# Matúš Maruščák

Python Backend & Applied AI Engineer

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## PROFILE

Python engineer with 3+ years of production experience. Spent three years in a 7-developer team building Infimeo, an energy-management platform for battery storage, owning the admin frontend and three data-processing modules. Independently took an internal application from architecture to AWS deployment. Now applying this foundation to AI-enabled commerce and running my own e-shop technical service, Lyneon. Computer Science student at Charles University (MFF UK).

## PROFESSIONAL EXPERIENCE

**Python Backend Developer (Part-time) – Fuergy** Jul 2023 – Sep 2026

*One of 7 developers (4 backend, 1 full-stack, 1 tester) who built Infimeo, Fuergy's platform for managing battery energy storage and processing grid data for analysis.*

- Built the entire frontend of the Infimeo admin panel used to manage and monitor battery storage sites.
- Owned three data-processing modules: recalculation of power-system data, ingestion and processing of DAMAS platform data (the most complex integration), and an internal version tool that analyses deployment requirements and flags dependencies with known vulnerabilities.
- Developed production Python services with SQLAlchemy and Apache Airflow pipelines that load multi-source operational data into PostgreSQL.
- Shipped through Docker and GitLab CI/CD across staging and production environments.

**Software Development & AI Automation – drhorak.cz / Pavian Records (family business)** Present

- Built an AI catalogue agent that checks product data against Discogs release data, drafts SEO descriptions and checks product images; saved an estimated 1,000 hours of manual catalogue work (estimate: about 7,000 catalogue items × about 8.5 minutes of hands-on work per item).
- Built supplier-data workflows that ingest stock and prices, detect new catalogue items, and send proposed price changes to staff for approval.
- Built recommendations and inventory forecasting (sales velocity, days to stockout, reorder points) from order history and live online/store stock.

**Independent Full-Stack Developer (contract) – Slovenské elektrárne** Jan 2023 – Apr 2023

- Sole developer of an internal application built to the client's requirements: owned requirements, architecture, implementation, and production delivery.
- Chose the stack, built the app in Python and Flask, and deployed it to AWS EC2 within four months.

## PROJECTS

**Orbit (open source)** Solo, personal R&D

*Personal OS: shared context, AI proposals that a human approves, evals and tracing.*

- FastAPI, SQLAlchemy, Alembic, HTMX; structured-output LLM workflows with a human approval inbox, a scoped read-only MCP token, OpenTelemetry tracing and a per-run € cost budget.
- 2,192 tests, an evals suite with recorded cassettes and graders, prompt-injection defences and a written threat model; runs offline in demo mode with a fake model.

**Lumen (pre-release)** Solo

*Swift Mac and iPhone app for remote power control of a Mac.*

- Swift/SwiftUI app with a root XPC daemon, a custom Noise-KK-style protocol (HKDF) and SAS pairing, plus a Cloudflare Worker relay (not deployed).
- 304 Swift tests and 12 relay tests; `lumenctl mcp` exposes agent tools with limits enforced by the app.

**Lyneon (lyneon.cz)** Founder, solo

*Technical service for Czech and Slovak e-shops (Shoptet, WooCommerce, Shopify, Upgates, PrestaShop).*

- Built a free public-site audit covering cookies and consent, measurement, SEO, speed, accessibility, product data, and email; every finding carries screenshot or network-request evidence and a fixed price.

- Sell fixed-price fixes for cookie banners and Google Consent Mode v2 (GA4, Google Ads, Meta, Sklik, TikTok via GTM), with before/after measurement and payment only after verification.
- Run weekly monitoring of consent, tracking tags, HTTPS certificates, domain expiry, SPF/DMARC, and uptime, with instant alerts and a monthly report.
- Reference case drhorak.cz: homepage LCP 7.67 s to 1.24 s in the best lab run (Lighthouse, mobile, Nov 2026; other lab runs of the new site measured up to 3.6 s), Lighthouse performance 46 to 100, page weight down 71%.

**Crypto Trading Bot** Personal research project

*Strategy research and a live trading bot for Hyperliquid perpetual futures.*

- Backtested multiple OHLCV indicator-based strategies in Backtrader and connected the bot to Hyperliquid, running live on a demo account.
- Best strategy cut maximum drawdown from 70% to 10%, but did not beat buy-and-hold Bitcoin returns.
- Concluded that OHLCV data alone is not enough for short-timeframe trading; next step is adding order-book data to the signal.

## TECHNICAL SKILLS

**Backend & data:** Python, SQL, FastAPI, Flask, SQLAlchemy, REST APIs, PostgreSQL, SQLite, Apache Airflow, ETL, TypeScript, Swift

**Infrastructure:** Docker, GitLab CI/CD, AWS EC2, Git, Linux

**Frontend & web:** Angular, Playwright, Streamlit, Google Tag Manager, GA4, Lighthouse

**AI engineering:** LLM multi-stage workflows, agent design, MCP, evals, prompt and context engineering, source-grounded verification, human-in-the-loop approvals, AI-assisted development

## EDUCATION

**BSc Computer Science (in progress) – Charles University (MFF UK)** 2026 – 2029 (expected)

**Maturita – Gymnázium Oravská 11** 2026

CS50: Introduction to Computer Science (Harvard)

## LANGUAGES

Slovak (Native), Czech (Fluent), English (C2)