

# Gabriel Souza

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## PROFESSIONAL SUMMARY

Backend developer specializing in low-level HTTP integration, reverse engineering of proprietary APIs, and anti-bot systems, working in both TypeScript/Node.js and Go. Over the past 18 months, I worked on two aviation platforms in continuous production: automated airline miles ticketing bots and a flight search and aggregation platform covering 20+ airlines.

My core technical repertoire involves making external systems respond correctly without an official client: TLS impersonation of real browsers to evade anti-bot systems (Akamai, Datadome), reproducing multi-step OAuth flows over raw HTTP, and maintaining financial operation integrity where each failure has a direct cost. I operate simultaneously in TypeScript (NestJS, Node.js) and Go (NATS, goroutines, GORM).

## CORE COMPETENCIES

TypeScript / Node.js	Go	NestJS	TLS Impersonation	HTTP/2 Fingerprinting	API Reverse Engineering	NATS
PostgreSQL / GORM	Sequelize / MySQL	Multi-Stage Docker	GitLab CI	Redis	AWS (EC2, S3, ECS)	

## WORK EXPERIENCE

### Devnology

Oct 2024 - present

#### Backend Developer - Belo Horizonte, MG (remote)

- Development of a flight search and aggregation platform in Go: NATS-based worker pool processing crawlers for 20+ airlines simultaneously (Azul, GOL, LATAM, TAP, American Airlines, and others), with dynamic TLS impersonation, proxy rotation, and fingerprint extraction directly from the Akamai Bot Manager token
- Orchestration API in Go (Gorilla Mux, PostgreSQL/GORM, Redis, NATS) for search distribution, multi-airline result normalization, structured BRL/USD exchange rate (bid/ask), concurrent request deduplication (coalescing), and caching
- Automated airline miles ticketing bots for Azul, LATAM, and Smiles running continuously in production for 18 months, across 20 private repositories (TypeScript/Node.js)
- Real-browser TLS impersonation (Chrome/Firefox) to evade anti-bot systems (Akamai, Datadome), with a UCB1 Multi-Armed Bandit algorithm for dynamic HTTP header order selection in production
- Reverse engineering of complex OAuth/authorize flows over raw HTTP - including 11-step MFA with in-memory cookie jar and decoding of obfuscated payloads embedded in HTML
- Internal NPM library with 100+ releases (v0.6 to v0.12), coordinating same-day contract change propagation across 4 simultaneous consumers with test coverage on critical modules
- NestJS microservice from scratch (Sequelize + MySQL, JWT/Passport, @nestjs/schedule, docker-compose with healthcheck) for production proxy IP and session management
- Integration with a third-party biometric verification SDK with no official protocol documentation: traffic analysis, zero-to-one compatible client, and validation against the original service
- Defensive patterns in financial operations: payment idempotency (504 as optimistic success with confirmation via statement), cross-carrier post-write validation, defensive fallback on gateway ambiguity

### Stake Together

Jul 2023 - Jul 2024

#### Backend Developer - Belo Horizonte, MG (remote)

- Development and maintenance of backend systems in TypeScript, NestJS, and Sequelize in a decentralized financial product environment
- Deepened knowledge in blockchain and smart contracts, understanding their application in on-chain financial solutions
- Version control and project management with GitHub in a team setting; constant technical communication in English

### Scriptwriter and Producer

- Created scripts for children's YouTube content, focusing on inclusive narratives that promoted audience engagement and watch-time retention

## PROJECTS

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### Flight Aggregation Platform (Go)

Distributed Go system for flight search across 20+ airlines: NATS-based worker pool, multiple TLS impersonation strategies (bogdanfinn, curl-cffi), dynamic Akamai fingerprint extraction, and an orchestration API with PostgreSQL/GORM, Redis, and request coalescing.

### Internal NPM Utilities Library

Shared library used by all airline ticketing bots. 100+ releases over 18 months, featuring TLS fingerprinting, feature flags, weighted impersonation system with API feedback loop, and 7 unit test scenarios on the miles module.

### Biometric Integrator

Integration with a third-party facial biometric verification SDK with no internal protocol documentation. Structured investigation with 44+ numbered findings, zero-to-one compatible client implementation, and inference validation against the original service.

### Session Management Microservice

NestJS 11 service built from scratch for proxy IP and session fingerprint management: Sequelize + MySQL, JWT/Passport, scheduling via @nestjsjs/schedule, docker-compose with healthcheck, custom @IsCPF decorator.

## EDUCATION

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### Bachelor's in Computer Science - Faculdade Newton Paiva

2023 - Expected 2027

Belo Horizonte, MG, Brazil

## SKILLS

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**Languages:** TypeScript, Node.js, Go    **Frameworks:** NestJS, Gorilla Mux, Express

**Databases:** PostgreSQL (GORM), MySQL (Sequelize), Redis    **Messaging:** NATS

**HTTP / Integration:** TLS impersonation, HTTP/2 fingerprinting, cookie management, tough-cookie, API reverse engineering

**Infra / DevOps:** Docker (multi-stage), GitLab CI, AWS (EC2, S3, ECS), PM2, Graylog, Prometheus

**Tools:** Jest, Charles Proxy, @nestjsjs/schedule, Gmail API, uTLS    **Other:** Blockchain (Ethereum / smart contracts), technical English