Alberto Maria Metelli

Curriculum Vitae et Studiorum

Dipartimento di Elettronica, Informazione e Bioingegneria Politecnico di Milano 32, Piazza Leonardo da Vinci 20133, Milano, Italy



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SUMMARY.

Alberto Maria Metelli is an Assistant Professor of Information Processing Systems with the Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB) in the Artificial Intelligence and Robotics Laboratory (AIRLab) at Politecnico di Milano (PoliMi). He obtained the Ph.D. in Information Technology (cum Laude) in March 2021 at Politecnico di Milano defending a thesis about environment configuration in reinforcement learning, awarded the "Premio NeoDottori di Ricerca Marco Cadoli 2021" as the best Italian Ph.D. thesis in Artificial Intelligence (from AIxIA) and published in the book series "Frontiers in Artificial Intelligence and Applications" (FAIA) [B1]. He won the FIS2 Starting Grant in 2025, ranked first amont the Computer Science and Informatics applicants, funded by MUR. He is co-founder of ML Cube S.r.l., an innovative start-up, nominated by Fortune Italia as one of the top 20 Italian AI start-ups in 2022. His main research interests revolve around artificial intelligence and machine learning for sequential decision-making, in particular reinforcement learning (RL). He is currently working on theoretical and algorithmic aspects of inverse RL [C44, C29, C6], policy-based RL [C53, C42, C3], RL and multi-armed bandits in structured environments [C38, C31, C10], and preference-based RL. He participates in research projects about reinforcement learning for autonomous driving [J15], defense, Industry 4.0, trading, and safety-critical networks [W1, R1]. He is also interested in algorithms, optimization, statistics, probability, and recommendation systems [W29].

Highlights .

- Assistant professor at DEIB, Politecnico di Milano, since March 2023.
- National scientific qualification as Italian associate professor (sector 09/H1), until February 2034.
- Winner of the FIS2 (Fondo Italiano per la Scienza) Starting Grant (1.325M€), ranked first amont the PE6 Computer Science and Informatics applicants, funded by MUR.
- Author/Co-author of 166 publications in peer-reviewed international journals (4 as main contributor, 1 single-author), including JMLR (3), MLJ (3), JAIR (1), RAS (1), ESWA (1), IEEE TNNLS (1), IEEE TITS (1), and DMKD (1). According to Scimago Journal Rank: 11 articles in Q1 journals. Author/Co-author of 55 publications in peer-reviewed international conferences (14 as main contributor), including ICML (16), NeurIPS (13), AAAI (7), IJCAI (1), AISTATS (6), COLT (2), and UAI (1). According to GGS Conference Rating: 37 publications in A++ venues and 6 publications in A+ venues (Class 1).
- Winner of both "Premio NeoDottori di Ricerca Marco Cadoli 2021" and "Premio NeoLaureati Leonardo Lesmo 2018" for the best Italian Ph.D. thesis and M.Sc. thesis in Artificial Intelligence respectively, awarded by Associazione Italiana per l'Intelligenza Artificiale (AIxIA).
- Oral presentation at NeurIPS 2018 (30/4856 submissions, 0.62%) and notable paper at AISTATS 2023 (32/1689 submissions, 1.9%).
- Lecturer of the Ph.D. course Reinforcement Learning (since a.y. 2021-2022) and of the B.Sc. course Computer Science (since a.y. 2023-2024) at Politecnico di Milano. Teaching assistant of M.Sc. course Machine Learning (since a.y. 2021-2022) and of B.Sc./M.Sc. course Foundations of Artificial Intelligence (since a.y. 2021-2022) at Politecnico di Milano.
- Associate Editor of IEEE RA-L and Action Editor of TMLR. Program chair and co-organizer of the 15th European Workshop of Reinforcement Learning (EWRL 2022). Senior PC member of AAAI 2022 and IJCAI 2021 and Area chair of ICML 2024-2025, NeurIPS 2024, and AISTATS 2025.
- Participation in 9 industrial research projects funded by private companies (3 as (co-)PI) and in 5 competitive research project funded by public institutions (2 as (co-)PI).
- (Co-)Supervisor of 10+ Ph.D. students and of 40+ M.Sc. students at Politecnico di Milano.
- Member of the ELLIS Society and CLAIRE supporter.
- Co-founder of ML Cube S.r.l., accredited spin-off of the Politecnico di Milano, born in November 2020.

ACADEMIC EXPERIENCE _

Assistant Professor (Ricercatore a tempo determinato (Junior) - L.240/2010, art.24, c.3, lett.a)) *March 2023-Politecnico di Milano - Dipartimento di Elettronica, Informazione e Bioingegneria Milan, Italy* Research programme: "Artificial intelligence foundations for sequential decision making".

SSD: IINF05/A, GSD: 09/IINF-05 - Sistemi di elaborazione delle informazioni.

Postdoctoral Researcher (Assegnista di ricerca - L.240/2010, art.22) November 2020-February 2023 Politecnico di Milano - Dipartimento di Elettronica, Informazione e Bioingegneria Milan, Italy

Research title: "Development of reinforcement learning algorithms for autonomous driving applications".

Research manager: Prof. Marcello Restelli.

SSD: ING-INF/05 - Sistemi di elaborazione delle informazioni.

NATIONAL SCIENTIFIC QUALIFICATIONS _

National Scientific Qualification as Italian Associate Professor

February 2023

(Abilitazione Scientifica Nazionale - L.240/2010, art.16)

Professore di II fascia - Settore concorsuale: 09/H1 - Sistemi di elaborazione delle informationi.

Validity: 06/02/2023 - 06/02/2035

NATIONAL PROFESSIONAL QUALIFICATIONS -

Professional Qualification as Italian Information Engineer

September 2021

(Abilitazione all'esercizio della professione di Ingegnere dell'Informazione - $\mathrm{DPR.328/2001})$

Sezione A - Settore dell'informazione. I Sessione 2021 - Politecnico di Milano.

EDUCATION

Ph.D. in Information Technology (Dottorato di ricerca)

November 2017-October 2020

Politecnico di Milano - Dipartimento di Elettronica, Informazione e Bioingegneria

Milan, Italy

Supervisor: Prof. Marcello Restelli. Tutor: Prof. Nicola Gatti.

Ph.D. Thesis: "Exploiting environment configurability in reinforcement learning".

Reviewers: Prof. Amir-massoud Farahmand (Vector Institute, University of Toronto), Prof. Alessandro Lazaric (Facebook AI, Paris).

Date of award: 11 March 2021. Final Mark: Laude.

M.Sc. in Computer Science and Engineering (LM-32 Ingegneria Informatica)

October 2015-July 2017

Politecnico di Milano

Milan, Italy

M.Sc. Thesis: "Compatible reward inverse reinforcement learning".

Supervisor: Prof. Marcello Restelli. Co-supervisor: Dott. Matteo Pirotta.

Date of award: 27 July 2017. GPA: 30/30 (17 exams cum laude out of 19). Final Mark: 110/110 cum Laude.

B.Sc. in Engineering of Computing Systems (L-8 Ingegneria dell'informazione) October 2012-July 2015 Politecnico di Milano Milano

Date of award: 24 July 2015. GPA: 30/30 (17 exams cum laude out of 22). Final Mark: 110/110 cum Laude.

High School Diploma

 $September\ 2007\text{-}July\ 2012$

IISS Ettore Majorana

Seriate (Bg), Italy

Specialization in Computer Science (Perito Informatico). Final Mark: 100/100 cum Laude.

