

Andrea Cini, Ph.D.

Incoming Assistant Professor

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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 also work on methods leveraging structure for **uncertainty quantification** and **reinforcement learning**.

Academic positions

- Incoming, Feb 2027 **École Polytechnique**, *Tenure-track Assistant Professor*, Department of Applied Mathematics (CMAP), Palaiseau, France
- Feb 2025 – present **SNSF Postdoc.Mobility Fellowship**, *SNSF Postdoctoral Fellow*, [link](#)
- Oct 2026 – present: **Mila**, Canada (Host: Reihaneh Rabbany)
 - Oct 2026 – present: **McGill University**, Canada (Host: Reihaneh Rabbany)
 - Mar 2026 – Sep 2026: **EPFL**, Switzerland (Host: Olga Fink)
 - Feb 2025 – Feb 2026: **University of Oxford**, UK (Host: Michael Bronstein)
- Feb 2025 – present **UiT The Arctic University of Norway**, *External Postdoc*, Department of Mathematics and Statistics, Tromsø, Norway, Host: Filippo Maria Bianchi
- Aug 2024 – Jan 2025 **Università della Svizzera italiana**, *Postdoctoral Researcher*, IDSIA USI-SUPSI, Lugano, Switzerland, Advisor: Cesare Alippi
- Mar 2023 – Aug 2023 **Imperial College London**, *Visiting PhD Researcher*, Department of Electrical and Electronic Engineering, London, United Kingdom, Host: Danilo Mandic
- 2019–2024 **Università della Svizzera italiana**, *PhD student*, IDSIA USI-SUPSI, Lugano, Switzerland, Advisor: Cesare Alippi
- 2019–2024 **Università della Svizzera italiana**, *Teaching Assistant*, Lugano, Switzerland

Industry positions

- 2018–2019 **Argotec**, *R&D Machine Learning Engineer*, Turin, Italy, R&D Machine Learning projects for aerospace applications

Education

- 2019–2024 **Università della Svizzera italiana**, *PhD in Informatics*, IDSIA USI-SUPSI, Lugano, Switzerland, Advisor: Cesare Alippi

- 2016–2018 **Politecnico di Milano**, *MSc in Computer Science and Engineering*, Milan, Italy, Final grade: 110/110 cum Laude, GPA: 29.3/30, Advisor: Marcello Restelli
- 2013–2016 **Politecnico di Milano**, *BSc in Computer Science and Engineering*, Milan, Italy, Final grade: 110/110, GPA: 28.3/30

Research grants

- 2025–2027 **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**)
- 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**)

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. **910K CHF**, [link](#)) and 2) a smaller **Hasler Foundation** grant (approx. **50K CHF**, [link](#)). In both projects, I made core contributions to defining the 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
- 2013 **Merit Scholarship**, *Liceo Scientifico Giovanni da Castiglione*, Scholarship awarded to the best high-school graduate.

Teaching and supervision

Courses

- 2019–2020 **Software Performance**, 6 ECTS, MSc, USI
- Editions: 2019–2020
 - Number of students: 19
 - Role: **Teaching assistant**. Course director: Matthias Hauswirth
- 2019–2021 **Machine Learning**, 6 ECTS, BSc & MSc, USI
- Editions: 2019–2020, 2020–2021
 - Number of students: 30–40
 - Role: **Teaching assistant and lecturer**. Course director: Cesare Alippi
- 2022 **Graph Deep Learning**, 3 ECTS, MSc, USI
- Editions: 2021–2022
 - Number of students: 38
 - Role: **Teaching assistant and lecturer**. Course director: Cesare Alippi
- 2020–2024 **Advanced Topics in Machine Learning**, 3 ECTS, MSc, USI
- Editions: 2020–2021, 2021–2022, 2022–2023, 2023–2024
 - Number of students: from 17 in the first edition to 43 in the last edition.
 - Role: **Teaching assistant and lecturer**. Course director: Cesare Alippi
- 2026 **Data Science for Infrastructure Condition Monitoring**, 3 ECTS, BSc, EPFL
- Editions: 2026
 - Number of students: 7
 - Role: **Teaching assistant**. Course director: Olga Fink

Invited Lectures

- 2025 **Graph Deep Learning for Spatiotemporal Data**, McGill University, Lecture on models for spatiotemporal graphs in Prof. Reihaneh Rabbany's Network Science course at McGill University (remote).

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, Co-supervisor. 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

Academic 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](#))*.

