Alexandru Lungu

Full Stack Engineer | React, TypeScript & Node.js | AI-Assisted Development

Timișoara, Romania • +40 734 513 181 • thismaildot@gmail.com • alexandru-lungu.web.app • LinkedIn • GitHub

PROFILE

I am a full-stack engineer who designs, builds and operates production web systems end to end, from the interface and data model to security rules, payments, third-party integrations, CI/CD and live releases. Six of my systems are in production: four for paying clients and two public with their source code. I have worked with AI tools since 2024 and with coding agents on complete projects since 2025, and I have shipped an LLM feature with a measured eval and hard cost limits. My bachelor's thesis studied how active versus passive AI use affects learning. The agents raise my output; every change they produce goes through type checks, automated tests, CI and authorization enforced in the database before it ships.

AI-ASSISTED DELIVERY AND MEASURED IMPACT

- **Solo delivery at team scope.** With Claude Code and OpenAI Codex driving implementation under my review, I built Timber Logistic alone over three months, live in production from the first month: 20 tables, 45 migrations, 5 Edge Functions and around 20,000 lines of TypeScript. Socio HR Play (five activity engines, three roles, Cloud Functions) was delivered by one developer in five months.
- **Developer removed from the content loop.** Three client platforms are updated by their own staff with no developer time: Clinica Naturell publishes its blog and services, Socio HR Play staff author quizzes in five formats without code, and AVR BPPS-6 volunteers in their seventies have published 161 media items and 11 articles themselves.
- **Running cost cut to zero.** Two client platforms run at €0 and $0 a month by moving authorization into security rules and media into free tiers, replacing a hosted CMS at Naturell and avoiding any billing account at AVR BPPS-6.
- **AI output held to a gate, not trusted.** 332 automated tests across the public and client projects, 11 live database-security assertions and a CI step that decodes every JWT in the production bundle. Two defects in agent-written code were caught by tests before release: an unescaped </script> in JSON-LD and a demo-account delete guard that existed only in the UI.

TECHNICAL SKILLS

AI-assisted engineering: Claude Code, OpenAI Codex and Gemini Antigravity, connected through MCP servers to git, Supabase, Firebase and a headless browser. Repo-level agent instructions (CLAUDE.md, AGENTS.md) that carry project invariants and verify commands. Agents used for codebase analysis, implementation, refactoring, debugging, test design, security audits and documentation, with results checked by type checks, tests, CI and post-deploy verification. LLM features: Google Gemini structured output from a server-side function, evals, prompt-injection defence and cost caps

Languages: TypeScript, JavaScript, SQL, HTML, CSS, C#

Frontend: React 19, Vue 3, Next.js, React Router, Vue Router, Pinia, TanStack Query, React Hook Form, Zod, vue-i18n, Tailwind CSS, Radix, responsive and accessible UI with WCAG testing, inline SVG visualisation

Backend & data: PostgreSQL (Row Level Security / RLS, SECURITY DEFINER procedures, triggers, generated columns, pg_cron), Supabase (Auth, Storage, Edge Functions on Deno), Firebase (Auth, Firestore, Storage, Cloud Functions, Hosting), Node.js, REST APIs

Testing & delivery: Unit, integration and end-to-end testing with Vitest, Vue Test Utils, Testing Library, Playwright and axe-core, Firebase emulator rules tests, live database-security tests, migration tests on PGlite, ESLint, GitHub Actions CI/CD, Vite, build-time prerendering, technical SEO, JSON-LD, Sentry

Security & integrations: Security auditing and threat modelling, authorization design, CSP, Cloudflare Turnstile, DNS and email routing, bundle secret scanning, GDPR/ePrivacy consent, EU DSA notice-and-action, NETOPIA Payments, Oblio/e-Factura, ANAF and SUMAL registries, Google Gemini API, Cloudinary, Resend, MQTT over WebSocket, InfluxDB

EXPERIENCE

Full Stack Engineer (Contract) | Timber Logistic SRL, Timișoara, Romania — Jun 2026 – present

Sole developer of a Romanian B2B timber marketplace run as a sealed-bid reverse auction, with live card payments. Live at timber-logistic.ro. Client-authorized case study.

