

Lev Telyatnikov



✉ lev.telyatnikov@uniroma1.it

📍 Rome, Italy

in [levtelyatnikov](#)

🔗 [Google Scholar](#)

🌐 [levtelyatnikov](#)

Education

Ph.D. in Data Science

[Sapienza University, Rome](#) | 10/2021 - 10/2024

[Cambridge University, computer science lab, UK](#)

Research area: Topological Deep Learning and Dynamic Topology Learning

M.Sc. in Data Science

[Sapienza University, Rome](#) | 09/2019 - 10/2021

GPA: 4.0 - graduated with honors; Thesis: 3D Object Manipulations by Learning Symmetry Aware Latent Space

B.Eng. in Applied mathematics and Computer science

[PFUR, Russia](#) | 09/2015 - 09/2019

GPA: 4.0; Thesis: Lossless Audio Data Compression with Enhanced LPC

Publications ([Google scholar](#))

Conference: ICLR (A+).

From Latent Graph to Latent Topology Inference: Differentiable Cell Complex Module. We present the [Differentiable Cell Complex Module](#) for inferring [sparse and irregular graph topology](#), capturing multi-way interactions between data points. The two-step inference maintains [scalability](#) by avoiding exhaustive search. [The approach surpasses state-of-the-art techniques](#), providing significant improvements, particularly when an input graph is absent, across homophilic and heterophilic graph datasets.

Conference: AISTATS 2023 (A+).

EGG-GAE: scalable graph neural networks for tabular data imputation. We introduce an efficient graph autoencoder for addressing the Missing Data Imputation (MDI) problem. Our approach involves [inferring the optimal graph connectivity in the latent space, considering both the downstream tasks and MSI](#). We show that the proposed model obtains significant improvements across multiple benchmarks and baselines regarding imputation error and final downstream accuracy.

Conference: ACM CoNEXT, Graph Neural Networking Workshop 2023

Topological Graph Signal Compression.

In this paper, [we are the first to introduce a novel method for signal compression on graphs](#), starting with the identification of [higher-order structures](#) through clustering, and then [applying topological-inspired message passing](#). We demonstrate that [the compression of temporal link-based signals from real-world datasets reduces reconstruction errors from 30% to 90% across all evaluation scenarios](#).

Work Experience

Research Fellow (Computer Vision), France

[Ecole Polytechnique](#) | 01/2021 - 08/2021

Master thesis: Developed an end-to-end representation learning approach for 3D object symmetry encoding. Obtained latent space [has allowed the manipulation of Intrinsic and Extrinsic symmetry of 3D shapes](#). Incorporating symmetry information [improved the zero-shot classification \(2%\) and object denoising performance \(4%\)](#).

Research Data Scientist Intern (audio), Italy

[Translated](#) | 02/2021 - 08/2021

Developed a self-supervised representation learning pipeline for [cross-lingual prosody transfer](#) (Italian \leftrightarrow English). The robust [MOS score was improved by 5%](#).

Data Scientist Intern (NLP), Russia

[Sberbank](#) | 06/2020 - 12/2020

Deployed audio denoising and speech defects classification (SPC) into an automated hiring process. [The obtained pipeline was integrated into production](#).

About me

I am a dedicated and passionate data scientist specializing in Topological Deep Learning. My current lines of research include 1) higher-order interaction models: Hypergraph, Cell Complex, Simplicial Complex, and Combinatorial Neural Networks. 2) Discovering underlying graph topology (latent graph inference). 3) Graph rewiring. 4) Graph/Hypergraph transformers. 5) Missing data imputation 6) Graph Neural Networks.

I am actively seeking a research internship that allows me to explore cutting-edge methodologies and push the boundaries of data science. If given the opportunity, I am confident that I can contribute effectively to the team and make a meaningful impact.

Availability for a summer internship from beginning of May 2024 to September 2024

Awards and activity

Winner of Topological Deep Learning Challenge, **ICML 2023**

Winner of Image Search Engine Challenge, **Google competition, 2020**

Hackathon winner: **Breakpoint, 2020**

Computer Skills

Programming Language:

Python, R, MATLAB, SQL

Frameworks/Libraries:

PyTorch, TensorFlow, OpenCV, scikit-learn, pandas, NumPy

Other Software/Tools:

Git, Apache Hadoop, Spark, Docker, MongoDB, AWS

Language Skills

Russian (Native)

English (Advanced, C1)

Italian (Intermediate, B1)

References

Professor, Simone Scardapane

[Sapienza University, Rome](#)

simone.scardapane@uniroma1.it

Professor, Pietro Lió

[University of Cambridge, UK](#)

pl219@cam.ac.uk

Director of AI Sébastien Bratières

[Translated, Rome](#)

sebastien@translated.net