

# Andrea Cini, Ph.D.

Postdoctoral Researcher

✉ [andracini1994@gmail.com](mailto:andracini1994@gmail.com)

🌐 [andracini.github.io](https://andracini.github.io)

## Research interests

My research focuses on machine learning methods for processing spatiotemporal data on **structured domains**. In particular, I am interested in relational representations for **time series analysis** and processing **graph-structured data**. Main applications are in **energy analytics** and **healthcare**. I am also working on methods to leverage structure for **uncertainty quantification** and **reinforcement learning**.

## Academic positions

- Mar 2026 – **SNSF Postdoctoral Fellow**, *IMOS lab, ENAC, EPFL*, Lausanne, Switzerland, Host: Prof. **Olga Fink**
- SNSF Postdoc.Mobility grant: *Relational Deep Learning for Reliable Time Series Forecasting at Scale* (personal grant), [link](#)
- Feb 2025 – **SNSF Postdoctoral Fellow**, *Department of Computer Science, University of Oxford*, Feb 2026 Oxford, United Kingdom, Host: Prof. **Michael Bronstein**
- Spatiotemporal data processing, conformal prediction, relational representations.
- Feb 2025 – **External Postdoc**, *Department of Mathematics and Statistics, UiT The Arctic University of Norway*, Tromsø, Norway, Host: Prof. **Filippo Maria Bianchi**
- Uncertainty quantification in spatiotemporal data processing.
- Aug 2024 – **Postdoctoral Researcher**, *The Swiss AI Lab IDSIA USI-SUPSI, Università della Svizzera italiana*, Lugano, Switzerland, Advisor: Prof. **Cesare Alippi**
- Time series analysis.
  - Graph processing.
- Mar 2023 – **Visiting PhD Researcher**, *Department of Electrical and Electronic Engineering, Imperial College London*, London, United Kingdom, Host: Prof. **Danilo Mandic**
- Graph-based hierarchical forecasting.
  - Biomedical signal processing.
- 2019–2024 **PhD student**, *The Swiss AI Lab IDSIA USI-SUPSI, Università della Svizzera italiana*, Lugano, Switzerland, Advisor: Prof. **Cesare Alippi**
- Time series and graph processing.
  - Graph deep learning.
- 2019–2024 **Teaching Assistant**, *Università della Svizzera italiana*, Lugano, Switzerland
- Designing and delivering lectures and tutorials.
  - Student assessment and supervision.

## Industry positions

- 2018–2019 **R&D Machine Learning Engineer**, *Argotec*, Turin, Italy, R&D Machine Learning projects for aerospace applications
- Reinforcement learning for satellite attitude control.
  - Applied computer vision.

---

## Education

- 2019–2024 **PhD in Informatics**, *The Swiss AI Lab IDSIA USI-SUPSI, Università della Svizzera italiana*, Lugano, Switzerland, Advisor: Prof. **Cesare Alippi**
- Note of distinction from the PhD reviewing committee.
  - Informatics Europe Best Dissertation Award 2025.
- 2016–2018 **MSc in Computer Science and Engineering**, *Politecnico di Milano*, Milan, Italy, Final grade: 110/110 cum Laude, GPA: 29.3/30, Advisor: Prof. **Marcello Restelli**
- 2013–2016 **BSc in Computer Science and Engineering**, *Politecnico di Milano*, Milan, Italy, Final grade: 110/110, GPA: 28.3/30

---

## Research grants

- 2025 – (ongoing) **Relational Deep Learning for Reliable Time Series Forecasting at Scale**, *Swiss National Science Foundation*, SNSF Postdoc.Mobility grant for an independent 2-year research project (**PI, 132.6K CHF**)
- Collaborators: Prof. Michael Bronstein (University of Oxford), Prof. Filippo Maria Bianchi (UiT The Arctic University of Norway)
  - More details at: <https://data.snf.ch/grants/grant/225351>
- 2023 **Spatiotemporal Time-Series Forecasting with Graph Neural Networks**, *Università della Svizzera italiana*, Doctoral mobility grant for a six-month research visit at Imperial College London (**PI, 18.5K CHF**)
- Collaborators: Prof. Danilo Mandic (Imperial College London)
  - Results: The project was successful: new ongoing collaborations, 1 accepted conference paper, 1 accepted workshop paper, 1 journal paper under submission, and 1 patent application.

