

Gergely Kovács

SENIOR ENGINEER & CO-FOUNDER · ARCHITECTURE · DISTRIBUTED SYSTEMS · AI IN CONTRACT MANAGEMENT

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I specialise in the architectural heavy lifting that most engineering teams avoid. When legacy systems reach their breaking point or a platform requires a zero-downtime migration, I take ownership. My focus is high-leverage execution — untangling monolithic dependencies, engineering resilient asynchronous architectures, and proactively hunting down critical security vulnerabilities before they become catastrophic. The throughline across every role on this page: I am drawn to systems where the technical problem is inseparable from the business and regulatory context around it — contracts, public infrastructure, compliance, multi-stakeholder operations. I think in subsystems and rewrites, not patches. Currently exploring **Architect, Staff Engineer and senior technical leadership roles** — particularly in GovTech, infrastructure or contract intelligence.

SKILLS & TECH

LANGUAGES

Python (Expert, 10+ yrs) · TypeScript · JavaScript · SQL · Bash · PHP

BACKEND FRAMEWORKS

Django · Flask · Celery · SQLAlchemy · SQLAlchemy · Jinja2 · Pydantic · WordPress · Magento

DATA & SCIENCE

NumPy · Pandas · Jupyter · Matplotlib · Scrapy · statistical outlier detection · geolocation processing · large-scale text processing

DATABASES & SEARCH

PostgreSQL · MySQL · Redis · MongoDB · SQLite · Lucene

FRONTEND

React · Vue.js · Angular · Next.js · Nuxt.js · ExtJS · Progressive Web Apps · CSS

CLOUD &

INFRASTRUCTURE

Google Cloud (GCP) · AWS · Azure · Docker · Kubernetes · Terraform · Nginx · Linux · distributed computing · multi-tenant context restoration

CI/CD & DEVOPS

GitLab CI · GitHub Actions · Git · Jira · pre-commit hooks (AST) · mypy · pytest · SonarQube · zero-downtime migrations

OBSERVABILITY

Sentry · OpenReplay · structured logging · production incident command

AI & ML ENGINEERING

Claude Code (Opus / Sonnet) · MCP servers · OpenAI / LLM chains · AI agent automation · prompt engineering · AI-assisted CI/CD · ML for optimisation (Green Wave) · matrix-based safety calculations · traffic simulation · Microsoft Power BI

ARCHITECTURE & RELIABILITY

Platform architecture · task orchestration · async job substrates · identity & SSO · document linking / clause graphs · clause-driven obligation modelling · multi-tenant SaaS reliability · long-running data pipelines · zero-downtime migration

SECURITY & COMPLIANCE

GDPR · CCPA · ePrivacy · ISO 27001 · vulnerability research · pre-disclosure reports · CSRF / PRNG analysis · MFA bypass / ATO chains · subdomain takeover · authorization architecture · cookie-consent regulatory matrices

DOMAIN

Contract intelligence · GovTech & defence-sector platforms · multi-billion-dollar post-execution obligation management · public-health systems (WHO, UNICEF) · smart-city / urban traffic systems · large-scale eCommerce

LEADERSHIP & METHODS

Co-founder & CEO experience · Product Owner of external (EPAM) design team · B2G contract negotiation · cross-functional squad collaboration · code-review at scale (1,000-MR corpus analysis) · stakeholder communication in executive register · Agile/Scrum · TDD

EDUCATION

Bachelor's degree, Mechatronics, Robotics and Automation Engineering · Faculty of Engineering, University of Debrecen · 2015–2019

SPOKEN LANGUAGES

Hungarian — native · Ukrainian — native · English — full professional / bilingual · Russian — fluent

EXPERIENCE

Senior Engineer — Architecture & Platform

January 2023 – Present · 3 yrs 5 mos

Affinix · Budapest (Remote) · governmental, international & defence-sector clients

- Affinix is the contract-intelligence platform that governmental, defence and infrastructure clients run their post-execution obligations on — **multi-billion-dollar programs where a missed clause-driven deadline can trigger eight-figure liquidated damages**. My work spans the platform's hardest subsystems: task orchestration, identity and SSO, document linking and clause graphs, cloud and network infrastructure on GCP, security review, and reliability for long-running data pipelines.
- **Platform architecture**. Decommissioned a legacy XMLRPC / TGScheduler jobserver and migrated the platform onto a managed Celery framework I designed: +10,787 LOC across 42 files, multi-tenant context restoration, 50+ legacy jobs ported. Runtime owner two years post-launch. Rewrote the platform's core checkout-status workflow end-to-end — 10 months, 8 versions, full-stack Python / SQLAlchemy + ExtJS + Angular. Touches every customer transaction.
- **Production incident command**. Recurring incident commander for production DB-lock and stuck-job classes. Hot-fixed a production DB lock-up caused by an unguarded dblock call inside a long-poll procedure; drove permanent cross-schema removal. Eliminated a lock-contention class that was serialising every admin operation behind any concurrent check-in on multi-thousand-book libraries.
- **Security research**. Authored four pre-disclosure vulnerability reports in 30 days: dangling-IP subdomain takeover; CSRF tokens issued from a predictable Mersenne-Twister PRNG with state recovery traced through a 27-file import footprint; unauthenticated callback enabling SMS-MFA bypass + account-takeover chain; leaked-credential audit. Each in executive register with ISO 27001 framing and a remediation plan.

