

Francisco Izquierdo

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SUMMARY

Junior Machine Learning Engineer with 2+ years of experience, specialized in machine learning and backend development. Skilled in building scalable AI solutions, from data processing and model fine-tuning to deploying intelligent systems and managing vector databases. Strong communicator and team player in cross-functional environments.

SKILLS

Programming Languages: Python, C, C++, Java, SQL

Machine Learning & AI: Machine Learning, Deep Learning, LLMs, Scikit-Learn, Keras, TensorFlow, PyTorch, ONNX, OpenCV, Hugging Face, Computer Vision, Data Analysis, Data Engineering, Feature Engineering

Data Visualization: Pandas, Numpy, Seaborn, Matplotlib

Backend & Data Engineering: Flask, PySpark, Airflow, MLflow, Docker, Linux, Jupyter Notebook, SQLAlchemy

Cloud & DevOps: AWS, Azure, Git, CORE

Databases: PostgreSQL, MySQL, Pinecone, Weaviate

Tools & Methodologies: PyCharm, VS Code, Jira (Confluence), Agile (SCRUM), PowerPoint

PROFESSIONAL EXPERIENCE

Altice Labs

Aveiro, PT

Machine Learning Engineer

Traffic Data Analysis and Optimization System

September 2024 - Present

- Built a machine learning-based solution to forecast traffic, enabling over 19 municipalities to prevent congestion more effectively by collecting and processing data from traffic and alert reports and weather forecasts.
- Conducted data mining over 250,000 traffic data points, creating detailed street and county profiling tools to analyze historical traffic and alert patterns, revealing correlations with time, events and inter-street influences across the municipality.
- Modeled traffic patterns as time series to predict traffic jam occurrence trends and conducted model evaluation by comparing more than 5 model predictive models for optimal performance.
- Developed over 15 cities as graph data structures to model road networks effectively.
- Led backend and AI pipeline implementation, reducing data processing overhead by over 95%
- Managed comprehensive Jira documentation covering each project step, experiment approaches, and analysis to ensure clear communication and streamlined team collaboration.

Enterprise-Level Image Retrieval and Search System

September 2023 - September 2024

- Led the development of an enterprise-level microservice image retrieval and search system in the MEO Cloud platform, allowing thousands of users to efficiently search and retrieve their images using artificial intelligence models.
- Integrated and deployed the system in a cloud environment, supporting thousands of concurrent users.
- Leveraged third party APIs for data management and storage, incorporating a vector database capable of securely handling and storing millions of data vectors for up to 100,000 users in an isolated and scalable manner.
- Responsible for identifying E2E system requirements, workload balancing, load/stress testing and configuration metrics.

EDUCATION

Minho University

Braga, PT

Master's Degree in Computer Science and Engineering (GPA: 17/20)

September 2022 - July 2024

- Specialization in Artificial Intelligence and Backend Development

Minho University

Braga, PT

Bachelor's Degree in Computer Science and Engineering (GPA: 16/20)

September 2019 - July 2022

PUBLICATIONS

Efficient Image Search and Retrieval System in Cloud Platforms, EPIA2024 Conference (2024)

Artificial Intelligence in Efficient Image Search on MEO Cloud, Altice Labs White Paper (2024)

PROJECTS

CrowdFlow

- Developed a plug-and-play system using computer vision and surveillance cameras to analyze consumer behavior in retail. Led backend architecture and developed, fine-tuned, and quantized machine and deep learning models for edge deployment. Led code reviews and performance testing, and effectively communicated technical insights to non-technical stakeholders while representing the startup at industry events. Recognized with 2 startup awards in 2024 and featured in national entrepreneurship programs.
- **Technologies:** Python, SQL, SQLAlchemy, Azure, ONNX, TensorFlow, Docker, OpenCV, NumPy

oNode

- Prototype delivering data from a content server to clients using 2 transport protocols, personalizing message formats for optimized data transfer and compatibility, handling 100+ simultaneous connections during testing.
- **Technologies:** Java, Linux, CORE, TCP/IP, UDP

Face Fraud Detection

- Designed and trained a deep learning computer vision model on a dataset of 140,000 images, achieving 92.5% validation accuracy in detecting AI-generated faces.
- **Technologies:** Python, Jupyter Notebook, Tensorflow, Pandas, Numpy, Scikit-Learn, Keras

Hate Speech Recognition

- Fine-tuned a natural language processing model (DistilBERT) to detect hate speech on social media, achieving a weighted F1-score of 0.83 on a dataset of 27,000 samples enabling scalability.
- **Technologies:** Python, Jupyter Notebook, PyTorch, Pandas, Numpy, Scikit-Learn, Keras, LLMs, Hugging Face

ADDITIONAL INFORMATION

Languages: Portuguese (native), English (C1), Spanish (B1)

Certifications: **AWS Certified Machine Learning Specialty 2025**

Awards: 2nd place at the pre-acceleration program at Startup Braga (2024); Special award by Capgemini at Mostra Nacional de Jovens Empreendedores (2024); Honor student at Colégio de Albergaria (2017-2019)

Soft Skills: Collaborative, Proactive, Clear Communicator, Organized, Analytical Mindset, Problem-Solver, Client-Aware, Autonomous