling, and zettascale scalability. **Ranked in the top 14% on LeetCode** with 450+ complex problems solved, demonstrating advanced algorithmic proficiency

WORK EXPERIENCE

Software Engineer , ITAakash Strategic Software Pvt. Ltd. Aug 2024 - Present

- **Architected and Owned** end-to-end integration of distributed AI features (OCR, MCP, and call summarization), ensuring **99.9% system availability** for production traffic.
- **Designed for Durability:** Engineered multi-database and multi-server deployments prioritizing data integrity and **high-performance persistence layers**.
- **Led Technical Roadmaps:** Partnered with stakeholders to translate user requirements into scalable backend services, maintaining **horizontal scalability** across all core product flows.

PROJECTS

Distributed Job Queue System | Java, Spring Boot, Redis Streams, PostgreSQL | [Github Link](#) Jan 2026

- **Fault-Tolerant Architecture:** Developed a system with **exactly-once execution semantics** and idempotent task submission, critical for data-sensitive cloud environments.
- **Resilience at Scale:** Processed 10,000+ tasks with automated crash recovery and graceful worker shutdowns to ensure **uninterrupted service delivery**.
- **Implemented observability** using Prometheus and Grafana; validated horizontal scaling capabilities via Redis consumer groups.

Rate Limiter Playground | Java 17, Spring Boot, Redis (Lua), Docker | [Github link](#) Dec 2025

- **Developed a distributed rate limiter** implementing 5 algorithms with atomic enforcement via Redis Lua scripts to prevent race conditions.
- **Optimized for low-latency performance**, achieving **sub-15 ms p99 latency** at a scale of 20,000+ requests per second.
- **Ensured memory efficiency** and single-round-trip operations to maintain high-throughput consistency across instances.

EDUCATION

IIT BHU Varanasi | Bachelor of Technology – Electrical Engineering | CGPA: 8.69 2020 - 2024

TECHNICAL SKILLS

- **Backend & Distributed Systems:** Java (17), Spring Boot, REST APIs, Redis, PostgreSQL, Distributed Systems, Rate Limiting, Job Queues.
- **AI & Integration:** OCR, Chatbots, Call Summarization, Model Context Protocol (MCP).
- **DevOps & Observability:** Docker, Prometheus, Grafana, Redis Streams, Lua Scripting.
- **Management & Languages:** Project Management, English & Hindi.