

Marco Grassia

Assistant Professor (RTDa) at the Department of Electrical, Electronics and Computer Engineering (DIEEI), University of Catania.

Summary

My research develops graph-based machine learning methods — including Graph Neural Networks and reinforcement learning on graphs — to tackle computationally hard problems on networks, with applications spanning network resilience, astrophysics, food security, and brain connectomics. Key results include a machine learning framework for network dismantling (Nature Communications, 2021) and a comprehensive review of network robustness (Nature Reviews Physics, 2024, 500+ citations), with work cited in the UN World Social Report 2024. I collaborate internationally with groups at Tsinghua University, University of Padova, and University of Trento.

Research Activities

Mar. 2025 – Jul. 2025

Research assignment

Tsinghua University, Beijing, China


- Research topic: “Machine learning-based network dismantling”
- Part of the collaboration with Prof. Carlo Vittorio Cannistraci and his team, investigating the connection between complex network vulnerability and their intrinsic geometry.
- Conducted at the Center for Complex Network Intelligence, Tsinghua University, Beijing, China
- Duration: 4 months


Mar. 2023 – Feb. 2028


RTDa Researcher


Università degli Studi di Catania

- Full-time Fixed-Term Researcher type A (RTDa) at the Department of Electrical, Electronics and Computer Engineering (DIEEI), University of Catania.
- Research activity: “Advanced machine learning and deep learning techniques on graphs for data analysis. Applications in astrophysics, specifically to modelling Supernovae and explosive transient processes”
- National Centre HPC, Big Data and Quantum Computing, Spoke 3 (“Astrophysics & Cosmos Observations”). Scientific director: Prof. Antonio Zoccoli (INFN); local PI: Prof. Giuseppe Mangioni (University of Catania, DIEEI)
- Competitive sector 09/H1 “Information processing systems”
- Scientific disciplinary sector ING-INF/05
- Appointed pursuant to art. 24, para. 3, lett. a) of Law 240/2010

 marcograssia.com

 BlueSky

 Google Scholar

 Scopus profile

 GitHub

 LinkedIn

 Twitter/X

Mar. 2021 – Jul. 2021

Remote Internship

Tsinghua University

- Center for Complex Network Intelligence (CCNI), Tsinghua University, Beijing, China
- Research on Network Dismantling approaches leveraging network geometry
- Collaboration with Prof. Carlo Vittorio Cannistraci
- Topic: "Network dismantling leveraging network geometry"

Nov. 2021 – Jan. 2022

Research Fellow (Co.Co.Co.)

Consorzio COMETA

- Research in the context of the "Data Analysis and Network Science" project
- Study of principal methods and tools for Geometric Deep Learning
- Applied to solving complex Network Science problems
- Multi-Entity Consortium for the promotion and adoption of Advanced Computing Technologies (COMETA)

May 2022 – Feb. 2023

Research Fellow

Università degli Studi di Catania

- Title: "Models and algorithms of Geometric Deep Learning for complex networks applied to computationally hard problems"
- Carried out at the Department of Electrical, Electronics and Computer Engineering (DIEEI)
- Competitive sector 09/H1 – ING-INF/05 "Information processing systems"
- Research grant pursuant to art. 22 of Law 240/2010

Teaching Activities

PhD-level Courses

Apr. 2025

"Deep Learning on Graphs"

Free University of Bolzano

- Lectures on Geometric Deep Learning for PhD students in the Computer Science doctoral programme
- Topics include Deep Learning techniques and algorithms on graphs at different scales and practical applications
- Held at the Free University of Bolzano, Italy
- 12h of in-person teaching in English

Undergraduate and Graduate Courses

Oct. 2025 – present

Lecturer, “Advanced Programming Languages” Università degli Studi di Catania

- 3 ECTS, 29h per academic year
- MSc in Computer Engineering (LM-32), Department of Electrical, Electronics and Computer Engineering (DIEEI), and MSc in Computer Science (LM-18), Department of Mathematics and Computer Science (DMI) — University of Catania
- Scientific disciplinary sector (SSD): ING-INF/05
- Topics: advanced performance-oriented C++ programming, memory management, standard libraries, and modern software development techniques

