ĐORĐE MARKOVIĆ

Full Stack & AI Engineer

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Full-stack engineer (TypeScript, React, Node.js, Python, PostgreSQL, MongoDB) who builds and runs production web products end to end, from data model to deployment and monitoring. I integrate LLMs backed by my own evals, use AI coding tools every day inside a reviewed, test-first workflow, and maintain the open-source Vir, a knowledge tool for coding agents. Building Node.js backends since 2022, from team internships to products I now run in production.

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, Python, SQL

Web: React, Next.js, Vite, Node.js, Express, Django, REST APIs, Swagger/OpenAPI, SSE streaming, JWT refresh rotation and revocation, OAuth, MUI, Tailwind, Zustand, React Hook Form, PWAs (IndexedDB, web push, offline-first)

Data: PostgreSQL/Supabase (RLS, SQL functions, pg_cron, Edge Functions), MongoDB (Mongoose, transactions, GridFS), SQLite, Redis/BullMQ, Zod, yup

AI: Anthropic, OpenAI and Gemini APIs (tool use, structured outputs, streaming), Whisper, vision models, multi-vendor routing with quality gates and failover, evals (LLM-as-judge with calibration, bootstrap and Wilson confidence intervals, lm-evaluation-harness), embeddings, MCP servers, prompt-injection hardening, Claude Code (skills, hooks, sub-agents)

Payments: OTP Bank card gateway (HMAC, signed XML API, settlement, reconciliation), PayPal, Paddle

Testing & delivery: Vitest, Playwright (incl. live smoke tests against production), Cypress, node:test, Jest, pytest, GitHub Actions (tag-triggered releases with provenance), Vercel, Render, Cloudflare, Heroku, npm publishing

OPEN SOURCE

Vir · knowledge layer for coding agents · TypeScript, Node.js, SQLite, MCP · virwiki.dev · MIT — 2026 - Present

- CLI (npm *@djolex999/vir-cli*) that distills long, noisy Claude Code and Codex session transcripts (plus articles and PDFs) into typed notes: patterns, gotchas, decisions. Served back to agents mid-session through an MCP server and managed CLAUDE.md/AGENTS.md blocks. Listed on awesome-claude-code.
- Two-model pipeline (Haiku classifies, Sonnet distills) behind free heuristic filters, so paid calls are gated by design; agent-CLI calls run sandboxed (no tools, strict MCP config) because transcripts are untrusted input.
- *vir connect* clusters lessons that recur across 3+ sessions, requires verbatim quotes from cited notes and proposes agent rules for human approval; *vir lint* flags stale and contradicting notes.
- Retrieval eval harness with paired-bootstrap confidence intervals; its results switched off a shipped reranking default that hurt search. 1,400+ tests, 70+ npm releases. Companion Obsidian plugin in the community directory, with contract tests that pin the CLI's JSON output.

Fulcrum · 2nd place, Adapty First Commit hackathon (Belgrade) · TypeScript, MCP · github.com/djolex999/fulcrum — Nov 2026

- As the team's engineer, built a guard layer between AI agents and Adapty A/B tests: a TypeScript MCP server that is the agent's only write path (the agent has no Adapty token or CLI), checking every action against a policy file, logging it to a ledger and failing closed.
- A test can stop only on its declared goal metric, past a sequential statistical boundary (simulated fake wins under weekly peeking fell from about 22% to 5%), and after human approval. Stopped real throwaway tests on a live Adapty account through the gate.
- Worked spec first: 199 tests tied to acceptance criteria, an attack suite, and fresh reviewer agents (one found a self-approval hole, which I patched).

serbeval · public Serbian LLM benchmark · Python, lm-evaluation-harness, pytest · github.com/djolex999/serbeval — 2026

- Benchmark of how well LLMs write Serbian: 351 items (grammar, verb forms, ijekavian, orthography) checked against Pravopis 2010, 30 models evaluated, dataset on Hugging Face, upstream PR opened to EleutherAI lm-evaluation-harness.
- When top models saturated v1 at about 98%, shipped v2 after public feedback from Aleksa Gordić: 76 verified whole-passage correction tasks, raising frontier error rates 5 to 10 times with a stable ranking. Also caught an answer-position bias that let a constant answer score 80%; 490+ pytest tests.

EXPERIENCE

Co-founder & Full Stack Engineer · GrowthQ Lab DOO, Belgrade — Aug 2025 - Present

I design, build, deploy and run the studio's products end to end (Vercel, Render), from the data model to monitoring in production.