Publications _

Scientific Productivity 71 publications (64 entries on Scopus, 73 co-authors according to Scopus)

- International Journals: Author/Co-author of 16 publications in peer-reviewed international journals (4 as main contributor, 1 single-author), including Journal of Machine Learning Research (3), Machine Learning (3), Journal of Artificial Intelligence Research (1 accepted), Robotics and Autonomous Systems (1), Expert Systems with Applications (1), IEEE Transactions on Neural Networks and Learning Systems (1), IEEE Transactions on Intelligent Transportation Systems (1), and Data Mining and Knowledge Discovery (1).
 - According to Scimago Journal Rank (SJR): 12 publications in Q1 journals (of which 9 in "Artificial Intelligence" area and 3 in "Computer Science Applications" area).
 - According to CORE Journal Ranks: ² 4 publications in A* journals and 5 publications in A journals.

¹https://www.scimagojr.com

²http://portal.core.edu.au/jnl-ranks

- <u>International Conferences</u>: Author/Co-author of **55 publications** in peer-reviewed international conferences (14 as main contributor), including **ICML** (16), **NeurIPS** (13), **AAAI** (7), **IJCAI** (1) **AISTATS** (4 + 2 accepted), **COLT** (2), and **UAI** (1).
 - According to GII-GRIN-SCIE (GGS) Conference Rating:³ **37 publications in A++** venues and 6 publications in A+ venues (Class 1).
 - According to CORE Conference Ranks:⁴ 39 papers in A* venues and 6 papers in A venues.

Publication ImpactGoogle Scholar:citations $\mathbf{1190}$ h-index $\mathbf{18}$ i10-index $\mathbf{23}$ (accessed on 16 March 2025)Scopus:citations $\mathbf{528}$ h-index $\mathbf{13}$ i10-index $\mathbf{16}$

Top-12 Publications⁵

- [1] Filippo Fedeli, <u>Alberto Maria Metelli</u>, Francesco Trovò, and Marcello Restelli. "IWDA: Importance Weighting for Drift Adaptation in Streaming Supervised Learning Problems". **IEEE Transactions on Neural Networks and Learning Systems**, 34(10):6813–6823, 2023. CORE 2020: **A***. SJR 2023: **Q1**. (link: https://doi.org/10.1109/TNNLS.2023.3265524).
 - The paper introduces a novel approach to learning in non-stationary environments using importance weighting, marking a step toward automated machine learning. I designed the algorithmic solution, conducted the theoretical analysis, contributed to the experimental evaluation, and participated in the paper writing.
- [2] <u>Alberto Maria Metelli</u>, Guglielmo Manneschi, and Marcello Restelli. "Policy space identification in configurable environments". **Machine Learning**, 111(6):2093–2145, 2022. CORE 2020: **A**. SJR 2022: **Q1**. (link: https://doi.org/10.1007/s10994-021-06033-3).
 - The paper introduces the novel problem of "policy space identification", a first approach for addressing it, and two application scenarios. I developed the problem formulation, designed the identification rules, conducted the theoretical analysis, performed the imitation learning experiments, and wrote the majority of the paper.
- [3] Alberto Maria Metelli, Matteo Pirotta, Daniele Calandriello, and Marcello Restelli. "Safe Policy Iteration: A Monotonically Improving Approximate Policy Iteration Approach". **Journal of Machine Learning Research**, 22(97):1–83, 2021. CORE 2020: **A***. SJR 2021: **Q1**. (link: http://jmlr.org/papers/v22/19-707.html).

 The paper addresses approximate policy iteration by presenting the first convergence proof for safe policy iteration.
 - ation, introducing a novel algorithm, and providing new experimental evaluations. I developed the convergence proof, designed the algorithm, conducted the experimental evaluations, and wrote the paper.
- [4] Amarildo Likmeta, <u>Alberto Maria Metelli</u>, Giorgia Ramponi, Andrea Tirinzoni, Matteo Giuliani, and Marcello Restelli. "Dealing with multiple experts and non-stationarity in inverse reinforcement learning: an application to real-life problems". **Machine Learning**, 110(9):2541–2576, 2021. CORE 2020: **A.** SJR 2021: **Q1**. (link: https://doi.org/10.1007/s10994-020-05939-8).
 - The paper presents three significant real-world applications of inverse reinforcement learning, tackling two key methodological challenges: non-stationarity and multiple experts. I developed the approach for non-stationary experts, conducted the experiments in Section 7, and wrote the first three sections of the paper.
- [5] <u>Alberto Maria Metelli</u>, Matteo Papini, Nico Montali, and Marcello Restelli. "Importance Sampling Techniques for Policy Optimization". **Journal of Machine Learning Research**, 21(141):1–75, 2020. CORE 2020: **A***. SJR 2020: **Q1**.
 - (link: http://jmlr.org/papers/v21/20-124.html).
 - This paper introduces novel techniques for variance reduction in off-policy learning using importance sampling, i.e., per-decision and multiple importance sampling. I developed the theoretical and algorithmic contributions in Sections 4 and 5, conducted the experiments in the action-based setting, and wrote the majority of the paper.
- [6] Amarildo Likmeta, <u>Alberto Maria Metelli</u>, Andrea Tirinzoni, Riccardo Giol, Marcello Restelli, and Danilo Romano. "Combining reinforcement learning with rule-based controllers for transparent and general decision-making in autonomous driving". **Robotics and Autonomous Systems**, 131:103568, 2020. CORE 2020: B. SJR 2020: **Q1** (Computer Science Applications).

(link: https://doi.org/10.1016/j.robot.2020.103568).

This paper explores the application of reinforcement learning techniques to autonomous driving, with a primary focus on the interpretability of agent behavior. I contributed to the design of the environment (state and action spaces), the development of the rule-based policy, and the writing of the paper, particularly up to Section 7.

³https://scie.lcc.uma.es/

⁴http://portal.core.edu.au/conf-ranks

⁵The first author represents the main contributor; in the case of multiple main contributors (equal contribution), they are marked with *. Alphabetic order of authors is denoted with (α - β order). For both journal and conference publications, the rating is the most recent available in the year of publication. For Scimago Ranks (SJR), the "Artificial Intelligence" quartile is reported if no further specification. The complete list of publications is reported in the annex List of Publications.