Oct. 2023 – present

Lecturer, “Fondamenti di Programmazione” Università degli Studi di Catania

- 12 ECTS total (6 ECTS per module, 58h per module per academic year); two channels: Module 1 (section A-O, A.Y. 2024/2025); Module 2 (sections A-O A.Y. 2023/2024 and P-Z A.Y. 2023/2024 and 2024/2025)
- From A.Y. 2025/2026, Module 1 (section A-O) is 3 ECTS (29h); Module 2 (section P-Z) remains 6 ECTS (58h)
- BSc in Computer Engineering (L-8), University of Catania
- Department of Electrical, Electronics and Computer Engineering (DIEEI)
- Scientific disciplinary sector (SSD): ING-INF/05
- Member of examination committees
- Class of over one hundred students per section

Mar. 2023 – Oct. 2023

Lecturer, Fondamenti di Informatica Università degli Studi di Catania

- 6 ECTS, 58h per academic year
- BSc in Computer Engineering (L-8), University of Catania
- Department of Electrical, Electronics and Computer Engineering (DIEEI)
- Scientific disciplinary sector (SSD): ING-INF/05

Oct. 2022 – Mar. 2023

Lecturer (Fixed-term Contract) Università degli Studi di Catania

- Fondamenti di Programmazione, section P-Z (A.Y. 2022/2023), BSc in Computer Engineering (L-8)
- Department of Electrical, Electronics and Computer Engineering (DIEEI)
- 3 ECTS, 29h per academic year
- Assigned by the Department via fixed-term teaching contract
- Scientific disciplinary sector (SSD): ING-INF/05

Seminars

Nov. 2020

Advanced Python Seminar

Università degli Studi di Catania

- 6h within the Advanced Programming Languages course
- MSc in Computer Engineering (LM-32)
- Advanced Python topics and libraries
- A.Y. 2020/2021

Nov. 2019

Advanced Python Seminar

Università degli Studi di Catania

- 6h within the Advanced Programming Languages course
- MSc in Computer Engineering (LM-32)
- Advanced Python topics and libraries
- A.Y. 2019/2020

Education and Training

Postgraduate Training

2018 – 2021

PhD in Computer Science

Università degli Studi di Catania

- Doctorate in Engineering of Systems, Energy, Computer Science and Telecommunications, XXXIV cycle
- Department di Ingegneria Elettrica, Elettronica ed Informatica (DIEEI), Università degli Studi di Catania
- Additional certification: "International Doctor"
- Thesis: Learning NP-hard problems on networks using Geometric Deep Learning

Ph.D. Schools

Jul. 2020

Advanced Course on Data Science and Machine Learning (ACDL); 13–17 Jul. 2020, Certosa di Pontigliano (Siena), Italy

Feb. 2020

2nd International School on Informatics and Dynamics in Complex Networks (ISIDCN); 10–14 Feb. 2020, Catania, Italy

Sep. 2019

International School of Data Science and IoT (ISDIT); 9–13 Sep. 2019, Catania, Italy

May 2019

Complex Networks: Theory and Applications – Lake Como School of Advanced Studies; 13–17 May 2019, Como, Italy

Oct. 2018

International School on Complex Networks (ISCN); 15–19 Oct. 2018, Catania, Italy

Education

2016 – 2018

MSc in Computer Engineering (LM-32)

Università degli Studi di Catania

- Department di Ingegneria Elettrica, Elettronica ed Informatica (DIEEI), Università degli Studi di Catania
- Grade: 110/110 cum laude
- **Thesis:** "Accelerate NP-hard problem computations on graphs using Machine Learning" (conducted during Erasmus+ Internship, Dept. of Analytics, Nokia Bell Labs, Dublin, Ireland)

2013 – 2016

BSc in Computer Engineering (L-8)

Università degli Studi di Catania

- Department di Ingegneria Elettrica, Elettronica ed Informatica (DIEEI), Università degli Studi di Catania
- Grade: 110/110 cum laude
- **Thesis:** "Realtà aumentata: prospettive e applicazioni nel settore turistico" ("Augmented Reality: perspectives and applications in the tourism sector")

2008 – 2013

High School Diploma

Liceo "Concetto Marchesi"

- Liceo Classico \Scientifico "Concetto Marchesi" of Mascalucia (CT), Italy
- Curriculum: Scientifico
- Grade: 100/100

