Matteo Papini

Assistant Professor

Contact Information

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Highlights

Matteo Papini is a **Tenure Track Assistant Professor (RTT)** at the **University of Milan**, Italy, with the LAILA Lab (Laboratory for Artificial Intelligence and Learning Algorithms) in the Department of Computer Science. His main line of research is **Reinforcement Learning** theory and applications. His research interests include online learning, multi-armed bandits, learning theory, and multi-agent systems.

In 2021 he earned a PhD in Information Technology (cum laude) from **Politecnico di Milano**, Milan, Italy, with a dissertation on safe policy optimization. In 2020 he worked as a student research intern at **Facebook AI Research** (now Meta). From 2021 to 2023 he was a postdoctoral researcher in the Artificial Intelligence and Machine Learning Research Group of **Universitat Pompeu Fabra** (UPF), Barcelona, Spain. From 2023 to 2025 he was a fixed-term assistant professor (RTDA) in Politecnico di Milano and a member of the RL3 group (Real Life Reinforcement Learning Research Lab) of AIRLab (Artificial Intelligence and Robotics Laboratory).

He has authored more than 20 peer-reviewed research papers, including at top artificial intelligence and and machine learning conferences (**NeurIPS**, **ICML**, **COLT**, **AAAI**, **IJCAI**) and journals (**JMLR**, **Machine Learning**).

He is a member of **ELLIS** (European Laboratory for Learning and Intelligent Systems) since 2022. He has served as area chair for NeurIPS (since 2024) and ICML 2025, and is an action editor of **TMLR** (Transactions on Machine Learning Research) since 2024. In 2023 he was an organizer of **RLSS 2023** (Reinforcement Learning Summer School) in Barcelona. He was local chair of **ALT 2025** (International Conference on Algorithmic Learning Theory) in Milan.

Faculty and Research Positions

October 2025–present	**Tenure-track Assistant Professor (RTT)**, *Università degli Studi di Milano*, Milan, Italy
2023–2025	**Fixed-term Assistant Professor (RTDA)**, *Politecnico di Milano*, Milan, Italy
2021–2023	**Postdoctoral researcher**, *Universitat Pompeu Fabra*, Barcelona
Mar-Apr 2021	**Research Assistant** (Attività di Supporto alla Ricerca), *Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano*, Milan, Italy
	Research Topic: Reinforcement Learning Techniques for Developing Artificial Test Drivers on a F1 Simulator, Principal Investigator: Marcello Restelli
Sep-Dec 2020	**Research Intern at Facebook AI Research**, working (remotely) with the Paris FAIR team, under the supervision of Matteo Pirotta. Research topic: representation learning for contextual bandits. The project led to the publication of a paper at ICML 2021 [C3]
2017–2021	**Research Assistant** (Assegno di Ricerca), *Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano*, Milan, Italy
	Research topic: *Study and Development of Reinforcement Learning Techniques in Industrial Settings*, Principal Investigator: Marcello Restelli.

Education

2017–2021	**Ph.D., Ingegneria dell'Informazione / Information Technology**, Politecnico di Milano, Milan, Italy
	Advisor: Prof. Marcello Restelli
	Dissertation: *Safe Policy Optimization* (http://hdl.handle.net/10589/170196)
	Awarded cum laude
	Date of degree: March 11, 2021
2015–2017	**M.Sc., Computer Science and Engineering - Ingegneria Informatica**, *Politecnico di Milano, Milan, Italy*
	Master Thesis: *Adaptive Batch Size for Safe Policy Gradient Methods*, supervised by Prof. Marcello Restelli
	Final mark: 110/110 cum laude
	Date of degree: July 27, 2017
2012–2015	**B.Sc., Ingegneria Informatica (Computer Engineering)**, *Politecnico di Milano, Milan, Italy*
	Final mark: 110/110 cum laude
	Date of degree: July 24, 2015
2007–2012	**High School Diploma (Liceo Scientifico PNI)**, *Ist. Istr. Sup. P.L. Nervi*, Morbegno (SO), Italy, Final mark: 100/100
	Top school in Italy for several years according to Eduscopio (https://eduscopio.it/)

Author Profile and Metrics (as of October 1, 2025)

Google Scholar	**h-index 15**, https://scholar.google.it/citations?user=A2WxZlsAAAAJ
Scopus	**h-index 12**, *https://www.scopus.com/authid/detail.uri?authorId=57202057824*

