

Jonatán Cubillos Rojas

Software Engineer · Distributed Systems & Machine Learning · Go · Python · C++ · PyTorch

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PROFILE

Software and infrastructure engineer with **16 years of experience**. I build backend and distributed systems in **Go and C++** and I ship them: co-founder and CTO of a company whose **ERP product was adopted by ~25 companies**, and today author of my own ERP in Go with **two customers in production**. Eight years of R&D on the compute, networking and data layers of a cloud platform (QEMU/KVM, overlay networking, CockroachDB/TiDB, gRPC). Now moving into **machine learning**: models trained from scratch, attention written by hand to match PyTorch, and an LLM assistant with guardrails and an evaluation bank inside a real product.

EXPERIENCE

Independent Software Engineer — Backend, Cloud & ML Systems

Freelance and own products · Paraguay (remote) · 2026 – present

- Built the **backend of an investor-onboarding platform** (KYC, document custody, GDPR data-subject rights) for an investment firm serving European clients: Go, gRPC, PostgreSQL on **GCP** (Cloud Run, Cloud SQL) with **KMS envelope encryption**, TOTP 2FA, four-eyes approvals and OpenTelemetry — delivered in ~4 weeks.
- Author of **chipa**, an ERP in Go (gRPC + Envoy, CockroachDB, Next.js) with **two customers in production**: 700+ Go tests, end-to-end suites, CI. Includes an **LLM assistant** with ten tools, a control leash, a per-question audit ledger, hard spend caps and a **27-case evaluation bank against three models**.
- Machine learning, hands-on**: CNN image classifier trained from scratch on a self-captured dataset (baseline measured first, time-based split); **multi-head attention written by hand, verified identical to PyTorch's**; **DQN agent** on Atari Pong (ALE); model served over FastAPI with a parity check against the training script.

R&D Engineer — Cloud Infrastructure & Distributed Systems

Cortical.com Inc. · ipcore Datacenters S.L. · def.com — USA / Spain · 2018 – 2026

- Provider-side cloud R&D**: the layer that creates VMs and their networks (virtualization, SDN, distributed systems).
- Developed the **high-performance systems layer** with concurrency and multithreading (Go, C++) on top of distributed data engines (CockroachDB, TiDB, PostgreSQL, SQLite); ported OVN's northd control-plane logic from C to Go.
- Built a **QEMU/KVM virtualization stack** with CPU/GPU passthrough, **40G overlay networking with hardware offloading** (OVN / Open vSwitch, SR-IOV, NVIDIA BlueField-2 DPUs) and a **Layer 3 network with BGP routing**.
- Benchmarked **self-hosted LLM inference** on in-house NVIDIA GPUs (llama.cpp, hybrid GPU/RAM): memory bandwidth was the limiting factor.

Co-founder · CTO · Senior Backend Developer

Tavatech S.A. · Paraguay · 2016 – 2018

- Co-founded a Paraguayan **technology and IT consulting company**, leading the technical area as CTO.
- Designed and commercialized an **ERP product (Java / Spring)**, adopted by **~25 client companies**; delivered projects for SMBs and large enterprises, including **Unilever Paraguay**.

Developer

RAN Networks S.L. · Spain · 2010 – 2016

- Developed software on Windows / Linux stacks in PHP, C# and C, taking on increasingly complex projects.

TECHNICAL STACK

Languages: Go, Python, C, C++, Java, Bash, PHP

Concurrency / Systems: Go concurrency (goroutines, channels), multithreading, high performance, low-level C/C++

Machine learning: PyTorch, NumPy, convolutional vision models, attention (implemented by hand), deep Q-learning, model serving and evaluation (FastAPI)

LLM systems: tool-using assistants (guardrails, audit ledger, spend caps), LLM evaluation banks, self-hosted inference (llama.cpp, GGUF, hybrid GPU/RAM) on NVIDIA GPUs

Cloud / Infra: QEMU/KVM virtualization (CPU/GPU passthrough), overlay networking, Docker / Compose, Kubernetes (deploying and operating workloads), GCP (Cloud Run, Cloud SQL, KMS, Cloud Build), advanced Linux

Data / RPC: CockroachDB, TiDB, PostgreSQL, SQLite · gRPC, protobuf, FastCGI, Envoy

Networking: Layer 2 / Layer 3, BGP, OVN / Open vSwitch, SR-IOV, NVIDIA DPUs

Security: HashiCorp Vault / OpenBao, KMS envelope encryption, TOTP 2FA, TLS/PKI, GDPR data-subject rights

Observability: OpenTelemetry (traces, metrics, logs), Jaeger

EDUCATION & CERTIFICATIONS

BSc in Computer Science — Universidad Americana (in progress, graduation stage)

Computer Engineering — Facultad Politécnica, UNA (transferred credits)

Certified Programmer — SNPP (Ministry of Justice and Labor): Visual Basic (2006), Visual Fox (2007) · Volunteer instructor, Tenonderã Project, UNA (2009–2010) · Attendee, CLEI 2010.