

SUKHCHARAN SINGH

Senior Full Stack Engineer · Backend · Distributed Systems · Platform Integration

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PROFESSIONAL SUMMARY

Senior full-stack engineer (5+ years) who owns the integration, scheduling, and event-driven core of a healthcare practice-management SaaS serving 3,500+ active clinics. Specializes in backend performance, distributed systems, API design, and data consistency across external systems, with measured impact (12s → <1s APIs; 14.6M+ message Kafka pipelines) and full ownership through release and incident response. Comfortable across the stack with Node.js, NestJS, TypeScript, and Angular.

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, Node.js, SQL, N1QL

Backend: NestJS, Express, Sails.js, REST APIs, GraphQL, gRPC, Microservices

Distributed Systems: Apache Kafka, event-driven architecture, worker threads (Piscina), idempotency & at-least-once delivery, real-time (SSE / WebSocket / Nchan), caching

Frontend: Angular, React, TypeScript, RxJS, HTML, CSS

Databases: Couchbase (N1QL), Elasticsearch, PostgreSQL, Microsoft SQL Server, Redis, MongoDB

Cloud / DevOps: AWS, Oracle Cloud (OCI), Docker, Kubernetes, Caddy, GitLab CI/CD, GitHub Actions / GHCR, OpenTelemetry / Datadog

PROFESSIONAL EXPERIENCE

Software Engineer — Adit (Aditadv Digital Pvt. Ltd.) — Healthcare Practice-Management SaaS Mar 2023 – Present

Multi-tenant platform serving 3,500+ active clinics across dental, optometry, chiropractic & orthodontics

- **Booking availability engine** — Cut appointment slot-availability computation from ~12s to under 1s (~92%) by profiling the hot path, isolating a heavyweight moment.js-based slot library as the true bottleneck, and replacing it with a native set-intersection engine that eliminated ~1.3M object allocations per request; architected the multi-vertical engine (strategy/factory + worker-thread offload) to stay responsive under concurrency.
- **Kafka event platform** — Architected the migration from per-record synchronous HTTP logging to a durable Apache Kafka pipeline, eliminating data loss under load and now sustaining 14.6M+ messages across 21 partitions; built the consumer service from scratch with at-least-once delivery and idempotent, unique-key writes.
- **EHR integration framework** — Built the integration layer that normalizes ~60 on-premise practice-management systems (Dentrix, OpenDental, Eaglesoft, OrthoTrac, ChiroTouch, and more) onto a single canonical data model across dental, optometry, chiropractic, and orthodontics, unlocking new market verticals with no per-vendor schema changes.
- **Bidirectional appointment sync** — Designed a two-way sync architecture combining real-time push (~100–1000ms) with a polling fallback and a dirty-flag consistency guard that prevents un-acknowledged local changes from being overwritten, keeping thousands of clinics consistent with external EHR systems.
- **AI voice-scheduling backend** — Delivered the backend for an AI voice-scheduling agent in two days by wrapping the existing scheduling engine behind an authenticated, input-validating API with self-verifying request flows; now handles ~1,150 bookings per week in production.
- **Legacy modernization** — Modernized the platform's highest-blast-radius service solo (Node.js 10 → 20; callbacks → async/await) via a staged, monitored rollout with an error-streaming safety net, cutting API timeouts on large batch requests with zero regressions.
- **Release & production ownership** — Own the team's beta-to-production release path (3,900+ integration merges) and front-line production operations (~679 client-issue fixes/year plus data-repair tooling); scale a 5–8 engineer team by scoping designs, delegating implementation, and reviewing code.

Software Developer (MEAN / MERN) — Relinns Technologies

Feb 2021 – Mar 2023

Promoted from Web Developer; SAS Nagar, Punjab, India

- Built and shipped full-stack web applications across multiple client projects using Node.js, Express, Angular, and MongoDB, delivering production-ready features on tight timelines.
- Designed RESTful APIs with token-based authentication and role-based authorization, contributed to database schema design and query optimization, and built reusable Angular components with restructured routing to cut duplication.

SELECTED PROJECTS (SOLO, END-TO-END — SUKHCHARAN.DEV)

- **SprintDay — full-stack project-management & bug-tracking SaaS** — Designed and built a 20-module product solo (NestJS 11, React 19, Prisma 7, PostgreSQL, Socket.IO, Cloudflare R2), then productionized it: migrated off serverless Neon to self-hosted Postgres, recovered schema drift into real migrations, and cut the deploy image 929MB → 391MB (~58%) with multi-stage builds; ships via GitHub Actions → GHCR. Live at sprintday.sukhcharan.dev.
- **Self-Hosted Platform — infrastructure-as-code** — Stood up a multi-app platform on Oracle Cloud (Docker Compose, Caddy auto-HTTPS, PostgreSQL, Redis) with trust-boundary network segmentation, per-project database isolation, and nightly encrypted off-box backups with a rehearsed restore path; recorded every trade-off in a deferred-decisions ledger.
- **JSONit — client-side offline JSON toolbox (PWA)** — Architected for performance: the parsed document lives only inside a Web Worker and is never cloned to the main thread, with the tree windowed against the worker — keeping the UI responsive on tens-of-MB documents and trees of millions of nodes (Vite, React 19, CodeMirror 6).

EDUCATION

B.Tech, Computer Science — Rayat Institute of Engineering & Information Technology, Ropar | 2017 – 2021