

Filippo Lazzati | Ph.D. Student

Milan, Italy

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Short Bio

Filippo Lazzati is a Ph.D. student in Information Technology at the Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB) at Politecnico di Milano. In 2018, he graduated from high school with full marks and was awarded a scholarship by the Municipality of Romano. In 2021, he earned his B.Sc. in Computer Science and Engineering from Politecnico di Milano (with honors), receiving the "Migliori Matricole" award as one of the best freshmen in 2018/2019, and a full tuition waiver for merit. In 2023, he completed his M.Sc. in Computer Science and Engineering (with honors) one semester early. His thesis paper was selected for oral presentation at ICML 2023, placing in the top 3% of submissions. From 2022 to 2024, he also participated in the prestigious ASP honor program, which selects the top 90 students at Politecnico di Milano annually. After graduation, he worked for six months as a machine learning engineer at the AI startup ML³. Having won the competitive Ph.D. scholarship from MIUR, he is now a full-time Ph.D. student at Politecnico di Milano. His research focuses on artificial intelligence and machine learning, particularly in sequential decision-making problems. He is currently working on the theoretical and algorithmic aspects of *inverse reinforcement learning* [C1,C2,C3], with an emphasis on risk-sensitive behaviors [P1]. He also has interests in optimization, statistics, and deep learning [C4].

Education

Ph.D. in Information Technology

Politecnico di Milano

Focus on: Inverse Reinforcement Learning and Reward Learning.

Supervisor: Prof. Alberto Maria Metelli.

Milan, Italy

Sep. 2023 – Now

Alta Scuola Politecnica (ASP)

Politecnico di Milano

Principal Subjects: Innovation, design, and complex decision making.

Project: Microwave sensing for food contamination monitoring - Wavision.

Milan, Italy

Mar. 2022 – Feb. 2024

M.Sc. in Computer Science and Engineering

Politecnico di Milano

Final Mark: 110/110 cum Laude.

GPA: 29,80/30.

Milan, Italy

Sep. 2021 – May 2023

B.Sc. in Computer Science and Engineering

Politecnico di Milano

Final Mark: 110/110 cum Laude.

GPA: 29,97/30.

Milan, Italy

Sep. 2018 – Jul. 2021

High School Diploma

Liceo don Lorenzo Milani

Principal Subjects: Maths and science.

Final Mark: 100/100.

Romano di Lombardia, Italy

Sep. 2013 – Jun. 2018

Experience

Machine Learning Engineer

ML Cube s.r.l.

Duration: 6 months.

Type of employment: Internship.

Main Activities: Development of reinforcement learning algorithms with Python.

Milan, Italy

Feb. 2023 – Jul. 2023

Information Technology Teacher

Municipality of Romano di Lombardia

Duration: 5 months.

Type of employment: Fixed Term Contract.

Main Activities: Teaching the fundamentals of Windows, Internet, and Microsoft Office.

Romano di Lombardia, Italy

Oct. 2019 – Feb. 2020

Languages

Italian: Mother Tongue

English: Excellent (IELTS Academic 7.5/9 (C1), 2021)

Fellowships, Awards, and Recognitions

Conference Awards

- **Oral Presentation** at **ICML 2023** . Best 156 papers out of 6538 submissions (top 2.39%) for paper [C3].

Student Awards and Recognitions

- Winner of a Ph.D. scholarship awarded by Ministero dell'Istruzione, dell'Università e della Ricerca (**MIUR**).
- Winner of the merit-based scholarship awarded by the Municipality of Romano di Lombardia to the top graduated high-school students (2018).
- Winner of "Le migliori matricole dell'A.A. 2018/2019" awarded by the Politecnico di Milano to the top freshmen.
- Admitted (top 90 students) to the Alta Scuola Politecnica (**ASP**) honour program.
- Received tax exemptions based on merit from 2018/2019 to 2022/2023 at Politecnico di Milano.

Publications

Conferences

- [C1] Filippo Lazzati, Mirco Mutti and Alberto Maria Metelli. "How to Scale Inverse RL to Large State Spaces? A Provably Efficient Approach". Advances in Neural Information Processing Systems 38 (**NeurIPS**), 2024. Acceptance rate: 25.8%. Core 2023: A*.
(link: <https://arxiv.org/abs/2406.03812>)
- [C2] Filippo Lazzati, Mirco Mutti and Alberto Maria Metelli. "Offline Inverse RL: New Solution Concepts and Provably Efficient Algorithms". International Conference on Machine Learning 41 (**ICML**), 2024. Acceptance rate: 2609 /9473 (**27.5%**). Core 2023: A*.
(link: <https://proceedings.mlr.press/v235/lazzati24a.html>).
- [C3] Alberto Maria Metelli, Filippo Lazzati and Marcello Restelli. "Towards Theoretical Understanding of Inverse Reinforcement Learning". International Conference on Machine Learning 40 (**ICML**), 2023. Acceptance rate: 1827/6538 (27.9%), **Oral**: 156/6538 (**2.39%**). CORE 2023: A*.
(link: <https://proceedings.mlr.press/v202/metelli23a.html>).
- [C4] Margherita Musumeci, Juan Sebastian Amaya Cano, Filippo Lazzati, Chiara Martano, Francesco Pappone, Claudio Ramonda, Marco Ricci, Jorge A. Tobon, Giovanna Turvani, Mario R. Casu, Marco Mussetta, and Francesca Vipiana. "Development of a Deep-Learning Pipeline to Detect and Locate Contaminants of Industrial Products via non-Invasive Microwave Signals". IEEE Conference on AgriFood Electronics (**IEEE CAFE**), 2023.
(link: <https://ieeexplore.ieee.org/document/10291829>).

Pre-prints

- [P1] Filippo Lazzati and Alberto Maria Metelli. "Learning Utilities from Demonstrations in Markov Decision Processes".
(link: <https://arxiv.org/abs/2409.17355>)

Academic Activities

Teaching

Lab Sessions Lecturer

Politecnico di Milano

Lab sessions on C and Matlab programming languages.

Duration: 18 hours.

Course: Fondamenti di Informatica.

Milan, Italy

Sep. 2024 – Dec. 2024

Participation to International Conferences and Workshops.....

- European Workshop on Reinforcement Learning - [EWRL 2023](#)
Brussels, Belgium. September 2023.
- International Conference on Machine Learning - [ICML 2024](#)
Vienna, Austria. July 2024.

Reviewing.....

Reviewer for International Conferences:

- Neural Information Processing Systems (NeurIPS), [CORE 2023: A*](#).
- International Conference on Machine Learning (ICML), [CORE 2023: A*](#).
- International Conference on Learning Representations (ICLR), [CORE 2023: A*](#).

Reviewer for International Journals:

- IEEE Transactions on Neural Networks and Learning Systems (IEEE TNNLS), [Scimago: Q1](#).
- Transactions on Machine Learning Research (TMLR).

Master's Students Supervision.....

- Leonardo Pesce. Co-supervision. (M.Sc. in Computer Science and Engineering, in progress).

Certifications

- European Computer Driving License [ECDL](#), AICA, 2017