- [7] <u>Alberto Maria Metelli</u>, Filippo Lazzati, and Marcello Restelli. "Towards Theoretical Understanding of Inverse Reinforcement Learning". In **International Conference on Machine Learning (ICML)**, volume 202, pages 24555–24591. PMLR, 2023. **Acceptance rate:** 1827/6538 (27.9%), Oral: 156/6538 (2.39%). CORE 2023: A*. GGS 2021: A++.
 - (link: https://proceedings.mlr.press/v202/metelli23a.html).
 - The paper presents the first comprehensive analysis of the inverse reinforcement learning problem, establishing a novel sample complexity lower bound. I developed the construction of the lower bound, derived it along with the other theoretical results, and wrote the majority of the paper.
- [8] Alberto Maria Metelli, Alessio Russo, and Marcello Restelli. "Subgaussian and Differentiable Importance Sampling for Off-Policy Evaluation and Learning". In Advances in Neural Information Processing Systems 34 (NeurIPS), pages 8119–8132. 2021. Acceptance rate: 2344/9122 (25.7%), Spotlight: 260/9122 (2.9%). CORE 2021: A*. GGS 2021: A++.
 - (link: https://proceedings.neurips.cc/paper/2021/hash/4476b929e30dd0c4e8bdbcc82c6ba23a-Abstract.html). The paper proposes a novel correction for importance weighting, with desirable statistical and optimization properties, and tests it in the contextual bandit setting. I designed the correction, conducted its theoretical analysis (including the derivation of a concentration inequality), and wrote the majority of the paper.
- [9] Alberto Maria Metelli*, Amarildo Likmeta*, and Marcello Restelli. "Propagating Uncertainty in Reinforcement Learning via Wasserstein Barycenters". In Advances in Neural Information Processing Systems 32 (NeurIPS), pages 4335–4347, 2019. Acceptance rate: 428/6743 (21.2%). CORE 2018: A*. GGS 2018: A++.
 - (link: https://papers.nips.cc/paper/8685-propagating-uncertainty-in-reinforcement-learning-via-wasserstein-barycenters).
 - The paper presents a novel approach using distributions to represent and propagate uncertainty in value-based reinforcement learning. I conceived the idea of employing Wasserstein barycenters, conducted the convergence analysis, and wrote the majority of the paper.
- [10] <u>Alberto Maria Metelli</u>, Emanuele Ghelfi, and Marcello Restelli. "Reinforcement Learning in Configurable Continuous Environments". In **International Conference on Machine Learning (ICML)**, volume 97, pages 4546–4555. PMLR, 2019. **Acceptance rate: 773/3424 (22.6%)**. CORE 2018: **A***. GGS 2018: **A++**. (link: http://proceedings.mlr.press/v97/metelli19a.html).
 - The paper presents and analyzes a new algorithm for learning in configurable environments with continuous state-action spaces. I devised the algorithm, provided the theoretical analysis, performed the experiment on the TORCS simulator, and wrote the majority of the paper.
- [11] Alberto Maria Metelli*, Mirco Mutti*, and Marcello Restelli. "Configurable Markov Decision Processes". In International Conference on Machine Learning (ICML), volume 80, pages 3488–3497, 2018. Acceptance rate: 618/2473 (25.0%). CORE 2018: A*. GGS 2018: A++. (link: http://proceedings.mlr.press/v80/metelli18a.html).
 - This paper introduces the concept of environment configuration in reinforcement learning by proposing the novel framework of configurable Markov decision processes. I formulated the framework, developed the learning algorithm, conducted the racetrack experiment, and contributed to the writing of the paper.
- [12] <u>Alberto Maria Metelli</u>, Matteo Pirotta, and Marcello Restelli. "Compatible Reward Inverse Reinforcement Learning". In **Advances in Neural Information Processing Systems 30 (NIPS)**, pages 2047–2056, 2017. **Acceptance rate:** 678/3240 (20.9%). CORE 2017: A*. GGS 2017: A++.

(link: http://papers.nips.cc/paper/6800-compatible-reward-inverse-reinforcement-learning).

The paper presents a novel approach to constructing a feature space for inverse reinforcement learning. I developed the underlying idea for feature construction, designed the reward selection approach, conducted the full experimental evaluation, and wrote the majority of the paper.

FELLOWSHIPS, AWARDS, AND RECOGNITIONS _

Personal Research Awards and Recognitions __

AAAI 2024 - New Faculty Highlights

December 2023

Association for the Advancement of Artificial Intelligence (AAAI)

Description: Invited speaker program at AAAI conference (GGS: A++) highlighting AI researchers who have just begun careers as new faculty members or the equivalent in industry.

(link: https://aaai.org/aaai-conference/nfh-24-program/)

DAAD AInet Fellowship - Postdoc-NeT-AI on Human-centered AI

October 2023

German Academic Exchange Service (DAAD)

Description: Fellowship granted to excellent early-career researchers to meet the German AI research community. (link: https://www.daad.de/en/the-daad/postdocnet/fellows/fellows/)

Publication of the Ph.D. Thesis as Book

June~2022

European Association for Artificial Intelligence (EurAI)

Description: Publication of the Ph.D. thesis in the "Dissertation in AI" series "Frontiers in Artificial Intelligence and Applications" as a recognition for the outstanding theses participating in the EurAI "Dissertation Award".

(link: https://www.iospress.com/catalog/books/exploiting-environment-configurability-in-reinforcement-learning)

Winner of "Premio NeoDottori di Ricerca Marco Cadoli 2021"

November 2021

 $Associazione\ Italiana\ per\ l'Intelligenza\ Artificiale\ (AIxIA)$

Description: Award for the best Italian Ph.D. thesis in Artificial Intelligence (public selection). Amount: 1000€. (link: https://aixia.it/premi/premio-per-neodottori-di-ricerca-marco-cadoli-annuale/)

Recipient of a "Springer Award"

April 2021

IT PhD Board of Professors, Politecnico di Milano

Description: Publication in a Polimi SpringerBriefs volume, for the best results from the IT PhD program doctors. (link: https://link.springer.com/book/10.1007/978-3-030-85918-3)

Winner of "Premio NeoLaureati Leonardo Lesmo 2018"

October 2018

Associazione Italiana per l'Intelligenza Artificiale (AIxIA)

Description: Award for the best Italian M.Sc. thesis in Artificial Intelligence (public selection). Amount: 500€. (link: https://aixia.it/premi/premio-per-neolaureati-leonardo-lesmo-annuale/)

Grants _

5k€ Google Cloud Platform Credits - Gemma Academic Program

May 2024

Google Cloud

Description: Google Cloud credits supporting research in reinforcement learning and large language models.

6.6k€ Google Cloud Education Credits

February 2024

Google Cloud

Description: Google Cloud credits as a support for the Ph.D. course "Reinforcement Learning".

80k CINECA GPU hours

October 2023

CINECA Supercomputing Centre

Description: Support for development of efficient policy gradient algorithms for large-scale industrial plants.

Conference Awards and Recognitions _

Two Spotlight Papers at ICML 2024 (top 3.5%)

July 2024

International Conference on Machine Learning 2024, Vienna, Austria

Description: Best 235 papers out of 9473 submissions (top 3.5%) to ICML 2024 (GGS: **A++**) for the papers "Learning Optimal Deterministic Policies with Stochastic Policy Gradients" [C14] and "Best Arm Identification for Stochastic Rising Bandits" [C18].

Oral Presentation at ICML 2023 (top 2.39%)

July 2023

International Conference on Machine Learning 2023, Honolulu, HI, US

Description: Best 156 papers out of 6538 submissions (top 2.39%) to ICML 2023 (GGS: A++) for the paper "Towards Theoretical Understanding of Reinforcement Learning" [C29].

Notable Paper at AISTATS 2023 (top 1.9%)

April 2023

International Conference on Artificial Intelligence and Statistics 2023, Valencia, Spain

Description: Best 32 papers out of 1689 submissions (top 1.9%) to AISTAS 2023 (GGS: $\bf A+$) for the paper "A Tale of Sampling and Estimation in Discounted Reinforcement Learning" [C32].

Spotlight Presentation at NeurIPS 2021 (top 2.9%)

 $December\ 2021$

Neural Information Processing Systems 2021, Online

Description: Best 260 papers out of 9122 submissions (top 2.9%) to NeurIPS 2021 (GGS: **A++**) for the paper "Subgaussian and Differentiable Importance Sampling for Off-Policy Evaluation and Learning" [C42].

Oral Presentation at NeurIPS 2018 (top 0.62%)

December 2018

Neural Information Processing Systems 2018, Montreal, Canada

Description: Best 30 papers out of 4856 submissions (top 0.62%) to NeurIPS 2018 (GGS: $\mathbf{A}++$) for the paper "Policy Optimization via Importance Sampling" [C53].

STUDENT AWARDS AND RECOGNITIONS _

Winner of a Ph.D. Scholarship

July 2017

Ministero dell'Istruzione, dell'Università e della Ricerca (MIUR)

Description: Ranked first among 50 applicants of Politecnico di Milano in Computer Science and Engineering area.

