

MOHAMED SAMEH

BACKEND ENGINEER

Node.js · TypeScript · NestJS · Microservices · PostgreSQL · RabbitMQ

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Summary

Backend engineer with 3+ years of experience designing and shipping production microservices. Specialist in **Node.js, TypeScript, NestJS, and Fastify** with deep expertise in **event-driven architecture** (RabbitMQ, BullMQ), PostgreSQL, Prisma, and REST API design. Author of the open-source **fastify-messaging** NPM package used in production across multiple services. Actively deepening focus on backend and infrastructure including Docker, Redis, and distributed systems. Self-taught engineer with 3+ years of hands-on production experience.

Experience

Backend / Full Stack Engineer

Jul 2024 – Present

Inframodern

Cairo, Egypt

- Architected event-driven microservices using **Fastify, NestJS, Prisma, and PostgreSQL** handling multi-tenant workloads across 3+ interconnected applications.
- Designed and published **fastify-messaging**, an open-source NPM package providing a production-ready RabbitMQ abstraction: fanout exchanges, dynamic per-service queues, DLQ handling, retry logic, and full TypeScript type safety.
- Built the user-sync pipeline across all platform apps via **RabbitMQ**, reducing cross-service data inconsistency incidents to zero after deployment.
- Implemented **subscription-gating middleware** to enforce plan-based feature access and device registration limits across services.
- Designed RESTful APIs consumed by React and React Native frontends; maintained 100% backward-compatible versioning across all endpoints.
- Led backend code reviews enforcing clean architecture patterns, consistent error handling, and service boundary discipline.

Backend / Full Stack Engineer (Part-time Contract)

Jan 2025 – Jul 2025

Playplex

Wyoming, United States (Remote)

- Built and optimized backend services with **Node.js and PostgreSQL** for high-throughput data pipelines.
- Integrated **BullMQ with Redis** for reliable background job processing and asynchronous queue management.
- Implemented **tRPC** for end-to-end type-safe API contracts between Astro/Svelte frontend and Node.js backend.
- Wrote integration and unit tests using **Vitest and Playwright**; used **Docker** containers for isolated Redis and PostgreSQL test environments.

Software Developer

Feb 2024 – May 2024

Anytime Software

Prague, Czech Republic (Remote)

- Developed server-rendered features using **Next.js and Express**, contributing to both the API layer and frontend components.
- Optimized application performance through Next.js code splitting, prefetching, and image optimization strategies.

Open Source & Projects

fastify-messaging | *TypeScript, Node.js, AMQP, RabbitMQ*

Feb 2025

- Published and actively maintained NPM package for event-driven communication in Fastify microservice architectures.
- Features: automatic exchange naming, fanout model, dynamic per-microservice queues, DLQ handling, retry mechanisms, and type-safe publish/consume API.
- Deployed in production at Inframodern across 3+ services. Available at github.com/noahwillson/fastify-messaging.

InventoryHub + InventoryPOS (*MVP in progress*) | *NestJS, Prisma, PostgreSQL, React Native, WatermelonDB* **2025**

- Designing a multi-tenant SaaS inventory system with offline-first mobile POS, idempotent order sync, and subscription-gated device registration.
- Backend is a NestJS modular monolith with tenant scoping at the Prisma query layer; mobile client uses WatermelonDB for local-first persistence.

Custom HTTP Server | *TypeScript, Bun, zlib*

May 2024

- Built a lightweight HTTP/1.1-compliant server from scratch supporting dynamic routing and zlib response compression.
- Focused on minimal-overhead request handling and correct management of headers, status codes, and content types.

Technical Skills

Core Backend: Node.js, TypeScript, NestJS, Fastify, Express.js, Bun, REST API design
Databases & ORM: PostgreSQL, MongoDB, Prisma, Mongoose, Redis
Messaging & Queues: RabbitMQ (AMQP), BullMQ, event-driven architecture, DLQ patterns
Testing & DevOps: Docker, Vitest, Playwright, Git, GitHub, Linux (Ubuntu)
API Patterns: tRPC, multi-tenant SaaS architecture, offline sync with idempotency
Frontend (supporting): React.js, Next.js, React Native, Redux Toolkit, Tailwind CSS, Svelte, Astro
Languages: TypeScript, JavaScript, SQL, C++, HTML/CSS

Education

Ain Shams University
Bachelor of Law

Sep 2019 – Oct 2023
Cairo, Egypt

Self-taught engineer with 3+ years of hands-on production experience supplementing formal education.