Pandolfo Mario Edoardo

Education

Nov. 2024 – Today **University of Sapienza** – Rome, Italy
Currently pursuing a Ph.D. in Data Science with a focus on interdisciplinary research.
Actively collaborating with two research laboratories:

- **CDCS (Center for Data Science and Complexity for Society)**, led by Professor Walter Quattrociocchi, working on projects involving complex systems, misinformation, and network science.

- **SPAICOM (Signal Processing and Artificial Intelligence for Communications)**, under the supervision of Professor Paolo Di Lorenzo, focusing on signal processing, deep learning, and AI for communication systems.

2022 – 2024 **University of Sapienza** – Rome, Italy
M.Sc. in Data Science - 110/110 cum laude and honors
· Thesis: *Latent Space Alignment for Semantic Communications.*

2018 – 2021 **University of Sapienza** – Rome, Italy
B.Sc. in Computer and System Engineering
· Thesis: *A Deep Learning Approach to Face Mask Detection.*

2013 – 2018 **Liceo Scientifico Statale Talete** – Rome, Italy
High School graduation
· Thesis: *Human perceptions: between irrational and rational.*

Certifications

- A1 Key for Schools - KET.
- B1 Preliminary for Schools - PET.
- B2 First for Schools - FCE.
- ECDL Full Standard.
- Certificate of Completion - Gurobi Optimization 101 for Data Scientist.
- AWS Educate Introduction to Cloud 101.
- AWS Educate Getting Started with Compute / Serverless / Storage.
- AWS Academy Graduate - AWS Academy Cloud Foundations.

Honors and scholarships

2024   **Honour Program (University of Sapienza)**

- In collaboration with the CDCS lab, I carried out an exploratory study aimed at developing a method to identify the semantic variations among dialects used in online communities.

- Supported Prof. Fabrizio Silvestri in mentoring a Master's student during their thesis work, offering research advice and technical feedback throughout the project.

2017   **1° place in "Come suona la tua vita" contest (Liceo Scientifico Talete)**
A writing contest about the meaning of music. I won first prize in the aphorisms category.

Publications

·   **Semantic Channel Equalization Strategies for Deep Joint Source-Channel Coding**
L. Pannacci, S. Fiorellino, M. E. Pandolfo, E. Calvanese Strinati, P. Di Lorenzo
Proc. of IEEE GLOBECOM Workshop 2025.

·   **RIS-aided Latent Space Alignment for Semantic Channel Equalization**
T. Hüttebräucker, M. E. Pandolfo, S. Fiorellino, E. Calvanese Strinati, P. Di Lorenzo
arXiv preprint arXiv:2507.16450 (2025).

·   **Patterns, Models, and Challenges in Online Social Media: A Survey**
N. Di Marco, A. Bonetti, E. Di Martino, E. Loru, J. Nudo, M. E. Pandolfo, G. Pecile, E. Sangiorgio, I. Scalco, S. Zollo, M. Cinelli, F. Zollo and W. Quattrociocchi
arXiv preprint arXiv:2507.13379 (2025).

·   **Generative Exaggeration in LLM Social Agents: Consistency, Bias, and Toxicity**
J. Nudo, M. E. Pandolfo, E. Loru, M. Samory, M. Cinelli and W. Quattrociocchi
arXiv preprint arXiv:2507.00657 (2025).

·   **Federated Latent Space Alignment for Multi-user Semantic Communications**
G. Di Poce*, M. E. Pandolfo*, E. Calvanese Strinati, and P. Di Lorenzo
Proc. of IEEE SPAWC 2025.

·   **Latent Space Alignment for AI-Native MIMO Semantic Communications**
M. E. Pandolfo, S. Fiorellino, E. Calvanese Strinati, and P. Di Lorenzo
Proc. of IEEE IJCNN 2025.

Experience

16th June 2025 to Today

CNIT (Scientific Consultant) – Rome, Italy

- CNIT - Consorzio Nazionale Interuniversitario per le Telecomunicazioni.

- 6G-GOALS research project: 6G Goal-Oriented AI-enabled Learning and Semantic Communication Networks.

Oct. 2025 to Today 2025

Pattern Recognition for M.Sc. in Electronics Engineering (Tutor) – Rome, Italy
Sapienza Univeristy of Rome

Oct. 2025 to Today 2025

Computational Intelligence for M.Sc. in Telecommunication Engineering (Tutor) – Rome, Italy
Sapienza Univeristy of Rome

17th Sept. 2025 to 18th Sept. 2025

Python Precourses for M.Sc. in Data Science (Instructor) – Rome, Italy
Taught incoming Data Science master's students Python basics, Git/GitHub, environment setup with uv, and interactive coding using Jupyter Notebook and Google Colab, building a strong foundation for their coursework and projects.