Conference Organization and Invited Talks

Scientific Responsibilities at Conferences and Workshops

May 2026

Session Chair

CompleNet 2026

Chair of the Contributed Talks session (session 6: "Network Evolution and Geometry") and the Lightning Talks session (session 3: "Methods: Metrics, Algorithms and Geometry") at the 17th International Conference on Complex Networks CompleNet 2026, Zaragoza, Spain

Jun. 2025

Local organizer

MIX-NEXT 2025 @ NetSci 2025

(Co-)organiser of the satellite workshop "Multiscale & Integrative complex Networks: EXperiments & Theories 2025" (MIX-NEXT 2025) at the International School and Conference on Network Science 2025 (NetSci 2025), Maastricht, Netherlands. Focus on robustness/resilience of multiscale and multilayer structures, information-theoretic tools for interconnected systems, applications to biological, social, technological, and urban systems. URL: <https://manliodenedomenico.com/MIXNEXT2025/>

Jul. 2025

Local organizer

MSCx 2025

Local organiser of the X Mediterranean School of Complex Networks (MSCx 2025) – Ortigia (SR), Italy; international doctoral school on complex systems and complex networks with applications in computer engineering. URL: <https://mediterraneanschoolcomplex.net/2025.html>

- Sep. 2024 **Co-organizer** MIX-NEXT 2024 @ CCS 2024
 (Co-)organiser of the satellite workshop “Multiscale & Integrative complex Networks: EXperiments & Theories 2024” (MIX-NEXT 2024) at the Conference on Complex Systems 2024 (CCS 2024) – Exeter, UK. Focus on robustness/resilience of multi-scale structures, information-theoretic tools, and applications to complex systems. URL: <https://manliodedomenico.com/MIXNEXT2024/>
- Apr. 2024 **Program Committee member** CompleNet 2024
 Member of the Program Committee, 15th International Conference on Complex Networks (CompleNet 2024), Exeter, UK
- Jan. 2024 **Co-organizer** NetPlace Panel @ NetSciX 2024
 Co-organiser of the panel workshop and roundtable “Redefining scientific communication: from the scientific community to the society” at the International School and Conference on Network Science (NetSciX) 2024 (Venice, Italy), discussing new paradigms of scientific communication and research dissemination
- Nov. 2023 **Session Chair** COMPLEXNETWORKS 2023
 Session chair at the 12th International Conference on Complex Networks and their Applications, Menton, France
- Jul. 2023 **Co-organizer** MIX-NEXT 2023 @ NetSci 2023
 (Co-)organiser of the satellite workshop “Multiscale & Integrative complex Networks: EXperiments & Theories 2023” at the conference NetSci 2023 – Vienna, Austria. Focus on Network Science for Multidimensional Data Analysis
- Jun. 2023 **Local organizer** MSCx 2023
 Local organiser of the VIII Mediterranean School of Complex Networks (MSCx 2023 – Catania, Italy); international doctoral school on complex systems, focused on network dismantling algorithms and applications to critical infrastructures and social networks. URL: <https://mediterraneanschoolcomplex.net/2023.html>
- Apr. 2023 **Program Committee** CompleNet 2023
 Member of the Program Committee, 14th Conference on Complex Networks

Invited Talks and Presentations

- May 2026 **CompleNet 2026** Saragozza, Spain
 Oral presentation: “Machine-enhanced reconstruction of functional connectomes unravels discriminative brain sub-systems in health and disease.”, 17th International Conference on Complex Networks COMPLENET 2026
- Sep. 2025 **CSS/Italy 2025** Bari, Italy
 Oral presentation: “Machine-enhanced reconstruction of functional connectomes unravels discriminative brain sub-systems in health and disease”, Italian Chapter of the Complex Systems Society annual conference (CSS/Italy 2025)
- Mar. 2025 **PDP 2025** Torino, Italy
 Oral presentation: “Machine learning supernovae’s progenitor characterization”, 33rd Euromicro/IEEE International Conference on Parallel, Distributed, and Network-Based Processing

