

MANDAR JOSHI

Phone: +91 70202 12202 | Email: mandarjoshi1045@gmail.com

LinkedIn: [linkedin.com/in/mandar-joshi-0b951b28a](https://www.linkedin.com/in/mandar-joshi-0b951b28a) | GitHub: github.com/mandar1045

Portfolio: mandarjoshi-portfolio.vercel.app

PROFESSIONAL SUMMARY

Software Engineer specializing in distributed systems and payment infrastructure. Built and deployed a 9-microservice Go/gRPC payment-recovery platform (Resync) handling UPI Autopay failure classification and smart retry scheduling for Indian merchants, alongside an AI-powered enterprise automation platform processing 500+ events/day at Tense AI. Active open-source contributor to Kubernetes (CNCF), FOSSology (Linux Foundation), Supabase, cal.com, and PostHog with 10+ merged PRs across these organizations. Proficient in Go, Python, TypeScript, React, Docker, Kafka, and AWS with deep experience in event-driven architecture, gRPC/Protobuf service contracts, and cloud-native CI/CD deployments.

EDUCATION

Vellore Institute of Technology

Vellore, India

Bachelor of Technology in Information Technology

Jul. 2024 – May 2028 (Expected)

Relevant Coursework:

Data Structures & Algorithms, Database Management Systems, Operating Systems, Computer Networks, Object-Oriented Programming, Software Engineering, Machine Learning, Cloud Computing, Discrete Mathematics, Linear Algebra

TECHNICAL SKILLS

Programming Languages: Go, Python, TypeScript, JavaScript, Java, SQL, HTML/CSS

Backend Frameworks: gRPC/Protobuf, FastAPI, Node.js, Express.js

Frontend Frameworks: React.js, Next.js, Tailwind CSS

Machine Learning: PyTorch, NumPy, Pandas, OpenCV, YOLO, NLP Pipelines

Databases: PostgreSQL, MongoDB, Redis, Supabase; Schema Design, Migrations, Query Optimization

Infrastructure & DevOps: Docker, Docker Compose, Kubernetes, Terraform, Nginx, Caddy

Messaging & Streaming: Apache Kafka (Redpanda), Redis Pub/Sub, Event-Driven Architecture

Cloud Platforms: AWS (EC2, S3, Lambda, ECS Fargate, ECR), Oracle Cloud, Supabase

Observability: Prometheus, Grafana, Alertmanager, Sentry, Structured Logging (slog)

Developer Tools: Git/GitHub, Postman, VS Code, CI/CD Pipelines, buf (Protobuf toolchain)

Security: JWT Authentication, HMAC-SHA256 Webhook Signing, AES-256-GCM Encryption at Rest

Concepts: Microservices Architecture, Distributed Locking, Idempotency, State Machines, Rate Limiting

WORK EXPERIENCE

Full Stack Developer | Xnotch iTech (Renew Care Plus)

Jul. 2026 – Present

- Engineering complex, security-hardened **database management** for **Renew Care Plus**, a B2B healthcare platform, with encrypted-at-rest storage, role-based access controls, and audit-ready data models for sensitive records.
- Building **B2B dashboard analytics** that surface real-time business metrics, cohort reporting, and drill-down insights for enterprise clients.
- Designing secure, high-performance query layers and schema migrations that safeguard sensitive data while keeping analytics responsive at scale.
- Owning full-stack delivery end to end — from database schema and API contracts to the interactive analytics UI.

Software Development Engineer Intern | Tense AI

Mar. 2026 – Jun. 2026

- Designed and shipped an AI-powered enterprise automation platform processing **500+ emails/day**, featuring NLP-based classification, intelligent response generation, and configurable routing rules that eliminated manual triage for **3 client teams**.
- Optimized end-to-end microservice latency by **40%** through async event-driven architecture, Redis caching, TypeScript/Python service refactoring, and connection pooling across **6 containerized services**.

