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Francesca Palermo

Senior Applied Data Scientist

Portfolio:
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Professional Summary

Senior Applied Data Scientist with 7+ years of experience building and owning end-to-end ML systems across product, research, and clinical environments. Deep expertise in computer vision, multimodal sensing, edge AI, and health-related machine learning. Track record of leading cross-functional teams, managing academic and industry partnerships, and shipping production-grade models under hardware, privacy, and regulatory constraints. Experienced in translating complex technical work into measurable business outcomes in both fast-moving product organizations and regulated healthcare settings.

Core Skills

Machine Learning	Deep Learning, Computer Vision, Time Series Modeling, LLMs, Prompt Engineering, Explainability, Edge AI, On-device Inference
Multimodal Sensing	Sensor Fusion (IMU, EMG, RGB, Audio), Wearable AI, Biosignal Analysis
Programming	Python (PyTorch, TensorFlow, scikit-learn, Pandas, NumPy, OpenCV), C++, C#, MATLAB
bigcap **Frameworks**	Hugging Face, ONNX, TensorRT, ROS, Unity, TensorBoard
Infrastructure	Docker, Google Cloud Platform, Azure, Databricks, Git, Jira, VS Code

Professional Experience

Senior Data Scientist R&D Apr 2026 – Present
Schindler Group, Milan, Italy

- Technical Leader for Computer Vision and LLM projects in the R&D department at Schindler Group Milan.

Senior Applied Data Scientist Jul 2023 – Apr 2026
EssilorLuxottica, Milan, Italy

- Technical lead in a joint initiative with Meta, delivering human activity recognition and scene understanding models on proprietary smart eyewear hardware, driving alignment across research, product, and engineering teams.
- Led cross-functional collaborations across four academic research groups, owning technical direction and delivery across eight concurrent projects within a 50 million national grant program.
- Owned end-to-end design, development, and deployment of on-device computer vision systems for consumer smart eyewear, including ego-action recognition, context awareness, human keypoint estimation, and SLAM.
- Led model optimization and compression for embedded deployment, achieving up to 75% reduction in model size while maintaining performance targets across latency and accuracy constraints.
- Developed a computer vision pipeline for eyewear component segmentation and color/style matching (lens, frame, icon, temple tips) against a product catalogue, combining CNN-based U-Net segmentation and histogram-based color matching for automated recipe extraction.
- Designed and evaluated prompt engineering pipelines using QWEN and Gemini for automated OCR-based prescription extraction, enabling end-to-end population of a clinical web interface from raw prescription images.
- Translated product and business requirements into production-ready ML pipelines, aligning model design with privacy, hardware, latency, and EU AI Act constraints.
- Designed reproducible training, evaluation, and deployment pipelines using PyTorch, Docker, GCP, Azure and Databricks to support scalable experimentation across distributed teams.
- Directly supervised two researchers, owning technical direction, planning, and delivery milestones.
- Contributed to intellectual property strategy with 7 patents filed and over 10 peer-reviewed publications.

Machine Learning Research Associate Jun 2021 – Jun 2023
Imperial College London, United Kingdom

- Developed longitudinal time-series models (LSTM, autoencoders) for passive health monitoring and early change detection in dementia patients using real-world clinical data from NHS-funded trials.
- Designed explainability and robustness frameworks using SHAP and stability analysis to support clinical interpretability and regulatory-facing model validation.

- Improved data preprocessing pipelines for wearable sensor data, reducing missing data by 5% and increasing downstream model reliability.
- Contributed to successful Wellcome Trust grant acquisition through clinical collaboration and technical research outputs.
- Supervised 3 PhD students and 4 master's students across project delivery and thesis milestones.

Machine Learning Researcher Jul 2017 – Jun 2018
HES-SO, Switzerland

- Built an augmented reality rehabilitation system using Unity and Microsoft HoloLens, integrating EMG and IMU signals for real-time movement tracking and interaction.
- Developed biosignal processing and classification pipelines for sEMG-based gesture recognition, focusing on robustness and cross-session repeatability.
- Conducted large-scale biomedical image segmentation on CT datasets for lung and breast cancer imaging analysis.

Education

PhD in Electronics Engineering and Computer Science 2018 – 2022
Queen Mary University of London, United Kingdom

- Developed multimodal robotic perception systems integrating tactile, proximity, and visual sensing within Horizon Europe's National Center for Nuclear Robotics program.
- Designed and implemented ML and computer vision pipelines in Python, OpenCV, C++, and ROS; internship at the University of Tokyo on object detection (Faster R-CNN, YOLO) for infrastructure inspection.
- Mentored over 10 MSc students and represented a PhD cohort of 20 at departmental level.

MSc in Artificial Intelligence and Robotics 2015 – 2017
University of Rome La Sapienza, Italy *Final Grade: 110/110*

- Researched grasp recognition using sEMG signals and ML for robotic hand control; internship at HES-SO on sEMG and eye-tracking dataset acquisition, preprocessing, and classification.
- Published in A* conference venue; recipient of Best Master's Thesis Award.

Awards

Data Visualisation Competition Winner Apr 2022
United Kingdom Dementia Research Institute
First Prize, CORSMAL Challenge (ICPR) Nov 2020
Japan Student Services Organisation Scholarship Feb 2020
Best Master Thesis Award Jan 2019
Programmer Award, VVV18 Winter School Feb 2018

Selected Publications & IP

- IEEE Access (2025), Nature (2024, 2023), ICRA (2020), ICORR (2017)
- 7 patents filed in applied computer vision and wearable sensing

Personal Projects

- **Multimodal Similarity Search** — Built an end-to-end semantic search system using CLIP embeddings and OpenSearch for image and text retrieval across large catalogues.
- **Motion Animation** — Experimented with GAN-based video generation for human motion synthesis and temporal modelling.
- **Wearable Inference** — Prototyped on-device AI pipelines for remote physiological monitoring and micro-gesture recognition on resource-constrained hardware.