Mohamed Ahmed

Full Stack Developer & API Engineer
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Experience

Full Stack Developer & API Engineer Jul 2022 – Present
Self-Employed

- Design and ship production backends end to end, from reverse-engineering undocumented systems to writing the API layer, caching strategy and admin tooling that makes them operable
- Built **UniSight** to **400+ students** and **500+ Google Play downloads** at a **10ms** average response time, by reverse-engineering a university portal onto Flask blueprints with Redis caching
- Write Rust and TypeScript, with Python for APIs and the Model Context Protocol for agent tooling; automate delivery through GitHub Actions and Vercel so releases and data syncs are a pipeline, not a chore

Selected Projects

WinKit | Rust, MCP, JSON-RPC 2.0, Win32 Source Code

- Read-only and local-first by construction: no cloud, no telemetry, and no write, execute or delete code path anywhere in the codebase
- Publishes native Windows binaries for x64 and ARM64 and negotiates MCP protocol 2025-06-18 during initialize, so modern clients stop falling back to the oldest version
- Problem-solver tools (`system_diagnose`, `crash_history`, `shutdown_analysis`) return ranked findings with stable IDs and `confirmed/observed/possible` confidence rather than raw query output
- Reports `evidence_completeness` and explicit limitations whenever a read could not be measured, including elevation-gated S.M.A.R.T. and ACPI reads

UniSight | Python, Flask, Redis, Next.js Live Showcase

- Rebuilt a university's portal as a documented API covering authentication, schedules, attendance, grades, exam seating and CMS integration
- Served 400+ students at 10ms average response time through modular Flask blueprints and Redis caching, with a GitHub Actions pipeline keeping data current
- Operated a control panel for user management, cache control, API monitoring and usage analytics across 6 student years

ProofChain API | TypeScript, Node.js, MongoDB, Ed25519 Source Code

- Made audit logs tamper-evident using Merkle proofs and Ed25519 signing, with sealed blocks and transparency anchors for independent verification
- Shipped a standalone CLI verifier so third parties can validate a log without trusting the server

EcomControl Panel | Next.js, TypeScript, MongoDB, Clerk Live Demo

- Built a headless e-commerce backend whose public and private REST APIs let any frontend reuse it instead of rebuilding a backend from scratch
- Delivered an admin dashboard for products, pricing, sales analytics and inventory, authenticated with Clerk and built on Shadcn UI

Education

German University in Cairo Expected Nov 2029
B.Sc. Computer Science and Engineering

Technical Skills

Programming Languages: Rust, Python, TypeScript, JavaScript (ES6+), HTML5, CSS3
AI & Agent Tooling: Model Context Protocol (MCP), MCP Server Architecture, Agent Skills, JSON-RPC 2.0
Frameworks: React, Next.js, Node.js, Express.js, Flask, FastAPI, Tailwind CSS
Data & Infrastructure: MongoDB, Redis, REST APIs, Git, GitHub Actions, Vercel, NPM
Languages: English, Arabic, Korean, German