- Provisioned and managed production **VPS infrastructure** with Nginx reverse proxy, automated SSL termination via Let's Encrypt, and CI/CD pipelines; achieved **zero-downtime deployments** using Docker blue-green deployment strategy.
- Collaborated with cross-functional teams (product, design, QA) in Agile/Scrum sprints, conducting code reviews, writing technical documentation, and mentoring junior developers on best practices.

Full Stack Developer Intern | Tense AI

Dec. 2025 – Feb. 2026

- Developed and shipped **4 production features** in React, Node.js, and MongoDB, cutting average page load time by **25%** through MongoDB query optimization (compound indexes, aggregation pipelines), lazy loading, and component code-splitting.
- Delivered a RESTful API layer handling **500+ daily requests** with Joi schema validation, centralized error handling middleware, and JWT-based authentication/authorization with role-based access control.
- Built reusable React component library with responsive design, improving frontend development velocity across the team and ensuring UI consistency across the platform.

PROJECTS

Resync: UPI Autopay Recovery Platform

2026

Live at resync.biz | GitHub: github.com/mandar1045/Resync

Overview: Resync is the recovery layer for India's UPI Autopay ecosystem. Merchants register their existing autopay customers; Resync watches every expected charge and when one fails, it executes smart retries on the merchant's own payment gateway account. Pricing is success-based: 3% of recovered revenue. The platform supports both **direct recovery** (Resync charges on merchant's connected Razorpay/Cashfree keys) and **delegated recovery** (merchant charges on Resync's instruction, keeping money-moving secrets in their own infra).

Architecture & Technical Details:

- Architected a **9-microservice** platform in **Go** with **gRPC/Protobuf** service contracts:
 - **auth-svc** — Identity management, API key issuance (test/live keys), Supabase JWT verification
 - **sub-svc** — Subscription state machine (pending → active → past_due → cancelled), autopay lifecycle
 - **payment-svc** — Multi-gateway abstraction (Razorpay, Cashfree, PhonePe), idempotent charge execution, mandate management, AES-256-GCM credential encryption
 - **dunning-svc** — Smart retry engine with UPI failure code classifier (30+ NPCI/Razorpay/Cashfree codes mapped to 8 internal categories), 4 retry strategies, delegated recovery with nudge sweeps
 - **invoice-svc** — GST-compliant invoice generation, PDF rendering, S3/MinIO storage, platform fee collection via Razorpay Payment Links
 - **webhook-svc** — Outbound event delivery with HMAC-SHA256 signature verification, retry with exponential backoff
 - **checkout-svc** — Hosted checkout pages and recovery links for end-customer payment re-authorization
 - **billing-cron** — Periodic billing sweep, autopay-missed detection, gateway mandate sync
 - **api-gateway** — REST→gRPC translation, rate limiting, auth middleware, Supabase JWT and API key dual-auth
- Designed **UPI failure code classifier** that normalizes 30+ raw NPCI/gateway codes into 8 internal categories and routes to 4 context-aware retry strategies:
 - **Salary-day:** insufficient funds (U30, Z9) → retry on inferred pay-day (1st/15th IST) using historical payment observation streams
 - **Exponential backoff:** technical errors (U16, BT) → 2h, 4h, 8h doubling backoff
 - **Next-day:** limit exceeded (U68, Z8) → retry next day 10:30am IST
 - **Hard fail:** mandate revoked/expired (U14) → immediate subscription cancellation, no retry
- Orchestrated event-driven pipeline using **Apache Kafka** (via Redpanda) with **subscription_id** partition keys ensuring strict event ordering; combined with **Redis SETNX distributed locks** (TTL 30s) and structured idempotency keys (`charge:{sub_id}:{cycle}`) guaranteeing **zero double-charges** even under concurrent cron workers.
- Implemented **recovery attribution system** with 5 attribution types (resync_charge, resync_settled, resync_delegated, resync_assisted, organic) and a 72-hour attribution window, enabling accurate success-based billing (3% fee) while preventing unjustified charges for organic recoveries.
- Built **Node.js SDK** (@mandar1045/resync, npm-published) and **Python SDK** (resync-sdk, pip-installable) with full type hints, zero runtime dependencies, HMAC-SHA256 webhook verification, delegated recovery helpers, and comprehensive documentation.
- Developed **Next.js merchant dashboard** with real-time analytics (recovery rates, revenue recovered, failure code breakdowns), autopay management, gateway credential onboarding (Razorpay OAuth Partner flow), webhook configuration, and dunning policy customization.

