

HADI MOUSTAFA

Backend Engineer · Node.js / PostgreSQL / REST APIs · AI-Augmented Developer

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PROFILE

Backend-focused engineer with hands-on experience designing and building server-side systems for real production use cases — REST APIs, real-time WebSocket pipelines, and PostgreSQL schemas optimised for performance and scale. Primary stack is Node.js / Express.js, with growing depth in Go for systems-level backend work (concurrency, spend-control logic, streaming architectures) that reinforces the same fundamentals across languages. Comfortable across the full stack but deliberate about going deep on the backend: system design, data modelling, and the infrastructure that makes applications reliable — a good fit for agency work spanning fintech, e-commerce, and telecom-style products. Currently integrating AI tooling (Claude, Cursor, Gemini) to accelerate backend workflows. Pursuing an M.Sc. in Computer & Communication Engineering. No corporate track record yet — but real shipped projects, clean architectural instincts, and a clear direction.

TECHNICAL SKILLS

Backend: Node.js, Express.js, REST API design, WebSockets, real-time systems, server-side architecture

Databases: PostgreSQL — schema design, query optimisation, indexing; Redis; MongoDB / NoSQL

Languages: JavaScript (ES2022+), TypeScript, Go, Java, SQL, Bash

AI & LLM: Claude API, Gemini, Cursor, prompt engineering, AI-augmented SDLC, LLM integration

DevOps & Tools: Docker, CI/CD pipelines, Git / GitHub, Linux, Agile / Scrum

Testing: Jest, Cypress, Go testing (race-condition and concurrency testing) — unit, integration and end-to-end

Frontend: React, Next.js, Tailwind CSS (supporting capability)

EXPERIENCE

Freelance Backend Engineer · Remote / Self-Employed — Feb 2026 – Present

Nexus — Real-Time News Delivery Platform (private client)

- Architecting the backend of a real-time news platform using Node.js and Express.js, with a focus on high-concurrency request handling and clean API design.
- Designing a PostgreSQL schema engineered for rapid content ingestion, personalised feed queries, and horizontal scalability.
- Implementing WebSocket-based event broadcasting to push live updates to connected clients with minimal latency.
- Leveraging AI tooling (Cursor / Gemini) to accelerate backend iteration and deepen understanding of AI-assisted server-side workflows.

Software Engineering Intern — Team Lead · TECHTALKS · LFM — Jan 2026 – Feb 2026

- Appointed Team Lead for end-to-end development of a marketplace platform for Lebanese freelancers, coordinating backend and frontend delivery.
- Diagnosed and resolved critical backend bottlenecks — profiling slow queries and API response times — achieving a 30% improvement in application load speeds.
- Established structured code review and task delegation processes, maintaining code quality and on-time delivery.

Live: techtalks-lebanese-freelance-market.vercel.app

PROJECTS

Governor — AI Spend-Control Gateway (Go) · Personal Project · Lead Developer — Jul 2026 – Present

- Building a Go-based LLM gateway that routes requests across providers, enforces spend budgets with atomic pre-flight checks, and meters cost live during streaming responses.
- Designed a dual-backend budget store (in-memory and Redis, behind a shared interface) with atomic reserve/decrement logic; verified with 200 concurrent goroutines racing a shared cap and zero double-spends under go test -race.
- Implemented mid-stream cutoff that cancels the upstream provider request itself via context propagation, not just the client-facing stream — proven against a live SSE test server, not mocked.

- Packaging the gateway as both an importable Go library and a terminal UI (governorctl) for configuration, budget caps, and live usage monitoring.

Repo: github.com/hadi-moustafa/governor

Paws — Pet Shelter Management System · Lead Developer — *Aug 2025 – Feb 2026*

- Designed and built the backend data layer to digitise stray animal tracking, adoption workflows, and community coordination for ANSAR village in Southern Lebanon.
- Modelled a relational database schema to support shelter intake records, adoption status tracking, and alert broadcasting across community users.
- Delivered a mobile-responsive frontend interface to ensure accessibility for residents and volunteers with limited technical literacy.

Live: paws-gamma-three.vercel.app

EDUCATION

M.Sc. Computer & Communication Engineering · Islamic University of Lebanon (IUL) — *Feb 2026 – Present*

B.Sc. Computer Science — GPA 3.41 · Islamic University of Lebanon (IUL), Tyre — *Graduated Jun 2025*

CERTIFICATIONS

Certificate of Completion — Internship Program · TECHTALKS · March 2026

ID: TT-INT-2026-117 · Recognised for proficiency in modern web development, scalable architecture, and API-driven system design.

Verify: verify.techtalkslb.com

LANGUAGES

Arabic — Native English — Fluent