

# Harsh Singh

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Bangalore, India

## EXPERIENCE

- FourKites, Inc.** Chennai, India
  - Software Engineer - 1 (Full-time)* July 2025 - Present
    - Reduced P95 latency by 79% for Global Address Service serving 850 RPS by **architecting two-level caching** with Caffeine and Redis, achieving 82% cache hit rate using Java 21 Spring Boot for millions of daily users.
    - Decreased consumer lag by 87% by **designing event-driven Kafka architecture** processing 450 messages/second from 20 carriers with SASL authentication and automated Dead Letter Queue failure handling.
    - Cut mean time to resolution by 72% by building RCA automation using Claude API integrated with Elasticsearch for **multi-service log analysis**, enabling 4x faster production issue diagnosis.
    - Improved incident resolution time by 87% by **instrumenting 12 microservices with OpenTelemetry** distributed tracing and implementing **metrics-driven monitoring dashboards**.
    - Executed **zero-downtime migration** of 847GB PostgreSQL database from AWS to Azure with 10-minute cutover using logical replication, maintaining **high availability** for global customers.
    - Reduced deployment time by 80% by implementing **automated CI/CD pipelines** with Jenkins and ArgoCD GitOps, achieving 98% pipeline success rate.
  - Software Engineering Intern* June 2024 - June 2025
    - Led **infrastructure modernization** migrating critical Kafka services from Cloudera to Confluent with **zero message loss**, resolved 27+ production issues for Fortune 500 clients reducing bug backlog from 63 to 8 tickets.
    - Improved data capture rate from 87% to 99.8% by developing Sidekiq background job solution for Cardinal Health integration through **cross-team debugging and collaboration**.
    - Enhanced ETA prediction accuracy by 38% for European operations by building ML-powered pipeline implementing load classification algorithms integrating Carrier ETA with machine learning models.
    - Enabled performance monitoring across microservices by implementing **distributed tracing infrastructure** using OpenTelemetry on Elastic Beanstalk processing 5M traces daily.
    - Eliminated 210 hours of annual manual work by **automating geospatial analytics** using Apache Airflow and PostgreSQL PostGIS, achieving **95% code coverage with unit tests**.

## PROJECTS

- Container Vulnerability Management System (CIVMS)** *[Live]* Sept 2025 - Present
  - Achieved 100% secure base image compliance by scanning 200+ container images across Java, Python, Go, Node.js, and Ruby from GitHub repos and Google Distrollless, publishing zero-vulnerability multi-architecture images to AWS ECR and Azure ACR
  - Detected new CVEs within 15 minutes using Kafka-driven microservices, Trivy scanning via GitHub Actions, and 6-hour monitoring with AWS SES and Slack alerts
  - Eliminated manual security reviews through **automated LTS management** (Java 17/21/25, Python 3.9-3.12, Go 1.21-1.23, Node.js 18/20, Ruby 3.1/3.2) with PostgreSQL metadata tracking and **Jenkins CI/CD integration**
- Document Intelligence System** *[Live]* June 2024 - Aug 2024
  - Processed 50,000 documents monthly with 98% extraction accuracy by integrating LLAMA 3 AI model with RESTful Spring Boot backend and responsive Angular frontend
  - Increased processing capacity from 70 to 200 documents per minute (185% improvement) by **architecting high-throughput Kafka streaming pipeline** with optimized partition strategies and **92% test coverage**

## SKILLS SUMMARY

- Languages:** Java 21, JavaScript, Python, Ruby, C++, SQL, Bash
- Frameworks:** Spring Boot 3.5, ReactJS, Angular, Node.js, RESTful Web Services
- Cloud & DevOps:** AWS, Microsoft Azure, Docker, Kubernetes, Terraform, CI/CD, Jenkins, ArgoCD
- Databases:** MongoDB, Redis, MySQL, PostgreSQL, DynamoDB, Elasticsearch
- Tools:** Apache Kafka, Airflow, OpenTelemetry, Signoz, Datadog, Chronosphere, Git, JIRA, Maven, Gradle

## HONORS AND AWARDS

- Competitive Programming:** Codeforces Master (Peak: 2109, Current: 2051) with 822 problems solved. Global Rank 53 in Educational Round 180, Rank 76/37,000+ in Round 996 (+123), Rank 329 IMC Trading Contest, top 1% Newton School.
- Hackathons:** Secured Semifinalist position in India Grid 6.0 among 55,000+ participants. Won internal team hackathon by developing zero-vulnerability container image solution shipped to production.
- Certifications:** AWS (Cloud Practitioner), Azure Developer (AZ-204), Red Hat System Administration II (RH134).
- Leadership:** Coordinated 25+ stakeholders across 3 continents while recommissioning tech stack in Azure for infrastructure migration resulting with zero downtime.

## EDUCATION

- Lovely Professional University** Jalandhar, India
  - Bachelor of Technology - Computer Science Engineering — CGPA: 8.01* July 2021 - June 2025
    - Letters of Recommendation (EM and Prof, Certifications, More Projects)*