UMBERTO DI LAUDO

Data Scientist | PhD in AI & Data Science

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ABOUT ME

PhD in AI & Data Science with a background in theoretical physics, combining rigorous mathematical thinking with practical implementation. Experienced in deep learning for GIS-based marine seabed mapping (image classification and semantic segmentation), Physics-Informed Neural Networks and Neural ODEs for PDE solving in latent spaces, and graph neural networks expressivity beyond the Weisfeiler-Leman theorem.

TECHNICAL SKILLS

- **Languages & Frameworks:** Python (PyTorch, scikit-learn, pandas, numpy), C++, SQL, Bash
- **ML/AI:** Deep Learning, Computer Vision, Graph Neural Networks, Physics-Informed Neural Networks (PINNs)
- **Tools:** Git, HPC (SLURM), Linux, Jupyter

PROFESSIONAL EXPERIENCE

PhD Researcher in AI & Data Science

University of Trieste, Italy

Nov 2022 – Jan 2026 | Trieste, Italy

- Developed ML/DL models for automated marine seabed mapping using GIS data, applying image classification and semantic segmentation on multibeam bathymetric datasets.
- Built Physics-Informed Neural Networks (PINNs) and Neural ODEs to solve PDEs in a latent space via an autoencoder architecture.
- Investigated the expressive power of message-passing GNNs beyond the Weisfeiler-Leman theorem as visiting researcher at Adolfo Ibáñez University (Chile, Sep–Dec 2025).
- Technologies: Python, PyTorch, scikit-learn, Rasterio, Git, HPC.

Data Analyst

DecHit S.p.A., Italy

Mar – Jun 2022 | Milano (remote)

- Analyzed structured business data using SQL.
- Collaborated remotely with technical and business stakeholders.

EDUCATION

- **PhD in Data Science & Artificial Intelligence** — *Nov 2022 – Jan 2026*
  University of Trieste, Italy
- **Master's Degree in Theoretical Physics** — *Sep 2019 – Feb 2022*
  Alma Mater Studiorum – University of Bologna, Italy — Grade: 110/110 (avg 29.58/30)
- **Bachelor's Degree in Physics** — *Sep 2016 – Sep 2019*
  Alma Mater Studiorum – University of Bologna, Italy — Grade: 110/110 (avg 28.02/30)

PUBLICATIONS & CONFERENCES

- U. Di Laudo, et al., *Machine Learning for Automated Seabed Mapping*, in *Ital-IA 2024 – Thematic Workshops*, *CEUR Workshop Proceedings*, vol. 3762, 2024. URL: https://hdl.handle.net/11368/3118040

LANGUAGES

- **Italian**: Native
- **English**: Professional working proficiency