ORCiD `https://orcid.org/0000-0002-3807-3171`

dblp `https://dblp.uni-trier.de/pid/209/4897.html`

Summary of Publications

Journal/Conference	# Papers	Scimago 24/CORE 23	Homepage
JMLR	1	Q1	`http://www.jmlr.org/`
Machine Learning	3	Q1	`https://www.springer.com/journal/10994`
NeurIPS	7	A*	`https://nips.cc/`
ICML	6	A*	`https://icml.cc/`
AAAI	2	A*	`https://aaai.org/conference/aaai/`
IJCAI	2	A*	`https://www.ijcai.org/`
COLT	2	A*	`https://learningtheory.org/`
AISTATS	2	A	`https://aistats.org/`
IJCNN	1	B	`https://ijcnn.org/`
ALT	2	B	`http://algorithmiclearningtheory.org/`

Selected Publications

[1] **M. Papini**, D. Binaghi, G. Canonaco, M. Pirotta, M. Restelli: *Stochastic variance-reduced policy gradient.* **ICML** (2018) — **CORE A***

[2] A.M. Metelli, **M. Papini**, F. Faccio, M. Restelli: *Policy optimization via importance sampling.* **NeurIPS (oral, top 3%)** (2018) — **CORE A***

[3] L. Bisi, L. Sabbioni, E. Vittori, **M. Papini**, M. Restelli: *Risk-averse trust region optimization for reward-volatility reduction.* **IJCAI** (2020) — **CORE A***

[4] A.M. Metelli, **M. Papini**, N. Montali, M. Restelli: *Importance Sampling Techniques for Policy Optimization.* **Journal of Machine Learning Research (JMLR)** 21.141 (2020) — **Scimago Q1**

[5] **M. Papini**, M. Pirotta, M. Restelli: *Adaptive batch size for safe policy gradients.* **NeurIPS** (2017) — **CORE A***

[6] P. D'Oro, A. M. Metelli, A. Tirinzoni, **M. Papini**, M. Restelli: *Gradient-aware model-based policy search.* **AAAI** (2020) — **CORE A***

[7] **M. Papini**, A.M. Metelli, L. Lupo, M. Restelli: *Optimistic policy optimization via multiple importance sampling.* **ICML** (2019) — **CORE A***

[8] **M. Papini**, M. Pirotta, M. Restelli: *Smoothing policies and safe policy gradients.* **Machine Learning** (2022) — **Scimago Q1**

[9] **M. Papini**, A. Tirinzoni, M. Restelli, A. Lazaric, M. Pirotta: *Leveraging good representations in linear contextual bandits.* **ICML** (2021) — **CORE A***

[10] **M. Papini**, A. Tirinzoni, A. Pacchiano, M. Restelli, A. Lazaric, M. Pirotta: *Reinforcement learning in linear mdps: Constant regret and representation selection.* **NeurIPS** (2021) — **CORE A***

[11] G. Neu, J. Olkhovskaya, **M. Papini**, L. Schwartz: *Lifting the Information Ratio: An Information-Theoretic Analysis of Thompson Sampling for Contextual Bandits.* **NeurIPS** (2022) — **CORE A*** (authors in alphabetical order)

[12] G. Paczolay., **M. Papini**, A. M. Metelli, I. Harmati, M. Restelli: *Sample complexity of variance-reduced policy gradient: weaker assumptions and lower bounds.* **Machine Learning** (2024) — **Scimago Q1**

Awards and other Recognitions

Nov 16, 2022 **Recipient of Ayudas Juan de la Cierva-Formación 2021**, *research grant for postdoctoral researchers instructed by the Spanish research agency (Agencia Estatal de Investigación), funded by NextGenerationEU*
Role: researcher (Investigador). Ranked third in national call for the area of Information and Communication Technologies.
https://www.aei.gob.es/convocatorias/buscador-convocatorias/ayudas-contratos-juan-cierva-formacion-2021

Feb 2022 **Member of ELLIS** , *https://ellis.eu/*

2021 **Neurips outstanding reviewer award**, *top 8%*

2020 **ICML top reviewer** certificate of appreciation, *top 33%*

2019 **ICML travel award**, *$1300 USD*

2018 **Oral presentation at NeurIPS**, *top 3%*

2018 **Neurips travel award**, *$1000 USD*

2018 **ICML travel award**, *$1500 USD*

2017 **Neurips travel award**, *$1200 USD*

Participation to Research Projects

2024-2025 **Principal Investigator**, *Sviluppo di strategie automatiche di trading per il mercato dell'energia basate su Reinforcement Learning (development of automatic trading strategies for the energy market based on Reinforcement Learning)*, research contract between Politecnico di Milano and A2A S.p.A.