### Contributions to securing funding

Besides the projects where I was a direct applicant (listed above), I have contributed to securing grants throughout my career. These include 1) a large **Swiss National Science Foundation** grant (SNSF project HORD GNN, approx. **900K CHF**, [link](#)) and 2) a smaller **Hasler Foundation** grant (approx. **50K CHF**, [link](#)). In both projects, I made core contributions to defining the project research themes and plan.

---

## Honors and awards

- 2025 **Informatics Europe Best Dissertation Award**, *Informatics Europe*, European award recognizing the single best PhD dissertation in informatics in 2025.
- Selected from nominees across **ca. 200 leading universities and research labs** in Europe.
  - Prize includes an award plaque, a monetary award of €3,000, the **publication of the thesis as a book** in a dedicated Springer series, and presentation at the award ceremony at the European Computer Science Summit 2025.

### Best paper awards

- 2022 **Scalable Spatiotemporal Graph Neural Networks**, *TGL @ NeurIPS 22*, Best paper award at Temporal Graph Learning Workshop at NeurIPS 2022.

### Other honors and awards

- 2023 **Top reviewer**, *NeurIPS 2023*, Selected among the best reviewers for NeurIPS 2023.
- 2013–2018 **Merit scholarship**, *Politecnico di Milano*, Reduced tuition for high merits

---

## Teaching and supervision

### Courses

- 2022 **Graph Deep Learning**, *MSc, USI*, Teaching assistant and lecturer
  - Designed and delivered lectures and tutorials. Student assessment and supervision.
- 2020–2024 **Advanced Topics in Machine Learning**, *MSc, USI*, Teaching assistant and lecturer
  - Designed and delivered lectures and tutorials. Student assessment and supervision.
- 2020,2021 **Machine Learning**, *BSc & MSc, USI*, Teaching assistant and lecturer
  - Designed and delivered tutorials. Student assessment and supervision.
- 2019 **Software Performance**, *MSc, USI*, Teaching assistant
  - Student assessment and supervision.

### Supervision – PhD students

- 2024– (ongoing) **Roberto Neglia**, *PhD @ UiT*, Co-supervisor. Roberto is working on spatiotemporal data processing and uncertainty quantification.
- 2024– (ongoing) **Valentina Moretti**, *PhD @ USI*, Co-supervisor. Valentina is working on time series forecasting and learning in non-stationary environments.
- 2022– (ongoing) **Tommaso Marzi**, *PhD @ USI*, Research co-supervision. Tommaso is working on graph-based representations for reinforcement learning.

### Thesis Supervisor – MSc and BSc students

- 2023–2024 **Valentina Moretti**, *MSc @ Politecnico di Milano*, Thesis: State Initialization in Recurrent Neural Networks, PhD student at USI
- 2022 **Arshjot Khehra**, *MSc @ USI*, Thesis: Hierarchical Graph Reinforcement Learning, Data Scientist at Swiss Data Science Center
- 2022 **Simone Eandi**, *MSc @ USI*, Thesis: Spatio-Temporal Graph Neural Networks for aggregate load forecasting, Machine Learning Engineer at Intesa
- 2022 **Hrittik Roy**, *MSc @ USI*, Thesis: Geometric Aspects of Reinforcement Learning, PhD student at Technical University of Denmark
- 2020 **Gabriel Carraretto**, *BSc @ USI*, Thesis: Graph Representations for Skeleton-based Action Recognition, MSc student at USI
- 2019 **Gloria Sassone**, *BSc @ USI*, Thesis: Exploiting AI for automatic gender stereotypes detection in Disney movies, MSc student at USI

---

## Service

### Workshop organizer

- 2025 **Temporal Graph Learning Workshop**, *Organizer and program chair of the 2025 edition of the Temporal Graph Learning Workshop at KDD 2025 ([link](#))*.
- 2025 **Inductive Biases in RL**, *Organizer and program chair of the first Inductive Biases in RL workshop at the Reinforcement Learning Conference 2025 ([link](#))*.

