Jose Antonio García

ML Engineer

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PROFESSIONAL SUMMARY

ML Engineer with expertise in developing and deploying AI systems across the full ML lifecycle. Experienced in Deep Learning, Computer Vision, and multimodal semantic search, with a focus on building reliable, scalable, and efficient solutions. Skilled at bridging research and production in multidisciplinary environments, and passionate about applying cutting-edge AI to critical domains with real-world impact.

CORE COMPETENCIES

- **Programming:** Python, Bash
- **Computer Vision:** Image processing pipelines, feature extraction, visual data handling
- **Search & Retrieval:** Embedding-based search, ranking & reranking, vector databases (pgvector, ClickHouse), RAG
- **Machine Learning:** Model training, evaluation and deployment · PyTorch, TensorFlow · Self-Supervised Learning (SSL)
- **Backend & Systems:** API development with FastAPI
- **MLOps:** Docker, MLflow, data pipelines, production monitoring
- **Databases & Tools:** PostgreSQL, Redis, Celery
- **Languages:** Spanish (native), English (professional), German (basic)

PROFESSIONAL EXPERIENCE

Machine Learning Engineer | 2022-Current

Marine Technology Centre (CTN)

- **Compound.ai:** Developed and trained deep learning models for fish detection, counting and tracking in challenging visual underwater environments. Deployed models into production (edge) using MLflow and built an automatic self-validation system using Kolmogorov–Smirnov test to guarantee model quality in production.
- **Embedding-based visual retrieval:** Led the design and deployment of a semantic search engine for over 50K corporate images stored in SharePoint. Leveraged LongCLIP embeddings, pgvector, and cross-encoders for reranking, supported by an automated ETL pipeline using the Microsoft Graph API. The system was GPU-accelerated and containerized with Docker, enabling real-time updates based on image changes. It also incorporated face detection capabilities to accurately filter images based on the people appearing in them.
- **Sound Classification:** Lead the design and development of classification DL models for the european comission in ECoSS project. Fine tuned vision architectures such as Dynamic MobileNet and Vision Transformer to achieve underwater sound classifiers and deployed optimized versions for the project.
- **Phising detector:** Deployed open source LLMs with Ollama to filter the emails quarantined by error by Microsoft Defender. Saved hours of repetitive work each day.

SIDE PROJECTS

- **Football analysis:** Used object detection (fine-tuned YOLOv11), multi-object tracking (ByteTrack), and embedding-based clustering (SigLIP 2 + UMAP + KMeans) to analyze player dynamics.
- **DL from scratch:** Implement DL modules or architectures I find interesting from scratch so that people can use them or learn how they work (https://github.com/JoseGG5/dl_models).
- **YouTube Channel:** Spanish-language content on Deep Learning and SW concepts

EDUCATION

Open University of Catalonia | 2023-2025

Master of Science in Data Science

- GPA: 9.22 out of 10. Masters thesis related to automatic data curation and SSL training

Polytechnic University of Cartagena | 2018-2022

Bachelor of Science in Telecommunications Engineering

- GPA: 7.8 out of 10