

Sara Magliacane

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📄 <https://saramagliacane.github.io/>

Work experience

- Nov. 2022 - **current** **Assistant Professor at AMLab, U. of Amsterdam (0.83 fte).**
- Causality-inspired reinforcement learning and causal representation learning.
 - Teaching: Causal Data Science (MSc Data Science '23), Causality (MSc AI '23), guest lecture in Intro to AI (BSc AI '23) and module in Deep Learning 2 (MSc AI '23).
 - Grant acquisition:
 - PI on AI4Fintech project on "Robust fraud detection through causality-inspired ML" with Adyen (internal funding: 1 PhD student),
- Nov. 2020 - Nov. 2022 **Assistant Professor at INDELab, U. of Amsterdam (0.83 fte since Feb'21).**
- Causality-inspired machine learning, especially applications of causality to transfer learning and domain adaptation.
 - Teaching: Causal Data Science (MSc Data Science '22), guest lectures in Intro to AI (BSc AI '21, '22) and Causality module in Deep Learning 2 (MSc AI '22).
 - Grant acquisition: Co-PI on AFRL proposal "CausalFusion: Causal Knowledge Extraction and Fusion from Multiple Modalities" (funding acquired: € 305,000, 1 PhD student).
- Apr. 2019 - Nov. 2020 **Research Scientist at MIT-IBM Watson AI Lab (0.2 fte since Feb'21).**
- Feb. 2021 - **current**
- PI on exploratory MIT-IBM project with Douglas Lauffenburger (MIT) on cross-species translation and applications of causal domain adaptation to system biology (funding acquired by MIT: \$150,000)
 - PI on MIT-IBM project with Armando Solar-Lezema (MIT) on safe AI approaches and program synthesis (funding acquired by MIT: \$700,000)
 - Co-PI on MIT-IBM project with Dean Eckles (MIT) and Manish Raghavan (MIT) on differentially private causal inference (funding acquired by MIT: \$700,000).
- Nov. 2017 - Apr. 2019 **Postdoctoral researcher at AI Foundations group in IBM Research NY .**
- Part of MIT-IBM project on learning causal graphs from data, experiment/intervention design, causal transfer learning with Caroline Uhler (MIT) and Guy Bresler (MIT).
 - Part of MIT-IBM project on neuro-symbolic approaches, learning logic rules from data with Josh Tenenbaum (MIT).
- Mar. 2016 - Nov. 2017 **Researcher at Causality Group in Universiteit van Amsterdam .**
- Causal transfer learning and causal learning from data in different experimental settings.
- May 2014 - Aug. 2014 **Research Intern at Google Research NYC (hosts: Cong Yu, Flip Korn).**
- Extracting information from semi-structured data in the WebTables team.
- June 2013 - Sept. 2013 **Software Engineering Intern at Google Zürich (host: Selen Basol).**
- Machine learning on location data in the Your Timeline team, Google Maps Zürich.

Education

- Oct. 2011 - June 2017 **PhD in Computer Science at VU Amsterdam.**
- Title: Logics for causal inference under uncertainty
Advisors: Joris Mooij (UvA), Paul Groth (Elsevier Labs/VU), Frank van Harmelen (VU)
- Use of probabilistic logics for discovering causal relations from noisy data, potentially with latent confounders and different experimental settings.
 - Scaling probabilistic logic inference, focusing on a probabilistic fuzzy logic (PSL) based on continuous Markov Random Fields with a distributed implementation of ADMM for MAP inference in continuous MRF focused on logic applications.
 - Teaching: TA for Intelligent Systems (BSc AI '13, '14), Course coordinator for Seminar "Combining Symbolic and Statistical methods in AI" (MSc AI '16).
- Oct. 2008 – Mar. 2011 **MEng in Computer Engineering (110/110 cum laude) at Politecnico di Milano and Politecnico di Torino (double degree).**

Top 10 recent publications

- NeurIPS 2023 F. Feng, S. Magliacane. *Learning dynamic attribute-factored world models for efficient multi-object reinforcement learning*.
- NeurIPS 2023 I. Auzina, C. Yildiz, S. Magliacane, M. Bethge, E. Gavves. *Modulated Neural ODEs*.
- UAI 2023 P. Lippe, S. Magliacane, S. Löwe, Y. M. Asano, T. Cohen, E. Gavves. *BISCUIT - Causal Representation Learning from Binary Interactions*.
- ICML 2023 Y. Liu, S. Magliacane, M. Kofinas, E. Gavves. *Graph Switching Dynamical Systems*.
- ICLR 2023 P. Lippe, S. Magliacane, S. Löwe, Y. M. Asano, T. Cohen, E. Gavves. *Causal Representation Learning for Instantaneous and Temporal Effects in Interactive Systems*, **Also patent WO2023146868A1**
- NeurIPS 2022 F. Feng, B. Huang, K. Zhang, S. Magliacane. *Factored Adaption for Non-Stationary Reinforcement learning*.
- ICML 2022 P. Lippe, S. Magliacane, S. Löwe, Y. M. Asano, T. Cohen, E. Gavves. *CITRIS: Causal Identifiability from Temporal Intervened Sequences*.
- ICLR 2022 Spotlight B. Huang, F. Feng, S. Magliacane, K. Zhang, *AdaRL: What, Where, and How to Adapt in Transfer Reinforcement Learning*.
- NeurIPS 2020 C. Squires, S. Magliacane et al., *Active Structure Learning of Causal DAGs via Directed Clique Trees*.
- HSCC 2021 N. Fulton, N. Hunt, S. Magliacane et al., *Verifiably Safe Exploration for End-to-End Reinforcement Learning*, **Best paper at HSCC 2021**