Recipient of a "Le migliori matricole dell'A.A. 2012/2013" award

May 2014

Politecnico di Milano

Description: Awarded for the best freshmen students of Politecnico di Milano.

B.Sc. and M.Sc. Student Scholarships

2012-2017

Politecnico di Milano

Description: Full reduction of student tuition fees for merit GPA > 29/30 (each eligible year).

Enrollment to the "Albo Nazionale delle Eccellenze"

2012

Istituto Nazionale di Documentazione Innovazione e Ricerca Educativa (INDIRE) Description: National register of the best among the Italian high-school graduates.

(link: https://www.indire.it/eccellenze/)

Competitions _

Runner-Up (Best Academic Team) at ACM RecSys Challenge 2017

July 2017

Association for Computing Machinery (ACM)

Description: Recommender systems challenge with a team of 8 students from Politecnico di Milano. Amount: 1500€. (link: http://www.recsyschallenge.com/2017/)

Winner of "Migliori Elaborati 2011-2012"

June 2012

IISS Ettore Majorana

Description: Best project award for the developing of a database system to manage remedial courses.

Winner of a Bronze medal at "Olimpiadi Italiane di Informatica 2011"

October 2011

Associazione Italiana per l'Informatica ed il Calcolo Automatico (AICA)

Description: Italian Olympiad in Informatics, ranked 24th.

(link: https://www.olimpiadi-informatica.it/index.php/olimpiadi-italiane-2010-2011.html)

REVIEWING SERVICE RECOGNITIONS __

He has been recognized for the reviewing service for international conferences: NeurIPS 2019 (top 50%), ICML 2020 (top 33%), AAAI 2021 (top 25%), ICLR 2021 (outstanding reviewer), AISTATS 2022 (top 10%), NeurIPS 2023 (top reviewer).

International Conference Grants ____

He has been awarded travel/accommodation/registration support for international conference participation, granted by conference organizers via conference sponsor: NIPS 2017 (Long Beach, CA, US), ICML 2018 (Stockholm, Sweden), NeurIPS 2018 (Montreal, Canada), ICML 2019 (Long Beach, CA, US), NeurIPS 2019 (Vancouver, Canada), ICML 2022 (Baltimore, MD, US), NeurIPS 2023 (New Orleans, LA, US), ICML 2024 (Vienna, Austria), NeurIPS 2024 (Vancouver, Canada).

Teaching Activity⁶

Primary Responsibility Teaching Activities _

Lecturer and coordinator of Computer Science

2023-2025

Politecnico di Milano

Milan, Italy

6 CFU - B.Sc. in Civil Engineering - Campus Leonardo - II semester. Avg no. of students: \sim 100. a.y. 2023-2024 (36 hours), a.y. 2024-2025 (36 hours).

Lecturer and co-coordinator of Reinforcement Learning

2021-2022, 2023-2024

Politecnico di Milano

Milan, Italy

 $5~\mathrm{CFU}$ - Ph.D. in Information Technology - Campus Leonardo. Avg no. of students: ~80. Co-coordinator: Prof. Marcello Restelli.

a.y. 2021-2022 (15 hours, corresponding to 3 CFU), a.y. 2023-2024 (15 hours, corresponding to 3 CFU).

Lecturer of Deep Reinforcement Learning

2021-2022

GSSI - $Gran\ Sasso\ Science\ Institute$

On line

Ph.D. in Computer Science. Avg no. of students: ~ 10 . a.y. 2021-2022 (2 hours).

⁶Total 104 hours of teaching and 402 hours of teaching assistance.

Teaching Assistant of Machine Learning

2021-2025

Politecnico di Milano

Milan, Italy

5 CFU - M.Sc. Computer Science and Engineering and M.Sc. Mathematical Engineering - Campus Leonardo - II semester. Avg no. of students: ~ 100 . Lecturer: Prof. Daniele Loiacono.

a.y. 2021-2022 (10 hours), a.y. 2022-2023 (20 hours), a.y. 2023-2024 (20 hours), a.y. 2024-2025 (20 hours).

Teaching Assistant of Foundations of Artificial Intelligence

2021-2025

Politecnico di Milano

Milan, Italy

5 CFU - B.Sc. and M.Sc. Computer Science and Engineering - Campus Leonardo - I semester. Avg no. of students: $\sim 80+80$. Lecturers: Proff. Francesco Amigoni and Pier Luca Lanzi.

a.y. 2021-2022 (10+10 hours), a.y. 2022-2023 (16+16 hours), a.y. 2023-2024 (8+6 hours), a.y. 2024-2025 (8+6 hours).

Teaching Assistant of Computer Science (Informatica)

2018-2023

Politecnico di Milano

Milan, Italy

8 CFU - B.Sc. in Environmental and Land Planning Engineering - Campus Leonardo - I semester. Average no. of students: ~ 150 . Lecturer: Prof. Andrea Bonarini.

a.y. 2018-2019 (24 hours), a.y. 2019-2020 (24 hours), a.y. 2020-2021 (30 hours), a.y. 2021-2022 (30 hours), a.y. 2022-2023 (24 hours).

Laboratory Teaching Assistant of Computer Science (Informatica)

2018-2021

Politecnico di Milano

Milan, Italy

8 CFU - B.Sc. in Environmental and Land Planning Engineering - Campus Leonardo - I semester. Avg no. of students: ~ 150 . Lectuter: Prof. Andrea Bonarini.

a.y. 2018-2019 (20 hours), a.y. 2019-2020 (20 hours), a.y. 2020-2021 (20 hours).

Laboratory Teaching Assistant of Computer Science A (Informatica A)

2017-2018

Politecnico di Milano

Milan, Italy

 $10~\mathrm{CFU}$ - B.Sc. in Management Engineering - Campus Bovisa - I semester. Avg no. of students: ~80. Lecturer: Prof. Florian Daniel.

a.y. 2017-2018 (36 hours).

Academic Tutor

 $Cefriel\ S.c.a.r.l.$

2020

Milan, Italy

Supervision of a student for the project of the Master CEFRIEL on AI&ML (24 hours).

Teaching Activity for Professional Audience ___

Lecturer

September 2024

EIT Digital Summer School - AI4Sustainability

Milan, Italy

Avg no. of students: ~40. 2 hours.

Lecturer and co-coordinator

November 2024

ENI Summer School - Reinforcement Learning and Online Learning Avg no. of students: ~10. 13.5 hours. Co-coordinator: Matteo Papini. San Donato Milanese, Italy

Committees _

Examination Committees _

President of the Ph.D. Final Examination Committee

April 2023

Ph.D. in Information Technology - Politecnico di Milano

Milan, Italy

Candidate: Dr. Giulia Romano. Thesis: "Pricing and advertising strategies in e-commerce scenarios"

PhD Committee: Proff. Alberto Maria Metelli, Ioannis Caragiannis (Aarhus University, Denmark), Negin Golrezaei (MIT Sloan School of Management, Cambridge, Massachusetts, US).