2024-2025 **Principal Investigator**, *CC Auto Tune: ottimizzazione automatica dei parametri del Performance Controller per Compressori Centrifughi (automatic optimization of performance controller parameters for centrifugal compressors)*, research contract between Politecnico di Milano and MADE S.C.A.R.L. (Competence Center for Industry 4.0)
Industrial research project with Baker Hughes Nuovo Pignone.

2023-present **Research Scientist**, *Artificial Intelligence Foundations for Sequential Decision Making*
Extended Partnership - Future Artificial Intelligence Research (FAIR). National Recovery and Resilience Plan, Mission 4 "Education and research" - Component 2 "From research to business" - Investment 1.3, funded by the European Union - NextGenerationEU
Principal Investigator: Nicola Gatti

2021-2022 **Research Scientist**, *Provably Efficient Algorithms for Large-Scale Reinforcement Learning*
ERC (Grant agreement No. 950180)
Principal Investigator: Gergely Neu

2021	**Research Scientist**, *Reinforcement learning techniques for developing artificial test drivers on a F1 simulator*, Ferrari Industrial project. Principal Investigator: Marcello Restelli
2017-2019	**Research Scientist**, *TOTAL EFFICIENCY 4.0, (POR FESR)* In collaboration with Pirelli Tyre S.p.A. Principal Investigator: Marcello Restelli

Editorial Activities

2024-present	**Action Editor** for Transactions on Machine Learning Research (TMLR)
2024-present	**Area Chair** for NeurIPS
2025	**Area Chair** for ICML, RLC (Reinforcement Learning Conference)
2025	Reviewer for AISTATS
2024-present	**Expert reviewer** for Transactions on Machine Learning Research (TMLR)
2024	Reviewer for ICML, COLT, Senior Reviewer for RLC (Reinforcement Learning Conference)
2022-2024	Reviewer for Transactions on Machine Learning Research (TMLR)
2023	Reviewer for ICML, COLT, EWRL, NeurIPS, ICLR, AISTATS
2022	Reviewer for IEEE Transactions on Automatic Control (TACON)
2022	Reviewer for ICML, NeurIPS, EWRL
2021	**Outstanding Reviewer** (top 8%) for NeurIPS, **expert reviewer** for ICML, reviewer for AISTATS, emergency reviewer for AAAI
2020	**Top 33% reviewer** for ICML, reviewer for NeurIPS, AISTATS, AAAI, UAI, ECAI
2019	Reviewer for ICML, NeurIPS, UAI

Organization of Scientific Events

2025	**The 36th International Conference on Algorithmic Learning Theory (ALT 2025)**, *February 24-27 2025, Milan, Italy. Role: Local Chair, with co-chair Giulia Clerici (Ellis Unit Milan)*, `http://algorithmiclearningtheory.org/alt2025/`
2023	**Reinforcement Learning Summer School (RLSS 2023)**, *June 28–July 5 2023, Universitat Pompeu Fabra, Barcelona, Spain. Role: Organizer, with co-organizer Vincent Adam (UPF)*, `https://rlsummerschool.com/`

Invited and Contributed Talks

Sep 18, 2025	**Contributed talk at EWRL 2025**, *(European Workshop on Reinforcement Learning) Tübingen, Germany, "Accelerating Policy Gradient Algorithms with Data Reuse"*
Jan 12, 2024	**Invited talk at the "Mini-Workshop on Reinforcement Learning"**, *University of Mannheim, Germany*
May 25, 2023	**Invited talk at the Theory of Reinforcement Learning Workshop**, *University of Alberta, Edmonton, Canada*, titled "Offline Primal-Dual Reinforcement Learning for Linear MDPs"

May 11, 2023	**Invited talk at the AI Seminars**, *Politecnico di Milano, Milan, Italy*, titled "Large-Scale Offline Reinforcement Learning"
Sep 16, 2022	**Invited talk at the Reinforcement Learning Conference**, *Technische Universität Dresden, Dresden, Germany*, titled "Lifting the Information Ratio"
Jul 1, 2021	**Invited talk at Mathematical Statistics and Learning**, *Barcelona Graduate School of Economics, Barcelona, Spain*, titled "Leveraging Good Representations in Linear Contextual Bandits and MDPs"
Nov 6, 2020	**Invited talk at Gerhard Neumann's research seminar**, *Karlsruhe Institute of Technology (delivered online)*, titled "Safe Policy Optimization"
Sep 19, 2019	**Invited talk at the Workshop on Markets, Algorithms, Prediction and LEarning (MAPLE)**, *Politecnico di Milano, Milan, Italy*, titled "Optimistic Policy Optimization via Multiple Importance Sampling"