Recent awards

- 2021 ACM HSCC Best paper award
- 2021 NeurIPS 2021 Outstanding Reviewer Award
- 2015 First prize at Centre de Recherches Mathématiques Causal Inference Challenge

Keynotes, invited talks and invited workshops

- Keynote Speaker ELLIS Doctoral Symposium 2023, Young European Statisticians Causal Inference workshop 2023, ICLR 2023 workshop on "Time Series Representation Learning in Health", Israeli Statistical Association meeting 2022, Danish Data Science 2022, CausalItaly 2021, Causal Data Science meeting 2021
- Invited Speaker 20+ invited talks at international venues, with audiences ranging from machine learning and data science to statistics, healthcare and robotics, e.g. ICML Spurious Correlations Workshop 2023, European Meeting of Statisticians 2023 - Causality session, Workshop on "Artificial Intelligence, Causality and Personalized Medicine" 2022, IROS workshop on Causality for Robotics 2023, KNAW Webinar "Causality in economics, computer science, logic and language". Additionally various invited talks in internal seminars at U Edinburgh, U Copenhagen, IIT Genoa, MIT, KTH, IST Lisboa, TU Berlin, Booking.com etc.
- Invited lectures Lectures at SIKS causal inference course 2023, Barcelona School of Economics at the ML and causality course 2023, Advanced ML for innovative Drug Discovery Summer School 2022, Advanced in AI summer school lecture in Como 2022, SIKS course Integrating Learning and Reasoning 2021.
- Invited participant Lorentz center workshop on Counterfactual Prediction for Personalized Healthcare 2022, Causality semester at Simons Institute in UC Berkeley (visited from April 2022 to June 2022), Dagstuhl 2022 Recent Advancements in Tractable Probabilistic Inference, Dagstuhl 2021 Approaches and applications of inductive programming.

Academic service and event organization

Conference organizer	Co-organized various conferences, as sponsorship chair for Causal Learning and Reasoning (CLear) 2022, proceedings chair for UAI 2022, communication chair for CLear 2023 and online chair for UAI 2023.
Workshop organizer	Organized various workshops, mostly on causality, including at UAI 2023, UAI 2022, UAI 2021, NeurIPS 2023, NeurIPS 2022, NeurIPS 2020.
Event organizer	Amsterdam Causality Meeting
Area editor	Causality area editor at International journal on Approximate Reasoning, Elsevier
Special issue editor	Causality issue in IEEE Transactions on Neural Networks
Area-chair	AAAI 2023, UAI 2023, CleaR 2023
Reviewer	Machine learning reviewer since 2016 for conferences (NeurIPS, ICML, ICLR, AISTATS, UAI, AAAI, IJCAI) and journals (JMLR, TMLR, IEEE TNNLS, Nature Machine Intelligence, PNAS), Cambridge University Press review for chapter in "Causal Reasoning" by Kiciman and Sharma
Mentor	Women in Machine Learning 2017-2021, HackMIT 2019, 2020, AISTATS 2022

Supervision and internal service at UvA

PhD advisor	Advising at UvA: <ul style="list-style-type: none">○ since 2021: closely collaborating with Phillip Lippe (UvA, supervised by E. Gavves and T. Cohen) and Fan Feng (City University Hong Kong).○ since 2022: Yongtuo Liu (co-supervised with E. Gavves), Ilze Auzina (co-supervised with E. Gavves).○ since 2023: Mátyas Schubert, Danru Xu (co-supervised with P. Groth), Daan Roos (co-supervised with J.W. van den Meent),○ just starting: Nadja Rutsch (co-supervised with S. van der Pas at AUMC), Jakub Reha (co-supervised with A. Mićković at UvA FEB)
PhD committee	Stephan Bongers (UvA), Qi Wang (UvA), Maximilian Ilse (UvA), Kirthan Padh (Helmholtz AI), Mike Huisman (Leiden), Ali Vardasbi (UvA), Miguel Suau de Castro (TU Delft), Jin Huang (UvA), Jan Wöhlke (UvA).
Thesis advisor	Advised 4 Master theses in IS, 10 Master theses in AI, 2 Bachelor theses in KI.
Intern mentor at IBM	Mentored Chandler Squires (MIT), Basil Saeed (MIT), Biwei Huang (CMU).
Internal service	Examencommissie KI en AI since Sept 2023, Assistant professor hiring committee for AMLab, ADS thesis awards Program committee 2021, organizing Amsterdam Tech Week 2021.

Complete list of publications and patents

Total numbers	29 publications, 2 patents, 1 paper under submission
Link to list	Google Scholar profile