

MOHAMMAD REZA FATOLAHİ

SOFTWARE ENGINEER

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SUMMARY

Backend engineer who owns financially critical systems end to end. Technical owner of all four services behind a crypto exchange's futures market-making platform — built from zero to roughly 50 markets, placing millions of orders a day against multi-million-dollar balances at effectively 100% uptime. Works AI-first: architecture and planning done in dialogue with LLMs, implementation generated against detailed plans, every line reviewed because the money is real. Computer Science at Sharif, now an MBA in Strategy — comfortable owning the product and business call as well as the technical one.

EXPERIENCE

Backend Engineer — Market Maker Team, Futures

Nov 2025 – Present

Tehran, Iran

Tabdeal — crypto exchange, ~300 employees

- **Platform ownership** — Own all four services behind the exchange's futures market-making platform, taking coverage from zero to ~50 markets at effectively 100% uptime. The system places millions of orders per day against multi-million-dollar balances, where a single error is a direct financial loss.
- **Hedge engine** — Built and own the hedging engine that mirrors positions across external exchanges for ~25 markets with exact accounting reconciliation, letting the desk market-make those books with no directional risk.
- **Risk manager** — Proposed running the remaining ~25 markets unhedged under algorithmic risk control instead of hedging every position, then designed and built the service that executes it — generating several thousand dollars of profit within five days from one of the platform's thinnest markets alone.
- **Price service** — Engineered a sharded streaming service consuming ~30 concurrent WebSocket feeds across three exchanges with REST fallback and per-shard health checks, keeping order-book and mark-price data fresh for every downstream consumer.
- **Order placement** — Designed the depth and spread algorithms that quote near-zero spreads across all covered markets.
- **Incident leadership** — Led response to a mispricing event that caused erroneous liquidations: stabilized the affected markets, made every affected user whole, then shipped a pre-deploy sanity-check service, hardened price validation, and a single source of truth for symbol metadata — with no recurrence since.
- **Reconciliation** — Traced recurring account discrepancies through every price-mutation source, then automated the fix with reconciliation jobs, balance-mismatch alerts, and daily reports.
- **Team leadership** — Serve as deputy to the tech lead, owning architecture decisions, code review, and on-call; onboarded, mentored, and managed the task flow of two junior engineers.
- **AI-first delivery** — Drove the team's AI-first workflow: brainstorm architecture and trade-offs with Claude, generate implementations against detailed plans, and review every line given the financial stakes — cutting delivery time by roughly 60%. Authored the shared AI guideline files (prompts and code style) now shipped in every team repository.
- **Product ownership** — Operate as a technical product manager alongside engineering: set market-maker strategy and represent the team in board and CX meetings.

Backend Engineer — Java / Spring

Dec 2022 – Oct 2023

Tehran, Iran

Mohaymen Group — government systems contractor, ~100 employees

- Built backend services for Iran's national taxpayer platform, a government system holding detailed records covering essentially the entire population of the country.
- Implemented PKCS#11-based cryptography for sensitive operations — difficult to achieve with the Java tooling available at the time — unblocking a requirement the team had been unable to satisfy.
- Worked across Java, Spring, Kafka event processing, Oracle Database, and Docker.

Backend Engineer — Python / Django

Sep 2021 – Apr 2022

Remote

SynApps — healthcare & administrative process automation

- Owned the backend of a pharmacy management system, modeling prescriptions, insurance, medications, and patients along with the administrative rules real Iranian pharmacies operate under.
- Delivered REST APIs on Django and PostgreSQL within a four-engineer team, working fully remotely.

SELECTED PROJECTS

Jasem

github.com/mrfatolahii/Jasem

Plain-text task, time, and expense tracker for the terminal, published on PyPI and used daily. Natural-language capture through a pluggable LLM layer (local Ollama, OpenAI-compatible, or Anthropic) that degrades gracefully to regex parsing when no model is reachable. Zero runtime dependencies, human-readable Markdown storage, Jalali calendar support, MIT licensed.

Python · LLM APIs · CLI

Crypto Matching Engine

github.com/mrfatolahii/Crypto-Matching-Engine

Matching engine microservice with deterministic price–time priority. Runs matching single-threaded to rule out race conditions and double spending, holds the live book in Redis, and guarantees exact crash recovery by replaying a PostgreSQL event log over periodic snapshots. Ships concurrency and recovery test suites, Locust load tests, and OpenAPI documentation.

Python · Django REST Framework · Redis · Celery · PostgreSQL · Docker Compose

go-auth

github.com/mrfatolahii/go-auth

Authentication service in Go: JWT issuing and validation, bcrypt password handling, Redis-backed sessions, and PostgreSQL persistence through GORM.

Go · Gin · GORM · PostgreSQL · Redis · JWT

Lambda Architecture Pipeline

github.com/mrfatolahii/Lambda_Server

Streaming and batch pipeline implementing the lambda architecture across a Spark cluster (master plus three workers), Kafka ingestion, a Cassandra serving layer, and Zeppelin notebooks.

Scala · Apache Spark · Kafka · Cassandra · Docker Compose

Event-driven URL Shortener

github.com/mrfatolahii/zare_bin

Two Spring Boot microservices that generate and count short URLs, communicating asynchronously over Kafka.

Java 17 · Spring Boot · Kafka · Docker Compose

EDUCATION

M.Sc. in Business Administration (MBA), Strategy

Sep 2025 – Present

Tehran, Iran

Sharif University of Technology
In progress, pursued alongside full-time engineering work.

B.Sc. in Computer Science

Sep 2020 – Sep 2025

Tehran, Iran

Sharif University of Technology

- Coursework: Data Structures, Algorithms, Operating Systems, Data Engineering, Web Programming, Advanced Programming.
- Completed while working full-time as a backend engineer; organized university camps and events and led volunteer initiatives.

SKILLS

LANGUAGES	Python, Java, Go, Scala, TypeScript, SQL
BACKEND	Django, Django REST Framework, Spring Boot, Gin, REST APIs, Celery, Kafka, WebSockets, microservice architecture
DATA STORES	PostgreSQL, MySQL, Oracle, Redis, Elasticsearch; MongoDB and Cassandra (academic and side projects)
AI ENGINEERING	LLM-driven development with Claude, prompt and context engineering, AI-assisted code review, LLM API integration (Anthropic, OpenAI-compatible, Ollama)
INFRASTRUCTURE	Docker, Docker Compose, Linux, Git, CI, Grafana and Elastic monitoring and alerting, on-call operations
PRODUCT	Technical product management, product and business strategy, stakeholder and board-level communication, mentoring
SPOKEN	Persian (native), English (fluent)