### Area chair

- 2024,2025 Learning on Graphs Conference (LOG)
- 2025 Northern Lights Deep Learning Conference (NLDL)

## Reviewer/Program committee member

- Journals Journal of Machine Learning Research (JMLR), IEEE Transactions on Neural Networks (TNNLS), IEEE Transactions on Artificial Intelligence (TAI), Neural Networks
- Conferences Advances in Neural Information Processing Systems (NeurIPS), International Conference on Machine Learning (ICML), International Conference on Learning Representations (ICLR), AAAI Conference on Artificial Intelligence (AAAI), Learning on Graphs Conference (LOG), International Joint Conference on Neural Networks (IJCNN), European Symposium on Artificial Neural Networks (ESANN), International Conference on Artificial Neural Networks (ICANN)

---

## Talks

### Tutorials

- 2026 **Graph Deep Learning for Time Series Processing**, *Tutorial on graph deep learning for time series at the Norwegian LoG-meetup in Tromsø*, <https://ngmlgroup.github.io/log2025>
- 2024 **Graph Deep Learning for Time Series Processing**, *Tutorial on graph deep learning for time series at the Italian LoG-meetup in Siena*, <https://sites.google.com/student.unisi.it/log24siena/home-page>
- 2024 **Graph Deep Learning for Time Series Processing**, *Organized tutorial on graph deep learning for time series processing at LoG 2024*, <https://gmlg.ch/tutorials/graph-based-processing/log-2024>
- 2023 **Graph Deep Learning for Spatiotemporal Time Series**, *Organized tutorial on graph deep learning for time series processing at ECML PKDD 2023*, <https://gmlg.ch/tutorials/graph-based-processing/ecml-2023>

### Seminars, guest lectures, and keynotes

- 2025 **Early Career Researchers Workshop @ ECSS 2025**, *Lessons learned from my doctoral studies*, Invited to deliver a keynote on my take on how to be successful in doctoral studies, <https://www.informatics-europe.org/ecss/program/career-development-workshop.html>.
- 2025 **McGill University**, *Graph Deep Learning for Time Series Processing*, Invited to deliver a lecture on spatiotemporal graphs to Prof. Reihaneh Rabbany's Temporal Graph Learning class at McGill University.
- 2024 **Temporal Graph Learning Reading Group**, *Graph Deep Learning for Time Series Processing*, Invited to present my research on graph-based time series processing.
- 2024 **Oxford Networks and Society Group**, *Graph Deep Learning for Time Series Forecasting*, Seminar to Prof. Xiaowen Dong's group at the University of Oxford.
- 2023 **Temporal Graph Learning Reading Group**, *Scalable Spatiotemporal Graph Neural Networks*, Invited to present my work on scalable graph-based predictors.
- 2022 **Baker Hughes**, *Graph Deep Learning for Time Series Imputation*, Invited to give a seminar about my work on graph neural networks for imputation to the AI team of Baker Hughes.
- 2022 **Reinforcement Learning at TU Dresden**, *Deep Reinforcement Learning with Weighted Q-Learning*, Invited to talk about my work on Weighted Q-Learning at the Conference on Reinforcement Learning at TU Dresden.

## Panels

- 2025 **Early Career Researchers Workshop @ ECSS 2025**, *Invited panelist as awardee of 2025 Informatics Europe Best Dissertation award.*

---

## Societies

- 2025– **ELLIS Society**, *Member*, Member of the European Laboratory for Learning and Intelligent Systems (ELLIS), the European AI network of excellence.

---

## Research collaborations

- 2026– (ongoing) I will be collaborating with Prof. **Olga Fink** and her team at the **EPFL** as part of my SNSF project, *Relational Deep Learning for Reliable Time Series Forecasting at Scale*, for which the EPFL serves as the current host institute.
- 2025– (ongoing) I am collaborating with Prof. **Michael Bronstein** and his team at the **University of Oxford** as part of my SNSF project, for which the University of Oxford served as the first host institution. The collaboration focuses on machine learning for relational and temporal data.
- 2023– (ongoing) I am collaborating with Prof. **Danilo Mandic** and Dr. **Fu Siong Ng** and their teams at **Imperial College London** on the application of *graph deep learning* to *biomedical signal processing*. The collaboration has already led to a patent application.
- 2022– (ongoing) I am collaborating with Prof. **Filippo Maria Bianchi** and his team at **UiT The Arctic University of Norway**. The collaboration with Prof. Bianchi focuses on *time series forecasting*, *uncertainty quantification*, and graph deep learning for *energy analytics*. Prof. Bianchi is a collaborator on my postdoctoral SNSF project and as a result of the collaboration I have been recognized as a postdoctoral affiliate at UiT.
- 2019– (ongoing) I completed my doctoral studies at the Graph Machine Learning Group (GMLG), within the Swiss AI lab IDSIA USI-SUPSI, at **Università della Svizzera italiana (USI)**, working under the supervision of Prof. **Cesare Alippi**. My research at GMLG focused on *graph-based methods for time series processing*. I am currently co-supervising two PhD students at GMLG.
- 2019–2021 I collaborated with Prof. **Carlo D'Eramo** on bias correction in *reinforcement learning* while he was at **TU Darmstadt** in the group led by Prof. **Jan Peters**.
- 2018 I worked with Prof. **Marcello Restelli** and his team at **Politecnico di Milano** on exploration vs exploitation in **reinforcement learning** during my MSc thesis.

