Manuel Dileo

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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

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

RESEARCH EXPERIENCE

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

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

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

Workshop Organizer

- HONAI (HONS 2025) - Higher-order Network Science meets AI, Satellite @ NetSci 2025
- Network Science meets AI - Special session @ ESANN 2025
- ComplexTime - temporal aspects in complex systems, workshop @ CCS 2024
- LIMBO - Learning and Mining for Blockchain workshop @ ECML PKDD 2023, Web Chair
- AIN4GO - AI on Networks for Social Good, workshop @ GoodIt 2023

PC Member and Review

- LOG - Learning on Graph Conference 2024
- MLH - Mining and Learning Hypergraphs, workshop @ ECML PKDD 2024
- IRonGraph - Graph-Based Approaches in Information Retrieval, workshop @ ECIR 2024
- TGL - Temporal Graph Learning, workshop @ NeurIPS 2023
- Reviewer for several journal and conferences (manuel-dileo.github.io/review)

GRANTS AND PROJECTS

- **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

- **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

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.**, Minervini, P., Zignani, M. Gaito S. (2025). Enhancing neural link predictors for temporal knowledge graphs with temporal regularisers. The 33rd European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning (ESANN).
- **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`
- **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.