Diogo Paixão

www.linkedin.com/in/diogopaixão | github.com/DmcpEI

Education

Instituto Superior Técnico (IST) — Lisbon, Portugal
Master of Science in Artificial Intelligence and Data Science (Final Average: 16/20) — *Sept. 2024 – Oct. 2026*

- **Thesis (18/20)**: Robotic Grocery Bagging: Structured Perception for Packing-Relevant Inventory Generation. A detector (synthetic training scenes) plus product catalog gave a fully correct record for 89% of 1,345 objects in 150 real scenes vs 58% for a LoRA fine-tuned Qwen3-VL-32B; on a Baxter robot, 95.2% of chosen objects placed (60 trials).
- **Relevant Coursework**: Deep Learning, Autonomous Agents, Cloud Computing, Introduction to Robotics, Data Science.

University of Madeira (UMa) — Funchal, Portugal
Bachelor of Science in Computer Science (Final Grade: 16/20) — *Sept. 2021 – June 2024*

- **Erasmus Exchange**: University of Maribor, Slovenia. Focused on IS Architectures and Interoperability.
- **Relevant Coursework**: Software Engineering, Artificial Intelligence, Data Science, Networks and Data Communication.

Publications

J. Silvestrin, **D. Paixão**, N. F. Duarte, M. Lopes, "Risk-Aware End-to-End Approach to Packaging Daily Objects," *submitted to the IEEE International Conference on Robotics and Automation (ICRA 2027)*, under review.

Experience

AI/ML Engineer Intern, then Freelance AI Engineer — June – Aug. 2026; Oct. 2026 – Present
Artiquare — *Germany (Remote)*

- Built a **Jira Audit** tool that ingests **CSV**, **JSON** and **API** ticket data and generates automated reports.
- Developed a multi-tenant **FastAPI** web app with **PostgreSQL** and queued jobs for client self-service audits.
- Building a **TypeScript Microsoft Teams** bot that lets support engineers query an LLM pipeline.
- Implemented persistent conversation memory in **PostgreSQL** and thread sync through **Microsoft Graph**.
- Hardened production use with encrypted credentials, **CSRF protection** and recovery of stalled audit runs.

AI Research & Development Intern — July 2025 – Aug. 2025
Quidgest — *Lisbon, Portugal*

- Developed and optimized **Agentic Workflows** using LLMs to automate complex business processes.
- Implemented **Model Context Protocol (MCP)** to enable seamless integration between AI models and external tools.
- Designed and deployed **Retrieval-Augmented Generation (RAG)** systems to enhance AI response accuracy.

Engineer Researcher — July 2024
ARDITI — *Funchal, Portugal*

- Adapted **Non-Intrusive Load Monitoring (NILM)** techniques for industrial three-phase power systems.
- Utilized Deep Learning (**DEEP-NILMTK**) to analyze industrial electrical signatures and optimize energy efficiency.

Projects / Awards

CV Analyzer Agent (EY AI Challenge) | *Python, Ollama, local LLMs* — 2026

- Winning team of a 4-hour challenge. Owned the AI pipeline, local-first parsing and role scoring of 107 CVs against 5 job descriptions, with no data leaving the machine.

RCA (Research Continuity Agent) | *Python, Ollama, ChromaDB, SQLite, MCP* — Mar. 2026 – Present

- Built a **hybrid retrieval pipeline** (BM25 + dense search + cross-encoder reranking) with an ablation framework.
- Built the **evaluation**: 129 self-written questions with a held-out test split. Caught a silent query-rewrite bug (hit@5 fell to 87.8%; the fix restored 96.7%). On the test split: right paper in the top 5 for 27/28; 12/12 unanswerable questions refused.
- Built **MCP servers** giving a multi-turn agent sandboxed filesystem and experiment-tracking tools (18/20 tasks on a sandboxed agent benchmark).

ShelfCue (JunctionX Lisbon 2026) | *Python, YOLO11n, LoRA, VLMs* — 2026

- Owned ML and evaluation in a two-person team: LoRA-tuned VLM + YOLO11n classifier for shelf stock and planogram compliance. 311/578 on the organisers' validation set with settings frozen from our labels (374/578 after tuning thresholds on that set).

Technical Skills

Programming Languages: Python (Primary), TypeScript, C, C++, Java, SQL (Postgres), JavaScript, Verilog.
AI & Engineering: RAG, Agentic Workflows (MCP), LLM integration, Computer Vision (YOLO/VLMs), Deep Learning, PyTorch, Model evaluation, ROS2.
Tools & Cloud: Git, Docker, FastAPI, PostgreSQL, GitHub Actions, Linux/Bash, ChromaDB.
Languages: Portuguese (Native), English (C1), Turkish (A1/A2 - Elementary).