Mahdi Heidarikia

Senior Software Engineer (Backend)

Berlin, Germany · linkedin.com/in/mahdi-heidari-kia

Backend engineer with 7+ years in Python, PostgreSQL and event-driven systems, from a shopping search engine serving 150M+ requests a day to real-time data and production scheduling for steel plants. Former lead of a four-person team. Takes features from data model to rollout, and traces production problems to their root cause.

Experience

Software Engineer, Smart Steel Technologies

Berlin, Germany · June 2023 – Present

Production scheduling (since August 2025)

- Owned automatic overlap resolution for hot-rolling schedules from design to rollout: API, background job and start-time messages to the plant's execution system, without overwriting planners' open edits.
- Fixed a race condition that brought deleted schedules back by merging separate Kafka topics into one ordered stream, rolled out in stages across all customer environments.
- Designed an automated master-data sync that versions changes from customer catalogs and holds them for approval with HTML diffs.
- Traced a backlog of stale records in a customer's production system to three separate causes, then shipped the fix and a cleanup migration.
- Made the test suites about 4x faster in the scheduling kernel (234 s to 58 s) and nearly 2x faster in the backend.
- Reworked Kafka lag alerts to catch stalled consumers instead of short spikes, and added Prometheus metrics for background jobs.

Temperature prediction and energy recommendations (June 2023 – February 2026)

- Built and ran the real-time plant data pipelines (Kafka, Avro, Kafka Connect, PostgreSQL) behind the ML models, and merged per-team pipelines into one site-wide pipeline for an integrated steel plant.
- Made the plant-data reader (OPC UA to Kafka) highly available with Redis leader election.
- Built core parts of an event-driven service that runs ML models on live production data, and took an energy recommendation model live through it.
- Moved streaming services from bare-metal Docker Compose to GitOps-driven Docker Swarm during a site migration.

Python, FastAPI, SQLAlchemy, PostgreSQL, Kafka, Kafka Connect, Avro, Redis, Docker Swarm, GitLab CI, Prometheus, Grafana

Team Lead, Customer Success, Torob.com

Tehran, Iran · April 2022 – May 2023

- Led a four-person team owning the ticketing system (10k messages a day) and the product update service (12M products a day).
- Delivered ML modules that extract data from new online shops with 96% accuracy, cutting setup per shop from 30 to 5 minutes.
- Proposed an event-driven design for ticketing automation, built by the team, that lets other teams write their own automations.
- Integrated ChatGPT into ticketing, reducing tickets that needed support by 13% on average, and halved the legacy system's response times.

Software Engineer, Torob.com

Tehran, Iran · September 2020 – April 2022

- Cut ML data-fetching time from 8 hours to 30 minutes with microservices, DVC and GitLab CI/CD, reducing server costs by 20%.
- Sped up PostgreSQL-to-Elasticsearch sync by 75% with asyncio, and cut search latency by about 30% through index mapping and query changes.
- Built a notification system whose concurrent RabbitMQ consumer cut database queries by 90%.

- Built PostgreSQL monitoring with Prometheus and Grafana, then tuned configuration, connections and heavy queries.
- Cut the boot time of Cython services from 4 minutes to under 1 by reworking their threading around the GIL.

Python, Cython, Django, FastAPI, PostgreSQL, Elasticsearch, MongoDB, RabbitMQ, Kubernetes, ArgoCD, Airflow, GitLab CI, React

Software Engineer, LiboBerry Guelph, Canada (remote, part-time) · March 2021 – March 2022

- Designed and built the backend and microservices for AI model pipelines, including Gensim models for document similarity.
- Led the development team and helped the founder hire three developers.

Software Engineer, Satell Urmia, Iran · December 2018 – May 2020

- Led a five-person team building a location-based online sales platform.
- Built its product search and autocomplete, limited to products near the user, on a MongoDB-to-Elasticsearch sync with custom index mappings.

Skills

- **Languages:** Python, SQL, JavaScript (React), Bash
- **Backend:** FastAPI, Django/DRF, SQLAlchemy, Alembic, Pydantic, asyncio
- **Data and messaging:** PostgreSQL, Kafka, Kafka Connect, Avro/Schema Registry, RabbitMQ, IBM MQ, Redis, Elasticsearch, ClickHouse, MongoDB
- **Infrastructure:** Docker, Docker Swarm, Kubernetes, GitLab CI/CD, ArgoCD, Airflow
- **Testing and observability:** pytest, Prometheus, Grafana, Sentry

Project

Jit. Rec: open-source RTMP video recorder with a Python/Django backend and React frontend.

Education

B.Eng. Computer Engineering, Urmia University, Iran · 2016 – 2020

Languages

English (fluent) · German (A1, studying A2) · Azerbaijani (mother tongue) · Persian (native) · Turkish (intermediate)