

Leonardo Di Gaetano

PhD student in Network and Data Science



About me

I am a third-year PhD student in Network and Data Science with a strong interest in exploring a wide range of topics. My passion for studying the underlying principles of various systems has driven me to delve into fields as diverse as thermodynamics, brain networks, and social dynamics. My research interests are similarly broad, ranging from fundamental concepts in network science to applied data-driven approaches. In my PhD thesis, I am currently focusing on higher-order networks and exploring new ways to understand their structure and function. Alongside my thesis work, I have conducted research on temporal networks and social dynamics, using analytical and numerical methods to investigate complex dynamical processes on networks. Through interdisciplinary collaborations and a deep curiosity about the world around me, I am committed to discovering new insights and applying network science to real-world problems.

Contact

Born on 17/12/1996
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 Leonardo Di Gaetano
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Languages

Italian - Native Language
 English - Professional Knowledge
 Spanish - Basic Knowledge
 French - Basic Knowledge

EDUCATION

2020-On
going

PhD
Central European University
Network and Data Science

📍 Vienna, Austria

Thesis: Structures, dynamics, and application of higher order networks.

2018-2020

Master Degree
University of Catania
Theoretical Physics

📍 Catania, Italy

Thesis: Dynamical instability and Lyapunov exponents in temporal networks

Degree: 110/110 cum laude

2015-2018

Bachelor Degree
University of Catania
Physics

📍 Catania, Italy

Thesis: Chaos in social systems: a research about talent, luck, and success

Degree: 110/110 cum laude

TRAINING AND SUMMER SCHOOLS

2022

Visiting researcher
Amsterdam UMC

📍 Amsterdam, Netherlands

Research on node and network classification for epilepsy on brain networks.

2021

Summer School on Economic Networks 📍 Oxford, Uk
Oxford University
School participant

2020

Visiting Master Student
Queen Mary University of London
Master Thesis

📍 London, Uk

PUBLICATIONS

Journal Article
2022

Maximal dispersion of adaptive random walks, G Di Bona, L Di Gaetano, V Latora, F Coghi, *Physical Review Research*, 10.1103/PhysRevResearch.4.L042051

Journal Article
2023

Lyapunov Exponents for Temporal Networks, Annalisa Caligiuri, Victor M Eguiluz, Leonardo Di Gaetano, Tobias Galla, Lucas Lacasa, *arxiv*,

Journal Article
2022

Temporal patterns of reciprocity in communication networks, Sandeep Chowdhary, Elsa Andres, Adriana Manna, Luka Blagojević, Leonardo Di Gaetano, Gerardo Iñiguez, *Accepted on EPJ Data Science*,

Journal Article
2023

Hypergraphx: a library for higher-order network analysis, Quintino Francesco Lotito, Martina Contisciani, Caterina De Bacco, Leonardo Di Gaetano, Luca Gallo, Alberto Montresor, Federico Musciotto, Nicolò Ruggeri, Federico Battiston, *Arxiv*,

Journal Article
2023

Dynamical fluctuations in a minimal model of higher-order networks, Leonardo Di Gaetano, Giorgio Carugno, Federico Battiston, Francesco Coghi, *Arxiv*,

Soft Skills and Strengths

- Public speaking
- Plots
- Power point
- Creativity
- Curiosity
- Flexibility
- Self Confidence
- Autonomy
- Adaptability
- Problem Solving
- Team Working
- Love Learning New Things
- Leadership
- Good Communication
- Good Listener



CONFERENCES

- Percolation and topological properties of temporal higher-order networks**
L Di Gaetano, M Starnini, F Battiston, CCS 2022 @ Palma



TEACHING

As a PhD student I was a teaching assistant for:

- Introduction to mathematics** , Department of Quantitative Social Science and Department of Politics, Philosophy, and Economics, at Central European University.
- Dynamical systems**, Department of Network and Data Science, at Central European University.

As a Master's student I was a tutor for:

- Mathematics**, Department of Biology, at University of Catania.
- Physics**, Department of Biology, at University of Catania.



SKILLS

Coding	Python libraries: <i>Newworkx</i> , <i>GraphTool</i> , <i>Pandas</i> , <i>Numpy</i> , <i>Matplotlib</i> , <i>Scipy</i> , <i>Scikit-learn</i>
Mathematical skills	<i>Graph Theory</i> , <i>Statistics</i> , <i>Probability theory</i> , <i>Dynamical systems</i> , <i>Numerical solution for differential equations</i> , <i>Advance calculus</i> , <i>Topological Data Analysis</i>
Office Automation	MS Office: <i>Excel</i> , <i>Word</i> , <i>PowerPoint</i>

</> PROGRAMMING LANGUAGES

- Python:** Highly Specialised
 - Matlab:** Advanced
 - C/C++:** Basic
- Netlogo:** Basic