2nd Oct. 2023 to 20th Feb. 2024

Advant S.R.L. (Data&AI Junior Consultant) – Rome, Italy

- Focused on big data management and warehouse modeling using DAX, T-SQL, SSIS, PowerBI, Azure, and Databricks.

- Contributed to a significant project at Poste Italiane, in which we were reconstructing and optimizing a daily Power BI by effectively managing diverse data sources, applying hands-on skills to ensure accurate reporting and facilitate informed decision-making.

2019 to 2021

Math & Physics Tutoring (Private) – Rome, Italy
Tutoring high school students in Math and Physics.

Oct. 2018 to Oct. 2022

Il Coniglio Volante (Magician and Entertainer) – Rome, Italy
I organized and managed magic shows at several bookstores in Rome, including "Il Coniglio Volante", "La Bottega delle Storie", and "Storia e Magia". The target audience for these events was children aged between 8 and 12 years old.

Sept. 2016 to June 2018

Wu Tao Kwoon Kung Fu (Teacher) – Rome, Italy
I collaborated with colleagues in organizing and managing two martial arts courses for children and teenagers.
The lessons were both one hour long and took place twice a week.

Sept. 2014 to June 2016	**Wu Tao Kwoon Kung Fu (Assistant Teacher)** – Rome, Italy
	I assisted teachers in managing classes with more than 20 children and teenagers. The classes were divided into two sessions, each lasting one hour, and were held twice a week.

University Projects

Oct. 2023	**Federated Learning Framework Analysis**
	https://github.com/JRhin/federated-learning-framework-analysis
	This study explores two distinct implementations of Federated Learning, specifically Centralized Federated Learning and Multi-Master Federated Learning. Both architectures were implemented using Docker Swarm.
Sept. 2023	**Time Series Analysis for Portfolio Diversification under the Bayesian Framework**
	https://github.com/JRhin/bayesian-portfolio-optimization
	The project aims to perform a time series analysis of three major GPU companies (Nvidia, AMD, Intel), to forecast their volatility using the well-known GARCH model and to propose possible strategies for Portfolio Diversification based on asset precision.
July 2023	**PCAP Analysis**
	https://github.com/JRhin/pcap-analysis
	With a group of colleagues, we conducted a statistical and topological analysis on a packet trace derived from network traffic on 10/04/2019. The dataset was provided by the Mawi Project (link).
March 2023	**Google Traffic Analysis**
	https://github.com/JRhin/Google-traffic-analysis
	Starting from an analysis of a sample of data traffic from Google servers, my colleagues and I proposed a pair of dispatchers and schedulers with the goal of minimizing job response time. We achieved an improvement of 89.47% compared to the baseline.
Oct. 2022	**Modified ESRGAN for solving the Super Resolution Problem**
	https://github.com/JRhin/Modified-ESRGAN-for-Super-Resolution-Problem
	A colleague and I collaborated on implementing the ESRGAN model using PyTorch (Lightning) with Wasserstein Loss. We introduced two modifications to the original model, named ESRGAN+IR and DRGAN.

Volunteering

13th March 2021 **Unicef Talent Marathon (Magician)**
I participated as a magician in the talent marathon organized by UNICEF ESSEX at the University of Essex.

Competitions

Sept. 2023 **ADVANT Training Camp – Rome**
The training camp included lectures and hands-on labs on the ETL (Extract, Transform and Load) pipeline in data processing, to put a complete Data & AI project into production. It was then required to participate in a team competition for scraping and transforming GTFS data from ATAC S.p.A. and solving an optimization problem: finding the combination of buses in a certain time slot that covers the longest possible distance in 100 minutes (classic duration of an ATAC ticket).

July 2023 **Amazon Training Camp – Rome**
Participated in an AWS Amazon Jam during the training camp, tackling 12 challenges on the "AWS Educate Introduction to Cloud 101" module with my team. Surpassed expectations by completing them in less than 4 hours, despite the required time being one hour per challenge.

July 2022 **48-Hour Hackathon – Rome**
Took part in a hackathon organized by the Statistical Learning course. The objective was to implement a machine learning model capable of classifying heart rate frequency zones.

2014 **World Traditional Kung Fu Championship – Rome**
Participated in the championship at the age of 14, competing in a category where I was the only participant of that age group. Faced competitors over 20 years old.

Technical skills

Programming languages
Proficient in: Python, R
Familiar with: Nix, C, Java, SQL, MatLab, Stata

Software
LaTeX, Git, Stata, Colab, Pytorch, Tensorflow, Docker, Neo4j

Languages
English (Professional), Italian (Native)