Jun. 2024	<p>MSCx 2024 Grado (GO), Italy</p> <p>Invited speaker at the IX Mediterranean School of Complex Networks on “Deep Learning on Graphs”. Topics: introduction to Network Science and Geometric Deep Learning, Graph Neural Networks, shallow and modern architectures (GCN, GAT, GraphSAGE), message-passing framework, learning tasks on networks, pooling methods, link prediction, network dismantling with trainable site/bond attacks, and applications to heterogeneous, temporal, multidimensional, and brain networks</p>
May 2024	<p>ICSC 2024 Spoke 3 Isola d'Elba, Italy</p> <p>Oral presentation: “Deep learning of 87A-like supernovae progenitor characteristics: training the Inception model on synthetic data”, ICSC Spoke 3 General Meeting (Fondazione ICSC — National Centre HPC, Big Data and Quantum Computing)</p>
Apr. 2024	<p>CompleNet 2024 Exeter, UK</p> <p>2 oral presentations: “Edge Dismantling with Geometric Reinforcement Learning” and “Robustness and resilience of complex networks”, 15th International Conference on Complex Networks</p>
Nov. 2023	<p>COMPLEXNETWORKS 2023 Menton, France</p> <p>Oral presentation of the review “Robustness and resilience of complex networks” (Nature Reviews Physics), 12th International Conference on Complex Networks and their Applications</p>
Apr. 2023	<p>CompleNet 2023 Aveiro, Portugal</p> <p>2 oral presentations: “Efficient Node PageRank Improvement via Link Building using Geometric Deep Learning” and “CoreGDM: Geometric Deep Learning network decycling and dismantling”, 14th Conference on Complex Networks</p>
Nov. 2022	<p>COMPLEXNETWORKS 2022 Palermo, Italy</p> <p>Poster presentation: “Geometric Deep Learning graph pruning to speed-up the run-time of Maximum Clique Enumeration algorithms”, 11th International Conference on Complex Networks and their Applications</p>
Jun. 2022	<p>MSCx 2022 Catania, Italy</p> <p>Invited lecturer on “Network Analysis with Python” at the VII Mediterranean School of Complex Networks (warmup session, 2h of hands-on teaching). Topics: Python libraries for Network Science (graph-tool, NetworkX, igraph), data analysis and visualisation (Matplotlib, NumPy, SciPy, Pandas, Seaborn), introduction to Deep Learning on graphs (PyTorch Geometric), and practical examples of complex network analysis</p>
Sep. 2022	<p>IDC 2022 Bremen, Germany</p> <p>Oral presentation: “Correlation between researchers’ centrality and h-index: a case study”, 15th International Symposium on Intelligent Distributed Computing</p>
Nov. 2021	<p>COMPLEXNETWORKS 2021 Madrid, Spain</p> <p>2 oral presentations: “Machine learning dismantling and early-warning signals of disintegration in complex systems” and “wsGAT: Weighted and Signed Graph Attention Networks for Link Prediction”, 10th International Conference on Complex Networks and their Applications</p>
Dec. 2020	<p>iiWAS 2020 Chiang Mai, Thailand</p> <p>Oral presentation: “A network-based analysis to understand food habits of a teen clients”, 22nd International Conference on Information Integration and Web-based Applications & Services</p>

Sep. 2020	NetSci 2020 Oral presentation: "Learning (sub-)optimal percolation with network dismantling", Network Science Society Conference	Rome, Italy
Dec. 2019	COMPLEXNETWORKS 2019 Oral presentation: "Learning (sub-)optimal percolation with network dismantling", 8th International Conference on Complex Networks and their Applications	Lisbon, Portugal
Jul. 2019	CCS/Italy 2019 Oral presentation: "Learning (sub-)optimal percolation with network dismantling", Italian Chapter of the Complex Systems Society	Trento, Italy
Dec. 2018	COMPLEXNETWORKS 2018 Oral presentation: "Long distance connections for ranking and robustness en- hancement in networks", 7th International Conference on Complex Networks and their Applications	Cambridge, UK

