

# Joel Swapnil Singh

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## Experience

**Software Engineer**, Arista Networks Inc. – Bengaluru, India

July 2022 – Present

*Java, Spring Boot, REST, GraphQL, Microservices, Elasticsearch, Redis, Kafka, PostgreSQL, Docker, Kubernetes, AWS, Python, OpenTelemetry, Prometheus, InfluxDB, Grafana*

- Designed and optimised high-throughput **REST** and **GraphQL APIs** applying pagination, idempotency, and backward-compatible contracts to reduce **P95 latency by 40%** and sustain stable performance under peak traffic.
- Introduced **Redis** as a distributed caching layer with TTL-based invalidation, cache warming, and request coalescing, reducing read-heavy API latency by **~70%** and lowering primary datastore load by **45%**.
- Implemented **Elasticsearch**-backed advanced screener filters supporting complex **AND/OR compound queries**, index tuning, and query profiling, enabling sub-second searches on large datasets and improving query throughput by **3x**.
- Built **A4-Containers**, a **Kubernetes**-native orchestration microservice using **Docker** and **AWS** services, automating image builds, networking, storage, and cleanup, cutting workspace provisioning time from **~30 minutes to <1.5 minutes**.
- Increased automated test coverage to **~95%** by implementing **unit**, **integration**, and **contract tests**, reducing production incidents by **~50%** and improving deployment confidence.
- Implemented end-to-end observability using **OpenTelemetry**, exporting **metrics**, **traces**, and **logs** to **Prometheus**, **InfluxDB**, and **Grafana**, enabling rapid root-cause analysis and cutting **MTTD by 90%**.
- Designed and optimised **PostgreSQL** queries using indexing strategies and **EXPLAIN plan analysis**, reducing critical query execution time by **50–60%** under production load.
- Designed and developed **Grafana** dashboard for **TESLA** to enhance observability model, monitoring **request rate**, **error rate**, **P50/P95/P99 latency**, **CPU**, and **memory usage**, reducing error detection time from days to minutes and improving **MTTR by ~80%**.

**Software Engineer Intern**, LambdaTest – Remote, India

Jan 2022 – May 2022

*Golang, REST APIs, net/http, Gin, MySQL, CI/CD, Git, Docker*

- Designed and implemented **Golang-based REST APIs** using **net/http** and **Gin** to expose **CI** and repository insights including blocklisted tests, flaky tests, and ownership analytics, improving test health visibility and reducing **test failure investigation time by 25–30%**.
- Built backend services using **Go** with **MySQL**, applying clean data modeling, **indexed queries**, and **SQL optimisation** to ensure reliable test analytics and consistently achieve **P95 API response times below 250ms**.

## Education

**Indian Institute of Information Technology, Allahabad, India**

July 2017 — May 2022

Dual Degree(B.Tech + Masters) in Information Technology

CGPI: 8.45/10.00

## Projects

**ShortLink (URL Shortener Service)**

*Java, Redis, MySQL, Base62 Encoding, REST APIs*

- Designed and developed a scalable **URL shortening service** with **RESTful APIs**, supporting **custom aliases** and **expiration time**, following a clean **MVC architecture**.
- Implemented **Base62 encoding** with **Redis-backed counters** and **LRU caching** to generate unique short URLs and enable fast redirection while reducing database lookups for frequently accessed links.

## Skills

**Programming Languages:** Java, Golang, Python, C++

**Frameworks & APIs:** Spring Boot, REST APIs, GraphQL, Microservices, MVC Architecture

**Databases & Storage:** MySQL, PostgreSQL, DynamoDB, Redis, Time-Series Databases (InfluxDB), Amazon S3

**Tools & Platforms:** Docker, Kubernetes, Helm, AWS, AWS Lambda, Kafka, Git, Perforce, Jenkins, GitHub Actions, Postman, Maven

**Observability & Development Practices:** OpenTelemetry (OTel), Prometheus, Grafana, Distributed Tracing, Metrics & Logging, Agile, Test-Driven Development (TDD), API Design, Task Automation

**AI & Developer Productivity:** LLMs, Prompt Engineering, Cursor, Claude CLI