

Leonardo Peroni

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Professional Experience

Senior AI/ML Engineer

May 2025 – Present

Indra Sistemas - Cyberdefence

Madrid, Spain

- Designed and productionized LLM-based document intelligence systems for extracting structured, hierarchical information from highly heterogeneous military documents, leveraging modern GenAI workflows and deployed via scalable APIs within agile, cross-functional teams.
- Led the design and implementation of AI decision-making pipelines for a naval port security system, integrating LLM-based reasoning with deep reinforcement learning control, supported by MLOps workflows, human-in-the-loop evaluation, and systematic benchmarking.
- Contributed to the architectural design of AI-driven coordination frameworks for autonomous and semi-autonomous cyber-defence agents, shaping use cases, system interactions, and AI trustworthiness principles.

Research Assistant

Mar. 2020 – Aug. 2024

IMDEA Networks Institute

Madrid, Spain

- Designed, implemented, and evaluated end-to-end ML/DL/RL pipelines for adaptive video streaming and QoE prediction, integrating multiple learning paradigms, managing large-scale data management, rigorous experimentation, and cloud-based infrastructure to deliver state-of-the-art results.

Technology Consultant

Sep. 2018 – Feb. 2020

Hesplora S.R.L.

Florence, Italy

- Applied ML and IoT technologies in smart infrastructure and environmental monitoring projects.
- Implemented data analytics and automation solutions for large-scale IT asset management.
- Led process mining and data-driven workflow optimization for enterprise and public-sector clients.

Education

University Carlos III of Madrid

Nov. 2020 – Feb. 2025

Ph.D., Telematic Engineering - Excellent, Cum Laude, Int'l Mention

Madrid Spain

Thesis: User empowerment in adaptive video streaming over best-effort networks

Polytechnic University of Turin

Oct. 2015 – Apr. 2018

M.Sc., Mechatronic Engineering - 110/110, Cum laude

Turin Italy

Thesis: ML framework for classification of mild cognitive impairment and satellite imagery

Research Publications (Selected)

L. Peroni, S. Gorinsky. *An End-to-End Pipeline Perspective on Video Streaming in Best-Effort Networks: A Survey and Tutorial*. ACM Computing Surveys, 2025.

L. Peroni, et al. *Empowerment of Atypical Viewers via Low-Effort Personalized Modeling of Video Streaming Quality*. ACM CoNEXT, 2023.

International Experiences

KAIST - Visiting Research Student

Mar. 2023 – Aug. 2023

LCEVC video compression, codec benchmarking, video streaming pipelines

Daejeon, South Korea

BUAA - Erasmus Exchange Program

Sep. 2016 – Feb. 2017

Machine learning pipelines, statistical learning, neuroimaging data

Beijing, China

Machine Learning and AI Tools

Generative AI / LLM: LangChain, LangGraph, vLLM, Ollama, Hugging Face, OpenAI SDK, FastMCP

ML & RL: PyTorch, TensorFlow, Scikit-learn, Stable-Baselines3

MLOps & Cloud: Docker, Kubernetes, MLflow, AWS (SageMaker, Lambda)

Language Skills

Italian: mother tongue, **English:** fluent, **Spanish:** fluent, **Chinese:** very basic