SELECTION COMMITTEES _

Member of the Public Selection Committee for Research Fellowships

May 2023-

(Assegni di Ricerca) - DEIB - Politecnico di Milano

Milan. Italy

"Development of adaptive reinforcement learning algorithms for control of industrial plants" (president, May 2023)

- "Development of reinforcement learning techniques for Industry 4.0" (member, June 2023)
- "Development of reinforcement learning techniques for Industry 4.0" (member, October 2023)
- "Development of reinforcement learning techniques for Real-World Applications" (member, January 2024)

"Development of Reinforcement Learning Algorithms for Behavior Recommendation" (member, September 2024) "Developing Machine Learning Algorithm to Predict Immunotherapy Effectiveness in Non-small Cell Lung Cancer" (member, November 2024)

Member of the Public Selection Committee for Research Support Activities

(Attività di Supporto alla Ricerca) - DEIB - Politecnico di Milano

June 2023-Milan, Italy

"Distributed Reinforcement Learning for Industrial Production Systems" (member, June 2023)

Projects⁷ _

Competitive Research Projects ___

HUmLrn (Unified Learning from Diverse Human Feedback)

to start

FIS2 (Fondo Italiano per la Scienza) - Starting Grant

Role: Coordinator and principal investigator.

Topic: Integrating human feedback in reinforcement learning approaches. Funding institution: MUR. Budget: 1.325M€ (to Politecnico di Milano). Duration: 36 months.

AI4REALNET (AI for REAL-world NETwork operation)

October 2023-March 2027

HORIZON EUROPE

Role: Co-principal investigator of the local research unit and WP co-leader (with Prof. Marcello Restelli).

Topic: Reinforcement learning for operating complex real-world network infrastructures.

Project coordinator: INESC TEC, Porto, Portugal. Funding institution: European Union. Budget: $4M \in (456k \in 10^{-5} \text{ M})$ Funding institution: European Union. Budget: $4M \in (456k \in 10^{-5} \text{ M})$ Funding institution: European Union. Budget: $4M \in (456k \in 10^{-5} \text{ M})$ Funding institution: European Union. Budget: $4M \in (456k \in 10^{-5} \text{ M})$ Funding institution: European Union. Budget: $4M \in (456k \in 10^{-5} \text{ M})$ Funding institution: European Union. Budget: $4M \in (456k \in 10^{-5} \text{ M})$ Funding institution: European Union. Budget: $4M \in (456k \in 10^{-5} \text{ M})$ Funding institution: $4M \in (456k \in 10^{-5}$

${\bf iBe CHANGE}$

December 2023-November 2028

HORIZON RIA

Role: Research scientist and deliverables review board member.

Topic: Develop the iBeChange platform for personalizing cancer prevention.

FAIR (Future Artificial Intelligence Research)

November 2022-October 2025

Extended Partnership - National Recovery and Resilience Plan (PNRR)

Role: Research scientist and data management plan responsible of the spoke.

Topic: Artificial intelligence: foundational aspects - Spoke 4: Adaptive AI.

Spoke coordinator: Politecnico di Milano (Prof. Nicola Gatti). Funding institution: Italian Ministry of University and Research (MUR). Budget: $12M \in (6M \in \text{to Politecnico di Milano})$. Duration: 36 months.

CLINT (CLImate INTelligence)

July 2021-June 2025

HORIZON 2020

Role: Research scientist.

Topic: Extreme events detection, attribution and adaptation using machine learning.

Project coordinator: Politecnico di Milano (Prof. Andrea Castelletti). Funding institution: European Union.

Budget: 6M€ (1.1M€ to Politecnico di Milano). Duration: 48 months.

Competitive Research Projects for Computational Time _

PGCLaSI - Policy Gradients for Control of Large-Scale Industrial Plants October 2023-July 2024 CINECA Supercomputing Centre - Class C Project

Role: Principal Investigator.

Topic: Development of efficient policy gradient algorithms for large-scale industrial plants.

Grant: 80k GPU hours.

Industry-funded Research Projects ___

A2A S.p.a. to start

Sviluppo di strategie automatiche di trading per il mercato dell'energia basate su Reinforcement Learning Role: Coordinator and Principal investigator (with Proff. Marcello Restelli and Matteo Papini). Budget: 85k€ + VAT.

MADE S.c.a.r.l.

July 2024-July 2025

⁷Total fundraising from public institutions: ≈ 1.8M€. Total fundraising from private companies: ≈ 240k€.

CC Auto Tune: ottimizzazione automatica dei parametri del Performance Controller per Compressori Centrifughi (partnership with - Nuovo Pignone Tecnologie S.r.l. (Baker Hughes group))

Role: Coordinator and Principal investigator (with Proff. Matteo Papini and Marcello Restelli). Budget: $80k \in VAT$.

Nuovo Pignone Tecnologie S.r.l. (Baker Hughes group)

April 2023-January 2024

Development of reinforcement learning algorithms for the control of industrial compressors

Role: Coordinator and Principal investigator (with Prof. Marcello Restelli). Budget: 62k€ + VAT.

ML cube S.r.l.

December 2020-December 2022

 $\label{life-cycle-Management} \ and \ Optimization \ of \ Machine \ learning \ algorithms \ in \ real-time \ biddings \ Role: Research scientist.$

Co-principal investigators: Proff. Marcello Restelli, Nicola Gatti, Francesco Trovò. Budget: 84k€ + VAT.

Nuovo Pignone Tecnologie S.r.l. (Baker Hughes group)

October 2021-June 2022

PID controller tuning using Reinforcement Learning

Role: Research scientist.

Principal investigator: Prof. Marcello Restelli. Budget: 40k€ + VAT.

Leonardo S.p.A.

May 2021-

Machine Learning per l'Autonomia dei Velivoli

Role: Research scientist.

Co-principal investigators: Proff. Marcello Restelli and Nicola Gatti. Budget: 250k€ + VAT.

Ferrari S.p.A. December 2020-January 2021

Reinforcement Learning Techniques for Developing Artificial Test Drivers on a F1 Simulator

Role: Research scientist.

Principal Investigator: Prof. Marcello Restelli. Budget: $80 \mathrm{k} \mathbb{C} + \mathrm{VAT}.$

Magneti Marelli S.p.A.

March 2019-February 2020

Decision Making based on Reinforcement Learning for Automated Driving (2nd project)

Role: Research scientist. Principal investigator: Prof. Marcello Restelli. Budget: $60 \text{ k} \in + \text{VAT}$. Reference Publications: [W26, J15].

Magneti Marelli S.p.A.

March 2018-February 2019

Decision Making based on Reinforcement Learning for Automated Driving (1st project)
Role: Research scientist. Principal investigator: Prof. Marcello Restelli. Budget: 56k€ + VAT.

Industry-funded Teaching-related Projects _

ENI S.p.a. November 2024

Reinforcement Learning and Online Learning

Role: Coordinator and lecturer (with Prof. Matteo Papini). Budget: 16.9k€ + VAT.

STUDENT SUPERVISION _

He is currently advising (relatore) 4 Ph.D. students:

- 1. **Filippo Lazzati**, "Provably Efficient Algorithms for Reward Learning", Ph.D. in Information Technology (Cycle: XXXIX), DEIB, Politecnico di Milano.
- 2. **Alessandro Montenegro**, "Policy-based Methods for Realistic Reinforcement Learning Applications", Ph.D. in Information Technology (Cycle: XXXIX), DEIB, Politecnico di Milano. Co-advisors: Matteo Papini, Marcello Restelli.
- 3. **Simone Drago**, "Preference-based Reinforcement Learning", Ph.D. in Information Technology (Cycle: XL), DEIB, Politecnico di Milano. Co-advisor: Marcello Restelli.
- 4. **Federico Corso**, "Stability in Reinforcement Learning", Ph.D. in Information Technology (Cycle: XL), DEIB, Politecnico di Milano. Co-advisor: Marco Mussi, Marcello Restelli.

He **co-supervised 1 concluded Ph.D. thesis** in Computer Science and Engineering at Politecnico di Milano and he is currently **co-supervising 11 Ph.D. students** mostly of the Information Technology programme at Politecnico di Milano.