- Deployed **full observability stack**: Prometheus metrics (per-service gRPC/HTTP latencies, failure code distributions, retry outcomes), Grafana dashboards, Alertmanager with email notifications via Resend, and structured logging with Go's `slog`.
- Containerized all 9 services + infrastructure via **Docker Compose** (dev) and **distroless Docker images** (~20MB each) for production. Infrastructure-as-code with **Terraform** targeting AWS ECS Fargate. Production deployed on Oracle Cloud Always-Free ARM VM with **Caddy** auto-HTTPS.
- Designed OpenAPI 3.0 specification (800+ lines) covering 15+ REST endpoints with comprehensive request/response schemas, enabling SDK auto-generation and API documentation.

Continuum: AI/ML Workflow Automation Platform

2026

Live at continuum.online

Overview: Production-grade AI/ML automation platform serving live enterprise clients, focused on intelligent email classification and workflow routing.

Technical Details:

- Designed ML-powered email classification engine supporting **15+ custom labels**, reducing manual triage time by **60%** for live enterprise clients using NLP pipelines with confidence-scored routing and configurable thresholds.
- Deployed containerized microservices on **VPS servers** with Docker and CI/CD automation, achieving **99.5% uptime** and sub-200ms API response times across production traffic.
- Implemented intelligent response generation using NLP models with contextual template selection, enabling automated replies for common query categories.
- Built admin dashboard with real-time classification accuracy monitoring, label management, and workflow configuration for non-technical users.

Real-Time Crowd Management System

2025

GitHub: github.com/mandar1045/Crowd-Management-System-software

Overview: Computer vision system for real-time crowd monitoring and stampede risk prediction, designed for large public venues and events.

Technical Details:

- Engineered multi-stream computer vision pipeline monitoring **4 simultaneous CCTV feeds** using YOLO-based object detection for crowd density estimation, achieving **91% detection accuracy** at 24 FPS.
- Implemented predictive stampede risk detection algorithm analyzing crowd flow patterns, density gradients, and movement velocity with automated alert dispatching, reducing detection-to-alert latency to **under 1.5 seconds**.
- Optimized inference throughput via GPU-accelerated frame batching and temporal skip-frame strategies, keeping **CPU overhead under 15%** on commodity hardware.
- Built real-time monitoring dashboard with live video feeds, density heat maps, zone-wise crowd counts, and historical trend visualization.

OPEN SOURCE CONTRIBUTIONS

FOSSology — Linux Foundation

github.com/fossology/fossology

8 PRs merged

- Contributed to FOSSology, an open-source license compliance software system. Delivered 8 merged pull requests spanning bug fixes, feature enhancements, and code quality improvements to the core scanning and analysis pipelines.

Kubernetes — CNCF

github.com/kubernetes/kubernetes

Contributor

- Contributed to the Kubernetes container orchestration platform, one of the largest open-source projects in the cloud-native ecosystem maintained by the Cloud Native Computing Foundation.

cal.com — cal.com

github.com/calcom/cal.com

PRs merged, Contributor

- Contributed to cal.com, the open-source scheduling platform. Merged pull requests addressing feature improvements and codebase enhancements.

Supabase — Supabase Inc.

github.com/supabase/supabase

PRs merged, Contributor

- Contributed to Supabase, the open-source Firebase alternative. Merged pull requests improving the platform's developer tooling and documentation.

PostHog — PostHog Inc.

github.com/PostHog/posthog

Contributor

- Contributed to PostHog, the open-source product analytics platform, addressing issues in the analytics pipeline and developer experience.

ADDITIONAL INFORMATION

Languages: English (Fluent), Hindi (Native), Marathi (Native)

Interests: Distributed Systems, Payment Infrastructure, Open-Source Software, Cloud-Native Architecture, Fintech

Location: Vellore, India (open to relocation)