Lorenzo Wynberg

Senior Software Engineer · Systems-minded product engineer · AI agent orchestration

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SUMMARY

Building software professionally since 2012. I think in systems: when I hit a problem, I build the thing that solves the whole class of it, then ship with it. In the last 18 months that meant four products designed and built end to end, alone: Trinity, a system where a team and its AI agents plan, build and ship whole releases; a suite of pro audio plugins with DSP written from scratch in C++; a logistics platform with automatic dispatch; and an end-to-end-encrypted, offline-first bookkeeping app built for Latin America, Spain and Portugal. I work by investigation: when something's uncertain I write the probe, measure it, and design from what I find. I direct AI agents the way a lead directs a team, and build the pipelines, gates and written rules that make the work repeatable and trustworthy. I stay close to the field and move fast (all of Trinity moved to Effect 4 three days after its stable release), and build my own tools, like a public plugin marketplace for Claude Code and Codex.

EXPERIENCE

Founder & Sole Engineer · Independent

Mar 2025 – Present

Costa Rica (remote) · Four products designed, built and shipped solo

Trinity — Agentic development environment (ADE)

Jan 2026 – Present

Public beta · v0.7 live · trinityailabs.com

One place where a team builds, maintains and improves its products with AI. Everything runs on releases: it plans them as releases → epics → stories, runs several at once (features, hotfixes, maintenance lines, release candidates) in isolated git worktrees, merges only on green CI, and tags and publishes each release for you.

- Designed a hierarchy of specialized agent threads: an Architect that plans each release and tracks the releases it depends on, a release agent that follows the plan, runs six release checks as sub-agents with explained verdicts and triages failed stories, and a foreman per story that runs analyst → implementer → auditor → documenter. Teammates (designers included) and agents work in the same threads, agents message each other about overlapping files, and everything waiting on a person lands in one Needs you list.
- Built tiered autonomy from Supervised to Unattended: every agent runs fenced in a sandbox, and unattended stories have their own agent grant or deny access requests against the story's spec and plan, while secrets and whole-fence requests always escalate to a person, each grant is logged and revocable, and releases stop at spend and time limits.
- Built the parallel execution engine and review: per-story git worktrees across repos, merges only on green CI through conflicts and partial failures, 14 reviewer types across Claude and Codex, and a judge with its own jury, called with @judge, that researches and weighs options head-to-head.
- Architected a Tauri v2 desktop app (SolidJS, Effect 4), a Next.js 16 control plane and real-time sync over Cloudflare Durable Objects; release management for the projects it ships, with maintenance lines, release candidates and npm/crates.io publishing behind an approval preview.
- Shipped 30+ versions since April 2026, ~800k lines of TypeScript and ~4,300 test files, built solo. Its latest round of test projects, complex setups and release scenarios built and shipped entirely through Trinity, produced 450+ commits, 230+ PRs and 74 version tags across seven repos, monorepos with per-package release candidates included.

Ozner Audio — Pro audio plugins · C++ / JUCE

Sep 2026 – Present

Live · v1.0 · ozneraudio.com

A semi-modular analog mono synth (Sweet Berta), a rack that chains up to 64 effect units with its own standalone audio-interface mode (OA Effects), and every effect unit as its own pedal plugin. AU, VST3, LV2 and standalone on macOS, Windows and Linux, plus the store, licensing and installer around them.

- Wrote the DSP from scratch in a header-only, framework-free library: 2/4/8× oversampling with latency reported to the host, first- and second-order antiderivative antialiasing (including a delay-compensated stage inside a nonlinear ladder filter's feedback loop), PolyBLEP oscillators and an oversampled spring reverb.
- Architected one plugin shell shared by 39 effect units and three products, with React panels in native WebViews and a lock-free triple buffer between UI and audio threads.
- Turned taste into a tool: set the bank's targets by ear and research, then built the measurement that encodes them (an offline level binary reading sample/true peak and BS.1770 loudness, every macro pushed alone and together, sharded across machines), so agents can design new presets that fit and prove it. Aliasing, pluginval and soak runs gate releases.

