

Carlos Cruz

Founder & AI Systems Builder · Civil Engineer

info@cqemprendimientos.com · Asunción, Paraguay · Remote · dev.cqemprendimientos.com

PROFILE

Civil engineer and founder. I design, build and operate AI systems in production for real operations, connecting the physical world — construction sites, public tenders, a travel agency — with software. I work with the people who use each system and own every stage, from the first conversation to day-to-day support. One rule runs through all of them: the model reads and reasons; deterministic software decides anything that has consequences. I built my career in my own company and products, so the authorship and the operational responsibility are mine.

PRODUCTS I BUILT AND OPERATE

LICITEX — Public-tender analysis · used inside CQ, controlled deployment

Public-tender analysis, used inside CQ on real procurement files. An LLM reads the tender documents and matches every requirement against the company profile; a deterministic rules engine makes the final decision and the model cannot override it. A person launches every analysis.

NUVIA — The operations system of Go! Travel, an external client · in production

The operations system of Go! Travel, a travel and destination-wedding agency: passengers, events, payments and WhatsApp conversations in one place, on the official WhatsApp Cloud API. An LLM classifies inbound messages, and an internal assistant answers queries about operational data, with every tool bound to the user's screen permissions.

CONTROLIA — Construction-site control · in production at CQ Ingeniería

Construction-site control, in production at CQ Ingeniería's own sites. An AI supervisor inspects twice per working day, reads site photos with vision and cross-checks them against the daily report, the bill of quantities and the contract documents. Anything knowable with SQL is resolved without AI; the model can lower an alert but never create one.

ADDITIONAL SELECTED PROJECTS

Go! Travel Weddings: Destination-wedding website built for Go! Travel, an external CQ client. Brings together destinations, hotels, galleries and WhatsApp enquiries to help visitors explore the agency's offer. Published. This commercial website is separate from NUVIA, the same agency's operations system; no technical integration between them is claimed.

CQ TRINIT: Own CQ product for tax, accounting and financial management with an AI assistant. Implements clients and service concepts, PYG invoices and credit notes, VAT and discounts, atomic numbering, synthetic XML signing and XSD validation, test PDF/QR, audit and sandbox receivables. Private pilot and isolated demo in fiscal simulation. The SIFEN TEST adapter is prepared but disconnected from the fiscal pipeline; official tests, authorisation/homologation and production issuance are pending.

EXPERIENCE

Founder — CQ Empreimientos — software and AI products · 2021 – Present · Asunción, Paraguay

- I design, build, deploy and operate the products above, and I support the people who use them.
- I turn an operation into software by working directly with its users — site foremen, an agency team — and taking their feedback into production.

Founder, Director and Legal Representative — CQ Ingeniería SRL — construction · 2013 – Present · Asunción, Paraguay

- Civil engineer. More than ten years directing construction works, including works for public institutions: teams, clients and public-works contracts.
- LICITEX and CONTROLIA come from that first-hand knowledge of tenders and job sites.

TECHNICAL DEPTH

In production

Delivery: Docker containers with healthchecks on Linux servers I run myself. CI on GitHub Actions (tests, secret scanning, image build); images published to GHCR by commit SHA and deployed pinned by immutable digest through a self-hosted Coolify control plane, with pre-deploy database backup, health and smoke checks and automatic rollback to the previous image.

Queues and jobs: A central job queue with dedicated workers, one exclusive lock per job so two runs never overlap, idempotency keys and reconcilers.

Azure burst: Heavy render jobs overflow from that queue to ephemeral Azure Container Instances workers — same image digest, pulled from Azure Container Registry — with local fallback.

LLM engineering: Agents and tool calling, vision on photos and documents, closed-schema outputs with bounded retries, provider-agnostic adapters and per-call cost accounting.

Stack: Python, Node.js, SQL · PostgreSQL, SQLite · REST APIs, webhooks, WhatsApp Cloud API · Playwright and the Chrome DevTools Protocol · Linux, nginx, systemd.

Built and evaluated

RAG retrieval: On LICITEX: parsing and OCR, structured chunking, local embeddings, BM25 (SQLite FTS5) and exact vector search fused with Reciprocal Rank Fusion, citation grounding, and evaluation against gold sets (Recall@K, MRR). The customer-facing generation stage is not deployed.

ADDITIONAL CAPABILITY — AI AUDIOVISUAL PRODUCTION (TRAMIA)

My own end-to-end pipeline — script, scenes, voice, image, video and render — orchestrating 8 generative-AI providers with the cost of every call accounted for.

OTHER SYSTEMS · PUBLIC CODE

Public code: github.com/carlicruzq/agent-ai-production-sample — an LLM agent in Node.js with scoped tools, a closed output schema, verified evidence and a decision gate; 56 tests.

EDUCATION · LANGUAGES · AVAILABILITY

Education: Civil Engineering — Universidad Católica Nuestra Señora de la Asunción (UCA), 2012.

Languages: Spanish: Native. English: Basic — currently improving. Portuguese: Advanced.

Availability: Open to senior contractor engagements and flexible, asynchronous part-time work up to 30 hours per week; selective remote full-time opportunities considered. Start date to be agreed.