Giovanni Briglia - Ph.D. Student in Causality-Driven RL

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Website Scholar GitHub LeetCode LinkedIn Last Update: June 2025

Research Positions

Nov 2024 - present
Ph.D. Student, National PhD in AI
University of Pisa || University of Modena and Reggio Emilia
Topic: Causality-Driven RL and MARL.
Supervisors: Franco Zambonelli and Stefano Mariani.

Jan 2025 - Feb 2025
Ph.D. Researcher, Alan Turing Institute
Selected for the Data Study Group of January and February. I participated in the C-DICE challenge, developing an optimization framework for repurposing energy assets to support the UK's Net-Zero 2050 goal.

Nov 2023 - Nov 2024
Research Fellow, Distributed and Pervasive Intelligence Group
Topic: Causality-Driven RL.
Supervisors: Franco Zambonelli and Stefano Mariani.

Education

Nov 2024 – present
Ph.D. Computer Science, University of Pisa
Topic: Causality-Driven RL and MARL.
Courses: Markov Processes, Stochastic Processes, Game Theory, Distributed AI, Introduction to LLMs, Applied Econometrics.
Supervisors: Franco Zambonelli and Stefano Mariani.

Sep 2021 – Oct 2023
M.Sc. Mechatronics, Robotics and Automation Engineering, University of Modena and Reggio Emilia, Grade: 110 with honors/110.
Thesis title: Integrating Causality into Q-Learning for Adaptive Control in Dynamic Environments. Supervisor: Marco Lippi

Oct 2022 – Mar 2023
Erasmus+ exchange semester, Technische Universität München (TUM)
Courses: Embedded Network Systems, Concept and Software Design for CPS, Experimental Vibration Analysis, Visual Data Analytics, Robotics.

Sep 2018 – Oct 2021
B.Sc. Mechatronics, Robotics and Automation Engineering, University of Modena and Reggio Emilia, Grade: 96/110.
Thesis title: Artificial Intelligence applied to predictive maintenance.
Supervisor: Marco Lippi

Research Publications

Journal Articles

1. G. Briglia, F. Immovilli, M. Cocconcelli, and M. Lippi, "Bearing fault detection and recognition from supply currents with decision trees," *IEEE Access*, 2023.

Conference Proceedings

1. G. Briglia, M. Lippi, S. Mariani, and F. Zambonelli, "Improving reinforcement learning-based autonomous agents with causal models," in *International Conference on Principles and Practice of Multi-Agent Systems*, Springer, 2024, pp. 267–283.
2. G. Briglia, F. Immovilli, M. Cocconcelli, and M. Lippi, "Cross-load generalization of bearing fault recognition with decision trees," in *2023 7th International Conference on System Reliability and Safety (ICSRS)*, IEEE, 2023, pp. 400–406.

Pre-prints

1. G. Briglia, S. Mariani, and F. Zambonelli, *A roadmap towards improving multi-agent reinforcement learning with causal discovery and inference*, arXiv preprint arXiv:2503.17803, 2025.

Partecipation to Research Projects

Feb 2024 - Nov 2024 — **AGRARIAN:** this project aims to create an advanced agricultural solution focused on utilizing both drones and rovers to gather images and data for analyzing vineyards, specifically targeting the detection of golden flavescence.
Supervisors: Marco Lippi and Stefania Monica.

Mar 2021 - Aug 2023 — **ProjectRED:** evolved from mechanical division member to R&D lead: designed electronic housing and ML modules for semi-adaptive suspension, managed a 15-member rover team, and pioneered autonomous rover localization and mapping with YOLOv5, homography, and SLAM.

Summer Schools

Mar 2025 — **Learning Over Time** @National Phd on AI
July 2024 — **OxML Representation Learning and Generative AI** @University of Oxford
May 2024 — **OxML Fundamentals** @University of Oxford
Sep 2022 — **Advanced Course in AI** @AImageLab

Miscellaneous

Awards and Achievements

2024 — **1st rank at the selection for the Ph.D. Program in AI – Society**, University of Pisa
OxML 2024 partial scholarship, University of Oxford
2023 — **Best 20 recent graduates in Italy in the engineering area**, AlmaLaurea.

Certifications

2024 — **Reinforcement Learning Specialization**, University of Alberta.
2023 — **Deep Learning Specialization**, DeepLearning.AI.
Game Theory, Stanford Online.
2021 — **English Language Certification: B2**, Trinity College of London.

Reviewer at

2024 — **IEEE Transactions on Industrial Informatics**

Skills

Languages — Italian mother tongue and fluent in English
Coding — Python C, C++, Matlab

I authorize the processing of personal data contained in my curriculum vitae on the basis of Legislative Decree 196/2003, coordinated with Legislative Decree 101/2018, and EU Regulation 2016/679.