- Shipped the commercial pipeline: notarized macOS pkg, Windows and Linux packages, licence signing, a store and a licence manager. Cost-aware CI routes each job to my own Mac, Windows and Linux machines first, queues on them when busy, and pays for cloud runners only when all are offline. ~170k lines of C++.

Mandados — Errand & delivery platform — Mar 2025 – Present

Pre-launch

Errands, shopping and courier work in Costa Rica for individuals, hotels and businesses, run by salaried drivers.

- Built the full product: Laravel 12 / PostGIS API, Next.js admin, React Native client and driver apps (iOS, Android and web), real-time updates via Reverb and push via FCM; ~8,900 tests.
- Designed automatic dispatch as bin-packing: feasibility checks, driver ranking by distance rings, insertion simulation within time windows, and cascading re-dispatch when a window overflows.
- Built the payments lifecycle behind a provider contract: saved cards, reconciling quote vs. actual route into automatic surcharge or refund, and debt collection.

Kuentas Online — End-to-end-encrypted bookkeeping — Oct 2026 – Present

Live · v1.11 · kuentas.online

Phone-first bookkeeping for small businesses across Latin America, Spain and Portugal, in Spanish, Portuguese and English (sales, stock, debts, loans); the server only ever sees ciphertext.

- Designed the cryptographic protocol on libsodium/WebCrypto (X25519, Ed25519, XChaCha20-Poly1305, Argon2id): a hash-chained commit log devices refuse to fork, a signed role roster from a pinned genesis hash, and per-role compartments the server can withhold; revoking a member forces key rotation.
- Any home currency, with live rates from central banks and local sources (ECB, Brazil's PTAX, Argentina's and Venezuela's parallel rates); offline-first on encrypted SQLite in WASM. Shipped 1.0 two weeks after the first commit; ~3,000 tests.

Team Lead & Lead Developer · Broccoli Studios · Costa Rica — 2020 – 2026

SABER — Ministerio de Educación Pública (MEP) — 2023 – 2026

Led Broccoli's team on Costa Rica's national education platform for 1M+ students and educators (React/TS, C#/.NET).

- Team lead and lead developer for a cross-functional team of 5–6 (developers, designers, technical writers): planning, code review, mentoring and production releases.
- Single point of contact with the ministry, end to end: requirements with MEP leadership and analysts, specifications and API contracts, test scenarios and acceptance testing, deliverables and sign-off. Owned the documentation suite and authored much of it (specs, user manuals, release notes).
- Delivered 8+ major modules, including a SurveyJS forms engine with versioning and snapshots that replaced paper workflows, and hierarchical permissions across national, regional and institutional levels.

Client work

- Led client projects in React, Laravel and WordPress from architecture to deployment; ran hosting, DNS, caching and CI/CD. Published laravel-to-i18next, an open-source Laravel package.

Career break — Family caregiving — 2016 – 2020

- Primary caregiver for a parent, alongside small freelance web projects. Kept learning throughout: picked up modern JavaScript and React and studied software design and architecture patterns in depth.

Full-Stack Developer · NurseRecruiter · United States (remote) — 2012 – 2016

- Proposed replacing the company's in-house PHP framework with Laravel, then rewrote the entire platform with the lead developer as a two-person team: accounts, job posting, recruiter dashboards, resume management, search and messaging.
- Rebuilt the matching system at the core of the platform: algorithms pairing nurses with hospitals and recruiters by location, job type, specialty and more, with schemas and queries redesigned to keep it fast. Worked directly with the founders on architecture and product.

SKILLS

Languages & frameworks: TypeScript, C++, PHP, C#, Rust, SQL · React, Next.js, SolidJS, React Native, Effect, Laravel, JUCE

Data & infrastructure: PostgreSQL/PostGIS, SQLite/libSQL/Turso, Drizzle, WebSockets · Vercel, Cloudflare Workers/Durable Objects/R2, GitHub Actions, Docker, code signing & notarization

Specialties: Multi-agent orchestration · applied cryptography & E2E sync · real-time DSP & audio plugins · Bitcoin protocol design (BAP white paper)

Writing: 22 engineering posts on agent orchestration, encryption, testing, performance and architecture · trinityailabs.com/blog