IBRAHIM HAFEZ

Backend Software Engineer

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PROFESSIONAL SUMMARY

Backend engineer with 3 years delivering Node.js, NestJS and TypeScript systems for SaaS, e-commerce, EdTech and AI products. Sole backend owner of four client products at Taqdum, from data modeling and tenant isolation through payments, queues, testing and deployment. Open-source contributor with **15 merged fixes across five open-source repositories**, including fixes for lost writes in Mongoose, deleted relations in TypeORM and dropped Kafka replies in NestJS.

PROFESSIONAL EXPERIENCE

Backend Software Engineer - Node.js (Contract)

Taqdum - Egypt (Remote) | Per-project contract | Oct 2025 - Present | pupilera.com · thecookingschooleg.com

- Architected **Pupilera**, a multi-tenant K-12 SaaS in NestJS / TypeORM / PostgreSQL / Redis: 410 HTTP route handlers, per-school subdomains, custom-role RBAC and bilingual academic, double-entry finance and HR workflows; real-time chat and queued notifications
- Built the companion **Admissions** backend for parent, school-admin and platform-admin workflows: school discovery, student/document profiles, application review, interviews and academic-year intake configuration, with tenant-scoped authorization and bilingual API contracts
- Reduced Admissions dashboard reads by skipping unnecessary counts and batching school-availability queries; implemented indexed, typo-tolerant Arabic/English search using PostgreSQL pg_trgm and stored normalized names
- Established exact-commit CI deployment gates with security, quality and PostgreSQL migration/E2E checks; added offsite GCS database/upload backups. Admissions verification includes **4,250 passing Jest tests and 31 OpenAPI checks**
- Developing an **Admissions sales CRM** with school lead assignment, outreach and follow-ups, validated CSV imports, and conversion/coverage reporting
- Delivered **The Cooking School** live e-commerce/course-booking backend in NestJS / MariaDB / Drizzle (329 HTTP route handlers): Kashier payments, signed webhooks, refunds and installments; row-locked booking conflict checks, SMS OTP, Google OAuth, PDF invoices and Arabic certificate PDFs
- Designed a **POS backend**, later sold to a Saudi company, in Express / Sequelize / PostgreSQL: organization/market RBAC, transactional sales, VAT, refunds with inventory restoration, supplier management and Excel data migration; deployed on Dokploy

Backend Software Engineer (Freelance)

Simbel AI - Marketing-AI SaaS (Remote) | Jun 2026 - Jul 2026 | simbel.ai

- Rebuilt the production Python/CrewAI marketing-AI backend from scratch in NestJS 11 / TypeORM / PostgreSQL (pgvector) while the old system kept serving customers — 189 HTTP route handlers, 480 defined test cases — with an Organization → Client multi-tenant hierarchy, request-scoped tenant context, and a tenant-isolation subscriber verified by cross-tenant e2e tests; in production and serving customers at handover
- Engineered the AI campaign pipeline on BullMQ: an LLM router with tiered fallback chains (Anthropic, OpenRouter/DeepSeek/Gemini), Redis-backed provider health and cooldowns, per-call token and cost accounting, RAG over pgvector embeddings, pause/resume at stage boundaries, and idempotent campaign starts enforced by a partial unique index
- Built Stripe billing with plans, usage metering, and feature-gated entitlements; an RBAC matrix with custom roles; an AES-256-GCM encrypted OAuth token vault; real-time pipeline progress over Socket.IO with a Redis pub/sub relay across worker processes; and a single Docker image with a web/worker role split, CI running e2e against pgvector Postgres 16 + Redis 7, gitleaks secret scanning, and GHCR image releases

Full-Stack Developer (Freelance)

EndahQR - Remote | May 2026 - Aug 2026 | admin.endahqr.com

- Built a WhatsApp-driven QR-sticker system for vehicles (passers-by scan a windshield code to message the owner without exposing a phone number) end to end: NestJS 10 / TypeScript with PostgreSQL (Prisma), Redis + BullMQ, Socket.IO real-time admin updates, Zod validation, and Swagger docs, plus a bilingual EN/AR (RTL) admin dashboard in Next.js 15 (Tailwind, shadcn/ui, TanStack Query); deployed via Docker Compose on a VPS with GitHub Actions CI/CD and nightly Postgres backups to Cloudflare R2
- Integrated the Meta WhatsApp Cloud API with webhook HMAC signature verification, Redis-backed idempotency to dedupe retries, a conversation state machine, 24-hour messaging-window detection with approved-template fallback, and durable inbound-event queueing so a restart cannot drop a scan
- Built failure observability into the BullMQ outbound pipeline — plain-language send-failure reasons surfaced to admins and scanners, one-click retry for recoverable errors, and dead-letter management with auto-expiry
- Implemented JWT auth with rotating refresh tokens, sliding-window rate limiting, Argon2id hashing, Pino structured logging with phone-number redaction, and an SVG sticker-sheet generator for bulk print runs

Backend Software Engineer - Node.js

Auto Drop - Saudi Arabia (Remote) | Oct 2024 - Oct 2025 | autodrop.me

- Owned the integration layer of a live dropshipping backend for a year: four supplier and storefront APIs (Salla, Zid, AliExpress, Sobuy) over webhooks and WebSockets, polling-based sync jobs keeping catalogs, categories, prices, and stock fresh where AliExpress offered no webhooks and rate-limited its API, and idempotent handling of repeated or missing order webhooks — thousands of orders processed
- Fixed a multi-instance OAuth refresh-token race that was invalidating Salla store credentials by serializing refreshes with database locks; automated bulk import, categorization, and updating of AliExpress products, cutting manual processing time by ~80%; resolved a steady stream of merchant-reported bugs and integration issues
- Profiled the login path, found bcrypt.compare dominating on legacy high-cost hashes, and re-hashed users to cost 10 on their next login, cutting login from ~6 seconds to under 1 second; MongoDB indexing and query tuning improved response times by ~40% across the main API endpoints; secured the platform with Google OAuth, JWT, RBAC, and rate limiting

