

Martín Cogo Belver

Computer Science Degree

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Experience

Mind Colab, Computer Science Engineer

July 2024 – present

1 year 7 months

Designed and implemented a real-time inference engine built on GStreamer pipelines, capable of processing up to 6 parallel RTSP streams at 720p and 25 FPS, maintaining frame drop below 1% under load. The system follows a multi-process architecture with shared-memory IPC to minimize unnecessary copies and reduce end-to-end latency.

- **Flow control:** Implemented backpressure handling using GStreamer queues to sustain stable throughput under concurrent load.
- **Acceleration stack:** GPU-based implementation leveraging NVIDIA DeepStream, NVMM buffers, CUDA kernels (Numba), and CUDA-enabled OpenCV for preprocessing.
- **Inference optimization:** Executed YOLO/PyTorch models with frames kept predominantly on GPU, reducing CPU↔GPU transfer overhead.
- **Lifecycle & operations:** Supported controlled restarts, hot configuration reloads via a custom DSL, and graceful shutdowns in 24/7 environments.
- **Observability:** Measured per-stage pipeline latency and monitored GPU, VRAM, RAM, and CPU utilization under sustained load.
- **Technical impact:** Migrated from a CPU-bound solution to GPU acceleration, enabling real-time stream retransmission where it was previously not feasible.
- [View Project](#)

Municipality of Godoy Cruz, Web Developer

June 2025 – present

8 months

Developed an internal web interface for chatting with an LLM to enable semantic querying of municipal regulations.

- **Frontend stack:** React, Tailwind CSS, Bun.
- [View Project](#)

Klari Inc., Data Scientist

Jan 2025 – Feb 2025

2 months

Designed and implemented a semantic analysis system for conversations generated by an LLM-based chatbot, aimed at extracting thematic patterns and producing actionable reports on user behavior and interaction quality.

- **NLP pipeline:** Semantic representation of conversations using embeddings.
- **Thematic analysis:** Unsupervised clustering to extract conversational patterns.

CICDa Research Group, Thesis Research

Jan 2024 – Jan 2025

1 year 1 month

Conducted publication-oriented research focused on satellite image segmentation for post-disaster building damage detection and estimation, using temporal image comparison and Siamese deep learning architectures.

- **xBD dataset:** Trained on ~2,400 VHR satellite images for Building Damage Assessment tasks.
- **End-to-end pipeline:** Preprocessing, training, inference, and post-processing for semantic segmentation and multitemporal structural change detection.
- **Computer vision modeling:** Trained deep learning models for post-disaster building semantic segmentation.
- **Experimental evaluation:** Quantitative analysis using classification and segmentation metrics (Precision, Recall, F1-score).
- **Compute:** Training executed on a High Performance Computing cluster with NVIDIA Tesla V100 GPUs.
- [View Project](#)

Education

National University of Cuyo, Bachelor of Computer Science

2020 – 2024

Technical Skills

Programming Languages: Python, JavaScript, C/C++

AI & ML: PyTorch, TensorFlow, Scikit-learn

Vision & Data: OpenCV, CUDA, GStreamer, NVIDIA DeepStream, Pandas, NumPy

Tools: Docker, Linux, Git, FastAPI, Bun, React, Tailwind

Achievements and Languages

- Highest GPA (8.7 on a ten-point scale) in the Computer Science program, Class of 2024.
- Ranked among the top 15 engineering students at UNCUIYO (2024), based on academic GPA.
- English: Upper-Intermediate (B2), Cambridge certified.