

# ABDULKHALEK MUHAMMAD

Backend Software Engineer

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## PROFESSIONAL SUMMARY

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Backend engineer who designs systems, not just features — modular monoliths, performance-critical paths, and the open-source primitives underneath them. Equally at home in Python (Django, FastAPI) and Go, with a track record of cutting a critical page from 120s to 7s, sustaining 1,000+ req/s on a real-time endpoint, and extending Litestream to support encrypted SQLite replication. Most recent commercial work: a single backend powering a B2C storefront, B2B reseller API, and marketing CMS for 100k+ customers.

## TECHNICAL SKILLS

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**Languages:** Python, Go, TypeScript, JavaScript, PHP, SQL

**Backend & APIs:** Django, DRF, FastAPI, Flask, NestJS, Express, Fastify, Node.js; REST, GraphQL, WebSockets, WebRTC; React (working knowledge for full-stack roles)

**Data & Caching:** PostgreSQL, MySQL, MongoDB, Redis, SQLite

**Systems & Architecture:** Modular monolith design, performance profiling, multi-tenant systems, Celery & asyncio, Redis Pub/Sub & Lua scripts, OAuth2 / JWT / RBAC

**Cloud & DevOps:** AWS (EC2, S3, RDS), Docker (multi-stage), Nginx, Linux (Ubuntu), GitHub Actions

## EXPERIENCE

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### Software Engineer (Remote) | Native Code, Iraq

Nov 2024 – Jan 2026

- **Architectural redesign of a legacy monolith:** introduced a modular-monolith pattern and reusable boilerplate, cutting tech debt and accelerating subsequent feature delivery.
- **Cut a critical page from 120s to 7s (~16× faster)** on a system used by thousands of daily users, by profiling hot paths, eliminating N+1 queries, and adding strategic Postgres indexes.
- **Designed a high-throughput real-time location endpoint at 1,000+ req/s** by buffering writes through Redis and async-flushing batches to Postgres, keeping write latency low under sustained load.
- **Extended Litestream (Go) to support encrypted SQLite database and WAL files** — learned Go on the job and shipped the modification end-to-end.
- **Designed a custom ASTM-over-TCP protocol** for reliable bidirectional communication with lab/medical devices.
- **Customized OnlyOffice and InvenTree** with native modifications and bespoke modules to fit company-specific document and inventory workflows; also built and maintained internal tooling in PHP/MySQL.

### Backend Engineer (Part-Time, Remote) | Etqan Agency

Feb 2026 – Present

- **Build and maintain Django + PostgreSQL backends and REST APIs for client web products**, including schema design, auth flows, Pytest coverage, and Dockerized deployments.
- **Translate product requirements into reliable services** by working directly with project managers and designers across time zones.

## SELECTED CLIENT WORK

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2023 – Present

**Original Software** — B2C storefront + B2B reseller API + marketing CMS in a single Django backend

- **Designed a single multi-purpose backend serving 100k+ customers** — unifying B2C storefront, B2B reseller platform, and marketing CMS in one codebase to keep ops, deploys, and the data model coherent.
- **Built a public reseller REST API + self-service portal** with API-key auth and rate-limiting, letting partners manage their own customers, orders, and license deliveries without engineering involvement.
- **Implemented automated license-key generation and order fulfillment** with Celery; designed tasks to be idempotent so retries and duplicate payment events never double-fulfill.
- **Deployed on AWS (EC2, S3, RDS)** with Dockerized services, Nginx, and GitHub Actions CI/CD.

## OPEN-SOURCE PROJECTS

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**FluxCore** — Discord bot platform & admin dashboard — TypeScript, Node.js, Fastify, React, Prisma, PostgreSQL, Docker | [github.com/FluxCoreBot/FluxCore](https://github.com/FluxCoreBot/FluxCore)

- **Designed a two-process state-sync layer between bot and dashboard** using a monotonic-cursor Postgres invalidation queue plus a low-latency HTTP push channel — chosen over Redis Pub/Sub to keep the deploy a single Postgres + two Node processes.
- **Built a graph-based automation engine** running user-defined action / condition / delay DAGs with priority ordering, per-guild token-bucket rate limits, cycle detection, and a 13-operator condition evaluator behind a hot in-memory cache.
- **Engineered the auth/RBAC stack:** Discord OAuth2 with state-cookie CSRF, AES-256-GCM-encrypted tokens at rest, sliding sessions with two-tier (memory + Postgres) caching, and a hierarchical wildcard permission system with audit log.

**GoRing** — WebSocket signaling server for WebRTC voice calls — Go, Redis, gorilla/websocket, JWT, Docker Compose | [github.com/Abdulkhalek-1/GoRing](https://github.com/Abdulkhalek-1/GoRing)

- **Eliminated double-accept and duplicate-call races across horizontally-scaled replicas** using Redis SET NX for single-connection-per-user enforcement and atomic Lua-script CAS for call state transitions.
- **Used Redis WATCH/MULTI optimistic transactions** to atomically reserve caller and callee call slots, preventing TOCTOU races when users initiate calls simultaneously across replicas.

## EDUCATION

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**Computer Science (Self-Directed) — Open Source Society University (OSSU)** 2023 – 2025

- Coursework in algorithms, data structures, systems programming, databases, and web development; reinforced with shipped projects and open-source contributions.

## LANGUAGES

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**Arabic:** Native • **English:** Professional working proficiency