He advised (relatore) 6 M.Sc. theses and co-advised (correlatore) 38 concluded M.Sc. theses mostly in Computer Science and Engineering at Politecnico di Milano and he is currently (co-)supervising 12 M.Sc.

students at Politecnico di Milano. Among them, 4 students were admitted to the Honours Programme of Politecnico di Milano and 1 student won the "Premio NeoLaureati Leonardo Lesmo 2019" and 1 student was awarded a special mention in the context of the "Premio NeoLaureati Leonardo Lesmo 2024" for the best Italian M.Sc. thesis in artificial intelligence (AIxIA).

He is the **research manager** (responsabile) **of 2 research fellowships** (assegni di ricerca) (1 concluded and 1 ongoing) at DEIB Politecnico di Milano.

Technology Transfer _____

Start-ups and Spin-offs _____

Co-founder of ML Cube S.r.l.

November 2020

Accredited spin-off of Politecnico di Milano

Innovative start-up providing cutting-edge solutions for machine learning systems and life-cycle management optimization. (link: https://www.mlcube.com)

Nominated by Fortune Italia as one of the top 20 Italian AI start-ups in 2022.

Funding: "Smart & Start Italia" granted by Ministero dello Sviluppo Economico (MiSE) to innovative start-ups (~323 k€).

Open-Source Tools _____

ARLO (Automated Reinforcement Learning Optimizer)

July 2021-

Description: Open-source Python library for Automated Reinforcement Learning (AutoRL), aimed at making RL accessible by non-expert users automatizing the development of a learning pipeline. Project status: First released in April 2022, still in development. Role: Research scientist. (github: https://github.com/arlo-lib/ARLO, doc: https://arlo-lib.github.io/arlo-lib/index.html)

Development of Products _____

ML Cube Platform

November 2020-

Description: B2B innovative Machine Learning product for Life-cycle Management real-time Optimization, aimed at preventing model obsolescence and providing automatic diagnosis and retraining of the models in production. Project status: In production. Role: Research scientist. (link: https://www.mlcube.com/mlcube-platform)

AD Cube Platform December 2021-

Description: AI platform for the optimization of multi-channel advertising campaigns. Project status: In production. Role: Research scientist. (link: https://adcube.ai/)

Funding: Winner of **ELISE's 2nd Open Call grants** (link: https://www.elise-ai.eu/events/elise-s-2nd-open-call-grants-funding-to-16-smes-to-develop-ai-based-services-or-applications)

Professional Experience

AI Specialist
ML Cube S.r.l.

December 2024
Milan, Italy

Activity: Development AI approaches for trajectory planning.

Freelance consultant

Private client

February 2023

Milan. Italy

Activity: Feasibility study about the use of artificial intelligence techniques for transportation management systems.

Freelance developer

March 2012-June 2012

IISS Ettore Majorana

Seriate (Bg), Italy

Activity: Design and implementation of a database system for organization and scheduling of remedial courses.

Intern developer

June 2011-July 2011 and January 2012-February 2012

Poligrafica s.r.l.

Dalmine (Bg), Italy

Activity: Design and implementation of a mobile application (Android) for building and printing flyers.

Talks, Seminars, and Presentations _____

INVITED TALKS AND SEMINARS __

Invited Talk

February 2025 (to happen) Mannheim, Germany

RL Workshop at Mannheim

Title: "Improtance Weighting in Reinforcement Learning"

Invited Talk September 2024

Universitat Pompeu Fabra (UPF)

Barcelona, Spain

Title: "Rising Bandits: Recent Advancements and Open Challenges"

Webinar April 2024

 $AI4REALNET\ Project\ Dissemination$

Online

Title: "Distributed and Hierarchical Reinforcement Learning"

Invited Talk February 2024

38th AAAI Conference on Artificial Intelligence - New Faculty Highlights Vance GGS: A++. Title: "Recent Advancements in Inverse Reinforcement Learning"

Vancouver, Canada (recorded)

Invited Talk December 2023

1st Symposium on Lifelong Explainable Robot Learning (SYMPLER) Nürnberg, Germany (delivered online) Title: "Explaining Human Intentions through Inverse Reinforcement Learning"

Invited Seminar May 2023

AI Seminars - Politecnico di Milano

Milan, Italy

Title: "Inverse reinforcement learning: a theoretical view".

Invited Talk September 2022

 $ELLIS@Milan\ Artificial\ Intelligence\ Workshop\ -\ Bocconi\ University$

Milan, Italy

 ${\bf Title:\ "Online\ Learning\ in\ Non-Cooperative\ Configurable\ Environments"}.$

Invited Seminar May 2022

Università del Piemonte Orientale

Alessandria, Italy

Title: "Stream Learning in Non-Stationary Environments".

Invited Talk

December 2021

20th International Conference of the Italian Association for Artificial Intelligence (AIxIA 2021) Online Title: "Exploiting Environment Configurability in Reinforcement Learning".

Invited Seminar January 2021

ML Modena Meetup

Online

Title: "From MAB to RL... and beyond!" (with Francesco Trovò).

Invited Talk

November 2018

17th International Conference of the Italian Association for Artificial Intelligence (AIxIA 2018) Trento, Italy Title: "Compatible Reward Inverse Reinforcement Learning".

Seminar November 2017

Politecnico di Milano - Dipartimento di Elettronica, Informazione e Bioingegneria Title: "Distributional Reinforcement Learning".

Milan, Italy

International Conference and Workshop Talks _

Conference Talk July 2023

The Fortieth International Conference on Machine Learning (ICML 2023)

Honolulu, HI, US

GGS: A++. Title: "Towards Theoretical Understanding of Inverse Reinforcement Learning".

Conference Talk April 2023

The 26th International Conference on Artificial Intelligence and Statistics (AISTATS 2023) Valencia, Spain GGS: A+. Title: "A Tale of Sampling and Estimation in Discounted Reinforcement Learning".

Conference Talk July 2022

Thirty-ninth International Conference on Machine Learning (ICML 2022)

Balti

Baltimore, MD, US

GGS: A++. Title: "Stochastic Rising Bandits".

Spotlight Conference Talk

December 2021

Thirty-fifth Conference on Neural Information Processing Systems (NeurIPS 2021)

Omme

GGS: A++. Title: "Subgaussian and Differentiable Importance Sampling for Off-Policy Evaluation and Learning".

Workshop Talk December 2021

Deep Reinforcement Learning Workshop - NeurIPS 2021

Online

Title: "Policy Optimization via Optimal Policy Evaluation".

Conference Talk September 2021

European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD 2021)

Online.

GGS: A. Title: "Policy Space Identification in Configurable Environments".

Conference Talk July 2021

Thirty-eighth International Conference on Machine Learning (ICML 2021) GGS: A++. Title: "Provably Efficient Learning of Transferable Rewards".

Online

February 2021

35th AAAI Conference on Artificial Intelligence (AAAI 2021)

Online

GGS: A++. Title: "Policy Optimization as Online Learning with Mediator Feedback".

July 2020

Thirty-seventh International Conference on Machine Learning (ICML 2020)

Online

GGS: A++. Title: "Control Frequency Adaptation via Action Persistence in Batch Reinforcement Learning".

Short Conference Talk

June 2019

Thirty-sixth International Conference on Machine Learning (ICML 2019)

Long Beach, CA, US

GGS: A++. Title: "Reinforcement Learning in Configurable Continuous Environments".

Long Conference Talk

July 2018

Thirty-fifth International Conference on Machine Learning (ICML 2018)

Stockholm, Sweden

GGS: A++. Title: "Configurable Markov Decision Processes".