---

## Open-source projects

- 2022 **Torch Spatiotemporal**, <https://github.com/TorchSpatiotemporal/tsl>, A PyTorch library built to accelerate research on neural spatiotemporal data processing methods, with a focus on Graph Neural Networks, Lead developer

---

## Patents

- 2025 **Cardiac fibrillation dynamics from partial observations using AI (pending)**, *UK patent application*, Collaboration between USI and Imperial College.

## Publication list

Google Scholar: **1027 citations, h-index 15** (27 February 2026)

### Preprints

- [1] V. Moretti, **A. Cini**, I. Marisca, and C. Alippi. "What Matters in Deep Learning for Time Series Forecasting?" In: *arXiv preprint arXiv:2512.22702* (2025).
- [2] T. Marzi, C. Alippi, and **A. Cini**. "Hierarchical Message-Passing Policies for Multi-Agent Reinforcement Learning". In: *arXiv preprint* (2025).
- [3] A. Jenkins, **A. Cini**, J. Barker, A. Sharp, A. Sau, V. Valentine, S. Valasang, X. Li, T. Wong, T. Betts, D. Mandic, C. Alippi, and F. S. Ng. "Learning to Predict Global Atrial Fibrillation Dynamics from Sparse Measurements". In: *arXiv preprint arXiv:2502.09473* (2025).
- [4] D. Zambon, **A. Cini**, L. Livi, and C. Alippi. "Graph state-space models". In: *arXiv preprint arXiv:2301.01741* (2023).

### Books

- [5] **A. Cini**. *Graph Deep Learning for Time Series Forecasting*. Under contract with Springer, expected 2026.

### Journal Papers

- [6] J. B. Hansen, **A. Cini**, and F. M. Bianchi. "On Time Series Clustering with Graph Neural Networks". In: *Transactions on Machine Learning Research* (2025). URL: <https://openreview.net/forum?id=MHQxfiXsr3>.
- [7] **A. Cini**, I. Marisca, D. Zambon, and C. Alippi. "Graph Deep Learning for Time Series Forecasting". In: *ACM Comput. Surv.* (2025). ISSN: 0360-0300. DOI: 10.1145/3742784. URL: <https://doi.org/10.1145/3742784>.
- [8] L. Butera, G. D. Felice, **A. Cini**, and C. Alippi. "On the Regularization of Learnable Embeddings for Time Series Forecasting". In: *Transactions on Machine Learning Research* (2025). ISSN: 2835-8856. URL: <https://openreview.net/forum?id=F5ALCh3GwG>.
- [9] T. Marzi, A. S. Khehra, **A. Cini**, and C. Alippi. "Feudal Graph Reinforcement Learning". In: *Transactions on Machine Learning Research* (2024). ISSN: 2835-8856. URL: <https://openreview.net/forum?id=wFcyJTik90>.
- [10] L. Butera, **A. Cini**, A. Ferrante, and C. Alippi. "Object-Centric Relational Representations for Image Generation". In: *Transactions on Machine Learning Research* (2024). ISSN: 2835-8856. URL: <https://openreview.net/forum?id=7kWjB9zW90>.
- [11] N. A. Efkarpidis, S. Imoscopi, M. Geidl, **A. Cini**, S. Lukovic, C. Alippi, and I. Herbst. "Peak shaving in distribution networks using stationary energy storage systems: A Swiss case study". In: *Sustainable Energy, Grids and Networks* 34 (2023), p. 101018.
- [12] **A. Cini**, D. Zambon, and C. Alippi. "Sparse Graph Learning from Spatiotemporal Time Series". In: *Journal of Machine Learning Research* 24.242 (2023), pp. 1–36.
- [13] L. Ferretti, **A. Cini**, G. Zacharopoulos, C. Alippi, and L. Pozzi. "Graph Neural Networks for High-Level Synthesis Design Space Exploration". In: *ACM Transactions on Design Automation of Electronic Systems* (2022).
- [14] C. D'Eramo, **A. Cini**, A. Nuara, M. Pirotta, C. Alippi, J. Peters, and M. Restelli. "Gaussian Approximation for Bias Reduction in Q-Learning". In: *Journal of Machine Learning Research* 22 (2021), pp. 1–51.