- Designed and built the React 19/TypeScript and Supabase/PostgreSQL platform: buyer, supplier and administrator workflows, schema and migrations, Edge Functions, and GDPR, ANPC and EU DSA Article 16 compliance flows.
- Implemented the auction in the database. Per-supplier bidding windows are calculated by triggers from each supplier's working hours and frozen when the request is created, stale requests expire through pg_cron, and commission is a generated column with exact-decimal VAT arithmetic.
- Used PostgreSQL as the security boundary, with RLS on every table, all state changes routed through SECURITY DEFINER procedures and no generic UPDATE policies. Contact details are released only to the winning pair, after the payment gateway confirms the commission.
- Took NETOPIA Payments v2 card payments live (idempotent IPN handling, unique paid-payment constraints) with Oblio/e-Factura invoicing. Added ANAF-verified supplier identity with CUI validation in the browser, Edge Function and database, and SUMAL transport-document verification that fails closed into manual review with an audit trail.
- Raised Lighthouse mobile performance from about 41 to 86 and desktop from 59 to 97, with 100 for accessibility and SEO, and cut Total Blocking Time from about 15.9 s to a few hundred milliseconds by replacing a WebGL hero, splitting routes and hydrating prerendered pages.
- Set up CI/CD gates, then cut CI time by about 8 minutes a run: strict TypeScript, zero-warning ESLint, 88 automated tests, a schema rebuild from an empty PostgreSQL instance with RLS assertions, a bundle secret scan, deployment only from protected main, and post-deploy checks of the live build hash and security headers.

Full Stack Engineer & Digital Marketing | Clinica Naturell, Timișoara, Romania — Feb 2024 – present

Sole technical and marketing resource for a wellness clinic. Live at naturell.ro. Client-authorized case study.

- Rebuilt a hosted-CMS website as a 29-route React 19/TypeScript application on Firebase with online booking, a Markdown blog that the staff maintain themselves, client accounts, site search and campaign landing pages.
- Moved authorization into Firestore security rules: public collections accept validated creates only, everything else requires the admin claim, and clients can read only their own bookings.

- Built per-page canonical, Open Graph and JSON-LD metadata with a sitemap generated from the same typed data module the UI uses, and a versioned four-category consent store that keeps the TikTok Pixel and the Google Maps embed unloaded until consent is given.
- Traced a complaint about mismatched service photos to a migration defect behind hashed file names, rebuilt the image mapping, consolidated 16 services into 6 categories and added 20 redirects with no new 404s.
- Ran the clinic's paid social campaigns in parallel with development: 246 leads from 1,375 RON spend. Migrated the organisation to Google Workspace with Cloudflare DNS, SPF and DKIM, and automated recurring email.

Full Stack Engineer (Contract) | Faculty of Sociology and Social Work, West University of Timișoara Oct 2025 – Mar 2026

Socio HR Play, a React/Firebase assessment and outreach platform. Sole developer; three collaborators authored the content. Live at uvt-socio-quiz.web.app. Source-free case study.

- Built and deployed a React 19/TypeScript platform with a public activity catalogue, student accounts, three user roles and a staff constructor that lets non-developers author five activity formats on one data model: graded assessment, personality, multiple intelligences, crossword and questionnaire.
- Moved result validation and scoring into a Zod-validated callable Cloud Function that reloads the published activity, recomputes the score, applies transactional rate limits and HMAC-based idempotent receipts, and generates the result email on the server. Direct browser writes to results are denied in Firestore rules.
- Implemented versioned consent, an age gate and separate storage for responses and contact details for a user base that includes minors, enforced in security rules and tested with the Firebase emulators.
- Fixed an outage at a live event, where ad blockers and the venue network rejected Google API domains, by routing homepage reads through a same-origin Cloud Function. Split a 1.5 MB bundle into route-level chunks with a 59 KiB entry.

