

Giacomo Medda

 [giacomo-medda](#) |  giacomo.medda@unica.it |  Cagliari, Italy
 [jackmedda](#) |  [jackmedda.github.io](#) |  Giacomo Medda

SUMMARY

During his research career, he has focused on exploring the social and ethical aspects of decision-making in artificial intelligence systems. His research has centered on the analysis, mitigation, explanation, and robustness of biases and unfairness caused by speech recognition systems and recommender systems. His latest studies concern the use of neural networks applied to graphs, including knowledge graphs, in recommender systems, as well as the creation of explanations supported by generative models. He enjoys engaging in intricate challenges to find sophisticated solutions that stand apart from conventional perspectives. His work benefits from environments where each member's ideas are valued and where the group collectively supports the personal development of every individual.

EDUCATION

- Ph.D. in Computer Science at [University of Cagliari](#) 2020 - 2024
- Master in Computer Science at [University of Cagliari](#) (Magna cum Laude) 2018 - 2020
- Bachelor in Computer Science at [University of Cagliari](#) (Magna cum Laude) 2015 - 2018

RESEARCH EXPERIENCE

- **Postdoctoral Researcher** Jan 2024 - Jan 2025
[University of Cagliari](#) (Computer Science Department) Cagliari, Italy
Study, development, and testing of data modeling approaches and explainable and sustainable recommendation for the PHaSE project – Promoting Healthy and Sustainable Eating through Interactive and Explainable AI Methods. The research objective is the study, development, and testing of data modeling approaches in the field of knowledge graphs, with applications related to food. The research also involves developing graph-based explainable recommendation approaches, with applications including suggesting foods that are both healthy and sustainable.
- **Ph.D. Student** Oct 2020 - Feb 2024
[University of Cagliari](#) (Computer Science Department) Cagliari, Italy
Ph.D. Student journey in Algorithmic Fairness towards End Users, with a focus on Speaker Recognition and Recommender Systems, advised by Dr. Mirko Marras, Dr. Ludovico Boratto and Prof. Gianni Fenu. The projects I have carried out during my studies have enabled me to: (i) mitigating sensitive group unfairness on publicly available voice and user-item interaction data, (ii) devising evaluation perspectives for unfairness mitigation on movie recommendation and music streaming platforms, (iii) uncovering user interactions causing unfairness in recommendation on several domains.
- **Research Intern** April 2022 - July 2022
[Eurecat](#) (Data Science and Big Data Analytics unit) Barcelona, Spain
I joined the Data Science group as an intern, working with Francesco Fabbri and Mihnea Tufis on analyzing methods to explain the causes behind unfairness in GNN-based recommender systems.
- **Research Assistant** Apr 2020 - Sept 2020
[University of Cagliari](#) ([Agile Group](#)) Cagliari, Italy
I supported the Agile Group in the "Crypto-voting project" (POR FESR) by analysing the integration of innovative cybersecurity solutions, e.g. zero-knowledge proofs, in decentralized voting systems.

- **Research Assistant** Jan 2019 - Sept 2019
University of Cagliari ([Agile Group](#)) Cagliari, Italy
I supported the Agile Group in the "CAFCha project" (POR FESR) by building a database of labeled addresses of various cryptocurrencies that were web-scraped to deanonymize common entities.

OTHER PROFESSIONAL EXPERIENCE

- **Lecturer Advanced Training Project** Sep 2025 - Sep 2025
[Sardegna Ricerche](#) Pula, Italy
Participation, as lecturer/tutor, in five days of training activities within the "EHI CAMPUS PROJECT" (September 8–12, 2025), held at the Sardegna Ricerche headquarters in the Sardinia Science Park (Pula).
- **Expert Lecturer STEM** Jan 2025 - Feb 2025
[Scientific High School "Antonio Pacinotti"](#) Cagliari, Italy
Teaching assignment for the implementation of the course AI AT SCHOOL (AND BEYOND) – COMPUTER SCIENCE, 8th cycle, within Mission 4 – Education and Research – Component 1 – Strengthening the provision of educational services from early childhood to universities – Investment 3.1 "New Skills and New Languages" of the National Recovery and Resilience Plan, funded by the European Union – Next Generation EU.
- **University Orientation Instructor** Jan 2025 - Jan 2025
[University of Cagliari](#) (Computer Science Department) Cagliari, Italy
Design, development, and delivery of workshops for the implementation of activities under the Scientific Degree Project (PLS) in Computer Science for university orientation.
- **University Orientation Instructor** Jun 2024 - Jul 2024
[University of Cagliari](#) (Computer Science Department) Cagliari, Italy
Design, development, and delivery of workshops for the implementation of activities under the Scientific Degree Project (PLS) in Computer Science for university orientation.
- **Lecturer Advanced Training Project** Jun 2024 - Jun 2024
[Sardegna Ricerche](#) Pula, Italy
Participation, as lecturer/tutor, in three days of training activities within the "ADVANCED TRAINING PROJECT: CAMPUS AT THE ENTREPRENEURSHIP AND INNOVATION PARK OF PISCINAMANNA PULA" for the "AIXGIRLS" CAMPUS (June 23–29, 2024), held at the Sardegna Ricerche headquarters in the Sardinia Science Park (Pula).
- **External Consultant** Feb 2020 - Jul 2020
[Flosslab](#) Cagliari, Italy
Software Engineer supporting the "University of Cagliari E-MPARO project" by improving the e-learning platform lessons management during the COVID-19 pandemic.

