

Alejandro Martínez Leiva

Fullstack Developer — *I ship like a small team* · AI development workflow

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SUMMARY

Fullstack Developer working end-to-end with Angular, TypeScript, and Python (Litestar) — from interfaces and REST APIs to PostgreSQL and Redis. Engineering depth from real-time C++ and two IEEE-published research papers. Works with a disciplined AI-assisted workflow: spec-driven development, specialized agents, adversarial review. Cares about shipping working products, not demos. Based in Stockholm — open to on-site, hybrid, or remote.

TECHNICAL SKILLS

Languages	TypeScript · Python · C++ · JavaScript
Frontend	Angular (v16–22) · Tailwind · PrimeNG · Angular Material · i18n
Backend	Litestar · NestJS · Node.js · REST APIs
Data	PostgreSQL · Redis · TypeORM · full-text search · ARQ workers
DevOps	Docker · Docker Compose · nginx · Linux · Git · CI
AI workflow	Spec-driven development · LLM-assisted engineering · adversarial review

SELECTED PROJECTS

La Tiendita — Second-hand e-commerce platform

- Angular · TypeScript · Litestar · PostgreSQL · Redis · Docker · Stripe · Klarna · Swish
- Full e-commerce platform: catalog with full-text search, cart, multi-provider checkout, and a three-role admin panel with audit trail.
 - The API is contract-tested against the frontend model — a spec that fails on any field drift.
 - Ships as a single production container (nginx + API + SPA, migrations on boot) with 300 seeded products in 3 languages. ~270 commits.

NordicPump — Fuel-price PWA across the five Nordic countries

- Angular · Chart.js · Tailwind · Litestar · Docker
- Three official data sources (EU Oil Bulletin, Statistics Norway, Iceland's gasvaktin) normalized into one API — file-based cache with atomic writes, per-source refresh scheduling.
 - Seven languages, five currencies, PWA offline mode; accessible data tables under every chart.
 - 548 tests across backend and frontend; a contract spec keeps the Python and TypeScript models field-for-field in sync.

ManageRepairStore — Repair-shop management system

- Angular · NestJS · TypeORM · PostgreSQL · Puppeteer
- Portfolio edition of a system delivered for a real client (Abagas Toledo, Chile) — fully sanitized: 100% synthetic data, transactional re-seed on every page load.
 - Stock mutations through a single path with pessimistic row locks; batch endpoints roll back atomically. 620 tests.
 - One-click demo login per role (admin / seller / warehouse).

■ SELECTED PROJECTS (CONT.)

CompanyAdScreen — Embedded advertising display

C++ · AVR · ATmega328P · HD44780 LCD

- Under 600 lines of C++ on a microcontroller with 2 KB of RAM: weighted ad rotation, LCD driver and non-blocking timer written from scratch.
- Ad frequency weighted by each advertiser's payment — business logic inside microcontroller constraints.

Demo · wokwi.com/projects/475266320455883777

■ EXPERIENCE

Independent Projects & Upskilling — Stockholm, Sweden

2024 – Present

- Built four production-grade systems solo (see Projects): e-commerce, Nordic PWA, management system, embedded display.
- Developed a custom AI agent workflow — specialized agents, custom tooling, adversarial review — delivering small-team output as a solo developer.
- Completed advanced C++ / embedded training (YH Akademin course).
- Maintained employment outside IT while relocating and completing the transition to the Swedish market.

Freelance Software Engineer — Abagas Toledo (remote, Chile)

Aug – Dec 2024

- Delivered a purchase order, inventory, and sales management system for an appliance sales & repair company — replaced manual workflows with a centralized system.
- NestJS · Angular · PostgreSQL · Docker. Public sanitized edition: ManageRepairStore (see Projects).

Technical Staff (Contractor) — Universidad de Valparaíso, Chile

Jan 2022 – Jan 2024

- Optimized a real-time C++ signal-processing pipeline for a biomedical ultrasound device (cortical bone assessment).
- Implemented the Sparse Multimode Disperse Radon Transform; improved parameter estimation time and device reproducibility.
- Co-authored two IEEE publications from this line of work (LAUS 2021 · IUS 2023 — see Publications).

Software Engineer (Part-time) — Ciberaula, Spain

Oct 2018 – Dec 2021

- Built and maintained full-stack web solutions for an e-learning platform serving thousands of students.
- Led a complete server migration and CMS overhaul, improving performance and SEO visibility.
- Developed custom e-commerce integrations; authored user manuals and technical documentation.

■ PUBLICATIONS

[1] C. Araya, **A. Martínez**, et al. — "Real Time Waveguide Parameter Estimation Using Sparse Multimode Disperse Radon Transform." IEEE UFFC Latin America Ultrasonics Symposium (LAUS), 2021. doi:[10.1109/LAUS53676.2021.9639171](https://doi.org/10.1109/LAUS53676.2021.9639171)

[2] F. Rojo, **A. Martínez**, et al. — "Classification of Hip Fragility Fractures in Older Adults Using an Ultrasonic Device." IEEE International Ultrasonics Symposium (IUS), 2023. doi:[10.1109/IUS51837.2023.10307317](https://doi.org/10.1109/IUS51837.2023.10307317)

■ EDUCATION

B.Sc. in Computer Science

Universidad de Valparaíso, Chile · Mar 2015 – Dec 2018

Thesis: real-time C++ optimization of a biomedical ultrasound prototype — supervised by Prof. Jean-Gabriel Minonzio; work published at IEEE (see Publications).

■ LANGUAGES

Spanish — native · **English** — professional working · **Swedish** — beginner