Publications

Selected Publications

2026	Adler, T., M. Grassia , Z. Liao, G. Mangioni, and C. V. Cannistraci (2026). "La- tent Geometry-Driven Network Automata for Complex Network Disman- tling." In: The Fourteenth International Conference on Learning Representations.
2026	Grassia, M. , V. d'Andrea, K. Finc, M. De Domenico, and G. Mangioni (2026). "Machine-enhanced reconstruction of functional connectomes unravels discriminative brain sub-systems in health and disease." In: Scientific Re- ports 16.1.
2025	Grassia, M. , S. P. Cosentino, M. L. Pumo, and G. Mangioni (2025). "Machine Learning Supernovae's Progenitor Characterization." In: Proceedings - 33rd Euromicro International Conference on Parallel, Distributed, and Network- Based Processing, PDP 2025, pp. 439–442.
2024	Artime, O., M. Grassia , M. De Domenico, J. P. Gleeson, H. A. Makse, G. Mangioni, M. Perc, and F. Radicchi (2024). "Robustness and resilience of complex networks." In: Nature Reviews Physics 6.2, pp. 114–131.
2024	Carchiolo, V., M. Grassia , M. Malgeri, and G. Mangioni (2024). "Geometric Deep Learning sub-network extraction for Maximum Clique Enumeration." In: PLoS ONE 19.1 January.
2024	Grassia, M. and G. Mangioni (2024). "Edge Dismantling with Geometric Re- inforcement Learning." In: Springer Proceedings in Complexity, pp. 195– 202.
2023	Carchiolo, V., M. Grassia , A. Longheu, M. Malgeri, and G. Mangioni (2023). "Efficient Node PageRank Improvement via Link-building using Geometric Deep Learning." In: ACM Transactions on Knowledge Discovery from Data 17.3.
2023	Grassia, M. and G. Mangioni (2023). "CoreGDM: Geometric Deep Learning Network Decycling and Dismantling." In: Springer Proceedings in Complex- ity, pp. 86–94.

- 2023 Lauri, J., S. Dutta, **M. Grassia**, and D. Ajwani (2023). "Learning fine-grained search space pruning and heuristics for combinatorial optimization." In: *Journal of Heuristics* 29.2-3, pp. 313–347.
- 2022 **Grassia, M.**, G. Mangioni, S. Schiavo, and S. Traverso (2022). "(Unintended) Consequences of export restrictions on medical goods during the Covid-19 pandemic." In: *Journal of Complex Networks* 10.1.
- 2022 **Grassia, M.**, G. Mangioni, S. Schiavo, and S. Traverso (2022). "Insights into countries' exposure and vulnerability to food trade shocks from network-based simulations." In: *Scientific Reports* 12.1.
- 2021 **Grassia, M.**, M. De Domenico, and G. Mangioni (2021). "Machine learning dismantling and early-warning signals of disintegration in complex systems." In: *Nature Communications* 12.1.

Journal Articles

- 2026 Ghavasieh, A., **M. Grassia**, and M. De Domenico (2026). "Influence of the reinsertion algorithm on the performance of the Vertex Entanglement method." In: *Communications Physics* 9.1.
- 2022 Carchiolo, V., C. Cavallo, **M. Grassia**, M. Malgeri, and G. Mangioni (2022). "Link Prediction in Time Varying Social Networks." In: *Information (Switzerland)* 13.3.
- 2022 Carchiolo, V., **M. Grassia**, M. Malgeri, and G. Mangioni (2022). "Co-Authorship Networks Analysis to Discover Collaboration Patterns among Italian Researchers." In: *Future Internet* 14.6.
- 2021 Carchiolo, V., **M. Grassia**, A. Longheu, M. Malgeri, and G. Mangioni (2021). "A network-based analysis of a worksite canteen dataset." In: *Big Data and Cognitive Computing* 5.1.
- 2019 Carchiolo, V., **M. Grassia**, A. Longheu, M. Malgeri, and G. Mangioni (2019). "Network robustness improvement via long-range links." In: *Computational Social Networks* 6.1.

Conference Papers

- 2026 Moradi, M., M. Moradi, **M. Grassia**, and G. Mangioni (2026). "Brain-Grasp: Graph-Based Saliency Priors for Improved fMRI-Based Visual Brain Decoding." In: *ICASSP 2026 - 2026 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pp. 20466–20470.
- 2025 Moradi, M., M. Moradi, **M. Grassia**, and G. Mangioni (2025). "Graph-Based Evaluation of Visual Brain Decoding from fMRI Data." In: *Proceedings - 2025 International Symposium on Multimedia, ISM 2025*, pp. 244–251.
- 2025 Moradi, M., M. Moradi, **M. Grassia**, and G. Mangioni (2025). "How Well is Human Attention Preserved in fMRI-Based VisualBrain Decoding?" In: *CHIItaly 2025 - Proceedings of the 16th Biannual Conference of the Italian SIGCHI Chapter*.
- 2025 Moradi, M., M. Moradi, **M. Grassia**, and G. Mangioni (2025). "Saliency Matters: From Nodes to Objects." In: *Lecture Notes in Computer Science. Vol. 15727 LNCS*, pp. 214–223.
- 2025 Moradi, M., M. Moradi, **M. Grassia**, and G. Mangioni (2025). "What is Wrong with Visual Brain Decoding? A Saliency-based Investigation." In: *Proceedings of the International Joint Conference on Neural Networks*.

