

Luis San Martin

Computer Vision Engineer · Software Developer

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PROFILE

I train and deploy **computer vision models** on cameras in real operation, and build the data systems and **agents** that report unattended. Over three years with software in production, working directly with the owner of each operation.

EXPERIENCE

Software Developer — *Distribuidora El Maravilloso*

Nov 2025 – Present · Concepcion, Chile

- Integrated the point-of-sale system — Firebird, **no API** — into cloud PostgreSQL: today **11,900 sales and 40,000 product lines**, ~78 per day.
- **Unattended ETL** that pulls tax documents from the national tax authority portal and computes the monthly tax indicators: **305 purchase invoices** imported and classified across 87 suppliers.
- **Data quality control**: cross-checking three sources — tax documents, electronic payments and point-of-sale records — to detect duplicated income and till mismatches: **283 alerts** raised without altering the client's figures.
- **Agents in operation** over WhatsApp and Telegram: sales close, tax indicators and threshold alerts, with a **custom intent classifier** that avoids depending on an external API.
- Real-time reporting and monthly executive report. Diagnosed and fixed **data integrity incidents in production** — record loss, clock drift — recovering the data.

Stack: Python · SQL · PostgreSQL · Firebird · JavaScript · Linux · scheduled jobs · Langfuse / OpenTelemetry on the AI routes

Software Developer — *LetsFit Company* · independent engagement

Feb 2023 – Present · Remote

- Migrated the business off their commercial platform — **~170 active members** —: extracted the full database by **web scraping** and moved clients and history with no loss.
- Designed the **PostgreSQL** schema: multi-site with row-level security and versioned migrations, for **2 locations**.
- Built the admin panel and its reporting: attendance, occupancy by site and time slot, revenue, and commission settlement for **14 professionals** across a 768-session schedule.

Stack: PostgreSQL · SQL · Python · TypeScript

Computer Vision Engineer — *St. Andrews · Mussels Chiloe*

Jun 2024 – Jul 2025 · Puerto Montt, Chile

- Multi-camera **detection, classification and counting** system across **3 packing stations** on a line handling **13,000 kg per day**, at the world's largest mussel producer.
- **Multi-object tracking (SORT)** to hold each package's identifier across frames and prevent double counting when the belt stops or an operator reaches in.
- **Larvae counting model** that cut manual analysis from **45 minutes to seconds**: 696 individuals in 2.93 s at 85% accuracy, trained on a **custom dataset annotated inside the plant**.
- Robust to changing lighting and wet surfaces. **Ran a full season with no manual intervention**, with inference on the plant's own machines.

Stack: Python · PyTorch · YOLOv8 · OpenCV · SORT · RTSP over IP cameras

Helmet detection on an embedded camera — Ewood · electric mobility2026

— Fine-tuned YOLOv8 to 3 classes (scooter, helmet, no-helmet) over 12,321 images and 80 epochs: mAP@50 of 85.5%, precision 85.0% and recall 80.9%.

— Live inference at 9.6 frames per second on an embedded XIAO ESP32-S3 Sense camera, not a CCTV camera: the constraint was that the hardware had to be mountable on the scooter itself.

Stack: PyTorch · YOLOv8 · OpenCV · Python · ESP32-S3

Retail footfall analytics — with client, in productionFeb 2026 — Present

— Entry and exit counting on the CCTV cameras the store already had, cumulative traffic heatmaps and configurable line-crossing alerts, with no additional hardware.

Stack: Python · YOLOv8 · OpenCV

Personal protective equipment (PPE) detection — final-year project2026 — ongoing

— Detection of helmets, vests and other PPE on industrial sites. The core contribution is the custom dataset annotated on a real work site, rather than public banks that do not represent actual working conditions.

Stack: PyTorch · YOLOv8

TECHNICAL SKILLS

Computer vision	PyTorch · YOLOv8 · OpenCV · object detection and classification · multi-object tracking (SORT) · fine-tuning · custom datasets annotated in the field · real-time inference
Training & deployment	Cloud training (Colab) · on-premise inference on the client's GPU · edge (ESP32-S3) · RTSP · evaluation by mAP, precision and recall
Agents & generative AI	Conversational agents on WhatsApp and Telegram · LLM APIs (Groq, Anthropic) · intent classification · custom n-gram classifier with no API · LLM observability with Langfuse and OpenTelemetry
Languages	Python · SQL · TypeScript / JavaScript
Data & reporting	PostgreSQL (modelling, versioned migrations, row-level security) · Firebird · SQLite · ETL with no API · web scraping · dashboards · threshold alerts
Infrastructure	Linux · Docker · Git · GitHub Actions · cloud servers · scheduled jobs and monitoring

EDUCATION

Automation Engineering — Universidad del Bio-BioGraduated 2024 · Degree completion 2026

LanguagesSpanish (native) · English (technical reading)

AvailabilityImmediate · Concepcion, Chile — remote or hybrid

Case studies with images and metrics at sanmaglass.github.io. Repositories are private as they hold client production code; available for review under agreement.