PUBLICATIONS

- [1] **Medda, G.**, Fabbri, F., Marras, M., Boratto, L., Fenu, G., "GNNUERS: Fairness Explanation in GNNs for Recommendation via Counterfactual Reasoning". In: *ACM Trans. Intell. Syst. Technol.* 16.1 (2025), 6:1–6:26.
- [2] Balloccu, G., Boratto, L., Fenu, G., Marras, M., **Medda, G.**, Murgia, G., "GreenFoodLens: Sustainability Labels for Food Recommendation". In: *Proceedings of the Nineteenth ACM Conference on Recommender Systems, RecSys 2025, Prague, Czech Republic, September 22-26, 2025.*

- [3] Malitesta, D., **Medda, G.**, Purificato, E., Marras, M., Malliaros, F. D., Boratto, L., “How Fair is Your Diffusion Recommender Model?” In: *Proceedings of the Nineteenth ACM Conference on Recommender Systems, RecSys 2025, Prague, Czech Republic, September 22-26, 2025*.
- [4] Boratto, L., Cena, F., Marras, M., Mauro, N., **Medda, G.**, “Small Data, Big Impact: Navigating Resource Limitations in Point-of-Interest Recommendation for Individuals with Autism”. In: *Proceedings of the 48th International ACM SIGIR Conference on Research and Development in Information Retrieval, SIGIR 2025, Padua, Italy, July 13-18, 2025*.
- [5] Boratto, L., Fabbri, F., Fenu, G., Marras, M., **Medda, G.**, “Fair Augmentation for Graph Collaborative Filtering”. In: *Proceedings of the 18th ACM Conference on Recommender Systems, RecSys 2024*. ACM.
- [6] Kumar, V., Rajwat, P. S., **Medda, G.**, Ntoutsis, E., Recupero, D. R., “Unlocking LLMs: Addressing Scarce Data and Bias Challenges in Mental Health and Therapeutic Counselling”. In: *Proceedings of the First International Conference on Natural Language Processing and Artificial Intelligence for Cyber Security*. Lancaster, UK, July 2024.
- [7] Boratto, L., Fenu, G., Fabbri, F., Marras, M., **Medda, G.**, “Robustness in Fairness against Edge-level Perturbations in GNN-based Recommendation”. In: *Advances in Information Retrieval - 46th European Conference on IR Research, (ECIR 2024)*. Springer.
- [8] Boratto, L., Fabbri, F., Fenu, G., Marras, M., **Medda, G.**, “Counterfactual Graph Augmentation for Consumer Unfairness Mitigation in Recommender Systems”. In: *Proceedings of the 32nd ACM International Conference on Information and Knowledge Management, CIKM 2023*. ACM.
- [9] Kumar, V., **Medda, G.**, Recupero, D. R., Riboni, D., Helaoui, R., Fenu, G., “How Do You Feel? Information Retrieval in Psychotherapy and Fair Ranking Assessment”. In: *Advances in Bias and Fairness in Information Retrieval, (BIAS 2023)*. Springer Nature Switzerland.
- [10] Fenu, G., Marras, M., **Medda, G.**, Meloni, G., “Causal Reasoning for Algorithmic Fairness in Voice Controlled Cyber-Physical Systems”. In: *Pattern Recognition Letters* (2023).
- [11] Boratto, L., Fenu, G., Marras, M., **Medda, G.**, “Practical perspectives of consumer fairness in recommendation”. In: *Information Processing & Management* (2023).
- [12] Boratto, L., Fenu, G., Marras, M., **Medda, G.**, “Consumer Fairness in Recommender Systems: Contextualizing Definitions and Mitigations”. In: *Advances in Information Retrieval - 44th European Conference on IR Research, (ECIR 2022)*. Springer.
- [13] Fenu, G., Marras, M., **Medda, G.**, Meloni, G., “Fair Voice Biometrics: Impact of Demographic Imbalance on Group Fairness in Speaker Recognition”. In: *Proc. Interspeech 2021 (Interspeech 2021)*.
- [14] Fenu, G., **Medda, G.**, Marras, M., Meloni, G., “Improving Fairness in Speaker Recognition”. In: *European Symposium on Software Engineering (ESSE 2020)*. ACM.

