

Jesús Samuel García Carballo

AI & Software Engineer

Python/C++ · Applied AI · Reliable Software · Optimization

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Profile

Computer Engineer and Mathematician with an MSc in Artificial Intelligence and research experience at UPM. Build Python/C++ systems spanning evidence-grounded AI, document processing, optimization and quantitative research. Focus on testable implementations, traceable results and explicit failure cases.

Experience

Researcher (R1), Computational Intelligence Group (CIG)

Feb 2026 – Jul 2026

Universidad Politécnica de Madrid, Department of Artificial Intelligence

- Designed and implemented **ADR-EDA**, a Python controller that adapts reuse of inherited probabilistic models in dynamic multiobjective optimization.
- Evaluated methods across 14 dynamic benchmark problems and 15 independent seeds, reporting solution quality, statistical comparisons, recovery behavior and runtime trade-offs.
- Studied shared-mobility policies in simulation, balancing service quality, relocation effort and frequency of reoptimization; results are simulation-based, not deployments.

Selected Engineering Projects

JobLens 2.0 | Evidence-grounded CV tailoring

2026

Integrated local release candidate; newer capabilities not yet available in the public demo

- Developed a local Python/web workflow for extracting evidence from up to five PDF/DOCX CVs, reconciling profiles with human approval, and generating editable job-tailored CV drafts with PDF/DOCX export.
- Preserved document-level provenance and fact-review boundaries; recorded release verification: 556 Python tests, 109 UI tests and 20 evaluation scenarios (one expected error).

FinRAG | Local financial document question answering

2026

- Implemented PDF ingestion, lexical and embedding retrieval, multi-query fusion, source-linked citations and optional local LLM generation in a Python application.
- Evaluated retrieval with separate pilot and holdout sets; documented performance limitations and distinguished retrieval hit rate from answer correctness.

QuantLab | Reproducible quantitative research

2026

- Built a modular Python backtesting workflow with next-session execution, transaction costs, exposure-matched controls and robustness checks to limit look-ahead and misleading comparisons.

Education

MSc in Artificial Intelligence, Universidad Politécnica de Madrid

Sep 2025 – Jul 2026

Master's thesis graded 10/10; dynamic optimization and probabilistic modelling. **BSc in Computer Engineering and**

BSc in Mathematics, Universidad de Granada

2020 – 2025

Five-year double degree in software engineering, algorithms, statistics and mathematical methods.

Publication

ADR-EDA: A Reliability-Aware Controller for Dynamic Multiobjective Estimation of Distribution Algorithms. Accepted at CAEPIA 2026 for Springer LNAI proceedings.

Technical Skills

Languages: Python, C++, SQL. **AI/Data:** PyTorch, scikit-learn, NumPy, pandas, SciPy, RAG, retrieval evaluation.

Engineering: Git, Docker, pytest, FastAPI, automated testing, reproducible experiments.

Spoken languages: Spanish (native); English (working proficiency).