

Andrea Protani

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Experience

- 3/2024–Present **Research Scientist Intern**, *European Organization for Nuclear Research, CERN*, Geneva, Switzerland.
Developed a new approach leveraging Federated Learning (FL) and Graph Neural Networks (GNN) to improve medical diagnostics, predicting stroke severity through brain connectivity analysis while ensuring privacy-preserving data handling, achieving state-of-the-art results in the process.
- 9/2022–1/2024 **External AI Consultant**, *Sorridi SRL*, Latina, Italy.
 - Developed a GNN model for 3D (mesh) files to predict different movements for each tooth, automating dental aligner setups as part of a diverse team of scientists and engineers.
 - Led a team of five to develop a Deep Learning model that identifies required aligner treatment from mouth images, using diverse architectures and fine-tuning pre-trained models from HuggingFace.
- 7/2023 **Training Camp**, *Amazon Web Services, AWS*, Rome, Italy.
Completed intensive courses on AWS cloud services and won the AWS Jam competition, tackling real-world challenges using skills from the courses.

Education

- 9/2022–Present **MSc in Data Science**, *Sapienza University of Rome*, Rome, Italy, Major in Deep Learning. Selected for the honors program reserved for best students, conducting additional research on temporal Graph Neural Networks (GNN). Final average degree: 29.5/30.
Expected graduation: January 2025
- 9/2023–2/2024 **MSc in Data Science**, *Universitat Politècnica de Catalunya (UPC)*, Barcelona, Spain, Erasmus+ student at Castelldefels School of Telecommunications and Aerospace Engineering.
- 7/2023–7/2023 **Summer school**, *University of Ljubljana*, Ljubljana, Slovenia, Attended the first European Summer School on Artificial Intelligence (ESSAI).
Main topics: Deep Learning, AI & Science, Trustworthy AI
- 9/2018–3/2022 **BSc in Statistics**, *Sapienza University of Rome*, Rome, Italy.

Publications

- 9/2024 *"Federated GNNs for EEG-Based Stroke Assessment"* – Accepted at Neural Information Processing Systems (NeurIPS) Unifying Representations in Neural Models (UniReps) Workshop
- 7/2024 *"Towards Explainable Graph Neural Networks for Neurological Evaluation on EEG Signals"*
Accepted at IEEE International Conference on E-health Networking

Skills & Frameworks

Advanced R, Python, PyTorch, PyTorch Geometric, Latex, Keras, TensorFlow, Git
Intermediate JAX, MySQL, PostgreSQL, PySpark, NetworkX, Neo4j, Microsoft Office, Docker, React
Basic MongoDB, Java, Matlab, Gephi, Tableau, Power BI, Kubernetes

Soft skills

- Teamwork and Leadership: developed through group projects during my studies.
- Adaptability and Work Ethic: proven during Covid, remaining efficient and focused.
- Attention to Detail: developed through university projects.
- Willingness to Learn: driven by curiosity across various fields.

Languages

Italian **Native**
English **Full professional proficiency**
Spanish **Good speaking and listening**