# Mohamed Ahmed Khalifa

**Backend Software Engineer**

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## Summary

Backend Software Engineer specializing in scalable, high-performance server-side systems. Proven track record modernizing legacy architectures, building ERP/CRM integrations, and optimizing API performance in production commerce and healthcare platforms. Deep expertise in TypeScript/Node.js, Laravel, and PostgreSQL, with strong experience designing asynchronous systems, integration architectures, and business-critical backend workflows.

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## Technical Skills

- **Programming Languages:** PHP, TypeScript, Node.js, Python
- **Frameworks:** Nest.js, Laravel, Next.js, Odoo, LiveKit
- **Databases:** PostgreSQL, MongoDB, Redis
- **Infrastructure & Tools:** Docker, AWS, GitHub Actions, Sentry, New Relic, Distributed Systems & Microservices, RabbitMQ

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## Experience

### Software Engineer

**Cartona** Cairo, Egypt | *January 2025 – June 2026*

- Played a key role in migrating the retailer backend from Rails to Laravel and Go, helping cut API latency from 500ms & 3s to ~90ms via OpenSearch and Go.
- Built an Odoo integration to sync orders, inventory, and deliveries in real time with merchants' ERP systems.
- Redesigned the order lifecycle by separating enterprise and marketplace flows, aligning purchasing, sales, and fulfillment as the business scaled.

- Diagnosed and resolved a race condition in the async payment pipeline, eliminating a source of duplicate charges and failed transactions in production.
- Designed the integration and transaction flow architecture for a new credit platform, covering partner integrations, authentication, session handling, and transaction lifecycle.

### Backend Software Engineer (Freelance)

**Independent Contractor**, Remote | *July 2023 – December 2024*

- **Laboratory Information System (LIS):** Developed an Odoo-based laboratory platform managing test ordering, sample tracking, and automated results reporting for clinical workflows; successfully deployed across two production medical laboratories (Mozmen Labs, El Fanar Labs).
- **Mentor.AI (B2B AI Assessment Platform):** Architected a backend platform for automated sales training and candidate evaluation via simulated voice calls; integrated LiveKit/WebRTC for low-latency streaming calls alongside OpenAI and Deepgram APIs for real-time transcription and scoring.
- **DealBlaster.ai (Email Outreach System):** Engineered the core backend services for an automated email outreach product, integrating GPT-driven content generation, Stripe billing, and the Gmail API to process 100+ daily email workflows reliably.
- **Wasel CRM (Custom Lead & Campaign CRM):** Designed a scalable CRM backend using Laravel and Filament, implementing queue-based workers for high-volume lead management and bulk campaign delivery with real-time per-recipient tracking and status error diagnostics.
- **AppAsap (Internal Code Generation Tooling):** Built custom LLM-powered developer tooling using GPT models to automate backend project scaffolding, REST API route creation, and boilerplate code generation.
- **Distributed Idempotent Wallet Engine:** Architected an event-driven digital wallet settling transactions asynchronously across decoupled services via RabbitMQ, enforcing strict idempotency and pessimistic row locking to prevent double-spending, supported by a tamper-evident SHA-256 audit ledger (PHP/Laravel, PostgreSQL, Docker).

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## Education

**B.Sc. in Computer Science,** Alexandria University, Egypt | *September 2019 - July 2023*

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## Achievements

- ECPC Contestant, Egyptian Collegiate Programming Contest, 2022
- **Linux Administration, ITI Summer Training (2022):** Linux Admin I & II, Bash and Python Scripting, and DevOps.
- **Advanced Full-Stack Web Development, Udacity Scholarship – EgyFWD (2023):** TypeScript, Node.js, Express, PostgreSQL, and AWS deployment.