Tutorial Chair

- 2026 Learning on Graphs Conference (LOG)

Area Chair

- 2027 International Conference on Artificial Intelligence and Statistics (AISTATS)
- 2026 Advances in Neural Information Processing Systems (NeurIPS)
- 2024,2025 Learning on Graphs Conference (LOG)
- 2025, 2026 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, Evolving Systems (EVOS)
- 2020–
- 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)
- 2020–

Panelist

- 2025 **European Informatics Leaders Summit 2025**, *Early Career Researchers Workshop*

Talks

Tutorials

- 2026 **Graph Deep Learning for Time Series Processing**, *Tutorial on graph deep learning for time series at the ASSESS MSCA doctoral network in Dresden, <https://cordis.europa.eu/project/id/101168031>*

- 2026 **Graph representations for time series processing**, *Tutorial on graph learning for time series at 10th Intelligence Maintenance Conference in Lausanne*, <https://smartmaintenance.ch/#workshop>
- 2026 **(Invited) 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>

Invited talks and seminars

- 2025 **Early Career Researchers Workshop @ ECSS 2025**, *Lessons learned from my doctoral studies*, Invited keynote on how to succeed in doctoral studies.
- 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 Seminar**, *Graph Deep Learning for Time Series Forecasting*, Invited to give a 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 at the reading group.
- 2022 **Baker Hughes AI Seminar**, *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 **Conference on Reinforcement Learning (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.

Societies

- 2025–present **ELLIS Society**, *Member*, Member of the European Laboratory for Learning and Intelligent Systems (ELLIS), the European AI network of excellence.
- 2026–present **Integreat**, *Member*, Member of Integreat, the Norwegian Centre for Knowledge-driven Machine Learning, a Centre of Excellence funded by the Research Council of Norway.

Open-source projects

- 2022 **Torch Spatiotemporal**, <https://github.com/TorchSpatiotemporal/ts1>, 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.

Languages

English Fluent
Italian Mother tongue

Publication list

Google Scholar: **1474 citations, h-index 17** (15 October 2026)

Preprints

- [1] D. Zambon, **A. Cini**, and C. Alippi. "Graph State-Space Models and Latent Relational Inference". In: *arXiv preprint arXiv:2301.01741* (2026). URL: <https://arxiv.org/abs/2301.01741>.
- [2] T. Marzi, A. Hendawy, J. Peters, C. D'Eramo, **A. Cini**, and C. Alippi. "Continual Graph Multi-Agent Reinforcement Learning". In: (2026). URL: <https://arxiv.org/abs/2610.10302>.
- [3] T. Marzi, C. Alippi, and **A. Cini**. "Hierarchical Message-Passing Policies for Multi-Agent Reinforcement Learning". In: *arXiv preprint* (2026). URL: <https://arxiv.org/abs/2507.23604>.
- [4] 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). URL: <https://arxiv.org/abs/2502.09473>.

Books

- [5] **A. Cini**. *Graph Deep Learning for Time Series Forecasting: Methods, Challenges, and Practice*. 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. De 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. URL: <https://www.sciencedirect.com/science/article/pii/S2352467723000267>.
- [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. URL: <http://jmlr.org/papers/v24/22-1154.html>.
- [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). DOI: 10.1145/3570925. URL: <https://doi.org/10.1145/3570925>.
- [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. URL: <http://jmlr.org/papers/v22/20-633.html>.

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 (ICLR)* (2026). URL: <https://openreview.net/forum?id=WGqibe5H3W>.
- [16] V. Moretti, I. Marisca, C. Alippi, and **A. Cini**. "Position: Current Benchmarking Hinders Real Progress in Deep Learning for Time Series Forecasting". In: *International Conference on Machine Learning (ICML) - Position Paper Track* (2026). URL: <https://openreview.net/forum?id=gtwbLm07Wb>.
- [17] L. Butera, G. De Felice, **A. Cini**, and C. Alippi. "Why Do Time Series Models Need Long Context Windows?" In: *Advances in Neural Information Processing Systems (NeurIPS)* (2026).
- [18] 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. DOI: 10.1145/3711896.3737855. URL: <https://doi.org/10.1145/3711896.3737855>.
- [19] **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. URL: <https://openreview.net/forum?id=wwYDQ1vXcZ>.

- [20] 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 (ICLR)*. 2024. URL: <https://openreview.net/forum?id=CAqG2dy5s>.
- [21] **A. Cini**, D. Mandic, and C. Alippi. "Graph-based Time Series Clustering for End-to-End Hierarchical Forecasting". In: *International Conference on Machine Learning (ICML)* (2024). URL: <https://openreview.net/forum?id=nd47Za5jk5>.
- [22] **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). DOI: 10.52202/075280-2417. URL: <https://openreview.net/forum?id=x2PH6q32LR>.
- [23] **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). DOI: 10.1609/aaai.v37i6.25880. URL: <https://ojs.aaai.org/index.php/AAAI/article/view/25880>.
- [24] 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). DOI: 10.52202/068431-2324.
- [25] 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. URL: <https://ieeexplore.ieee.org/document/9892780>.
- [26] **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). URL: <https://openreview.net/forum?id=kOu3-S3wJ7>.
- [27] **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). URL: <https://arxiv.org/abs/2003.09280>.
- [28] **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. URL: <https://ieeexplore.ieee.org/document/9207503/>.
- [29] 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. DOI: 10.1109/IJCNN.2019.8852326. URL: <https://ieeexplore.ieee.org/document/8852326>.

Workshop papers

- [30] 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. URL: <https://openreview.net/forum?id=DFb0QJl4k1>.

- [31] 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). URL: <https://arxiv.org/abs/2505.00165>.