- 2023 Arciprete, A., V. Carchiolo, D. Chiavetta, **M. Grassia**, M. Malgeri, and G. Mangioni (2023). "Geometric Deep Learning Graph Pruning to Speed-Up the Run-Time of Maximum Clique Enumeration Algorithms." In: *Studies in Computational Intelligence*. Vol. 1077 SCI, pp. 415–425.
- 2023 Carchiolo, V., **M. Grassia**, M. Malgeri, and G. Mangioni (2023). "Correlation Between Researchers' Centrality and H-Index: A Case Study." In: *Studies in Computational Intelligence*. Vol. 1089 SCI, pp. 133–143.
- 2022 Carchiolo, V., **M. Grassia**, M. Malgeri, and G. Mangioni (2022). "Analysis of the Co-authorship Sub-networks of Italian Academic Researchers." In: *Studies in Computational Intelligence*. Vol. 1015, pp. 321–327.
- 2022 Carchiolo, V., **M. Grassia**, M. Malgeri, and G. Mangioni (2022). "Network Topology to Predict Bibliometrics Indices: A Case Study." In: *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*. Vol. 13635 LNCS, pp. 166–180.
- 2022 Carchiolo, V., **M. Grassia**, M. Malgeri, and G. Mangioni (2022). "Preliminary Characterization of Italian Academic Scholars by Their Bibliometrics." In: *Studies in Computational Intelligence*. Vol. 1026, pp. 343–354.
- 2022 Cavallaro, L., **M. Grassia**, G. Fiumara, G. Mangioni, P. De Meo, V. Carchiolo, O. Bagdasar, and A. Liotta (2022). "Relations Between Entropy and Accuracy Trends in Complex Artificial Neural Networks." In: *Studies in Computational Intelligence*. Vol. 1016, pp. 452–460.
- 2022 **Grassia, M.** and G. Mangioni (2022). "wsGAT: Weighted and Signed Graph Attention Networks for Link Prediction." In: *Studies in Computational Intelligence*. Vol. 1015, pp. 369–375.
- 2021 Carchiolo, V., **M. Grassia**, A. Longheu, M. Malgeri, and G. Mangioni (2021). "Food Recommendation in a Worksite Canteen." In: *International Conference on Complexity, Future Information Systems and Risk, COMPLEXIS - Proceedings*. Vol. 2021-April, pp. 117–124.
- 2020 Carchiolo, V., **M. Grassia**, A. Longheu, M. Malgeri, and G. Mangioni (2020). "Group Cohesion Assessment in Networks." In: *Springer Proceedings in Complexity*, pp. 16–25.
- 2020 Carchiolo, V., **M. Grassia**, A. Longheu, M. Malgeri, and G. Mangioni (2020). "A network-based analysis to understand food-habits of a multi-company canteen's customers." In: *ACM International Conference Proceeding Series*, pp. 352–356.
- 2020 Carchiolo, V., **M. Grassia**, A. Longheu, M. Malgeri, and G. Mangioni (2020). "Strategies Comparison in Link Building Problem." In: *Studies in Computational Intelligence*. Vol. 868, pp. 197–202.
- 2019 Carchiolo, V., **M. Grassia**, A. Longheu, M. Malgeri, and G. Mangioni (2019). "A pagerank inspired approach to measure network cohesiveness." In: *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*. Vol. 11874 LNCS, pp. 349–356.
- 2018 Carchiolo, V., **M. Grassia**, A. Longheu, M. Malgeri, and G. Mangioni (2018). "Climbing Ranking Position via Long-Distance Backlinks." In: *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*. Vol. 11226 LNCS, pp. 100–108.
- 2018 Carchiolo, V., **M. Grassia**, A. Longheu, M. Malgeri, and G. Mangioni (2018). "Exploiting Long Distance Connections to Strengthen Network Robustness."

