Matteo Bettini

Curriculum Vitae

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Education

2021– Jun 2025(Est) **PhD in Computer Science**, *University of Cambridge*
Researching heterogeneity and resilience in learning for multi-robot/agent systems

2020–2021 **MPhil in Advanced Computer Science**, *University of Cambridge*
Distinction
GPA: 87.09/100
Thesis on transport network design for multi-agent routing

2017–2020 **BEng in Computer Engineering**, *Politecnico di Milano*
110 Cum Laude/110 (Honors)
GPA: 29.16/30

Experience

Work

Jun–Sept 2021 **Software Development Engineer Intern**, *Amazon Web Services (AWS)*, Cambridge
Worked in the EC2 team using the Rust programming language to implement an interactive serial console for Xen-based EC2 instances.
- Developed a deep knowledge of the Rust programming language
- Used cryptographic and asynchronous programming libraries

Teaching

2021–present **Teaching Assistant and Supervisor**, *University of Cambridge*, Cambridge
- Teaching assistant, demonstrator, and robot fleet manager for the "Introduction to Robotics" undergraduate and postgraduate course
- MPhil Thesis Supervisor
- Supervisor for the "Concepts in Programming Languages" undergraduate course

Awards and Recognition

2017-2020 Merit-based scholarship at Politecnico di Milano - 50% tuition reduction

2017-2020 Achieved 30 Cum Laude/30 (Honors) for 13 of 25 exams at Politecnico di Milano

2017 Best Freshmen of Politecnico di Milano Award - 1500€

Skills

Programming languages Python, Java, Rust, C, JavaScript

Deep learning PyTorch, scikit-learn, NumPy, RLlib, SciPy

Systems Linux, ROS, Networking, Bash

Others HTML, CSS, Java Servlets, SQL, RDF, OWL, XML, VHDL, LaTeX

Languages

English Full proficiency

Italian Native

Certifications: TOEFL IBT 112/120 (Sept 2019)

Publications

[1] **Matteo Bettini**, Ajay Shankar, and Amanda Prorok. Heterogeneous multi-robot reinforcement learning. AAMAS '23. International Foundation for Autonomous Agents and Multiagent Systems, 2023.

[2] Steven Morad, Ryan Kortvelesy, **Matteo Bettini**, Stephan Liwicki, and Amanda Prorok. Popgym: Benchmarking partially observable reinforcement learning. In *International Conference on Learning Representations*, 2023.

[3] **Matteo Bettini**, Ryan Kortvelesy, Jan Blumenkamp, and Amanda Prorok. Vmas: A vectorized multi-agent simulator for collective robot learning. *The 16th International Symposium on Distributed Autonomous Robotic Systems*, 2022.

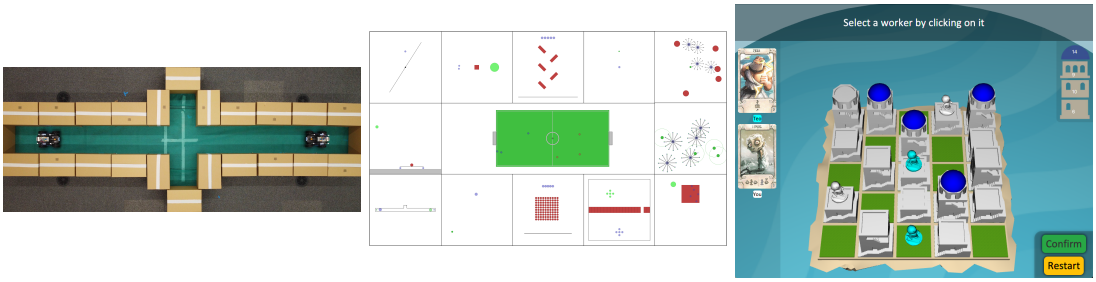
[4] **Matteo Bettini** and Amanda Prorok. On the properties of path additions for traffic routing. *IEEE International Conference on Intelligent Transportation Systems (ITSC) Workshop on Co-Design and Coordination of Future Mobility Systems*, 2022.

Interests

- Multi-Robot Systems
- Reinforcement Learning
- Heterogeneous Multi-Agent Learning
- Graph Neural Networks

Selected projects

- **Heterogeneous robot learning**: crystallized the role of heterogeneity in multi-robot reinforcement learning through simulations and real-world experiments [1] (Fig. 1a). *Link*
- **Vectorized multi-agent simulator**: designed and implemented a batched multi-agent simulator in PyTorch for multi-agent reinforcement learning [3] (Fig. 1b). *Link*
- **Santorini videogame**: reinvented the table game "Santorini" as a Java multiplayer online game with 3D graphics and many new features (Fig. 1c). *Link*



(a) Heterogeneous robot learning **(b)** Vectorized multi-agent simulator **(c)** Santorini videogame

Figure 1: Project media