Poster Presentation at International Conferences and Workshops _

He presented his contributions in several international conferences and workshops: NeurIPS 2024 (5 posters - Vancouver, Canada), ICML 2024 (6 posters - Vienna, Austria - to happen), AISTATS 2024 (2 posters -Valencia, Spain), EWRL 2023 (7 posters - Bruxelles, Belgium), ICML 2023 (3 posters - Honolulu, HI, US), AISTATS 2023 (1 poster - Valencia, Spain), ICML 2022 (2 posters - Baltimore, MD, US), NeurIPS 2021 (2 posters - Online), ICML 2021 (1 poster - Online), AAAI 2021 (1 poster - Online), NeurIPS 2019 (1 poster - Vancouver, Canada), ICML 2019 (2 posters - Long Beach, CA, US), NeurIPS 2018 (1 poster - Montreal, Canada), EWRL 2018 (1 poster - Lille, France), ICML 2018 (1 poster - Stockholm, Sweden), NIPS 2017 (1 poster - Long Beach, CA, US).

ACTIVITIES AND SERVICES⁸

Referee Activities _

Member of REPRISE

October 2023-

Register of Expert Peer Reviewers for Italian Scientific Evaluation - MUR

Expert Reviewer for the Israel Science Foundation

April 2024

Reviewer for the "Personal Research Grant"

Ph.D. Thesis Reviewer _

Ph.D. Thesis Reviewer

April 2023

PhD Program in Engineering in Computer Science - Sapienza University of Rome

Candidate: Roberto Cipollone. Advisor: Prof. Giuseppe De Giacomo. Thesis: "Markov Representations: Learning in MDP Abstractions and Non-Markovian Environments"

Editorial Activities __

Associate Editor

April 2023-

IEEE Robotics and Automation Letters (RA-L) - SJR: Q1

Academic Editor

July 2024-

PLOS ONE - SJR: Q1 (Multidisciplinary)

Action Editor

November 2024-

Transactions of Machine Learning Research (TMLR)

⁸For both journal and conference publications, the rating is the most recent available. For Scimago Ranks (SJR), the "Artificial Intelligence" quartile is reported if no further specification.

Organization Activities	
Publication Chair 41st Conference on Uncertainty in Artificial Intelligence (UAI) (link: https://www.auai.org/uai2025/organizing_committee)	July 2025 (to happen) Rio De Janeiro, Brazil
Mentor Women in Machine Learning Workshop (WIML) @ NeurIPS 2024 (link: https://sites.google.com/wimlworkshop.org/wiml-2024/program)	December 2024 Vancouver, BC, Canada
Organizer Aligning Reinforcement Learning Experimentalists and Theorists (ARLET) @ Id #Submitted papers: ~120, Attendance: ~200 (link: https://arlet-workshop.github.io/)	July 2024 CML 2024 Vienna, Austria
Session Chair International Conference on Machine Learning (ICML) - GGS: A++ Responsibilities: Chairing a Reinforcement Learning session (4 paper presentations).	July 2024 Vienna, Austria
Program Chair and Organizer 15th European Workshop on Reinforcement Learning (EWRL 2022) #Submitted papers: ~100, Attendance: ~150 (link: https://ewrl.wordpress.com/ewrl15-2022/)	September 2022 Milan, Italy
Session Chair European Conference on Machine Learning and Principles and Practice of Know Databases 2021 (ECML-PKDD) - GGS: A Responsibilities: Chairing a Reinforcement Learning session (4 paper presentations).	September 2021 vledge Discovery in Online
Area Chair - (Senior) Program Committee Member - Reviewer for In Conferences	TERNATIONAL
Area Chair International Conference on Machine Learning (ICML) - GGS: A++	2024-2025
Area Chair Neural Information Processing Systems (NeurIPS) - GGS: A++	2024
Area Chair International Conference on Artificial Intelligence and Statistics (AISTATS) - C	2025 GGS: A+
Senior Reviewer Reinforcement Learning Conference (RLC)	2024
Senior Program Committee member International Joint Conference on Artificial Intelligence (IJCAI) - GGS: A++	2021
Senior Program Committee member AAAI Conference on Artificial Intelligence (AAAI) - GGS: A++	2022, 2025
Program Committee member International Joint Conference on Artificial Intelligence (IJCAI) - GGS: A++	2020, 2022
Reviewer International Conference on Machine Learning (ICML) - GGS: A++	2019-2023
Reviewer Neural Information Processing Systems (NeurIPS) - GGS: A++	2019-2023
Program Committee member European Conference on Machine Learning and Principles and Practice of Know Databases (ECML-PKDD) - GGS: A	2020-2021,2023 wledge Discovery in
Program Committee member AAAI Conference on Artificial Intelligence (AAAI) - GGS: A++	2020-2021,2024

Reviewer

 $\begin{array}{c} \textbf{Reviewer} \\ \textbf{International Conference on Artificial Intelligence and Statistics (AISTATS)} \text{ - GGS: A+} \end{array}$

2020-2022

2021-2024

Reviewer for International Workshops	
Reviewer European Workshop on Reinforcement Learning (EWRL 2024)	2024
Reviewer Decision Awareness in Reinforcement Learning Workshop @ ICML 2022 (DARL 2022)	2022
Reviewer Reinforcement Learning for Real Life Workshop @ ICML 2021	2021
Reviewer for International Journals	
Reviewer ACM Computing Surveys - SJR: Q1 (Computer Science (miscellaneous))	2024
Reviewer Scientific Report (Nature) - SJR: Q1 (Multidisciplinary)	2023
Reviewer PLOS ONE - SJR: Q1 (Multidisciplinary)	2023
Reviewer Expert Systems with Applications (ESWA) - SJR: Q1	2023
Reviewer IEEE Transactions on Artificial Intelligence (TAI) - SJR: Q1	2023
Reviewer $IEEE\ Robotics\ and\ Automation\ Letters\ (RA-L)$ - SJR: Q1	2023
Reviewer IEEE Transactions on Neural Networks and Learning Systems (TNNLS) - SJR: Q1	2023
Reviewer Journal of Machine Learning Research (JMLR) - SJR: Q1	2022,2024
Reviewer Transactions on Machine Learning Research (TMLR)	2022-2024
Reviewer Engineering Applications of Artificial Intelligence $(EAAI)$ - SJR: Q1	2022
Reviewer Entropy (MDPI) - SJR: Q2 (Information Systems)	2022
Reviewer Frontiers in Artificial Intelligence - SJR: Q2	2021
Reviewer Intelligenza Artificiale - SJR: Q3	2021
Reviewer IEEE Transactions on Intelligent Transportation Systems (ITS) - SJR: Q1 (Computer Sci	2021 ience Applications)
Reviewer Journal of Artificial Intelligence Research (JAIR) - SJR: Q1	2019, 2022
Reviewer Machine Learning (Springer) - SJR: Q1	2019
Reviewer IEEE Transactions on Cognitive and Developmental Systems (TCDS) - SJR: Q1	2018
Memberships of Scientific Societies	
ELLIS Society Member European Laboratory for Learning and Intelligent Systems	2021-

CLAIRE Supporter Confederation of Laboratories for Artificial Intelligence Research in Europe	2023-
AAAI Member Association for the Advancement of Artificial Intelligence	2020-
AIxIA Member Associazione Italiana per l'Intelligenza Artificiale	2018-2022

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Books

- [B1] Alberto Maria Metelli. Exploiting environment configurability in reinforcement learning, volume 361 of Frontiers in Artificial Intelligence and Applications. IOS Press, 2022. (link: https://doi.org/10.3233/FAIA361).
- [B2] <u>Alberto Maria Metelli</u> and Francesco Trovò. The machine learning gym. Train and test your skills. McGraw-Hill Education, 2024.

