

Muhammad Tayyab

Full-Stack & AI Software Engineer · Next.js · NestJS · Python · FastAPI · RAG

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SUMMARY

Full-Stack Engineer with 5+ years of experience building scalable SaaS platforms, microservices, and real-time applications using NestJS, Next.js, PostgreSQL, and cloud technologies.

Experienced in designing multi-tenant architectures, payment systems, healthcare platforms (HIPAA/GDPR), and end-to-end product delivery from database design to deployment. Strong background in backend architecture, API design, and modern frontend ecosystems.

Also builds Python/FastAPI APIs, Retrieval-Augmented Generation (RAG) systems, AI agents and automations, and embedding/vector-search pipelines using pgvector and Pinecone, spanning both client work and personal/open-source projects.

KEY ACHIEVEMENTS

- Architected Orbiz, a multi-tenant enterprise platform with 5 modules (HRMS, AMS, Vault, Filespace, Super Admin) using NestJS microservices, Next.js, Turborepo, and RabbitMQ.
- Sole architect of LetsPadel, a real-time court booking and tournament platform with WebSockets, multiple payment gateways, and subscription billing.
- Built the GraphQL authentication foundation for Glowish (Scroloop), including JWT authentication, refresh-token rotation, password recovery, and frontend integration.
- Migrated a HIPAA/GDPR telehealth checkout system to a commerce storefront with Apple Pay integration and reworked the Persona identity-verification flow to run after order success instead of blocking checkout.

PROFESSIONAL EXPERIENCE

Senior Software Engineer II — **Innovation Insight (Remote)**

Feb 2025 – Jun 2026

Orbiz — Multi-Tenant Enterprise Suite · NestJS · Next.js · Turborepo · MongoDB · GraphQL · RabbitMQ

- Designed the core architecture: one deployment, full data isolation per org, each module an independent microservice on RabbitMQ behind a shared auth gateway.
- Built Super Admin & Admin dashboards: org provisioning, RBAC, subscription management, audit logs.
- Shipped the HRMS module: Kanban hiring pipeline, candidate scoring, interview scheduling, offer automation, and a public career portal.
- Migrated AMS (attendance): clock-in/out, leave workflows, balances, exportable reports.
- Built Vault (encrypted credential storage with audit trail) and migrated Filespace (multi-tenant S3 file storage with versioning and permissioned sharing).

Glowish (Scroloop) — Social Platform Foundation · NestJS · Next.js · Prisma · PostgreSQL · GraphQL · Turborepo

- Initialized the Turborepo monorepo architecture — independently deployable NestJS services and Next.js frontend, shared packages.
- Designed and built the GraphQL auth service: signup, login, password reset, recovery, JWT + refresh-token rotation via HTTP-only cookies.
- Integrated auth into the Next.js frontend with React Hook Form, Zod, and typed GraphQL hooks.

Zeuss (GetZeuss) — eCommerce & Telehealth Platform · Astro · Node.js · Express · Microservices · Azure Functions · Azure Key Vault · 29Next · HIPAA/GDPR

- Migrated checkout from an in-app form to a 29Next commerce storefront and added Apple Pay support.
- Reworked the intake and pre-selected treatment plan flow, and moved identity verification (Persona: ID selfie or SSN-based) to run after order success instead of blocking checkout.
- Redesigned all marketing pages on the Astro frontend and built/maintained a separate Astro-based CRM; backend runs as Node/Express microservices with Azure Key Vault for key management and Azure Functions for background jobs.
- Fixed the CRM's order-detail intake display flow across TRT, HRT, Hair Restoration, and Skin programs.

LetsPadel — Court Booking, Tournament & Coaching · NestJS · Next.js · PostgreSQL · Prisma · Stripe · Paysera · WebSockets

- Solo-architected a tri-view system (players, venues, coaches) with real-time WebSocket availability and a Blitz/Classic tournament engine.
- Built multi-gateway payments (Stripe, Paysera, cash) scoped per context, plus Stripe Subscriptions for coach billing; set up Sentry, SonarQube, and Jest CI gates.

EdgeOCR / PaintNite / ClassPass · Next.js · NestJS · GraphQL · Stripe · AWS Lambda

- EdgeOCR: Stripe subscriptions, credit tracking, idempotent webhooks, multi-tenancy, Google Sheets waitlist automation.
- PaintNite: AWS Lambda sync layer between PaintNite and ClassPass (venues, events, reservations).

Senior MERN Stack Developer — **Smart Soft Studios (Thokar Niaz Baig Lahore)**

Dec 2021 – Feb 2025

Owned long-term, end-to-end delivery on a portfolio of concurrent client SaaS platforms across booking, healthcare, blockchain, and social domains.