Pripremi.rs · AI lesson-plan generator for Serbian teachers · React, Express, TypeScript, MongoDB, OpenAI, Gemini · pripremi.rs

- Built and run solo; turns a short brief into a Word-ready lesson plan in about 2 minutes. Live in production with organic users.
- Multi-vendor LLM pipeline (OpenAI + Gemini) with a runtime quality gate, vendor failover and per-document cost tracking; production monitoring with a post-deploy LLM canary, an alert on the rolling fallback rate, and a live smoke test of every main flow after each deploy.
- In-house eval harness over the production pipeline (OpenAI, Gemini, DeepSeek and Claude arms, LLM-as-judge calibrated with planted defects, Wilson confidence intervals); models were switched on cost per valid document.
- "Moj obrazac": teachers upload their own lesson-plan template and an LLM extracts its structure, with the extraction model chosen by an eval.
- OTP Bank card payments (in final testing): HMAC MAC pinned to spec vectors, signed XML API with fail-unknown handling, a payment ledger with exactly-once settlement and a 15-minute reconciliation job.
- Security pass: access-token revocation, hashed refresh tokens, OAuth state nonce, CSRF header, trusted client IP behind Cloudflare and a quota limiter that fails closed. 2,700+ tests across node:test, Playwright and Vitest.

Objasni.rs · AI tutoring platform, starting with math for Serbian 8th-graders (in development) · Next.js, PostgreSQL (Supabase), Claude

- In internal testing. The tutor gives hints step by step and is guarded so the model does not leak the answer.

- Postgres migrations with SQL functions for invites, login codes and atomic attempt counters, daily cost caps per family, and scheduled cleanup and email jobs; 1,100+ tests.

GrowthQ · AI brand content for small businesses · React, Express, TypeScript, MongoDB · growthq.rs

- Monorepo with shared Zod API contracts; AI onboarding with brand inference from images, Whisper voice input and a generated logo; Kie.ai image generation on an atomic credit system with refunds on every failure path; 550+ tests.
- PayPal capture inside a MongoDB transaction that only settles pending payments. Pitched to investors at Web Summit Lisbon (2025) and GITEX Europe Berlin (2026); the feedback drove a US-market version, in development.

Client work

- Offline-first asset-inventory PWA for a government client: QR scanning (native BarcodeDetector with zxing fallback), an append-only scan log reconciled into current state, automatic backups in IndexedDB with validated restore; fixed 26 of 27 security review findings; 175 tests.

Freelance Full Stack Developer · Remote — Nov 2025 - Apr 2026

- Two client web apps in a two-person team, across frontend and backend and through client feedback rounds: a sports-court booking PWA (Next.js, TypeScript, Google and Facebook OAuth, web push, reservation flows) and a multilingual site for a cultural organization (React/Vite, Java backend, MongoDB).

Web Developer (freelance) · Gracanica Innovation Centre — May 2024 - Aug 2024

- Designed and built the first React version of the centre's website, then helped get it live after it was moved to Webflow for launch.
- With another developer, built a news-filtering app in Django for the platform, tested for internal use.

Backend Developer · ReservEat (Scrum team) — Mar 2023 - Jun 2023

- Auth API for a booking platform (Node.js, Express, TypeScript, MongoDB): registration with duplicate-account checks, JWT login, email confirmation and password reset with SendGrid templates and yup validation.
- Booker, profile and request APIs, with booking requests listed with their offer counts and responses shaped so credentials never leave the server; every endpoint documented in Swagger/OpenAPI.
- Worked on the React client (navigation, password-reset screen) and Cypress end-to-end tests; ran the API on Heroku; every change through a reviewed pull request.

Back End Developer Intern · 10minutendeutsch (Scrum team) — Jul 2022 - Jan 2023

- Node.js, Express and MongoDB REST APIs for a German-learning platform: password reset with token links, profile updates, and user search with filters and pagination.
- Transactional email with SendGrid dynamic templates in the user's language; designed the conversation-match data model and a weekly cron job that pairs learners by level and interests. Every PR reviewed by senior developers.

Earlier: Data Engineering Trainee, Functor (2025; Docker, Spark, Kafka, Airflow) · Internship Trainee, Reputeo (2024; Python and Scrapy crawlers)

EDUCATION & ADDITIONAL

BSc Computer Science, Faculty of Natural Sciences, North Mitrovica (2019-2026). Thesis: “User Experience 3.0: Applying Artificial Intelligence on Web Platforms”.

Awards: Adapty First Commit hackathon, 2nd place (2026); NTP Niš Launcher, selected (7 of 108 teams, 2025); InnoFuture Hackathon, 1st place (2024), co-creator of FarmLink, a digital marketplace for local producers; Arduino Makers League, 2nd place (2024).

Mentorship: mentored by Vukota Pekovic (Cisco Silicon One); Mentor the Young mentee. **Languages:** Serbian, English (professional).