



Ivan Marisca

Ph.D. Student

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LANGUAGES

Italian (Native)

English (Professional)

French (Basic)

Spanish (Basic)

About Me

I am a Ph.D. student at the **Graph Machine Learning Group**, within the Swiss AI lab **IDSIA**, at Università della Svizzera italiana (**USI**), under the supervision of Prof. **Cesare Alippi**.

My research focuses on **graph deep learning** for **irregular spatiotemporal data**. Currently, I'm studying the problems of **imputation**, **regularization**, and **prediction** of data coming from both physical and virtual **sensor networks**.

I obtained BSc (2017) and MSc (2020) degrees in Computer Science and Engineering at **Politecnico di Milano**. My master thesis project has been supervised by Prof. **Nicola Gatti**.

Education

Ph.D. Student in Informatics

2020 — ongoing

Università della Svizzera italiana

Currently, I am a Ph.D. Student at the Swiss AI Lab IDSIA at USI Università della Svizzera Italiana, under the supervision of prof. Cesare Alippi.

MSc in Computer Science and Engineering

2017 — 2020

Politecnico di Milano

Master's degree with honors (110/110L), defending a thesis on machine learning. During the two years of studies, I mostly attended AI-oriented courses.

Erasmus

Sep 2018 — Jan 2019

Universitat Politècnica de València

During the semester spent abroad (in Valencia) within the Erasmus program, I attended Spanish and English courses on programming, robotics and artificial intelligence.

BSc in Engineering of Computing Systems

2014 — 2017

Politecnico di Milano

The course program covered general topics of engineering and computer science.

High School in Mathematics

2009 — 2014

Liceo C. Caminiti

High school diploma with a specific focus in mathematics and science at *Liceo Scientifico Caminiti* in Santa Teresa di Riva (Sicily).

Academic Activities

Teaching

- **Advanced Topics in Machine Learning**, MSc at USI Sep 2023 — Jan 2024
Teaching assistant, involved in course organization, lecture preparation and students tutoring.
- **Graph Deep Learning**, MSc at USI Feb 2023 — Jun 2023
Lectures design and students tutoring on team projects.
- **Advanced Topics in Machine Learning**, MSc at USI Sep 2022 — Jan 2023
Students tutoring for projects on reproducibility.
- **Graph Deep Learning**, MSc at USI Feb 2022 — Jun 2022
I gave a lecture on Spatiotemporal Graph Neural Networks and tutored students on projects.
- **Introduzione all'Intelligenza Artificiale e ML**, MSc at USI Sep 2021 — Jan 2022
Course on AI and ML delivered in italian for the training of high school teachers qualified to teach computer science as a subject.
- **Machine Learning**, BSc at USI Feb 2021 — Jun 2021
Lab sessions on practical aspects and show how to design machine learning solutions to real-world problems.

Last update: Dec 12, 2023

I hereby authorize the use of my personal data in accordance to the GDPR 679/16 - "European regulation on the protection of personal data".

Supervised students

- **Marco Latella**, MSc at USI 2022
Graph Representation Learning for Multi-site Photovoltaic Energy Production

Talks

- **Tutorial** at ECML/PKDD (Turin) Sep 2023
Presentation of the tutorial **Graph Deep Learning for Spatiotemporal Time Series** with colleagues Daniele Zambon and Andrea Cini.
- **Reading group presentation** at TGL reading group (Virtual) Apr 2023
Invited to present the paper **Scalable Spatiotemporal Graph Neural Networks** at the **Temporal Graph Learning Reading Group**.
- **Spotlight presentation** at TGL Workshop (New Orleans) Dec 2022
The **Temporal Graph Learning Workshop** at NeurIPS 2022.
- **Poster presentation** at NeurIPS (New Orleans) Nov 2022
The 36th Conference on Neural Information Processing Systems.
- **Invited talk** at Baker Hughes (Virtual) Jul 2022
Invited to give a webinar on time series imputation.
- **Poster presentation** at ICLR (Virtual) Apr 2022
The 10th International Conference on Learning Representations.
- **Abstract presentation** at MLDM (Virtual) Nov 2021
The 10th Italian Workshop on Machine Learning and Data Mining.

Awards & Scholarships

- **Doctoral Mobility** — Università della Svizzera italiana Dec 2023
CHF 20'000 (~\$23K) to cover the expenses for a 6-month research stay at **University of Oxford** in **Michael Bronstein's** group.
- **Travel Award** — NeurIPS Dec 2023
Travel award to attend the NeurIPS conference in New Orleans (US).
- **Best Paper Award** — **Temporal Graph Learning Workshop** @ NeurIPS Dec 2022
For the paper "Scalable Spatiotemporal Graph Neural Networks".
- **Travel Award** — NeurIPS Nov 2022
Travel award to attend the NeurIPS conference in New Orleans (US).
- **Scholarship** — National Association SAPAR 2019
Scholarship awarded to top 4 STEM students.
- **Scholarship** — Politecnico di Milano 2019
Reduced tuition for high merits.

Projects

I believe in worldwide accessibility of science. As such, I make the software I develop for my research publicly available through [my GitHub page](#). You can also find the code related to my publications on the [GitHub page of Graph Machine Learning Group](#).



Torch Spatiotemporal

Torch Spatiotemporal (**TSL**) is a library built upon **PyTorch** and **PyG** for neural spatiotemporal data processing, with a focus on Graph Neural Networks.

[GitHub](#)[Documentation](#)

Other projects

- **GraPV**

Sep 2020 — Feb 2023

Developing of graph-based methods for multi-site photovoltaic power forecasting, to improve accuracy on portfolio production prediction. The solution is based on novel graph-based AI strategies exploiting existing heterogeneous information and related dependencies. Joint project in collaboration with **DXT Commodities**, funded by **Innosuisse**.

Publications

Graph Deep Learning for Time Series Forecasting

Andrea Cini, **Ivan Marisca**, Daniele Zambon, Cesare Alippi

Preprint, 2023

Taming Local Effects in Graph-based Spatiotemporal Forecasting

Andrea Cini*, **Ivan Marisca***, Daniele Zambon, Cesare Alippi

Advances in Neural Information Processing Systems, 2023

Scalable Spatiotemporal Graph Neural Networks

Andrea Cini*, **Ivan Marisca***, Filippo Maria Bianchi, Cesare Alippi

Proceedings of the AAAI conference on artificial intelligence, 2023

Learning to Reconstruct Missing Data from Spatiotemporal Graphs with Sparse Observations

Ivan Marisca*, Andrea Cini*, Cesare Alippi

Advances in Neural Information Processing Systems, 2022

Filling the G_ap_s: Multivariate Time Series Imputation by Graph Neural Networks

Andrea Cini*, **Ivan Marisca***, Cesare Alippi

International Conference on Learning Representations, 2022

*Equal contribution.