## Conference Papers

- [15] R. Neglia, **A. Cini**, M. M. Bronstein, and F. M. Bianchi. “ResCP: Reservoir Conformal Prediction for Time Series Forecasting”. In: *International Conference on Learning Representations (accepted)* (2026).
- [16] S. Huang, D. Zambon, **A. Cini**, F. Poursafaei, J. Chmura, J. Gastinger, R. Rabbany, and M. Bronstein. “Temporal Graph Learning Workshop”. In: *Proceedings of the 31st ACM SIGKDD Conference on Knowledge Discovery and Data Mining V. 2*. 2025, pp. 6280–6281.
- [17] **A. Cini**, A. Jenkins, D. Mandic, C. Alippi, and F. M. Bianchi. “Relational Conformal Prediction for Correlated Time Series”. In: *International Conference on Machine Learning*. 2025.
- [18] G. De Felice, **A. Cini**, D. Zambon, V. Gusev, and C. Alippi. “Graph-based Virtual Sensing from Sparse and Partial Multivariate Observations”. In: *International Conference on Learning Representations*. 2024.
- [19] **A. Cini**, D. Mandic, and C. Alippi. “Graph-based Time Series Clustering for End-to-End Hierarchical Forecasting”. In: *International Conference on Machine Learning* (2024).
- [20] **A. Cini**, I. Marisca, D. Zambon, and C. Alippi. “Taming Local Effects in Graph-based Spatiotemporal Forecasting”. In: *Advances in Neural Information Processing Systems (NeurIPS)* (2023).
- [21] **A. Cini**, I. Marisca, F. M. Bianchi, and C. Alippi. “Scalable Spatiotemporal Graph Neural Networks”. In: *Proceedings of the AAAI Conference on Artificial Intelligence* (2023).
- [22] I. Marisca, **A. Cini**, and C. Alippi. “Learning to Reconstruct Missing Data from Spatiotemporal Graphs with Sparse Observations”. In: *Advances in Neural Information Processing Systems (NeurIPS)* (2022).
- [23] S. Eandi, **A. Cini**, S. Lukovic, and C. Alippi. “Spatio-Temporal Graph Neural Networks for Aggregate Load Forecasting”. In: *2022 International Joint Conference on Neural Networks (IJCNN)*. IEEE. 2022, pp. 1–8.
- [24] **A. Cini**, I. Marisca, and C. Alippi. “Filling the Gaps: Multivariate Time Series Imputation by Graph Neural Networks”. In: *International Conference on Learning Representations (ICLR)* (2022).
- [25] **A. Cini**, C. D’Eramo, J. Peters, and C. Alippi. “Deep reinforcement learning with weighted Q-Learning”. In: *The Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM)* (2022).
- [26] **A. Cini**, S. Lukovic, and C. Alippi. “Cluster-based aggregate load forecasting with deep neural networks”. In: *2020 International Joint Conference on Neural Networks (IJCNN)*. IEEE. 2020, pp. 1–8.
- [27] C. D’Eramo, **A. Cini**, and M. Restelli. “Exploiting Action-Value Uncertainty to drive Exploration in Reinforcement Learning”. In: *International Joint Conference on Neural Networks (IJCNN)*. 2019.

## Workshop papers

- [28] A. Jenkins, **A. Cini**, J. Barker, D. Mandic, C. Alippi, and F. S. Ng. “Mapping the Dynamics of Atrial Fibrillation with Spatiotemporal Graph Neural Networks”. In: *NeurIPS 2025 Workshop on Learning from Time Series for Health*. 2025.
- [29] M. E. Hariry, **A. Cini**, G. Mellone, and A. Balossino. “Deep Reinforcement Learning Policies for Underactuated Satellite Attitude Control”. In: *NeurIPS 2021 Workshop on Deployable Decision-Making in Embodied Systems* (2021).