Abdulhaleem Osama

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Experience

TJM Labs *Remote - Wilmington, Delaware, USA*

Joined as the 2nd engineer. Company scaled into a large team, raised $100M, grew to 450+ live pharmacies, made 2 acquisitions, and now automates 500K+ tasks daily.

Software Engineering Lead Sep 2025 - Present

- Leading delivery of 20+ automation and AI projects across healthcare clients including Gifthealth, where TJM Labs automation drives $25M+ in annual savings and 25x ROI across 25,000+ prescriptions per day.
- Leading engineering across 3 product divisions (Retail, Voice AI, Long-Term Care) with a team of 8 engineers in Egypt, owning resource allocation, code reviews, and hiring alongside division managers.
- Owning infrastructure and internal tooling: provisioned and operate the Hetzner VPS fleet, deployed and maintain TJM Connect (self-hosted RustDesk for remote support).

Software Engineer Nov 2024 - Sep 2025

- Contributed to ColiVara, TJM Labs' open-source visual document retrieval platform: built the ColiVara-Eval benchmarking suite, Python and TypeScript SDKs via OpenAPI Generator (saving $30K+/year on SDK maintenance), and a public HuggingFace demo space.
- Built an end-to-end voice customer service system (Retell AI + Django) handling 50% of inbound client phone calls in production.
- Built and deployed production RPA automation bots (BotCity + Playwright) for healthcare clients, automating high-volume pharmacy workflows including prescription intake, fax processing, and patient demographic updates.

Projects

WhatsApp MCP Server - Open Source (MIT) *github.com/HalemoGPA/whatsapp-mcp-server*

Technologies: Go, Python, FastMCP, whatsmeow, SQLite (FTS5), Docker, Nginx, Prometheus

- Built and open-sourced a self-hosted, token-authenticated MCP server (Go bridge + Python, 21K lines) exposing 96 agent tools with per-token scopes and an append-only audit log.
- Cut always-on tool-definition context 56% (20K to 8K tokens) by serving 29 of 96 tools directly and routing the rest through a server-side retrieval layer, with zero capability loss.
- Authored a labeled 191-case tool-selection eval; routing scored 21/22 with both full and retrieved toolsets, proving no regression.

AQSA: Arabic Quality and Skills Accelerator *Finalist, ALLaM Challenge 2024*

Technologies: LangChain, IBM Watsonx, FastAPI, Elasticsearch, LoRA Fine-Tuning

- Reached the finals of an international AI competition (177 teams, 17 countries) on Arabic language models; fine-tuned ALLaM-7B and built a Quran search engine in Elasticsearch over the 6,236-verse corpus with 100% retrieval accuracy on the competition test set.

Alban Osama - Full-Stack Android App *Live on Google Play, April 2026*

Technologies: Flutter, Riverpod, Fastify, PostgreSQL, WebSockets, Firebase FCM, Docker

- Designed, built, and shipped solo a milk and dairy reservation app for a family business in Egypt: Arabic RTL UI with multi-product booking, an admin counter-offer system, and real-time WebSocket chat.
- Fastify + Drizzle ORM backend with JWT/bcrypt auth, deployed on Hetzner VPS via Docker, Cloudflare, and GitHub Actions CI/CD.

Finance Dashboard - Real-time Egyptian Financial Data Platform

Technologies: Next.js 16, TypeScript, PostgreSQL, Drizzle, next-intl (RTL), Playwright, Cloudflare

- Live Arabic-first (RTL) platform for gold, silver, USD parallel, forex and crypto; rewrote a vanilla-JS/Express app into a Next.js 16 monorepo with append-only, monthly-partitioned price history in Postgres.
- Scrapers run as a systemd service with a nightly Zod contract test per upstream and a health-gated deploy; shipped to Google Play as a Trusted Web Activity (closed testing).

Education

Bachelor of Computer and Control Systems Engineering *Mansoura University* **Mansoura, Egypt** *2020-2025*
Cumulative academic total: 91.8%. Languages: Arabic (native), English (professional).
IEEE Mansoura Computer Society Chapter - Data Science Committee Supervisor (Dec 2023 - Oct 2024).

Training: WorldQuant University - Applied AI Lab (Deep Learning for Computer Vision: YOLOv8, MTCNN, GANs, Stable Diffusion) and Applied Data Science Lab, 14 PyTorch capstones; DeepLearning.AI Deep Learning Specialization (5-course, ACE-endorsed); ITI Egypt - Computer Vision intensive (60 hours).

Skills

Languages: Python, JavaScript, TypeScript, Go, SQL, C++
AI & ML: PyTorch, LangChain, RAG, MCP (Model Context Protocol), LoRA Fine-tuning, IBM Watsonx, Elasticsearch, Computer Vision (CNNs, YOLOv8, GANs, Stable Diffusion)
Backend: Django, FastAPI, Node.js, Fastify, Express, Next.js, PostgreSQL (Drizzle), MongoDB, Docker
Automation & RPA: BotCity, Playwright, Retell AI, Make.com, RPA
DevOps: AWS Lambda, GitHub Actions, Hetzner, Vercel, Cloudflare, Nginx, Linux, CI/CD