

Dario Loi

Boston, MA | dario-loi.github.io | github.com/dario-loi | [Google Scholar](https://scholar.google.com/citations?user=...)

Research Interests: Topological deep learning, sheaf neural networks, graph neural networks, simplicial complexes

EDUCATION

Northeastern University <i>Ph.D. in Computer Engineering, MENTIS Lab, advised by Prof. Francesco Restuccia</i>	September 2026 – Present Boston, MA
Sapienza University of Rome <i>M.S. in Computer Science</i> GPA 29.8/30 (3.98/4.0), 110/110 cum laude; Honors Program with Prof. Iacopo Masi	September 2023 – October 2025 Rome, Italy
Sapienza University of Rome <i>B.S. in Applied Computer Science and Artificial Intelligence</i> GPA 28.4/30 (3.79/4.0), 110/110 cum laude; Honors Program with Prof. Danilo Avola	September 2020 – July 2023 Rome, Italy

PUBLICATIONS

Implicit Inversion turns CLIP into a Decoder

A. D'Orazio, M.R. Briglia, D. Crisostomi, **D. Loi**, E. Rodolà, I. Masi
International Conference on Learning Representations (ICLR), 2026

- Ran the hyperparameter searches and produced qualitative results

A Metacognitive Framework for Test-Time Adaptation: Taxonomy and Research Challenges

D. Loi, G. Onorato, A. Coviello, S. Rifat, N.D. Bastian, F. Restuccia
AAAI Fall Symposium on Artificial Metacognition (METACOG-26), 2026

- Built the TTA taxonomy; ran the experiments in which deliberate cues admitted up to 22.1x fewer OOD samples

Implicit Sheaf Operators for Effective and Efficient Cellular Sheaf Learning

G. Onorato, **D. Loi**, C. Apostol, N.D. Bastian, F. Restuccia
Preprint, 2026; under review at AAAI-27

- Designed Sheaf Convolutional Networks (up to +3.93% accuracy over NSD) and proved complexity bounds

EXPERIENCE

Research Intern <i>Evidence Srl</i>	December 2025 – June 2026 Pisa, Italy
• Prototyped an agentic LLM for Simulink-style power plant control; scaled reliable output from 5 to 100+ blocks	
Teaching Assistant <i>Computer Architecture and Operating Systems, Sapienza University of Rome</i>	May 2024 – September 2024 Rome, Italy
Computer Vision Software Engineer <i>Sapienza Flight Team</i>	October 2023 – June 2024 Rome, Italy
• Built real-time YOLOv8 detection of payload drop sites from a drone in flight (SUAS 2024)	

OPEN SOURCE AND PROJECTS

Topological Deep Learning Challenge 2026 (TopoBench)	github.com/geometric-intelligence/topobench
• Implemented the winning GNN-track entry, Directed Sheaf NNs (Fiorini et al., 2026), and three more sheaf models	
• Co-authored the peer-reviewed challenge reports at TAG-DS 2025 and 2026 (PMLR)	
Graph Neural Networks for Next-POI Recommendation (M.S. Project)	github.com/dario-loi/foursquare
• Designed a transformer-based GNN in PyTorch Lightning: +2.3% top-1, +13.7% top-20 accuracy over prior methods	

HONORS AND AWARDS

• 1st of 37 in Track 1 and Excellent Portfolio honorable mention, Topological Deep Learning Challenge	2026
• Top 3 of 27 papers, AAAI Fall Symposium on Artificial Metacognition (METACOG-26)	2026
• Honors Program, Sapienza University of Rome: B.S. (one of eight selected) and M.S.	2022 – 2025

SKILLS

Programming: Python, C++, C, CUDA, Java, SQL; Git, Linux, Docker, SLURM, Weights & Biases

Machine Learning: PyTorch, PyTorch Geometric, TopoX, Hugging Face, LangGraph, LangChain, vLLM