Student Supervision and Mentoring

As PhD co-Advisor

2025-present	**Leonardo Cesani**, Information Technology, Politecnico di Milano Co-supervisor with Marcello Restelli
2024-present	**Andrea Menta**, Information Technology, Politecnico di Milano Co-supervisor with Marcello Restelli
2023-present	**Alessandro Montenegro**, Information Technology, Politecnico di Milano Co-supervisor with Alberto Maria Metelli

As Master Thesis Advisor

2023-2025	**Master theses**, *supervised 4 master students for M.Sc. Computer Science and Engineering*, one for M.Sc. Mathematical Engineering, Politecnico di Milano *Relatore* of 5 deposited M.Sc. theses (`https://www.politesi.polimi.it/`)

As Master Thesis co-Advisor

2018-2020 and 2023-2025	**Master theses**, *co-supervised several Master theses (M.Sc. Computer Science and Engineering, Mathematical Engineering, Management Engineering)*, Politecnico di Milano *Correlatore* of 9 deposited M.Sc. theses (`https://www.politesi.polimi.it/`)

Other Mentoring Activities

Since 2021, as a postdoctoral researcher, I have collaborated with several (5+) PhD students at Universitat Pompeu Fabra and Politecnico di Milano.

Teaching

2025	**Lecturer**, *Università degli Studi di Milano, Milan, Italy* Computer science for cultural mediators (Dati, web e contenuti digitali), B.Sc. Mediazione Linguistica e Culturale, 30 hours, I semester 2025/2026 (scheduled)
2025	**Lecturer**, *Politecnico di Milano, Milan, Italy* Algorithms and data structures (Algoritmi e Principi dell'Informatica – Mod. 2), B.Sc. Computer Science and Engineering, 30 hours, II semester 2024/2025

2025	**Lecturer**, *Politecnico di Milano, Milan, Italy*
	Advanced Deep Learning, PhD Information Technology, 10 hours, 2024/2025

2024 **Teaching Assistant**, *Politecnico di Milano, Milan, Italy*
Foundations of Artificial Intelligence, resp. Prof. Francesco Amigoni and Pierluca Lanzi, 16 hours, I semester 2024/2025

2024 **Teaching Assistant**, *Politecnico di Milano, Milan, Italy*
Informatica (computer science for civil engineering students), resp. Prof. Marcello Restelli, 24 hours, II semester 2023/2024

2024 **Teaching Assistant**, *Politecnico di Milano, Milan, Italy*
Machine Learning, resp. Prof. Marcello Restelli, 20 hours, II semester 2023/2024

2023 **Teaching Assistant**, *Politecnico di Milano, Milan, Italy*
Foundations of Artificial Intelligence, resp. Prof. Francesco Amigoni and Pierluca Lanzi, 16 hours, I semester 2023/2024

11-15 Jul 2022 **Teaching Assistant**, *Reinforcement Learning Summer School, Vrije Universitet Amsterdam, Amsterdam, the Netherlands*
Role: delivered a tutorial on implementing policy-gradient algorithms with JAX, tutored students in practical sessions.

2022 **Teaching Assistant**, *Politecnico di Milano, Milan, Italy*
Intelligenza Artificiale (Artificial Intelligence — online class), resp. Prof. Andrea Bonarini, 6 hours, attività di didattica integrativa, II semester 2021/2022

2021 **Teaching Assistant**, *Politecnico di Milano, Milan, Italy*
Intelligenza Artificiale (Artificial Intelligence — online class), resp. Prof. Andrea Bonarini, 6 hours, attività di didattica integrativa, II semester 2020/2021

2020 **Teaching Assistant**, *Politecnico di Milano, Milan, Italy*
Intelligenza Artificiale (Artificial Intelligence — online class), resp. Prof. Andrea Bonarini, 6 hours, attività di didattica integrativa, II semester 2019/2020

2019 **Teaching Assistant**, *Politecnico di Milano, Milan, Italy*
Informatica B (computer science for mechanical engineering students), resp. Prof. Luca Cassano, 26 hours, attività di didattica integrativa (esercitatori), I semester 2019/2020

2018 **Teaching Assistant**, *Politecnico di Milano, Milan, Italy*
Informatica B (computer science for mechanical engineering students), resp. Prof. Luca Cassano, 28 hours, attività di didattica integrativa (esercitatori), I semester 2018/2019

1-12 Jul 2019 **Teaching Assistant**, *Reinforcement Learning Summer School, Inria Lille-Nord Europe, Lille, France*, Role: tutored students in practical sessions

2018 **Teaching Assistant**, *Politecnico di Milano (Polo Territoriale di Como), Como, Italy*
Web and Internet Economics, resp. Prof. Nicola Gatti, 10 hours, *attività di didattica integrativa (esercitatori), II semester 2017-2018*

