Ivan **Marisca**

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LANGUAGES

Italian (Native)

English (Professional)

French (Basic)

Spanish (Basic)

About Me

I am CTO of GraphSight, a Swiss startup that provides AI-powered graph-based forecasts for renewable energy systems. I recently completed my Ph.D. in the Graph Machine Learning Group at IDSIA and Università della Svizzera italiana (USI) in Lugano (Switzerland), under the supervision of Prof. Cesare Alippi. I was also part of the ELLIS Ph.D. program, jointly supervised by Prof. Alippi and Prof. Michael Bronstein. Previously, I earned my BSc (2017) and MSc (2020) in Computer Science and Engineering from Politecnico di Milano (Italy). I have been a visiting researcher at the University of Oxford with Prof. Bronstein and at UiT The Arctic University of Norway (Tromsø) with Prof. Filippo Maria Bianchi.

My research focuses on **graph deep learning** for **irregular spatiotemporal data**. I'm interested in the application of **graph-based** methods in problems regarding data coming from **sensor networks**, like **imputation**, **filtering**, and **prediction** of irregularly sampled observations.

Education

Ph.D. in Informatics   2020 — 2025
📍 Università della Svizzera italiana (USI)

Ph.D. graduate from IDSIA and Università della Svizzera italiana (USI), where I was supervised by Prof. Cesare Alippi.

Research visit   Mar 2024 — Aug 2024
📍 University of Oxford

6-month research visit within the group of Prof. Michael Bronstein.

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.

Exchange   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 AI.

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 (IT)

High school diploma with a specific focus in mathematics and science.

Academic Activities

Teaching

- **Advanced Topics in Machine Learning** (TA) – MSc at USI   Sep 2024 — Jan 2025
  Guest lecturer, teaching assistant, and tutor for team projects.

- **Advanced Topics in Machine Learning** (TA) – MSc at USI   Sep 2023 — Jan 2024
  Teaching assistant, involved in course organization, lecture preparation and student tutoring.

- **Graph Deep Learning** (TA) – MSc at USI   Feb 2023 — Jun 2023
  Lectures design and students tutoring on team projects.

- **Advanced Topics in Machine Learning** (TA) – MSc at USI   Sep 2022 — Jan 2023
  Students tutoring for projects on reproducibility.

- **Graph Deep Learning** (TA) – 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** (TA) – MSc at USI   Sep 2021 — Jan 2022
  Course on AI and ML delivered in Italian for high school teachers.

- **Machine Learning** (TA) – BSc at USI   Feb 2021 — Jun 2021
  Lab sessions on practical aspects and show how to design machine learning solutions to real-world problems.

Supervised students

- **Valentina Moretti**, MSc at USI and Politecnico di Milano — 2024
  Quasi-stateful RNNs with Truncated Back-propagation Through Time.
- **Simone Mugnai**, MSc at USI and University of Bologna — 2024
  Graph-based Imputation and Smoothing for Forecasting with Missing Data.
- **Marco Latella**, MSc at USI and University of Milano-Bicocca — 2022
  Graph Representation Learning for Multi-site Photovoltaic Energy Production.

Talks

- **Invited talk** at University of Oxford — May 2024
  Talk on graph deep learning for irregular spatiotemporal data at the Learning on Graphs and Geometry (LoG^2) seminar series.
- **Invited talk** at Baker Hughes (Virtual) — Jul 2022
  Seminar on time series imputation for the Baker Hughes' AI team.

- **Spotlight talk** at TGL Workshop (New Orleans) — Dec 2022
  Presenting the paper Scalable Spatiotemporal Graph Neural Networks at the Temporal Graph Learning Workshop at NeurIPS 2022.
- **Tutorial** at LoG Conference (Virtual & Siena, Italy) — Nov 2024
  Presentation of the tutorial Graph Deep Learning for Time Series Processing with Andrea Cini and Daniele Zambon. (🎥 Video)
- **Tutorial** at ECML/PKDD (Turin) — Sep 2023
  Presentation of the tutorial Graph Deep Learning for Spatiotemporal Time Series with Andrea Cini and Daniele Zambon.

- **Reading group presentation** at TGL reading group (Virtual) — Feb 2024
  Presenting the paper Taming Local Effects in Graph-based Spatiotemporal Forecasting at the Temporal Graph Learning Reading Group. (🎥 Video)
- **Reading group presentation** at TGL reading group (Virtual) — Apr 2023
  Presenting the paper Scalable Spatiotemporal Graph Neural Networks at the Temporal Graph Learning Reading Group.

Awards & Scholarships

- **Doctoral Mobility grant** — Università della Svizzera italiana — Dec 2023
  Grant of CHF 20'000 (≈$23K) for a 6-month research stay at University of Oxford to work with Prof. 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 the top-4 students in STEM subjects.
- **Scholarship** — Politecnico di Milano — 2019
  Reduced tuition for high merits.

Program Committee Member

- **Journals**
  Journal of Machine Learning Research (JMLR) — IEEE Transactions on Neural Networks (TNNLS) — Neural Networks.
- **Conferences**
  Advances in Neural Information Processing Systems (NeurIPS) — International Conference on Machine Learning (ICML) — International Joint Conference on Neural Networks (IJCNN).

Publications

Over-squashing in Spatiotemporal Graph Neural Networks

Ivan Marisca, Jacob Bamberger, Cesare Alippi, Michael M. Bronstein

To appear in Advances in Neural Information Processing Systems, 2025

PeakWeather: MeteoSwiss Weather Station Measurements for Spatiotemporal Deep Learning

Daniele Zambon[*], Michele Cattaneo[*], **Ivan Marisca**, Jonas Bhend, Daniele Nerini, Cesare Alippi

Preprint, 2025

Graph-based Forecasting with Missing Data through Spatiotemporal Downsampling

Ivan Marisca, Cesare Alippi, Filippo Maria Bianchi

International Conference on Machine Learning, 2024

Graph Deep Learning for Time Series Forecasting

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

ACM Computing Surverys, 2025

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.