Martina Contisciani

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Current Position

Postdoctoral Researcher Mar. 2024 – Present

Central European Univerisity - Dept. of Network and Data Science, Vienna, Austria

- Research focused on the development of statistical methods and algorithms to analyze complex systems, with a particular interest in network inference. Currently working on the MOMA (Multiscale network modelling of migration flows in Austria) project together with Prof. Tiago P. Peixoto and Prof. Márton Karsai.

Experience

Teaching Assistant Dec. 2019 – Feb. 2022

University of Tübingen, Tübingen, Germany

- TA for Advanced Probabilistic Machine Learning and Applications (M.Sc) - WS 2019/2020, 2021/2022, SS 2021
- TA for Statistical Machine Learning (M.Sc) - SS 2020

Intern Mar. 2019 – Sep. 2019

Max Planck Institute for Intelligent Systems - PIO Group, Tübingen, Germany

- Master's thesis project focused on modelling covariate information in community detection algorithms

Data Analyst Jul. 2018 – Aug. 2018

Unox S.p.A. – IT Office, Cadoneghe (PD), Italy

- Project focused on the analysis of device usage data to improve the experience and profile of the customers

Education

Ph.D. in Computer Science Oct. 2019 – Nov. 2023

Max Planck Institute for Intelligent Systems - PIO Group, Tübingen, Germany

- Thesis: Probabilistic Generative Models for Inference on Complex Systems
- Final Grade: Summa cum laude

Master's degree in Data Science Oct. 2017 – Sep. 2019

University of Padua - Dept. of Mathematics, Padua, Italy

- Thesis: A New Approach for Community Detection in Multilayer Networks
- Final Grade: 110/110 cum laude

Bachelor's degree in Statistics for Business and Economics Oct. 2014 – Sep. 2017

University of Padua - Dept. of Statistical Sciences, Padua, Italy

- Thesis: Automatic identification of time series and forecasting performances
- Final Grade: 110/110 cum laude

Publications

11. **Contisciani M.***, Hobbhahn M.*, Power E. A., Hennig P., and De Bacco C., (2024), Flexible inference in heterogeneous and attributed multilayer networks, *arXiv preprint arXiv:2405.20918* - *contributed equally

10. Safdari H., **Contisciani M.**, De Bacco C., (2023), Anomaly, reciprocity, and community detection in networks, *Phys. Rev. Res. 5, 033084*

9. Ruggeri N., **Contisciani M.**, Battiston F., De Bacco C., (2023), Community detection in large hypergraphs, *Science Advances 9, eadg9159*

8. Lotito Q. F., **Contisciani M.**, De Bacco C., Di Gaetano L., Gallo L., Montresor A., Musciotto F., Ruggeri N., Battiston F., (2023), Hypergraphx: a library for higher-order network analysis, *Journal of Complex Networks 11, cnad019*

7. De Bacco C., **Contisciani M.**, Cardoso-Silva J., Safdari H., Baptista D., Borges G. L., Sweet T., Young J.-G., Koster J., Ross C. T., McElreath R., Redhead D., Power E. A., (2023), Latent network models to account for noisy, multiply reported social network data, *Journal of the Royal Statistical Society Series A: Statistics in Society, qnac004*

6. **Contisciani M.**, Battiston F., De Bacco C., (2022), Inference of hyperedges and overlapping communities in hypergraphs, *Nature Communications 13, 7229*

5. **Contisciani M.**, Safdari H., De Bacco C., (2022), Community detection and reciprocity in networks by jointly modelling pairs of edges, *Journal of Complex Networks 10, cnac034*

4. Higham K., **Contisciani M.**, De Bacco C., (2022), Multilayer patent citation networks: A comprehensive analytical framework for studying explicit technological relationships, *Technological Forecasting and Social Change 179, 121628*

3. Safdari H., **Contisciani M.**, De Bacco C., (2022), Reciprocity, community detection, and link prediction in dynamic networks, *Journal of Physics: Complexity 3, 015010*

2. Safdari H.*, **Contisciani M.***, De Bacco C., (2021), Generative model for reciprocity and community detection in networks, *Phys. Rev. Res. 3, 023209* - *contributed equally

1. **Contisciani M.**, Power E. A., De Bacco C., (2020), Community detection with node attributes in multilayer networks, *Scientific Reports 2020 10:1 10, 1–16*

Presentations

Seminars

[2022] *NetPLACE*, online

Invited presentations

[2024] *2024 ISBA World Meeting*, Venice (IT)

[2023] *Young Seminars SIFS*, online

[2022] *Dept. of Statistical Sciences, University of Padua*, Padua (IT)

[2021] *Dept. of Statistical Sciences, University of Padua*, online

Contributed presentations

[2023] *NetSci 2023*, Vienna (AT) - *EUSN 2023*, Ljubljana (SI)

[2022] *NetSci 2022*, online - *EUSN 2022*, London (UK) - *CCS 2022*, Palma de Mallorca (ES)

[2021] *Networks 2021*, online - *EUSN 2021*, online

Poster presentations

[2020] *NetSci 2020*, online

Service

Open Source Contributor: VIMuRe, hypergraphx (HGX), complex group interactions (XGI)
Reviewer: Communications Physics, Journal of Complex Networks
Organizer: ELLIS Doctoral Symposium 2021

Awards

[2023] **MPI-IS Outstanding Female Doctoral Student Prize**: honorable mention, *Max Planck Institute for Intelligent Systems, Tübingen, Germany*

[2018] **Hackathon about Speech Recognition**: 1st place position, *Unox S.p.A., Cadoneghe, Italy*

Summer Schools

[2nd - 6th Sep. 2019] Model – Guided Data Science, *Lake Como School of Advanced Studied, Como, Italy*

Skills

Languages: Italian (mother tongue), English (upper-intermediate), German (intermediate)
Soft Skills: Conscientiousness, Agreeableness, Teamwork, Problem-Solving
Technologies: Python, R, MATLAB, SQL, TensorFlow, Keras, LaTeX, C, C#, HTML/CSS, Gephi, JDemetra+

Last update: June 18, 2024