

Anuar Sakenov

Backend Engineer (Python)

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summary

Backend engineer in Astana, mostly Python. Builds government financial-intelligence data platforms: fast query paths, search, access control, air-gapped delivery. Author of [quackiso](#), a Rust extension in the official DuckDB registry that reads SWIFT and ISO 20022 as SQL. Also builds LLM and embeddings infrastructure.

experience

Agency for Financial Monitoring of the Republic of Kazakhstan, Astana Jan 2026 – present

Backend Engineer (Expert) – Department of Prevention and Analytical Development; leads software projects

- Took an internal analytical system to production for regional units across Kazakhstan; primary developer of a second key platform (architecture, evolution, stability). Access control by region and role (ABAC), hardened authentication, air-gapped delivery, CI and automated tests.
- Typical analytical queries 159 s to milliseconds; heavy lookups 10–15 s to sub-second by moving the workload from ClickHouse to PostgreSQL and rewriting its query paths.
- Zero-downtime PostgreSQL to Elasticsearch migration with completeness and consistency kept. Introduced Elasticsearch, ClickHouse and a graph database, automating entity linking that used to be manual; moved a legacy system into one new UI.
- Backend federating 15+ external data sources over ClickHouse, PostgreSQL, Elasticsearch and Neo4j: slow sources run through an async task queue, so one stalled upstream never blocks the rest; vendor BI exports over SOAP run in parallel.
- Deterministic report pipeline over 14+ billion ClickHouse rows: every figure is backed by a data pack and an audit trail pinned to a config hash; the LLM answers one bounded question and never scans the store.
- Internal WebSocket chat for ~200 staff inside the CRM; document generation; web data collection with TLS impersonation (`curl_cffi`).

VBox, Astana

May 2025 – Oct 2025

Backend Developer – Smart vending machines (IoT); started as an intern

- Python/Django: APIs for the machines and the admin panel, WebSocket link to the devices, sales and inventory tracking.

selected projects

quackiso

Rust | DuckDB | official community registry

DuckDB extension: 27 ISO 20022 message families and SWIFT MT as SQL. v1.7.0, ~650 downloads/week from the registry. A 1.7 GB statement parses at ~2 MB of memory, checked in CI.

search-gateway

Python | FastAPI | Redis

One search API over five providers. Failures are attributed to the key, provider or caller before any retry. Circuit breaking, atomic key rotation, cache as last resort. 144 tests, GHCR image.

Personal infrastructure

Linux | systemd | Litestream | S3

Own Linux server on systemd: three Telegram bots from one codebase, a study assistant, semantic search. SQLite replicated to encrypted storage every 2 min (Litestream), nightly backups; restore verified.

Not404 student bot (collaboration)

Node.js | Redis | Docker

AITU student Telegram bot and site, ~700 users in 19 days. Moved it to a server on Docker Compose (non-root, read-only rootfs) with Redis (AOF); AES-256-GCM for sessions, fail-closed secrets.

Embedding corpus

Python | FAISS | EmbeddingGemma | RTX 5080

14.3M vectors embedded on an RTX 5080 (1,210 GPU-minutes). Search: FAISS binary Hamming shortlist with float16 rescoring.

open source

- 8 merged PRs to [duckdb/community-extensions](#), the official DuckDB extension registry.
- [mcp-telegram](#) PR #79 merged (+414 lines); [itsVentie/Marrow](#) PR #36 merged (CI repair).

skills

programming	Python, SQL, Go, Rust, TypeScript, JavaScript (Node.js)
backend & apis	REST APIs, WebSocket, FastAPI, Litestar, Django, SQLAlchemy, async task queues, <code>curl_cffi</code> , JWT, ABAC
data & messaging	PostgreSQL, ClickHouse, Elasticsearch, Neo4j, DuckDB, SQLite, Redis, NATS, S3
llm & search	embeddings, RAG, FAISS vector search, LLM pipelines
devops	Linux, Docker, Git, CI/CD (GitHub Actions), systemd, Litestream, backups
frontend	React, TypeScript
testing	pytest, Go race detector, <code>sqllogictest</code> , Playwright end-to-end
spoken languages	Kazakh, Russian (native); English (professional working proficiency)

education

B.Sc. Mathematical and Computational Sciences (6B06107)

Sep 2026 – 2029 (expected)

Astana IT University, School of AI & Data Science. State grant, taught in English.

Software Engineering

2023 – 2026

Astana IT University College. Graduated with honours (red diploma).