2017 **Lab Assistant**, *Politecnico di Milano, Milan, Italy*
Informatica B (computer science for mechanical engineering students), resp. Prof. Luca Cassano, 9 hours, attività di didattica integrativa sperimentale (ex responsabili di laboratorio), I semester 2017-2018

2016 **Lab Tutor**, *Politecnico di Milano, Milan, Italy*
Prova Finale–Ingegneria del Software (software engineering: final project), resp. Prof. Carlo Ghezzi, 32 hours, *attività di tutorato (ex tutor di laboratorio), II semester 2015/2016*

Participation on Committees

April 16 2025	**PhD Jury Member**, *University of Liège, Belgium*
April 10 2025	**President of committee for PhD defense**, *PhD program in Information Technology, Politecnico di Milano*
2024	**Examiner of PhD thesis**, *University of Melbourne, Australia*
June 27 2024	**President of committee for PhD defense**, *PhD program in Information Technology, Politecnico di Milano*
May 2024	**Committee member for assignment of industrial research funding**, *Bando a cascata del progetto "Future Artificial Intelligence Research – FAIR", (Bando Imprese), codice PE0000013, PNRR, Missione 4, Componente 2, Investimento 1.3*
2023-2025	**Committee member for degree examinations**, *B. Sc. and M. Sc. in Computer Science and Enginnering, Politecnico di Milano (several instances)*
Mar 30 2023	**Board member for the Thesis Proposal Defenses** , *PhD program in Information and Communication Technologies, Universitat Pompeu Fabra, Barcelona, Spain*
2023	**Jury Member for the CLAIRE R2Net 2022 Papers Highlights**
2021, 2022	**Evaluator** for the pre-screening of applicants to the ELLIS PhD program
July 5 2022	**Jury member for the undergraduate thesis defenses** , *Universitat Pompeu Fabra, Barcelona, Spain*
Mar 17 2022	**Board member for the Thesis Proposal Defense** , *PhD program in Information and Communication Technologies, Universitat Pompeu Fabra, Barcelona, Spain*

Attendance to Conferences and Workshops

2025	**EWRL 18**, *Tübingen, Germany*, 1 contributed talk, 1 poster
2025	**RLC (Reinforcement Learning Conference)**, *Edmonton, Canada*, 1 poster + 1 spotlight talk at the Workshop on Programmatic Reinforcement Learning
2024	**NeurIPS**, *Vancouver, Canada*, 2 posters
2024	**ICML**, *Vienna, Austria*, 2 posters + 1 at the ARLET workshop
2024	**AISTATS**, *Valencia, Spain*, 1 poster
2024	**ALT**, *San Diego, USA*, 1 poster
2024	**Mini Workshop on Reinforcement Learning**, *Mannheim, Germany*, 1 invited talk
2023	**EWRL 16**, *Brussels, Belgium*, 2 posters
2023	**AISTATS**, *Valencia, Spain*
2023	**Upper Bound**, *Edmonton, Canada*, invited talk at the RL Theory Workshop
2023	**ALT**, *Singapore*, attended as co-author and served as **session chair**
2022	**NeurIPS**, *New Orleans, USA*, presented 2 posters in poster sessions
2022	**ELLIS ILIR Workshop**, *Feldberg, Germany*
2022	**EWRL 15**, *Milan, Italy*, presented 2 posters in poster sessions
2022	**Reinforcement Learning Conference**, *Dresden, Germany*, invited talk
2022	**ICML-2022 Workshop on Complex Feedback in Online Learning**, *Baltimore, USA*, presented 1 poster in poster session

2021	**NeurIPS**, *online edition*, presented 1 poster in online poster session and recorded 1 spotlight talk
2021	**Mathematical Statistics and Learning**, *Barcelona, Spain*, invited talk
2021	**ICML**, *online edition*, presented 1 poster in online poster session and recorded 1 talk
2021	**AAAI**, *online edition*, presented 1 poster in online poster session
2021	**IJCAI**, *online edition*, presented 1 poster in online poster session
2020	**NeurIPS**, *online edition*, attended online
2020	**AISTATS**, *online edition*, recorded 1 talk
2019	**Workshop MAPLE**, *Milan, Italy*, invited talk
2019	**ICML**, *Long Beach, USA*, presented 1 poster and delivered 1 oral presentation
2018	**NeurIPS**, *Montreal, Canada*, presented 1 poster and delivered 1 oral presentation
2018	**EWRL 14**, *Lille, France*, presented 1 poster
2018	**ICML**, *Stockholm, Sweden*, presented 1 poster and delivered 1 oral presentation
2017	**NeurIPS**, *Long Beach, USA*, presented 1 poster

Complete List of Papers

Journal Papers

[J1] L. Civitavecchia, M. Papini. "Exploration-Free Reinforcement Learning with Linear Function Approximation." Reinforcement Learning Journal, 2025 (to appear).