Backend Software Engineer - Node.js

Nugttah - Saudi Arabia (Remote) | June 2023 - March 2024 | nugttah.com

- Designed RESTful APIs (Node.js, Hapi.js) and MongoDB/Mongoose schemas for a loyalty-points and pickup-ordering platform with Foodics POS integration, serving thousands of users
- Refactored legacy callback-based APIs to async/await and partnered with engineering and support teams to resolve production bugs and customer issues

SIDE PROJECTS

Founder & Full-Stack Developer

Intelladent - Egypt | Oct 2025 - Present | intelladent.com

- Architected a live multi-tenant, multi-clinic dental SaaS from scratch — designed from a dentist's own clinic workflow — in NestJS, Next.js 16, TypeORM, PostgreSQL, Redis, and Bull queues: 599 HTTP route handlers, 19,004 API tests passed in local release checks, full Arabic/English support, and multi-currency regional pricing
- Designed role-based access with granular permissions, organization-level subscription management with an automated billing lifecycle (grace periods, discount codes, referral tracking, SMS credits), and a credit-based usage system
- Developed clinical and operations modules: dental charting (odontogram), treatment tracking with automated follow-ups, AI-assisted prescriptions grounded in a curated drug knowledge base with a cite-or-abstain rule, appointment scheduling with waitlist auto-promotion, a patient portal PWA with OTP login, QR/GPS staff time-tracking, inventory, and expenses
- Engineered a multi-channel notification system (WebSocket, Web Push, email, SMS, WhatsApp) with per-category preferences and scheduled jobs for reminders, payment follow-ups, no-show tracking, daily digests, and inventory alerts; audit logging and a full admin panel; deployed with Docker and Cloudflare R2 storage

Full-Stack Developer

MasrMart (Remote) | 2026 | masrmart.com

- Built a multi-vendor e-commerce marketplace + vendor-subscription SaaS for Egyptian sellers as a Turborepo monorepo — a NestJS 11 / Prisma / PostgreSQL 16 API (437 distinct API method/path pairs) and a Next.js 15 / React 19 storefront with vendor and admin dashboards, bilingual AR/EN (RTL)
- Implemented vendor subscription gating, per-store micro-storefronts, full-text + trigram search, flash deals, coupons, returns/disputes, and seller verification; engineered integer-EGP money handling with order-time price snapshots and commission and vendor payout ledgers updated under advisory locks, plus localized payments (Cash on Delivery, InstaPay, Vodafone Cash) with OCR-checked payment proofs and replay detection
- Engineered real-time notifications over Server-Sent Events + Redis pub/sub, a BullMQ transactional-email queue, Better Auth sessions (email/password + Google OAuth) with DB-fresh RBAC, and Cloudflare R2 presigned uploads; unified validation with Zod (one schema driving the API validation pipe, web forms, and Swagger docs); shipped Docker images through GitHub Actions CI with Vitest unit and Playwright e2e tests

OPEN SOURCE - SELECTED MERGED CONTRIBUTIONS

- **Mongoose:** Fixed transaction retries that could commit without replaying pending writes. Also kept unattempted bulk writes eligible for retry after an ordered batch failed. #16640, #16533
- **TypeORM:** Prevented batch saves from silently deleting many-to-many links when the relation was not loaded. #12711
- **NestJS:** Kept the Kafka producer connected during shutdown until pending replies were serialized and sent, preventing lost responses after offsets were committed. #18535

TECHNICAL SKILLS

Languages & Frameworks: Node.js, NestJS, Next.js, Express.js, Hapi.js, JavaScript, TypeScript, React, Turborepo

Databases & ORM: SQL, PostgreSQL, MySQL/MariaDB, MongoDB, Redis, pgvector, TypeORM, Prisma, Drizzle ORM, Sequelize, Mongoose; database design, indexing, transactions, migrations, query tuning, caching

API & Documentation: RESTful APIs, GraphQL, Swagger/OpenAPI, Webhooks, JWT, WebSockets (Socket.IO), Server-Sent Events (SSE), Web Push API, third-party API integration

Integrations & Tools: Meta WhatsApp Cloud API, Stripe, Kashier, Google OAuth, Better Auth, Git, Docker, PM2, nginx, Linux VPS, Bull/BullMQ, Cloudflare R2 (S3-compatible storage), Zod, Argon2, Helmet, Pino, Prometheus, Sentry, Nodemailer

Testing: Unit, Integration & End-to-End (E2E) Testing against real Postgres/Redis; Jest, Supertest, Vitest, Playwright

Development Practices: Agile, CI/CD (GitHub Actions), Modular Monoliths with a Web/Worker Split, Feature-Based & Event-Driven Architecture, SOLID, OOP

Core Competencies: System Design, Database Optimization & Indexing, Message Queues & Background Jobs, Security Best Practices, Authentication & Authorization, Multi-tenant SaaS, E-commerce & Marketplaces, EdTech

EDUCATION & LANGUAGES

Bachelor's Degree in Dentistry | October 6 University (O6U) | 2016 - 2021 | **Languages:** Arabic (native), English (professional working proficiency) | Military Status: Exempted