

Rushabh Kalme

Software Engineer | Backend Systems | Distributed Systems | Cummins Inc. Merit Scholar '25

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EDUCATION

- B.Tech, Computer Science (IoT & Cybersecurity)** — VIT Pune, SPPU 2024–28 GPA: 9.29/10

WORK EXPERIENCE & INTERNSHIP

- Genxa Solutions, Pune**

Software Engineering Intern — WebRTC Communication SDK

(Dec 2025 – May 2026)

Stack: React, TypeScript, Firebase, LiveKit, WebSockets

- * Architected tree-shakeable TypeScript WebRTC SDK for sub-200ms p50 latency; plugin interface enabled 3 enterprise integrations without core SDK modifications
- * Eliminated state-desync across 50 concurrent rooms by replacing last-write-wins Firestore with a server-timestamp reconciliation protocol, validated with a race-condition harness
- * Cut client integration from 4–5 days to under 2 hours as sole SDK engineer; aligned product and engineering stakeholders on transport tradeoffs, delivering no-code onboarding end-to-end

AI Engineering Intern — Voice Agent Platform

(June 2025 – Oct 2025)

Stack: Python, LiveKit Agents, OpenAI API, Twilio, Node.js, GCP

- * Launched multi-tenant voice platform serving 4 enterprises at 2.3K concurrent calls/day with 99.9% uptime, automating 70% of manual SDR outreach workflows
- * Cut TTFB to 800ms by redesigning WebSocket turn-taking pipeline with custom VAD; deployed stateless GCP Cloud Run microservices with zero-downtime auto-scaling

PROJECTS

- ADV — Agentic CAD Drawing Validation Platform** | [ISGEC Heavy Engineering](#) (Industry Project) [GitHub ↑](#) | (july 2026 – Present)

Stack: Next.js 14, FastAPI, SQLAlchemy 2, Pydantic v2, Google Gemini, Ollama, Shapely, RapidFuzz

- Co-architected a CAD-drawing validation platform under a semester-long engagement sponsored and guided by Isgec Heavy Engineering, addressing real structural/mechanical General Arrangement (GA) drawing review
 - Designed a two-phase pipeline decoupling synchronous rule execution from an async LLM enhancement pass with a hard timeout: Phase 1 (parsing + 8-rule engine) completes in ~1.8s on a real 7.4MB drawing (~17.8K entities); Phase 2 runs in the background
 - Co-built an 8-rule geometric validation engine combining Shapely spatial indexing (STRtree) for sub-quadratic clash detection, Hungarian-algorithm optimal assignment for 1:1 equipment matching, and RapidFuzz for fuzzy ID reconciliation — covered by 78 pytest cases at 91% statement coverage
- Rail Yard Slot & Conflict Manager — Full-Stack Rail Scheduling Platform** [GitHub ↑](#) | (march 2026 – july 2026)

Stack: Java 21, Spring Boot 4.0, Angular 21, PostgreSQL 17, Docker, GitHub Actions

- Architected a full-stack rail-yard scheduling system: Java 21/Spring Boot 4.0 REST API, Angular 21 dispatcher operations shell, and a normalized PostgreSQL 17 schema across 7 tables with versioned Flyway migrations
- Designed and verified a partial GiST exclusion constraint enforcing conflict-free track reservations under concurrent writes at the database layer, validated with Testcontainers integration tests against real PostgreSQL
- Built an RFC-style error contract with correlation-ID tracing and stable pagination; shipped a Dockerized deployment (Compose, multi-stage builds, Nginx) behind a 3-job GitHub Actions CI pipeline, backed by 15 tests

PATENTS & PUBLICATIONS

- IEEE Accepted:** “Innovelty AI: An AI-Driven System for Automated Novelty Assessment and Patentability Analysis,” accepted at I2ITCON 2026 (to appear in IEEE Xplore).
- 4 Patent Applications Filed** (2025–2026): AI Patent Verification, Traffic Violation Detection, Prescription Error Detection, and Smart Irrigation Systems.

TECHNICAL SKILLS

- Languages:** Python, TypeScript, Java, C++, SQL
- CS Fundamentals:** OOP, Design Patterns (Strategy, Observer, Factory), Data Structures & Algorithms
- Backend & Databases:** FastAPI, Spring Boot, Spring Data JPA, SQLAlchemy, PostgreSQL, SQLite, Redis, Flyway
- Distributed Systems & Cloud:** Microservices, System Design, GCP, AWS, Docker, Kubernetes, CI/CD, Terraform
- Web & Real-Time:** React, Next.js, Angular, Node.js, WebSockets, WebRTC (LiveKit), Zustand, Vite
- AI / LLM Integration:** OpenAI API, Google Gemini, Ollama, LiveKit Agents, LLM Orchestration

ACHIEVEMENTS

- Codeforces** — Expert (1619 Rating, top 10% globally); strongest in graphs, dynamic programming, and segment trees
- Hackathon Wins:** 1st Place, AIXPLORE 2K26 (Apr 2026); Winner, CODE APEX 2.0
- Cummins Merit Scholar (2025)** — Competitive merit scholarship awarded to top-performing students nationally