[J2] G. Tedeschi, M. Papini, A. M. Metelli, and M. Restelli. Search or Split: Policy Gradient with Adaptive Policy Space. Machine Learning 114, 186 (2025). `https://doi.org/10.1007/s10994-025-06820-2`

[J3] G. Paczolay, M. Papini, A. M. Metelli, I. Harmati, and M. Restelli. Sample Complexity of Variance-Reduced Policy Gradient: Weaker Assumptions and Lower Bounds. Machine Learning 113, 6475–6510 (2024). `https://doi.org/10.1007/s10994-024-06573-4`

[J4] M. Papini, G. Manganini, A. M. Metelli, and M. Restelli. "Policy Gradient with Active Importance Sampling." Reinforcement Learning Journal, vol. 2, 2024, pp. 645–675. `https://rlj.cs.umass.edu/2024/papers/Paper90.html`

[J5] M. Papini, M. Pirotta, and M. Restelli. Smoothing policies and safe policy gradients. Machine Learning 111, 4081–4137 (2022). `https://doi.org/10.1007/s10994-022-06232-6`

[J6] A. M. Metelli, M. Papini, N. Montali, M. Restelli. Importance Sampling Techniques for Policy Optimization. Journal of Machine Learning Research 21(141):1–75, 2020. `https://www.jmlr.org/papers/v21/20-124.html`

Conference Papers

[C1] A. Montenegro, M. Mussi, M. Papini, and A. M. Metelli. Convergence analysis of policy gradient methods with dynamic stochasticity. In *ICML*, 2025 (to appear).

[C2] G. Neu, M. Papini, and L. Schwartz. Optimistic information directed sampling. In

COLT, volume 247 of *Proceedings of Machine Learning Research*, pages 3970–4006. PMLR, 2024.

[C3] A. Montenegro, M. Mussi, M. Papini, and A. M. Metelli. Last-iterate global convergence of policy gradients for constrained reinforcement learning. In *NeurIPS*, 2024.

[C4] A. Montenegro, M. Mussi, A. M. Metelli, and M. Papini. Learning optimal deterministic policies with stochastic policy gradients. In *Proceedings of the 41st International Conference on Machine Learning (ICML)*, volume 235 of *Proceedings of Machine Learning Research*, pages 36160–36211. PMLR, 21–27 Jul 2024.

[C5] D. Maran, A. M. Metelli, M. Papini, and M. Restelli. Projection by convolution: Optimal sample complexity for reinforcement learning in continuous-space mdps. In *COLT*, volume 247 of *Proceedings of Machine Learning Research*, pages 3743–3774. PMLR, 2024.

[C6] D. Maran, A. M. Metelli, M. Papini, and M. Restelli. No-regret reinforcement learning in smooth MDPs. In *Proceedings of the 41st International Conference on Machine Learning (ICML)*, volume 235 of *Proceedings of Machine Learning Research*, pages 34760–34789. PMLR, 21–27 Jul 2024.

[C7] D. Maran, A. M. Metelli, M. Papini, and M. Restelli. Local linearity: the key for no-regret reinforcement learning in continuous mdps. In *NeurIPS*, 2024.

[C8] G. Gabbianelli, G. Neu, M. Papini, and N. Okolo. Offline primal-dual reinforcement learning for linear mdps. In *AISTATS*, volume 238 of *Proceedings of Machine Learning Research*, pages 3169–3177. PMLR, 2024.

[C9] G. Gabbianelli, G. Neu, and M. Papini. Importance-weighted offline learning done right. In *ALT*, volume 237 of *Proceedings of Machine Learning Research*, pages 614–634. PMLR, 2024.

[C10] F. Bacchiocchi, F. E. Stradi, M. Papini, A. M. Metelli, and N. Gatti. Online learning with off-policy feedback in adversarial mdps. In K. Larson, editor, *Proceedings of the Thirty-Third International Joint Conference on Artificial Intelligence, IJCAI-24*, pages 3697–3705. International Joint Conferences on Artificial Intelligence Organization, 8 2024. Main Track.

[C11] G. Gabbianelli, G. Neu, and M. Papini. Online learning with off-policy feedback. In *ALT*, volume 201 of *Proceedings of Machine Learning Research*, pages 620–641. PMLR, 2023.

