PORTFOLIO

Sergey Motynga

Python Backend Developer / ML Engineering



I build backend logic, APIs and integrations with Python, working on team and corporate projects. My ML experience comes from university studies and hackathons.

GitHub · Telegram · Email

Projects

Audio badge management system

Resource access and work shifts for an audio-badge platform.

Contributed to a team backend: role- and hierarchy-aware access checks and work-shift management. Moved business rules from API handlers into services and worked on hierarchical SQL queries.

Python · FastAPI · PostgreSQL · SQLAlchemy · Redis · Alembic · Docker

Defect monitoring system

ML result processing and live defect-monitoring updates.

Worked on backend ML integration: recognition-result processing, composition checks and shift state. Coordinated database commits with WebSocket updates and fixed asynchronous background cleanup scheduling.

Python · FastAPI · WebSocket · SQLAlchemy · Alembic · Docker

Git repository synchronisation

Git repository synchronisation with branch-state tracking and conflict handling.

Rewrote a corporate synchronisation tool from Bash to Python. Worked on SQLite branch-state storage, closed-branch and conflict handling, bidirectional configuration and containerised execution.

Python · Git · SQLite · Docker

Daily Organizer

A personal organiser for tasks, recurring schedules, calendars and Kanban projects.

Building a fullstack application with a FastAPI/PostgreSQL backend and React interface. Implementing authentication, recurring tasks with time zones, calendar and archive views, and Kanban projects, with migrations and integration checks.

FastAPI · PostgreSQL · React · Python · SQLAlchemy · Alembic

Source on GitHub

Projects

SPAS System

Time-series upload, anomaly detection and visual exploration of analysis results.

Built the analysis interface for a team anomaly-detection system: data upload, parameter controls and result charts. Integrated it with the API and later placed third with the project at a conference.

Streamlit · pandas · FastAPI · Python · Docker

Source on GitHub

AutomationML

A library for assembling ML pipelines and searching hyperparameters.

Developing shared model interfaces, a registry and factory, parameter validation and scikit-learn pipeline assembly. Adding GridSearch, RandomizedSearch and Optuna search wrappers, tests and CI configuration.

Python · scikit-learn · Optuna

Source on GitHub · Package on TestPyPI

RAG document search

An academic RAG service for document questions with retrieved source passages.

Built an academic question-answering system over the Russian Constitution: text preparation and indexing, passage retrieval, reranking and Ollama generation. Connected the RAG pipeline to FastAPI and a Streamlit interface.

Python · ChromaDB · Ollama · FastAPI · Streamlit · LangChain · sentence-transformers

Source on GitHub

Time Series Task

An interface for time-series preparation, forecasting and result comparison.

Developed the data interface for a team time-series project: upload and editing, dataset preparation and charts. Integrated it with the forecasting API and refined the application structure.

Streamlit · pandas · FastAPI · Python · NumPy · statsmodels · Docker

Source on GitHub

FinGuru

A financial assistant for budgets, transactions and savings goals.

Developed backend authentication, budget categories, transactions, goals and push notifications. Contributed to mobile API integration and presented the team project at a hackathon.

FastAPI · PostgreSQL · Redis · Python · Firebase · Flutter

Source on GitHub

Projects

Chess broadcasting

A live chess backend driven by recognised board positions.

Developed recognition-result ingestion, move reconstruction, game state and WebSocket updates. Worked on transactions, Redis queues and locks, PGN export and Lichess Broadcast integration.

FastAPI · Redis · python-chess · Python · PostgreSQL · SQLAlchemy · Alembic · WebSocket · Docker

Source on GitHub

Royality

A social-app backend for profiles, posts, follows and notifications.

Developed authentication, profiles, follows, posts, reactions and comments. Added S3 file uploads and push notifications, and contributed to NativeScript/Vue client integration.

FastAPI · PostgreSQL · S3 · Python · Firebase · NativeScript · Vue

Source on GitHub

Demand forecasting

An anonymised ML competition case: data preparation and forecast evaluation.

Worked on feature preparation, model comparison and parameter search for demand forecasting. Evaluated approaches on time-based splits and analysed the limits of the results.

Python · scikit-learn · Optuna

Project and release management system

An internal tool for managing projects, planning releases and assigning team roles.

Designed the database and built the API and web interface on my own. The tool lets users create projects, assign roles to team members, and track release dates, statuses and owners.

FastAPI · PostgreSQL · React · TypeScript · SQLAlchemy · Alembic · Docker

Experience

AIMY · Backend development for commercial services

4 months · internship and contract work

Developed backend logic and REST APIs, worked with databases and helped integrate ML components.

Avtomatika-Service · Industrial monitoring

8 months · work and placements. I handled some of this work as a lab assistant at OmSTU.

Processed time-series data, developed dashboards and tested anomaly detection models. Prepared technical reports on server requirements.

Stack

Backend	Python · FastAPI · Pydantic · SQLAlchemy · Alembic
Data	PostgreSQL · Redis · SQLite
ML practice	scikit-learn · pandas · Optuna · RAG
Tools	Git · Docker · Docker Compose · Linux · GitLab CI/CD · Nginx
AI tools	Codex · Claude · Gemini · DeepSeek

Education

OmSTU · Fourth year · 02.03.02 Fundamental Computer Science and Information Technologies

Achievements

BDAI

Placed second with team «CMC» and our financial assistant, FinGuru. Developed the backend for budgets, transactions and savings goals, and contributed to mobile integration.

Avtomatika-Service scientific and technical conference

Placed third with SPAS System, our team’s time-series anomaly detection system. Developed the analysis interface, charts and API integration.

Data Match · Avangard hockey club

Presented a demand research project. Worked on features, model comparison and time-based evaluation. Data, code and numerical results are not published.

11th International IT Forum

Our chess broadcasting project won the Best Technology Project award. Developed recognised-position processing, game state and live spectator updates on the backend.