Full Stack Engineer (Contract) | AVR BPPS-6 Veterans Association, Chișinău, Moldova May 2026 – Aug 2026

Trilingual memorial and publishing platform. Retained since delivery for ongoing publishing. Live at veteranibpps6.org. Client-authorized case study.

- Delivered a Romanian, Russian and English React 19 and Firebase website with a headless Firestore CMS and full content parity across languages.
- Designed a one-button photo and video publishing flow for elderly, non-technical volunteers and automated a Cloudinary media pipeline with sharp and ffmpeg that reduced image payloads by 93% and fit 1.5 GB of source video into free tiers at $0/month.
- Wrote a Puppeteer-based prerenderer that outputs 18 routes as static HTML with JSON-LD and a sitemap generated from live Firestore content.

Frontend Developer (Freelance) | German industrial manufacturer, remote Jun 2023 – Dec 2023

- Built the complete Vue 3/TypeScript operator dashboard for an industrial condition-monitoring system, visualising live factory telemetry from InfluxDB.
- Implemented MQTT over WebSocket from the browser so operator changes to maintenance mode, fault records and model hyperparameters were published back to the plant equipment. The client-owned source remains private.

Frontend Developer (Internship) | Spark Solutions, Chișinău, Moldova Oct 2022 – May 2023

- Developed Vue 3/TypeScript apps (Vuex, Pinia, Vue Router) in a Git/Linux team, including Spark's original FoodBoard menu builder; later coordinated a five-person team on one client project while delivering a second app alone.

SELECTED PUBLIC PROJECTS

FoodBoard | Multi-tenant menu SaaS with AI import, rebuilt from scratch 2026

Vue 3, Supabase, PostgreSQL, Deno, Google Gemini. Live demo • Source • 193 tests, 9 languages, AI import eval 5/5

- Shipped an AI menu import that turns a PDF or photo into an editable draft through Gemini structured output in a Deno Edge Function. The model is treated as untrusted input: server-side key, content-sniffed files, quota reserved in Postgres before each call, validated and repaired output, and a separate allergen confirmation. A five-fixture eval (allergens, prices, prompt injection, non-menu refusal) caught two extraction bugs; latest run 5/5.
- Ran an AI-assisted security audit and fixed 8 vulnerabilities, including cross-tenant data injection, anonymous file enumeration, build-time path traversal and a bypass of the AI spending cap. 15 regression tests run every migration on PGlite and fail without their fix.
- Tenant isolation enforced in PostgreSQL: anonymous table access revoked, owner policies on every table and one SECURITY DEFINER read path for published menus, tested live with two accounts. The shared public demo cannot be deleted, locked out or defaced, and a scheduled workflow restores it five times a day.

Kinetiq | Industrial condition-monitoring dashboard, standalone public demo 2026

Vue 3, TypeScript, Pinia. Live demo • Source • 34 tests, 4 runtime dependencies

- Public rebuild of the 2023 client dashboard: deterministic simulated telemetry behind a typed TelemetrySource interface, one shared visibility-aware clock instead of per-page polling, 14 hand-built accessible UI components covered by tests, English and German, no UI or charting library.
- CI runs tests, type checks, build and dependency audit. Deployment uses workload identity federation with no stored tokens, checks the commit is still the latest on main, and verifies the served build, CSP and headers after release.

EDUCATION & LANGUAGES

Bachelor's degree (Licență), Human Resources / Sociology | West University of Timișoara 2023 – 2026

Thesis: *Analysis of Digital Technology and Artificial Intelligence (AI) Usage Practices in the Educational Process and Their Influence on Students' Motivation*

Quantitative study of 123 students separating active AI use (asking for explanations and verification) from passive use (delegating content generation); passive use was the strongest negative predictor of motivation. Published in the 6th CIBES Conference Abstract Book (2026): doi.org/10.66414/mlabs.9677.

Computer Science coursework (C, algorithms, mathematics) | Technical University of Moldova; ULIM 2021 – 2023

Languages: Romanian (native) • Russian (native, C2) • English (C1)