

# Amr Muhammad Mahdi Alnus

Backend Engineer — Node.js & TypeScript

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## Professional Summary

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Backend engineer with 2+ years building and deploying distributed systems using Node.js and TypeScript. Delivered five production-grade projects spanning async job queues, microservices, gRPC, and real-time APIs all with load testing, observability, and CI/CD. ECE background at Alexandria University adds strong systems thinking across networking, concurrency, and low-level design.

## Education

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### B.Sc. in Electronics and Communications Engineering

Alexandria University, Faculty of Engineering — Alexandria, Egypt

Oct 2021 – Aug 2026 (*Expected*)

GPA: 3.35/4.00

## Experience

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### Co-Founder & Software Engineer

May 2026 – Present

Soul Studio — Alexandria, Egypt

- Co-founding a software solutions startup targeting non-technical businesses; leading technical architecture decisions, client acquisition strategy, and go-to-market planning.

### Programming Instructor

May 2026 – Present

EYouth — Alexandria, Egypt

- Taught Python fundamentals and computer science basics to 25 students aged 13–17 across multiple sessions; achieved a 4.53/5.0 average student satisfaction rating.

### Head of Software Engineering

Feb 2025 – Aug 2025

IEEE SCSS Alexandria Branch — Alexandria, Egypt

- Led technical recruitment process for 30+ candidates.
- Designed and delivered backend development and system architecture curriculum.

## Projects

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### Telegram Quiz API — Multi-Tenant Queue System

2026

*Production-Ready Async Quiz Delivery*

- Dual-mode REST API: async BullMQ + Redis job queue for scalable delivery (non-blocking, returns job IDs instantly) plus legacy single-bot mode for backward compatibility.
- AES-256-GCM encryption for bot tokens at rest; opaque API key auth; global (120 req/15min) + per-endpoint rate limiting; audit logging to MongoDB; per-user Cloudinary image storage.
- Wrong-answer retry worker re-sends failed quizzes after configurable backoff; webhook integration tracks poll answers in real time and schedules retries.
- Deployed to Heroku (Redis Cloud, MongoDB Atlas); health endpoints (REST + SSE), Winston structured logging, modular TypeScript architecture.
- **Stack:** Node.js, Express, TypeScript, BullMQ, Redis, MongoDB, Cloudinary, Telegram Bot API.
- **Repo:** [GitHub](#)

### NLP Restaurant Review Service — Microservices Platform

2026

*Backend Distributed System*

- **Architecture:** Express + TypeScript REST API → gRPC Python sentiment service → BullMQ async queue; PostgreSQL/Prisma for persistence, Redis for sentiment aggregation.

- **Resilience:** Circuit breaker on gRPC calls with exponential backoff; prevents cascading failures under service degradation.
- **Infrastructure:** Docker Compose containerizes all services (API, gRPC, PostgreSQL, Redis); single-command local startup.
- **Observability:** Prometheus metrics (queue depth, NLP latency, error rates) with Grafana dashboards.
- **Stack:** Node.js, TypeScript, Express, Prisma, PostgreSQL, Redis, BullMQ, gRPC, Python, FastAPI, Docker Compose, Prometheus, Grafana.
- **Repo:** [GitHub](#)

**NeoConcept — E-Learning Platform (Graduation Capstone)** 2025 – 2026

- Developed backend with real-time video (Agora SDK) and Google Calendar integration; deployed on AWS EC2 with S3 storage.
- Implemented Redis caching, Datadog APM, and CI/CD pipeline (GitHub Actions) 88% test coverage.
- **Stack:** Node.js, TypeScript, Express, Prisma, PostgreSQL, Redis, BullMQ, AWS (EC2, S3), Datadog, Docker Compose, GitHub Actions.

**Workout Tracker — Production REST API** 2025

*Scalable Backend with Monitoring*

- Developed fully-featured REST API with JWT authentication and RBAC; 81% test coverage.
- Load tested with k6 at 500 concurrent users; achieved <0.05% error rate under sustained load.
- **Stack:** Node.js, TypeScript, Express, Prisma, PostgreSQL, Redis, BullMQ, Prometheus, Grafana.

**Image Processing Service — Async Media Pipeline** 2026

- Built high-throughput async image pipeline using RabbitMQ and Redis caching.
- Achieved 500 req/sec with 400+ concurrent users, 0% error rate, and 269ms p95 latency.
- **Stack:** Node.js, TypeScript, Express, Prisma, PostgreSQL, Redis, RabbitMQ, Cloudinary.

**Training & Certifications**

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- **Flutter Cross-Platform Development Diploma** — Route Academy (Jul – Dec 2025)
- **Linux System Administration** — Information Technology Institute (ITI) (Jul – Aug 2025)
- **Software Engineering Program** — Holberton School (ALX) (2023 – 2024)

**Technical Skills**

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- **Languages:** TypeScript, JavaScript, Python, SQL, C++, Java, Dart
- **Backend:** Node.js, Express.js, NestJS, Prisma, REST APIs, gRPC, SOLID, Design Patterns
- **Databases:** PostgreSQL, MongoDB, Redis, MySQL
- **DevOps & Tools:** Docker, Docker Compose, Linux, Git, GitHub Actions, Heroku, AWS (EC2, S3)
- **Testing & Monitoring:** Jest, Supertest, k6, Prometheus, Grafana, Datadog
- **Other:** BullMQ, RabbitMQ, WebSockets, Cloudinary, JWT, RBAC, Flutter

*Arabic (Native) — English (Professional Working Proficiency)*