ROHIT MANE

Software Engineer — Backend & Distributed Systems — Cloud Infrastructure
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EDUCATION

Kolhapur Institute of Technology *Aug 2023 – May 2027*
B.Tech in Computer Science and Business Systems | CGPA: 9.11 / 10

EXPERIENCE

Software Engineering Intern — Duteint.ai *April 2026 – Present*

- Designed and built the distributed, event-driven notification platform detailed under Projects, as part of the core backend team.
- Improved system reliability by migrating real-time communication infrastructure from WebSockets to Server-Sent Events (SSE) architecture.
- Configured and maintained self-hosted GitHub Actions runners on AWS EC2, reducing deployment time and improving CI/CD reliability.
- Collaborated on microservice architecture design, infrastructure automation, and production issue debugging with the engineering team.

PROJECTS

Distributed Notification Platform | GitHub
Node.js, TypeScript, Fastify, PostgreSQL, Prisma, AWS SQS, AWS SES, Redis, Docker, Kubernetes, GitHub Actions

- Designed and developed a production-grade, event-driven notification microservice with asynchronous multi-channel delivery (In-App, Email, Slack-ready) using the Transactional Outbox Pattern, AWS SQS fan-out, and idempotent processing.
- Sustained 851 req/s with zero errors and 111 ms p99 latency on the HMAC-SHA256-secured ingest API (single instance, 50 concurrent connections).
- Achieved zero message loss and zero duplicate deliveries after a hard (SIGKILL) worker crash mid-batch, with full recovery in 16.3 s via SQS redelivery — validating at-least-once delivery guarantees.
- Measured 100% duplicate-prevention across 500 sequential and concurrent idempotency attempts, verified at both HTTP and database layers.
- Verified horizontal scaling safety of the PostgreSQL outbox claim path (FOR UPDATE SKIP LOCKED) — 0 row overlap and 0 deadlocks across 4 concurrent claimers on a 5,000-row backlog.
- Delivered real-time in-app notifications via Redis Pub/Sub + Server-Sent Events (SSE) with 0.36 ms p99 publish latency and 62,500 msgs/sec measured headroom.
- Built a reproducible performance-benchmark suite (autocannon load tests, fault injection, EXPLAIN ANALYZE); diagnosed an outbox-relay throughput ceiling (12.9 rows/s) and a Redis-outage SSE-loss gap, and proposed prioritized fixes.
- Containerized independent API, Router, and Worker processes with Docker and deployed on Kubernetes using GitHub Actions CI/CD pipelines.

ETA OTT — AI-Powered Learning Platform (RAG + Knowledge Graphs) | Live | GitHub
Node.js, Express, React, Python, Docker, AWS EC2, Qdrant, Neo4j, GitHub Actions

- Designed a scalable backend for an AI-powered learning platform using REST APIs and a microservice-based architecture, serving 120+ users.
- Built an end-to-end Retrieval Augmented Generation (RAG) pipeline covering ingestion, chunking, embedding generation, vector indexing, and response synthesis, processing 2,000+ academic documents.
- Implemented a confidence-scoring system combining vector similarity and contextual overlap to detect low-confidence answers and trigger mentor escalation.
- Integrated Neo4j knowledge graphs linking curriculum entities to improve semantic reasoning and contextual retrieval.
- Containerized backend and ML services using Docker and deployed on AWS EC2 with production CI/CD pipelines via GitHub Actions.

TECHNICAL SKILLS

Languages: Python, Java, JavaScript, TypeScript, SQL, Bash, C
Backend & APIs: Node.js, Express.js, Fastify, REST APIs, Microservices, Event-Driven Architecture, API Integrations, JWT, HMAC Authentication, OPA
Cloud & DevOps: AWS (EC2, SQS, SES, S3, IAM, ECR), Docker, Kubernetes, Helm, GitHub Actions, CI/CD, Linux, NGINX
Databases: PostgreSQL, Prisma, Redis, MongoDB, Qdrant, Neo4j
Concepts: Distributed Systems, System Design, Scalability, High Availability, Fault Tolerance, Message Queues, Idempotency, Retry Mechanisms, Caching, Concurrency, Performance Optimization

ACHIEVEMENTS

- International Hackathon Winner — PICT Pune
- National Level Hackathon Winner — DKTE Ichalkaranji
- Solved 400+ Data Structures and Algorithms problems across coding platforms
- Hacktoberfest 2025 — Open Source Contributor with multiple merged pull requests