

## Manuel Dileo

Ph.D. Student, University of Milan, Milan, Italy  
dileomanuel0@gmail.com — [www.manuel-dileo.github.io](http://www.manuel-dileo.github.io)

Manuel Dileo received a master degree in computer science in 2022. He is currently a senior Ph.D. student at the Computer Science Department of the University of Milan, where he is also a tutor of machine learning courses. He has published works on machine learning for temporal networks, link prediction in online social networks, and temporal knowledge graphs.

## RESEARCH INTERESTS

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Graph Machine Learning, Network Science, Graph Neural Networks, Knowledge Graphs, Temporal Networks

## RESEARCH EXPERIENCE

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**Ph.D. Student, Connets Lab.** October 2022 — Present  
*University of Milan* Milan, Italy

- Research activities on temporal graph learning.
- Group leader of the research lab. on graph machine learning.
- Supervision and co-advisor of bachelor and master thesis.

**Visiting Researcher** June 2023 — August 2023  
*School of Informatics, University of Edinburgh* Edinburgh, UK

- Research activities on temporal knowledge graphs.
- Research activities under the supervision of Dr. Pasquale Minervini.

**Research Fellow** May 2022 — October 2022  
*University of Milan* Milan, Italy

- Research activities on heterogeneous graph learning.
- Research activities on biomedical knowledge graphs with Anacleto Lab.

## TEACHING EXPERIENCE

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**Network science TA** September 2024 — Present  
*University of Milan* Milan, Italy  
Teaching Assistant for the course “Network Science”,  
Master degree in Data Science for Economics. 10 hours. A.Y.: 2024/2025.

**Machine learning tutor** October 2023 — Present  
*University of Milan* Milan, Italy  
Tutor for the lab sessions of the course “Machine learning, artificial neural networks and deep learning”,  
Bachelor degree in Artificial Intelligence. 24 hours. A.Y.: 2023/2024 - 2024/2025.

**Computer Programming tutor** October 2021 — September 2022  
*University of Milan* Milan, Italy  
Tutor for the lab sessions of the course “Computer Programming I”,  
Bachelor degree in Computer Science. 24 hours. A.Y.: 2021/2022

## EDUCATION

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**University of Milan**, Milan, Italy October 2020 — April 2022  
Master of Science in Computer Science  
Grade: 110 / 110 cum laude  
Thesis Title: Link Prediction in Blockchain Online Social Networks with contextual information

**University of Milan**, Milan, Italy October 2020 — April 2022  
Bachelor of Science in Computer Science  
Grade: 110 / 110 cum laude  
Thesis Title: Data-driven induction of fuzzy sets in forensics

## ACADEMIC ACTIVITIES

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- Network Science meets AI - Special session @ ESANN 2025, Organizer

- LOG - Learning on Graph Conference 2024, PC Member
- MLH - Mining and Learning Hypergraphs, workshop @ ECML PKDD 2024, PC Member
- ComplexTime - temporal aspects in complex systems, workshop @ CCS 2024, organizer
- IRonGraph - Graph-Based Approaches in Information Retrieval, workshop @ ECIR 2024, PC member
- TGL - Temporal Graph Learning, workshop @ NeurIPS 2023, PC member
- LIMBO - Learning and Mining for Blockchain workshop @ ECML PKDD 2023, Web Chair
- AIN4GO - AI on Networks for Social Good, workshop @ GoodIt 2023, organizer
- Reviewer for several journal and conferences ([manuel-dileo.github.io/review](https://manuel-dileo.github.io/review))

## GRANTS AND PROJECTS

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- **Winner** of the January 2023 INDACO call for free dedicated high-performance computing power and data storage with a research proposal on "Graph Neural Networks for Knowledge Graphs".
- **Team member** of the "My first SEED Grant" project "Generative AI for Humanities – A Theatre Experiment".
- **Team member** of the PRIN 2022 project "AWESOME: Analysis framework for WEb3 SOcial Media" – CUP: I53D23003680006 for the University of Milan unit.

## AWARDS

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- **Best poster award** for the work titled "Graph machine learning for fast product development from formulation trials". Mining and Learning on Graphs (MLG) workshop, co-located with the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD) 2024. <https://mlg-europe.github.io/2024/#awards>

## PUBLICATIONS

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### Journal paper

- **Dileo, M., Zignani, M.** (2024). Discrete-time Graph Neural Networks for transaction prediction in Web3 social platforms. Machine Learning. <https://doi.org/10.1007/s10994-024-06579-y>
- **Ba, C. T., Dileo, M., Galdeman, A., Zignani, M., Gaito, S.** (2024). Analyzing User Migration in Blockchain Online Social Networks through Network Structure and Discussion Topics of Communities on Multilayer Networks. Distrib. Ledger Technol. <https://doi.org/10.1145/3640020>
- **Dileo, M., Zignani, M., Gaito, S.** (2023). Temporal graph learning for dynamic link prediction with text in online social networks. Machine Learning. <https://doi.org/10.1007/s10994-023-06475-x>

### Conference paper (in proceedings)

- **Dileo, M., Zignani, M.** (2024). Network-wide shocking events through the lens of node representation shift. Accepted at Discovery Science.
- **Dileo, M., Zignani, M.** (2024). Link prediction heuristics for temporal graph benchmark. The 32nd European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN). <https://doi.org/10.14428/esann/2024.ES2024-141>
- **Dileo, M., Olmeda, R., Pindaro, M., Zignani, M.** (2024). Graph Machine Learning for fast product development from formulation trials. Joint European Conference on Machine Learning and Knowledge Discovery in Databases (ECML PKDD). [https://link.springer.com/chapter/10.1007/978-3-031-70378-2\\_19](https://link.springer.com/chapter/10.1007/978-3-031-70378-2_19)
- **Dileo, M., Zignani, M.** (2024). Can Graph Neural Networks learn node-level structural features? The Second Tiny Papers Track at ICLR 2024. <https://openreview.net/forum?id=HRxVPPdyDh>
- **Ba, C. T., Galdeman, A., Dileo, M., Zignani, M., Gaito, S.** (2023). User Migration Prediction in Blockchain Socioeconomic Networks Using Graph Neural Networks. Proceedings of the 2023 ACM Conference on Information Technology for Social Good, 333–341. <https://doi.org/10.1145/3582515.3609552>
- **Ba, C. T., Galdeman, A., Dileo, M., Quadri, C., Zignani, M., Gaito, S.** (2022). Web3 Social Platforms: Modeling, Mining and Evolution. ItaDATA, 3340, 168–179.
- **Dileo, M., Ba, C. T., Zignani, M., Gaito, S.** (2022). Link Prediction with Text in Online Social Networks: The Role of Textual Content on High-Resolution Temporal Data. In P. Pascal D. Ienco (Eds.), Discovery Science (pp. 212–226). Springer Nature Switzerland.