 (link: https://www.mheducation.it/the-machine-learning-gym-9788838612428-italy).

Book Chapters _

[H1] <u>Alberto Maria Metelli</u>. "Configurable Environments in Reinforcement Learning: An Overview". In **Special Topics in Information Technology**, pages 101–113, Cham, 2022. Springer International Publishing. (link: https://doi.org/10.1007/978-3-030-85918-3_9).

Refereed International Journal Articles _

- [J1] Marco Mussi and Alberto Maria Metelli. "Generalizing the Regret: an Analysis of Lower and Upper Bounds". **Journal of Artificial Intelligence Research**, 81, 2025. CORE 2020: **A.** SJR 2023: **Q1**. (Accepted).
- [J2] Khaled Eldowa, Nicolo Cesa-Bianchi, <u>Alberto Maria Metelli</u>, and Marcello Restelli. "Information Capacity Regret Bounds for Bandits with Mediator Feedback". **Journal of Machine Learning Research**, 25(353):1–36, 2024. CORE 2020: A*. SJR 2023: Q1. (link: http://jmlr.org/papers/v25/24-0227.html).
- [J3] Alessio Russo, <u>Alberto Maria Metelli</u>, and Marcello Restelli. "Switching Latent Bandits". **Transactions on Machine Learning Research**, 2024. (link: https://openreview.net/forum?id=4ZGqCXcUqR).
- [J4] Gabor Paczolay, Matteo Papini, <u>Alberto Maria Metelli</u>, Istvan Harmati, and Marcello Restelli. "Sample Complexity of Variance-Reduced Policy Gradient: Weaker Assumptions and Lower Bounds". **Machine Learning**, 113:6475–6510, 2024. CORE 2020: A. SJR 2023: Q1. (link: https://doi.org/10.1007/s10994-024-06573-4).
- [J5] Paolo Bonetti, <u>Alberto Maria Metelli</u>, and Marcello Restelli. "Interpretable linear dimensionality reduction based on bias-variance analysis". **Data Mining and Knowledge Discovery**, 38(4):1713–1781. CORE 2020:
 A. SJR 2023: Q1 (Computer Science Applications). (link: https://doi.org/10.1007/s10618-024-01015-0).
- [J6] Riccardo Poiani, Ciprian Stirbu, <u>Alberto Maria Metelli</u>, and Marcello Restelli. "Optimizing Empty Container Repositioning and Fleet Deployment via Configurable Semi-POMDPs". **IEEE Transactions on Intelligent Transportation Systems**, 25(5):4704–4711, 2024. SJR 2023: **Q1** (Computer Science Applications). (link: https://doi.org/10.1109/TITS.2023.3329677).
- [J7] Gianluca Drappo, <u>Alberto Maria Metelli</u>, and Marcello Restelli. "An Option-Dependent Analysis of Regret Minimization Algorithms in Finite-Horizon Semi-MDP". **Transactions on Machine Learning Research**, 2023.
 (Fig. 1) https://presepring.org/fig.2023.
 - (link: https://openreview.net/forum?id=VP9p4u9jAo).
- [J8] Filippo Fedeli, <u>Alberto Maria Metelli</u>, Francesco Trovò, and Marcello Restelli. "IWDA: Importance Weighting for Drift Adaptation in Streaming Supervised Learning Problems". **IEEE Transactions on Neural Networks and Learning Systems**, 34(10):6813–6823, 2023. CORE 2020: **A***. SJR 2023: **Q1**. (link: https://doi.org/10.1109/TNNLS.2023.3265524).
- [J9] Marco Mussi, Davide Lombarda, <u>Alberto Maria Metelli</u>, Francesco Trovó, and Marcello Restelli. "ARLO: A framework for Automated Reinforcement Learning". Expert Systems with Applications, 224:119883, 2023. CORE 2020: B. SJR 2022: Q1. (link: https://doi.org/10.1016/j.eswa.2023.119883).
- [J10] Alberto Maria Metelli. "A Unified View of Configurable Markov Decision Processes: Solution Concepts, Value Functions, and Operators". **Intelligenza Artificiale**, 16(2):165–184, 2022. SJR 2022: Q3. (*Invited publication as winner of the "Premio Neodottori di Ricerca Marco Cadoli 2021"*). (link: https://doi.org/10.3233/IA-220140).

⁹The first author represents the main contributor; in the case of multiple main contributors (equal contribution), they are marked with *. Alphabetic order of authors is denoted with (α - β order). For both journal and conference publications, the rating is the most recent available in the year of publication. For Scimago Ranks (SJR), the "Artificial Intelligence" quartile is reported if no further specification.

- [J11] <u>Alberto Maria Metelli</u>, Guglielmo Manneschi, and Marcello Restelli. "Policy space identification in configurable environments". **Machine Learning**, 111(6):2093–2145, 2022. CORE 2020: **A**. SJR 2022: **Q1**. (link: https://doi.org/10.1007/s10994-021-06033-3).
- [J12] Alberto Maria Metelli, Matteo Pirotta, Daniele Calandriello, and Marcello Restelli. "Safe Policy Iteration: A Monotonically Improving Approximate Policy Iteration Approach". **Journal of Machine Learning Research**, 22(97):1–83, 2021. CORE 2020: **A***. SJR 2021: **Q1**. (link: http://jmlr.org/papers/v22/19-707.html).
- [J13] Amarildo Likmeta, Alberto Maria Metelli, Giorgia Ramponi, Andrea Tirinzoni, Matteo Giuliani, and Marcello Restelli. "Dealing with multiple experts and non-stationarity in inverse reinforcement learning: an application to real-life problems". **Machine Learning**, 110(9):2541–2576, 2021. CORE 2020: **A**. SJR 2021: **Q1**. (link: https://doi.org/10.1007/s10994-020-05939-8).
- [J14] Alberto Maria Metelli, Matteo Papini, Nico Montali, and Marcello Restelli. "Importance Sampling Techniques for Policy Optimization". **Journal of Machine Learning Research**, 21(141):1–75, 2020. CORE 2020: **A***. SJR 2020: **Q1**. (link: http://jmlr.org/papers/v21/20-124.html).
- [J15] Amarildo Likmeta, <u>Alberto Maria Metelli</u>, Andrea Tirinzoni, Riccardo Giol, Marcello Restelli, and Danilo Romano. "Combining reinforcement learning with rule-based controllers for transparent and general decision-making in autonomous driving". **Robotics and Autonomous Systems**, 131:103568, 2020. CORE 2020: B. SJR 2020: **Q1** (Computer Science Applications). (link: https://doi.org/10.1016/j.robot.2020.103568).
- [J16] Alberto Maria Metelli, Matteo Pirotta, and Marcello Restelli. "On the use of the policy gradient and Hessian in inverse reinforcement learning". **Intelligenza Artificiale**, 14(1):117–150, 2020. SJR 2020: Q3. (*Invited publication as winner of the "Premio NeoLaureati Leonardo Lesmo 2018"*). (link: https://doi.org/10.3233/IA-180011).

Refereed International Conferences Papers _

- [C1] Alessio Russo, <u>Alberto Maria Metelli</u>, and Marcello Restelli. "Achieving \$\widetilde{\mathcal{O}}(\sqrt{T})\$ Regret in Average-Reward POMDPs with Known Observation Models". In **International Conference on Artificial Intelligence and Statistics (AISTATS)**, 2025. (*Accepted*). (link: https://openreview.net/forum?id=3R5K51d9kr).
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