Leonardo Almeida

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Summary

Master's degree in Computer Science and Engineering, passionate about DevOps, software development and machine learning. My motivation comes from tackling complex technical challenges, applying a meticulous mindset to ensure high quality solutions. I am a dedicated professional who takes commitments seriously, genuinely enjoys the technical process, and is constantly seeking opportunities to learn, contribute, and make a meaningful impact. Further details in my Portfolio ⬀.

Skills

Programming Languages: Python, C/C++, Java, JavaScript and TypeScript

CI/CD & Cloud: Git, GitHub Actions, Docker, Kubernetes, Proxmox, Terraform, AWS, Google Cloud and Cloudflare

Full Stack: Django, FastAPI, Spring Boot, React, Svelte, Angular, HTML and CSS

Machine Learning & Data Science: TensorFlow, Keras, PyTorch, OpenCV, NumPy, Pandas and Scikit-learn

Data & Messaging: PostgreSQL, MySQL, Redis, MongoDB, RabbitMQ, Kafka, MQTT, MPI and Zenoh

Languages: Fluent in Portuguese and English

Experience

Researcher ⬀, University of Aveiro and Instituto de Telecomunicações   Sept 2023 – Aug 2025
- Designed and configured a multi-VM environment for running distributed FL experiments across multiple workers
- Co-authored 9 research papers for peer-reviewed conferences and journals
- Developed FlexFL ⬀, a Modular and Resilient FL Framework for my MSc dissertation ⬀ with:
  - Fault-tolerant execution, workers can leave or join the network without halting training
  - Optimized the model aggregation to reduce memory usage and improved training time by overlapping processes
  - Implemented a dynamic argument parser that auto-discovers new classes, extracts arguments and their types through Python AST analysis, and improves memory usage and startup time by importing only what is necessary
- **Tech Stack**: Python, Proxmox, TensorFlow, Pytorch, Keras, Pandas, NumPy, MPI, Kafka, MQTT and Zenoh

Education

MSc	**Computer Science and Engineering** - University of Aveiro, Grade: 18/20	Sept 2023 – July 2025
BSc	**Computer Science and Engineering** - University of Aveiro, Grade: 17/20	Sept 2020 – July 2023

Some Projects

MepML - ML/AI Model Evaluation Platform   Details ⬀ | Repositories ⬀

Bachelor's final project, a web-based platform designed for ML model evaluation, enabling university professors to create and manage ML exercises and students to submit models, receive immediate performance feedback, and compare results.
- Modern, responsive, and user-friendly interface, featuring a markdown editor, file previews, and Slack bot notifications.
- Multi-layered architecture with frontend, backend (REST API), authentication (Firebase), storage, database and a secure sandbox environment for executing custom Python-based evaluation metrics.
- CI/CD pipeline with GitHub Actions for automated testing, building, and deployment to Google Cloud and Cloudflare.
- **Tech Stack**: Docker, GitHub Actions, Google Cloud, Cloudflare, Python, Django, FastAPI, React, JavaScript and MySQL

NoteAlly - Students and Educators note sharing platform   Details ⬀ | Repositories ⬀

Microservices-based web platform designed to facilitate the exchange of academic resources.
- TODO
- **Tech Stack**: Docker, GitHub Actions, AWS, Terraform, Python, Django, Svelte, JavaScript, and PostgreSQL

Wesago - Modern online forum   Details ⬀ | Repository ⬀

Robust Kubernetes deployment of the Misago forum, with a static website. It features PostgreSQL and Redis replication, liveness health checks, CPU-based autoscaling, centralized logging, monitoring, and a disaster recovery plan.
- TODO
- **Tech Stack**: Docker, Kubernetes, Python, Django, React, JavaScript, PostgreSQL and Redis

PickAPoint & PrintPlate - E-commerce deliveries and e-store platforms   Details ↗ | Repositories ↗

Web-based platforms that enable businesses to register as collection points and e-stores to manage orders and track status.

- TODO
- **Tech Stack**: Docker, GitHub Actions, Google Cloud, Java, Spring Boot, Svelte, JavaScript and PostgreSQL

LogiPack - Transport Management System   Details ↗ | Repository ↗

A logistics management system designed for distributors, transporters, and clients, featuring the complete delivery lifecycle.

- TODO
- **Tech Stack**: Docker, GitHub Actions, Python, Java, Spring Boot, React, JavaScript, PostgreSQL, MongoDB and RabbitMQ

Awards & Certifications

Hackathon ↗ - Aveiro TechWeek 2024   Oct 2024

My team won the 5000€ Altice Labs challenge "MEDIA DIVE" by developing a personalized TV interaction system ↗ using enriched metadata and large language models for a user-profile-driven TV experience with transcript-based summaries.

AWS Academy Graduate ↗   Nov 2023

Successfully showcased foundational knowledge of AWS cloud architecture, core services, security, and cloud economics.

Think Twice 4th edition ↗ - University of Aveiro   Mar 2022

My team won the algorithmic category by solving competitive programming challenges under time constraints.

Merit Scholarship ↗ - University of Aveiro   Nov 2020

Awarded for entering Higher Education with an admission grade of 175/200 or higher, specifically 189.5/200.

Some Publications

Federated Learning for a Dynamic Edge: A Modular and Resilient Approach ↗   June 2025

Leonardo Almeida, Rafael Teixeira, Gabriele Baldoni, Mário Antunes, Rui Luis Aguiar

10.3390/s25123812 ↗ - MDPI - Sensors

Efficient training: Federated learning cost analysis ↗   May 2025

Rafael Teixeira, Leonardo Almeida, Mário Antunes, Diogo Gomes, Rui L. Aguiar

10.1016/j.bdr.2025.100510 ↗ - Big Data Research

Privacy-Preserving Defense: Intrusion Detection in IoT using Federated Learning ↗   June 2024

Leonardo Almeida, Pedro Rodrigues, Rafael Teixeira, Mário Antunes, Rui L. Aguiar

10.1109/melecon56669.2024.10608461 ↗ - 2024 IEEE 22nd Mediterranean Electrotechnical Conference (MELECON)

Shallow vs. Deep Learning: Prioritizing Efficiency in Next Generation Networks ↗   Aug 2024

Rafael Teixeira, Leonardo Almeida, Pedro Rodrigues, Mário Antunes, Diogo Gomes, Rui L. Aguiar

10.1109/ficloud62933.2024.00055 ↗ - International Conference on Future Internet of Things and Cloud (FiCloud 2024)