

PAOLO MANDICA

PH.D. STUDENT / ML RESEARCHER

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Education

Ph.D. in Computer Science

Jan. 2022 – Dec. 2024 (exp.)

Sapienza University of Rome - Panasonic R&D

Rome, Italy

- Conducting research on deep learning for computer vision, focusing on self-supervised learning, active learning, hyperbolic geometry, image segmentation, and action recognition.

MSc. in Data Science - 110/110 cum laude

Sept. 2019 – October 2021

Sapienza University of Rome

Rome, Italy

B. Eng. in Computer Science and Engineering

Nov. 2016 – July 2019

Roma Tre University

Rome, Italy

Experience

Machine Learning Researcher (Intern)

Feb. 2023 – Oct. 2023

Panasonic R&D AI Laboratory

Mountain View, CA, USA

- Engaged in cutting-edge research on Active Learning, Domain Adaptation, and Semantic Segmentation, working in collaboration with researchers from BAIR (Berkeley AI Research).

Cloud Engineer (Intern)

March – June 2019

Xpeppers/Claranet IT

Ciampino (RM), Italy

- Developed a serverless AWS application for monitoring event-driven architectures, offering clients an intuitive web interface for overseeing their AWS setups and providing error and resource overload alerts

Publications

Hyperbolic Active Learning for Semantic Segmentation under Domain Shift

L. Franco, Paolo Mandica, K. Kallidromitis, YT Li, D. Guillory, T. Darrell, F. Galasso Under Review, 2023

- Proposed HALO (Hyperbolic Active Learning Optimization) to advance semantic segmentation under domain shift with only a small percentage of annotated data. Introduced a novel geometric interpretation of hyperbolic geometry to estimate class complexity.

Hyperbolic Self-Paced Learning for Self-supervised Skeleton-based Action Representations

L. Franco, Paolo Mandica, B. Munjal, F. Galasso ICLR 2023

- Proposed and developed a novel Hyperbolic Self-Paced model (HYSP) for skeleton-based action representations, utilizing hyperbolic uncertainty to drive the learning pace and achieving superior performance on multiple benchmarks while simplifying the training process.

Teaching

I served as **teaching assistant** and participated in the revision of lectures and the preparation and evaluation of midterm projects and final examinations for the following courses:

Fundamentals of Data Science and Laboratory

Fall 2022

MSc in Data Science, Sapienza University of Rome

Rome, Italy

- Introduction to the basics of data science as well as data mining and machine learning.

Algorithmic Methods of Data Mining

Fall 2020

MSc in Data Science, Sapienza University of Rome

Rome, Italy

- Introduction to basic algorithmic techniques for data analysis and mining of large data sets.

Technical Skills

Languages: Italian (Native), English (IELTS 7.5, CEFR C1).

Programming Frameworks: Python, PyTorch, Tensorflow, R, SQL, NoSQL.

Techniques: Deep Learning, Computer Vision, NLP, Data Analysis, Data Mining.

Tools: Git, Docker, AWS, Linux, HTML/CSS.