[C12] A. Tirinzoni, M. Papini, A. Touati, A. Lazaric, and M. Pirotta. Scalable representation learning in linear contextual bandits with constant regret guarantees. *Advances in Neural Information Processing Systems (NeurIPS)*, 35:2307–2319, 2022.

[C13] G. Neu, I. Olkhovskaia, M. Papini, and L. Schwartz. Lifting the information ratio: An information-theoretic analysis of thompson sampling for contextual bandits. *Advances in Neural Information Processing Systems (NeurIPS)*, 35:9486–9498, 2022.

[C14]   M. Papini, A. Tirinzoni, M. Restelli, A. Lazaric, and M. Pirotta. Leveraging good representations in linear contextual bandits. In *ICML*, volume 139 of *Proceedings of Machine Learning Research*, pages 8371–8380. PMLR, 2021.

[C15]   M. Papini, A. Tirinzoni, A. Pacchiano, M. Restelli, A. Lazaric, and M. Pirotta. Reinforcement learning in linear mdps: Constant regret and representation selection. In *NeurIPS*, pages 16371–16383, 2021.

[C16]   A. M. Metelli, M. Papini, P. D'Oro, and M. Restelli. Policy optimization as online learning with mediator feedback. In *AAAI*, pages 8958–8966. AAAI Press, 2021.

[C17]   M. Papini, A. Battistello, and M. Restelli. Balancing learning speed and stability in policy gradient via adaptive exploration. In *AISTATS*, volume 108 of *Proceedings of Machine Learning Research*, pages 1188–1199. PMLR, 2020.

[C18]   P. D'Oro, A. M. Metelli, A. Tirinzoni, M. Papini, and M. Restelli. Gradient-aware model-based policy search. In *AAAI*, pages 3801–3808. AAAI Press, 2020.

[C19]   L. Bisi, L. Sabbioni, E. Vittori, M. Papini, and M. Restelli. Risk-averse trust region optimization for reward-volatility reduction. In *IJCAI*, pages 4583–4589. ijcai.org, 2020.

[C20]   M. Papini, A. M. Metelli, L. Lupo, and M. Restelli. Optimistic policy optimization via multiple importance sampling. In *ICML*, volume 97 of *Proceedings of Machine Learning Research*, pages 4989–4999. PMLR, 2019.

[C21]   M. Beraha, A. M. Metelli, M. Papini, A. Tirinzoni, and M. Restelli. Feature selection via mutual information: New theoretical insights. In *IJCNN*, pages 1–9. IEEE, 2019.

[C22]   M. Papini, D. Binaghi, G. Canonaco, M. Pirotta, and M. Restelli. Stochastic variance-reduced policy gradient. In *ICML*, volume 80 of *Proceedings of Machine Learning Research*, pages 4023–4032. PMLR, 2018.

[C23]   A. M. Metelli, M. Papini, F. Faccio, and M. Restelli. Policy optimization via importance sampling. In *NeurIPS*, pages 5447–5459, 2018.

[C24]   M. Papini, M. Pirotta, and M. Restelli. Adaptive batch size for safe policy gradients. In *NeurIPS*, pages 3591–3600, 2017.

Workshop Papers

[W1]   D. Salaorni, V. De Paola, S. Delpero, G. Dispoto, P. Bonetti, A. Russo, G. Calcagno, F. Trovò, M. Papini, A. M. Metelli, M. Mussi, M. Restelli. Gym4ReaL: A Benchmark Suite for Evaluating Reinforcement Learning in Realistic Domains. EWRL 18 (European Workshop on Reinforcement Learning), Tübingen, Germany, 2025.

[W2]   P. Olivieri, F. Lasca, A. Gianola, M. Papini. Do it for HER: First-order Logic Reward Specification in Reinforcement Learning. RLC Workshop on Programmatic Reinforcement Learning, Edmonton, Canada, 2025.

[W3]   L. Bolis, S. Livella, S. Patania, D. Ognibene, M. Papini, K. Morita. Balancing Benefits and Risks: RL Approaches for Addiction-Aware Social Media Recommenders. RLDM (Multidisciplinary Conference on Reinforcement Learning and Decision Making), Dublin, Ireland, 2025.

[W4]   M. Molaei, G. Paczolay, M. Papini, A. M. Metelli, M. Restelli. Actor-Critic with Active Importance Sampling. RLDM (Multidisciplinary Conference on Reinforcement Learning and Decision Making), Dublin, Ireland, 2025.

[W5]   G. Tedeschi, M. Papini, A. M. Metelli, M. Restelli. Policy Gradient Methods with Adaptive Policy Spaces. EWRL 17 (European Workshop on Reinforcement Learning), Toulouse, France, 2024.

