Riccardo Zamboni

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ricczamboni.github.io
RiccZamboni
Scholar

Research Interests

I am interested in pushing forward the known limits of reinforcement learning. My aim is to advance theoretical understanding that can lead to successful application of reinforcement learning in the real world.

Education

2022-Present **Ph.D. in Information Technology**, Politecnico di Milano
Advisor: M. Restelli (marcello.restelli@polimi.it), *Industrial Partner*: Siemens (AT)
Thesis: New Directions in Pre-Training for Reinforcement Learning
Industrial Project: Scalable Multi-Agent Reinforcement Learning for Production Scheduling

2019 **M.Sc. in Automation and Control Engineering**, Politecnico di Milano
Advisor: F. D'Ercole
Thesis: Bio-inspired Learning and Control
Grade: 110/110 Cum Laude

2017 **B.Sc. in Mechatronics Engineering**, University of Trento
Advisor: F. Bagagiolo
Thesis: Optimal Control Theory
Grade: 110/110 Cum Laude

Experience

F=Fall, W=Winter, Sp=Spring

F2024-Sp2025 **Visiting Ph.D. Student**, Autonomous Agents Laboratory, University of Edinburgh
Advisors: D. Abel, S. Albrecht
Focus: Offline Multi-Agent Reinforcement Learning

W-Sp2022 **Research Fellow**, RL^3 Laboratory, Politecnico di Milano
Advisor: M. Restelli
Focus: Distributed Reinforcement Learning

2019-2021 **Research Engineer**, e-Novia S.p.A.
Roles: Development of PoCs and MVPs with state-of-the-art Control and Machine Learning algorithms
Focus: Dynamic Pricing, AgriTech, Intelligent Control, Embedded Software

2018-2019 **Research Fellow**, Neuro-Robotics Laboratory, Tohoku University
Advisor: M. Hayashibe, Dai Owaki
Focus: Motor Control, Neuroscience, Bio-inspired Learning & Control

Teaching Assistant

F=Fall

2023 **Machine Learning**, M. Sc. in Data Science & AI at Cefriel
30 hrs of tutoring sessions

F2023 **Informatics**, B. Sc. at Politecnico di Milano
26 hrs of exercise sessions

F2022 **Informatics**, B. Sc. at Politecnico di Milano
26 hrs of exercise sessions

Honors

2020 **Roberto Rocca Scholarship**, Tenaris S.p.A.
Outstanding Merits

2019 **MEXT Scholarship**, Japanese Government
Outstanding Merits

2017 **B. Sc. Scholarship**, University of Trento
Outstanding Merits

Editorial Activities

DEI Chair, European Workshop on Reinforcement Learning
EWRL 2022

Reviewer, NeurIPS 2023, 2024
ICML 2023, 2024,2025 (**Outstanding Reviewer**)
AISTATS 2025
TMLR 2024

Student Co-Supervision

2025	**Davide Tenedini**, Ph.D. in Information Technologies, Politecnico di Milano
2025	**Carl Richmond**, M.Sc. in High Performance Computing Engineering, University of Edinburgh
2024	**Luca Maci**, M.Sc. in Mathematical Engineering, Politecnico di Milano
2023-2024	**Federico Corso**, M.Sc. in Automation & Control Engineering, Politecnico di Milano
2023-2024	**Enrico Brunetti**, M.Sc. in Computer Science, Politecnico di Milano
2023-2024	**Duilio Cirino**, M.Sc. in Computer Science, Politecnico di Milano
2023	**Gianmarco Tedeschi**, M.Sc. in Computer Science, Politecnico di Milano
2022-2023	**Matteo Nunziante**, M.Sc. in Computer Science, Politecnico di Milano

Publications

C=Conference, J=Journal, P=Pre-Print

[C.5] Vincenzo De Paola, **Riccardo Zamboni**, Mirco Mutti, Marcello Restelli. Enhancing Diversity in Parallel Agents: A Maximum State Entropy Exploration Story. ICML 2025.

[C.4] **Riccardo Zamboni**, Enrico Brunetti, Marcello Restelli. Scalable Multi-Agent Offline Reinforcement Learning and the Role of Information. RLDM 2025.

[P.1] **Riccardo Zamboni**, Mirco Mutti, Marcello Restelli. Towards Principled Multi-Agent Task Agnostic Exploration. Arxiv 2025

[C.3] **Riccardo Zamboni**, Duilio Cirino, Marcello Restelli, Mirco Mutti. The Limits of Pure Exploration in POMDPs: When the Observation Entropy is Enough. RLC 2024

[C.2] **Riccardo Zamboni**, Duilio Cirino, Marcello Restelli, Mirco Mutti. How to Explore with Belief: State Entropy Maximization in POMDPs. ICML 2024.

[C.1] **Riccardo Zamboni**, Alberto Maria Metelli, Marcello Restelli. Distributional Policy Evaluation: a Maximum Entropy approach to Representation Learning. NeurIPS 2023.

[J.1] **Riccardo Zamboni**, Dai Owaki, Mitsuhiro Hayashibe. Adaptive and Energy-Efficient Optimal Control in CPGs Through Tegotae-Based Feedback. Frontiers Robotics AI 2021.