DISTINCTIONS AND AWARDS

- *Outstanding Reviewer Award.* ACM Conference on Recommender Systems (RecSys2024) 2024
- *Outstanding Reviewer Award.* European Conference on Information Retrieval (ECIR2024) 2024
- *Outstanding Reviewer Award.* European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD2024) 2024
- *Interspeech Travel Grant.* Travel support at Interspeech 2021, Brno, Czechia. Aug 2021
- *Best Presentation Award* at Symposium on Pattern Recognition and Applications Nov 2020

COMMUNITY ACTIVITIES

- Chair at National and International Conferences and Workshops
 - Workshop on Graph-Based Approaches in Information Retrieval (IRonGraphs@ECIR2024) 2024
- Web & Digital Content Chair at National and International Conferences and Workshops
 - ACM Conference on Hypertext and Social Media (HT2025) 2025
 - ACM Conference on User Modeling, Adaptation and Personalization (UMAP2025) 2025
 - ACM Conference on User Modeling, Adaptation and Personalization (UMAP2024) 2024
- Program Committee Member at National and International Conferences and Workshops
 - European Conference on Information Retrieval (ECIR2026) 2026
 - ACM Web Conference (WWW2026) 2026
 - ACM International Conference on Web Search and Data Mining (WSDM2026) 2026
 - International Conference on Information and Knowledge Management (CIKM2025) 2025
 - European Conference on Artificial Intelligence (ECAI2025) 2025
 - ACM Conference on Recommender Systems (RecSys2025) 2025
 - European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD2025) (Outstanding Reviewer) 2025
 - ACM Conference on Recommender Systems (RecSys2025) 2025
 - ACM Conference on User Modeling, Adaptation and Personalization (UMAP2025) 2025
 - Workshop on Semantic Technologies for Scientific, Technical and Legal Data (SemTech4STLD24@ESWC2025) 2025
 - European Conference on Information Retrieval (ECIR2025) 2025
 - International Conference on Information and Knowledge Management (CIKM2024) 2024
 - ACM Conference on Recommender Systems (RecSys2024) 2024
 - European Conference on Information Retrieval (ECIR2024) 2024
 - ACM Conference on User Modeling, Adaptation and Personalization (UMAP2024) 2024
 - European Conference on Artificial Intelligence (ECAI2024) 2024
 - European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD2024) (Outstanding Reviewer) 2024
 - International Workshop on Recommender Systems for Sustainability and Social Good (RecSoGood@RecSys2024) 2024
 - Knowledge-aware and Conversational Recommender Systems Workshop (KaRS@RecSys2024) 2024
 - International Workshop on Responsible Face Image Processing (ReFIP@FG2024) 2024
 - Workshop on Semantic Technologies for Scientific, Technical and Legal Data (SemTech4STLD24@ESWC2024) 2024
- [Reviewer Activities](#) for National and International Conferences and Workshops
 - Knowledge-aware and Conversational Recommender Systems Workshop (KaRS@RecSys2023) 2023
 - International Workshop on Algorithmic Bias in Search and Recommendation (BIAS@2023) 2023
- Guest Editor at National and International Journals
 - Special Issue on Knowledge Discovery from Graphs (Data Mining and Knowledge Discovery) 2025
- [Reviewer Activities](#) for National and International Journals
 - ACM Computing Surveys (CSUR) 2024-2025
 - ACM Transactions of Information Systems (TOIS) 2024-2025
 - Springer Neural Processing Letters (NERP) 2023-2024

TEACHING

- Teaching Assistance
 - Algorithms and Data Structures. University of Cagliari, Italy. 2024-2025
 - Software Engineering. University of Cagliari, Italy. 2024-2025
 - Introduction to Computer Science. University of Cagliari, Italy. 2024-2025
 - Software Engineering. University of Cagliari, Italy. 2023-2024
 - Introduction to Computer Science. University of Cagliari, Italy. 2023-2024
 - Introduction to Computer Science. University of Cagliari, Italy. 2022-2023
- Thesis Assistance
 - Emanuele Ibba. Item-Based Path Generation for Cold-start Recommendation over Knowledge Graphs 2025
 - Fabio Littera. Towards a Comprehensive Labeling of Food Sustainability: an Extension of GreenFoodLens through Taxonomy Revision and Advanced Prompting Techniques 2025
 - Giovanni Zedda. FoodNexus: Massive Food Knowledge for Recommender Systems 2025
 - Giovanni Murgia. Comparative Analysis of Recommendation Methods for Sustainable and Healthy Nutrition 2024
 - Federico Piredda. Mitigation of Algorithmic Unfairness in Deep Fusion Network for Speaker Recognition 2021
 - Andrea Fulghesu. Analysis and Equity on Speaker Recognition 2020

PROJECTS

- **PhaSE** 2023 - 2025
Participation in the project “Promoting Healthy and Sustainable Eating through Interactive and Explainable AI Methods (PHaSE),” part of the Nationally Relevant Research Projects (PRIN) program.
Project code: 2022H5X7BK - Funding: 240k €