[W6]   G. Neu, M. Papini, L. Schwartz. Optimistic Information Directed Sampling. FoRLaC (Foundations of Reinforcement Learning and Control) workshop at ICML, Vienna, Austria, 2024.

[W7]   G. Tedeschi, M. Papini, A. M. Metelli, M. Restelli. Policy Gradient Methods with Adaptive Policy Spaces. ARLET (Aligning Reinforcement Learning Experimentalists and Theorists) workshop at ICML, Vienna, Austria, 2024.

[W8]   F. Bacchiocchi, F. E. Stradi, M. Papini, A. M. Metelli, N. Gatti. Online Adversarial MDPs with Off-Policy Feedback and Known Transitions. 16th European Workshop on Reinforcement Learning, Brussels, Belgium, 2023

[W9]   G. Gabbianelli, G. Neu, N. Okolo, M. Papini. Offline Primal-Dual Reinforcement Learning for Linear MDPs. 16th European Workshop on Reinforcement Learning, Brussels, Belgium, 2023

[W10] G. Neu, J. Olkhovskaya, M. Papini and L. Schwartz. Lifting the Information Ratio: An Information-Theoretic Analysis of Thompson Sampling for Contextual Bandits. 15th European Workshop on Reinforcement Learning, Milan, Italy, 2022

[W11] A. Tirinzoni, M. Papini, A. Touati, A. Lazaric, and M. Pirotta. Scalable Representation Learning in Linear Contextual Bandits with Constant Regret Guarantees. 15th European Workshop on Reinforcement Learning, Milan, Italy, 2022

[W12] G. Gabbianelli, M. Papini, G. Neu. Online Learning with Off-Policy Feedback. ICML-2022 workshop on Complex Feedback in Online Learning, Baltimore, USA, 2022

[W13] A. Gianola, M. Montali, and M. Papini. Automated Reasoning for Reinforcement Learning Agents in Structured Environments. OVERLAY workshop on fOrmal VERification, Logic, Automata and sYnthesis, Padova, Italy, 2021

[W14] M. Papini, A. Tirinzoni, A. Pacchiano, M. Restelli, A. Lazaric, and M. Pirotta. Reinforcement Learning in Linear MDPs: Constant Regret and Representation Selection. ICML Workshop on Reinforcement Learning Theory, virtual, 2021

[W15] M. Papini, A. Battistello, and M. Restelli. Safe Exploration in Gaussian Policy Gradient. NeurIPS-2019 Workshop on Safety and Robustness in Decision Making, Vancouver, Canada, 2019

[W16] M. Papini, A. Battistello, and M. Restelli. Safely Exploring Policy Gradient. 14th European Workshop on Reinforcement Learning, Lille, France, 2018

Papers In Preparation

[P1] With A. Montenegro, F. Mansutti, M. Mussi, A. M. Metelli. Reusing Trajectories in Policy Gradients Enables Fast Convergence. Preprint: `https://arxiv.org/abs/2506.06178`

[P2] With D. Salaorni, V. De Paola, S. Delpero, G. Dispoto, P. Bonetti, A. Russo, G. Calcagno, F. Trovò, M. Papini, A. M. Metelli, M. Mussi, M. Restelli. Gym4ReaL: Towards Real-World Reference Environments for Reinforcement Learning. Preprint: `https://arxiv.org/abs/2507.00257`

[P3] With P. Olivieri, F. Lasca, A. Gianola. Do it for HER: First-order Logic Reward Specification in Reinforcement Learning

[P4] With A. Montenegro, L. Cesani, M. Mussi, A. M. Metelli. Learning Deterministic Policies with Policy Gradients in Constrained Markov Decision Processes. Preprint: `https://arxiv.org/abs/2506.05953`

Attendance to Summer Schools and Exchange Programs

Jul 24–Aug 2 2018   **CIFAR Deep Learning and Reinforcement Learning Summer School**, Toronto, Canada, presented 1 poster

7-14 Oct 2017   **ACAI Summer School on Reinforcement Learning**, Nieuwpoort, Belgium

Autumn 2016   **Erasmus Programme**, KTH Royal Institute of Technology, Stockholm, Sweden

Languages

Italian, *native speaker*

English, *fluent (Cambridge FCE, Grade A — C1 CEFR level)*

Spanish, *intermediate (completed course of level B1 at UPF Barcelona)*

Programming Languages

Python (several research projects) including experience with deep learning libraries **TensorFlow**, **PyTorch** and **JAX**, **LaTeX** (typesetting of several manuscripts), **C++** (one research project, one robotics project as master student), **C, MATLAB** (taught as TA), **Java** (final project of B.Sc.).

Other Interests

Climbing, running, piano, science fiction.