- › **CI/CD, type safety and the team's AI engineering practice.** De-facto owner of CI/CD orchestration, the mypy type-safety pipeline and the compliance notification system. Authored a Claude Code slash-command suite now in production use by the team; built an MCP-driven multi-source evidence pipeline; wrote a quantitative review-corpus analysis of one thousand recent merge requests with a pre-merge tooling proposal that automates roughly a sixth of recurring review feedback.
- › **Compliance.** Implemented technical controls supporting **GDPR, CCPA, ePrivacy and ISO 27001** across platform domains. Authored the platform's regulatory-comparison matrix for cookie-consent and chose strictest-GDPR posture over geo-fencing.
- › **Footprint.** Sole author of the production Celery framework · 58 commits on CI/CD config · 34 on the mypy pipeline · 200 MRs at 61.5% merge rate · 35 teammate MRs reviewed · 17+ initiative branches owned end-to-end · 138 tickets shipped under my name across seven subsystem themes.

"Gergely was responsible for our CI/CD pipelines and monitoring, and he was always the person we called when something went wrong in production. He also led the effort to clean up and modernize our old Python codebase, which was no small task. One of the best engineers I have worked with."

— Krisztián Katona, Lead Developer, Affinix (LinkedIn recommendation)

"I worked with Gergely for three years at Affinix. He was great to partner with — we'd sit down, map out exactly what was needed, and agree on the best communication mechanisms and design patterns before diving in. Our collaboration was always smooth sailing."

— Razvan Gantu, Front-End Angular Architect, Affinix (LinkedIn recommendation)

Back End Developer

October 2021 – December 2022 · 1 yr 3 mos

Pulilab · Budapest · WHO & UNICEF stakeholder work

- › Delivered data-intensive Python systems for international development organisations, collaborating directly with **WHO and UNICEF** project stakeholders on requirements, delivery and iteration.
- › **Stakeholder collaboration & delivery.** Partnered with WHO stakeholders to build a Python data-management platform — translating public-health requirements into technical solutions. Maintained UNICEF frontend platform reliability for a global user base. Delivered a 1.5 million-word content-management system end-to-end, owning architecture for large-scale text processing and storage.
- › **Data systems & AI strategy.** Designed and built a data-enrichment pipeline for 20,000+ medical clinics — automating extraction of images, contact data and entity information at scale via Scrapy. Architected a 100,000+ datapoint analytics system with multi-level aggregation (city / country / global), geolocation processing and statistical outlier detection. Developed an **OpenAI-powered content-strategy system with automated A/B testing — pre-ChatGPT (2021–22)**, part of an AI early-adopter arc going back to 2018.
- › **Infrastructure ownership.** Containerised the deployment stack with Docker and optimised CI/CD pipelines, owning the full deployment lifecycle. Full-stack delivery across Django REST APIs / PostgreSQL and Nuxt.js / Vue.js, with data-science reporting in Jupyter, Pandas, NumPy and Matplotlib.

Software Engineer — Self-Employed (Freelance)

February 2019 – October 2021 · 2 yrs 9 mos

Self-Employed · Budapest · concurrent with the Venturi founder track

- › Delivered **12+ client projects end-to-end** — requirements, architecture, development, deployment, ongoing optimisation. Integrated **OpenAI into a live business system**, implementing AI-powered automation for production workflows.
- › Built a cross-platform Progressive Web App (PWA) for a newspaper with built-in subscription management and payment processing — fully installable on iOS and Android via WordPress REST API integration. Full-stack work in Python Django + Vue.js with SQLAlchemy ORM and responsive frontends.
- › Delivered eCommerce solutions including a 360-degree product photo gallery plugin, universal multi-carrier shipping integration (DPD, MPL, GLS, Gebruder Weiss) and complete checkout-flow redesigns.

Co-Founder & CEO

September 2018 – October 2021 · 3 yrs 2 mos

Venturi Systems · Debrecen · AI-driven urban traffic optimisation

- › Co-founded and led an AI-powered city traffic-optimisation startup from concept through production deployment — owning **business development, product strategy, technical architecture and external team management**.
- › **Business leadership & government relations.** Secured two B2G contracts through 30+ meetings with municipal decision-makers — personally managing contract negotiation, relationship development and stakeholder communication across three cities. Delivered measurable city-infrastructure impact: **16 intersections optimised and deployed across three municipalities**. Managed an external design team at EPAM as Product Owner.
- › **Technical vision & execution.** Designed the system architecture end-to-end: a distributed simulation platform processing **3,000,000+ data points across 140 simulated years** of traffic patterns on Google Cloud 96-core instances with Python multithreading. ML-accelerated optimisation, matrix-based safety intergreen calculations, dockerised service management, CI/CD pipelines. Built the full management stack (Python, SQL, JavaScript) while simultaneously running business and product — the dual technical/business ownership expected of a CTO/CEO.

Magento Developer

November 2015 – February 2019 · 3 yrs 4 mos

UNDEFASA · Debrecen, Hajdú-Bihar · large-scale eCommerce

- › Development and maintenance of a Magento-based webshop — multi-device universal frontend, PHP plugin development, automated data-cleaning system for **130,000 products**, universal multi-carrier shipping integration (DPD, MPL, GLS, Gebruder Weiss), SEO speed-improvement system, landing-page optimisation, total checkout-page rework, cart refactoring for better UX.