In: Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics). Vol. 11226 LNCS, pp. 270–277.

2018 Carchiolo, V., **M. Grassia**, A. Longheu, M. Malgeri, and G. Mangioni (2018). "Long distance in-links for ranking enhancement." In: Studies in Computational Intelligence. Vol. 798, pp. 3–10.

Awards and Honors

2024 **UN Citations** World Social Report 2024
Two articles cited by the United Nations in the World Social Report 2024, attesting the international impact of research on network resilience and food security

2022 **Best Paper Award** International Symposium on Intelligent Distributed Computing (IDC) 2022
Award for "Correlation between researchers' centrality and h-index: a case study"

Professional Memberships

2024 – present

NetPlace - Organizer&CTO Network Science Society

- Organizer & Chief Technology Officer (CTO) of NetPlace, a non-profit association within the NetSci Society, promoting Network Science and its interdisciplinary applications; organising online and in-person scientific events to foster collaboration among researchers, professionals, and enthusiasts; promoting mental health and well-being of early-career researchers
- Management of the association's technological and digital platforms (e.g., website, social media, communication systems)
- Website: www.netplace.site

Sep. 2021 – present

External Relations Committee CSS/Italy
Member of the External Relations Committee of the Italian Chapter of the Complex Systems Society (CCS/Italy), coordinating scientific collaborations and participation in Italian, European, and international projects

Editorial Activities

2022 – 2023

Guest Editor Future Internet
Special issue "Graph Machine Learning and Complex Networks" (ISSN 1999-5903)

2022

Guest Editor Future Internet
Special issue "Advances in AI and ML for Social Networking" (ISSN 1999-5903)

Review Activities

Program Committee

2024	Program Committee Member 15th International Conference on Complex Networks	CompleNet 2024
2023	Program Committee Member 14th Conference on Complex Networks	CompleNet 2023

Peer Review for International Journals and Conferences

Journals	Nature Communications, IEEE Transactions on Network Science and Engineering (TNSE), Environmental Research Letters (ERL), IEEE Transactions on Emerging Topics in Computing (TETC), Scientific Reports, IMA Journal of Applied Mathematics, Machine Learning (Springer), Information (MDPI)
Conferences	International Conference on Complex Networks (CompleNet) 2024, 2023, 2022

Other Professional Activities

Sep. 2023 – Dec. 2023	Corporate Course Instructor Course instructor (50h of lectures) for the ".NET Training Program (2023)" corporate training course, aimed at junior software developers. Topics covered: JavaScript, TypeScript, and Angular.	FreeMind Foundry S.R.L.
2023	Member of the State Examination Commission for Engineer Qualification Università degli Studi di Catania	
Jul. 2018 – Aug. 2018	Machine Learning Intern <ul style="list-style-type: none">▪ Internship at the Analytics Research Group▪ Research on Machine Learning techniques for optimising NP-hard graph problems▪ Results published in Journal of Heuristics (2023)	Nokia Bell Labs, Dublin
Aug. 2017 – Oct. 2017	Internship <ul style="list-style-type: none">▪ Development of Amazon Alexa Skills for integration with Vantage Controls devices▪ Vocal User Interface design, Amazon Web Services▪ Technologies: AWS IaaS, OpenVPN, Node.JS	Systemia S.R.L.

Preprints and Submitted Papers

2026	Romano, S., M. Grassia , and G. Mangioni (2026). Beyond MMD: Evaluating Graph Generative Models with Geometric Deep Learning.
2021	Grassia, M. , M. D. Domenico, and G. Mangioni (2021). mGNN: Generalizing the Graph Neural Networks to the Multilayer Case.

2019 **Grassia, M.**, J. Lauri, S. Dutta, and D. Ajwani (2019). Learning Multi-Stage Sparsification for Maximum Clique Enumeration.

Certifications and Other Qualifications

2020 **Professional License** Information Engineer
1st Session 2020, regulations 2020/2021

2017 – present **Shotokan Karate** 2° Dan
Italian Federation of Judo, Wrestling, Karate and Martial Arts (Fijlkam), CONI

2012 **English Language Certification** B2 (FCE)
University of Cambridge