Alonso Jiménez Flores

Computer Engineer & Researcher

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PROFESSIONAL SUMMARY

Computer Engineer specialising in **machine learning and computer vision**, currently working as a Research Technician at the Service Robotics Lab (Universidad Pablo de Olavide). Building ML pipelines for **real-world industrial inspection**, combining object detection and anomaly detection in production and research environments. Experienced across supervised, unsupervised, and reinforcement learning, with a background in data analysis and full-stack engineering. Native Spanish speaker and C2 English (Cambridge).

PROFESSIONAL EXPERIENCE

Research Technician – AI/ML & Software Engineer – Service Robotics Lab Jun 2026 – Present

Universidad Pablo de Olavide | Seville, Spain

- Trained and benchmarked YOLO and RF-DETR **supervised object detectors** and PatchCore, PaDiM, EfficientAD, and AnomalyDINO **anomaly-detection methods** on **thousands of thermal UAV images** for automated renewable energy plant inspection.
- Led dataset curation and annotation review, augmentation, hyperparameter tuning, and model evaluation across multiple defect categories.
- Achieved **over 90% mAP@50, over 70% mAP@50:95, and over 90% recall** in supervised defect detection.
- Designed and built an **end-to-end industrial inspection platform** with FastAPI, PostgreSQL, Redis/RQ, Next.js, and Docker Compose, integrating asynchronous jobs and GPU-accelerated inference for **automated large-scale dataset processing** and incident review.

Undergraduate Research Assistant – Service Robotics Lab Mar 2026 – May 2026

Universidad Pablo de Olavide | Seville, Spain

- Contributed to initial **YOLO and PatchCore model training**, image annotation in Roboflow, and early development of the **full-stack inspection platform** (FastAPI, Next.js, Docker).

EDUCATION

Master's Degree in Computer Engineering – Artificial Intelligence and Data Science Sep 2026 – Present

University of Málaga | Málaga, Spain

Bachelor's Degree in Computer Engineering – Information Systems Sep 2022 – Jun 2026

Universidad Pablo de Olavide | Seville, Spain

Bachelor's Thesis: 10/10 (Distinction) · *Machine Learning and Computer Vision-Based System for Renewable Energy Plant Inspection*.

PROJECTS

SlimeAI PyTorch · Stable-Baselines3 · Gymnasium · Flask

- Interactive reinforcement learning demo with agents trained via **PPO self-play** in a custom Gymnasium environment with **real-time Socket.IO visualisation** (live demo).

IberGrid Python · FastAPI · Next.js · PostgreSQL · LightGBM · Docker

- Forecasts hourly PVPC electricity prices in mainland Spain for the **next three days** using LightGBM and recommends the cheapest **2- or 4-hour window**, with a FastAPI backend and an interface in English and Spanish.

Snake++ C++ · SDL3

- Snake game built from scratch in C++ using SDL3 for rendering and **procedurally synthesised audio**, with a **custom fixed-timestep game loop** and no engine dependencies.

RayBot C++ · raylib

- 2D robot simulation in C++ and raylib where the robot senses nearby walls through **ray-casting** and **navigates autonomously** toward a target.

More projects and experiments available at github.com/chuckinvictus and alonsojimenez.is-a.dev.

TECHNICAL SKILLS

Machine Learning	PyTorch, TensorFlow, scikit-learn, OpenCV, object detection, anomaly detection, reinforcement learning
Data & Experimentation	Pandas, NumPy, SciPy, Matplotlib, Seaborn, Spark, Kafka, MLflow, Roboflow
Backend	FastAPI, Flask, Express, Django, Redis/RQ, Docker, REST APIs
Frontend	Next.js, React, Laravel
Databases	PostgreSQL, Oracle SQL, MongoDB, Firebase
Programming	Python, C, C++, TypeScript, Java, SQL
Tools	Git, GitHub, CMake

LANGUAGES

Spanish: Native

English: C2 (CEFR) – Certificate of Proficiency in English (Cambridge English C2 Proficiency), Sep 2025