JustNetwork · Next.js · TypeScript · Node.js · Express · Sequelize · Agora · Whereby · Stripe

- Built the platform from scratch — a LinkedIn-style network for managing connections, requests, and suggested users, with membership-gated appointment booking.
- Synced Google and Outlook Calendar events into daily/weekly/monthly/yearly appointment views; built inbox chat and Agora 1:1 video calls with screen share and in-call chat.
- Added Whereby-powered group video meetings (public/private, join-by-request) with group screen share and chat.

- Integrated Stripe Connect and Stripe payments for buying/withdrawing coins and purchasing 1:1 call credits, alongside Pro membership tiers and Google/LinkedIn/Outlook OAuth login.

BarberOne, Vanille.me & GetExclusively — Three Booking Platforms · React.js · NestJS · MongoDB · Stripe Connect

- Three separate client platforms: React.js booking dashboards with embeddable widgets, backed by individual NestJS + MongoDB APIs.
- Integrated Stripe Connect for business payouts and Stripe payment collection for client bookings, plus timezone-aware scheduling and Twilio SMS/Agora video, across all three.

Bozt — Social Food Discovery Platform · React.js · Node.js · Express · MySQL · Sequelize · Google Places API

- Redesigned the backend on Node/Express with MySQL via Sequelize, restructuring and optimizing queries to cut database load.
- Migrated the restaurant-places data flow from MealMe to Google Places API with zero disruption to live production results.
- Adjusted the React.js web UI, refined API integrations, and fixed bugs across the Bozt web app.

DeFi Launchpad — Token Presale Platform · React.js · Node.js · MongoDB · MetaMask

- Built the presale UI and MetaMask wallet integration for token launches.
- Managed the post-presale listing flow onto PancakeSwap, Uniswap, and QuickSwap.
- Implemented fixes across the presale flow and wallet integration.

Additional Smart Soft Studios Projects

- Katanemo — API SaaS platform.
- Jigen — NFT marketplace.
- WebCEO — SEO analytics SaaS.
- DoctHub — booking management system for doctor & pharmacy management, with Agora video consultations and multi-language support (EN/FR/AR).
- Derisky — AI risk SaaS; built a RAG pipeline for risk insights.
- DanceOn — TensorFlow-based dance analytics.
- CoWorking Space Mgmt — barcode login, space booking, freelancer attendance.
- HR Management System — employee & attendance tracking.

MERN Stack Developer — Heapware (Faisal Town Lahore)

Jun 2021 – Dec 2021

- Built WeMax, an eCommerce platform with real-time engagement and product categorization.

SELECTED AI PROJECTS

Aegis RAG

Explainable multi-tenant RAG platform built with Next.js, NestJS, PostgreSQL, Prisma, and pgvector. Combines vector similarity and full-text retrieval, reciprocal-rank fusion, reranking, citations, retrieval traces, evaluation, and PostgreSQL row-level tenant isolation.

GitHub: <https://github.com/Muhammad-Tavyab1/aegis-rag>

AI Job Outreach Agent

Review-first Python/FastAPI assistant for CV-to-job matching, eligibility checks, grounded email drafting, Gmail OAuth delivery, human approval, SQLite persistence, and automated testing.

Private project.

FastAPI Hugging Face RAG

Production-oriented Python RAG API foundation with FastAPI, Pydantic, SQLAlchemy, PostgreSQL/pgvector, Redis, ARQ ingestion workers, authenticated document uploads, and deterministic chunking with HNSW vector indexing. Embedding and retrieval milestones are still in progress.

GitHub: <https://github.com/Muhammad-Tavyab1/fastapi-huggingface-rag>

TECHNICAL SKILLS

- **Frontend:** React.js, Next.js, Astro, Redux Toolkit, Zustand, TypeScript
- **Backend:** Node.js, NestJS, Express.js, Microservices, GraphQL, RabbitMQ, REST
- **Python:** Python, FastAPI, Pydantic, SQLAlchemy, AsyncIO, Uvicorn, Alembic, Pytest
- **AI & RAG:** Retrieval-Augmented Generation (RAG), AI agents, embeddings, semantic and hybrid search, vector databases, pgvector, Pinecone, Hugging Face, Groq / Llama, reranking, source citations, retrieval evaluation
- **Data & Infra:** PostgreSQL, MongoDB, MySQL, Redis, Prisma, Sequelize, Knex, ARQ background jobs, PostgreSQL HNSW vector indexing
- **CMS:** Payload CMS, Strapi
- **Payments & Real-Time:** Stripe, PayPal, Paysera, 29Next · WebSockets, Socket.io, Agora, CometChat, Pusher
- **Automation:** n8n, Make.com — workflow and webhook integrations
- **DevOps:** Docker, AWS (Lambda, S3, EC2, CloudFront), Azure, Vercel, Render
- **Testing & QA:** Jest, Pytest, SonarQube
- **Compliance:** HIPAA, GDPR
- **AI Development Tools:** Claude Code, Codex, ChatGPT, Cursor

EDUCATION

BS (Hons) in Information Technology — University of the Punjab, Lahore · 2016 – 2020