

Mattia Mantovani

Reggio Emilia, Italy

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SKILLS

Technical:

- *Programming Languages:* Python, C/C++
- *AI Tools & libraries:* TensorFlow, PyTorch, Jax, GPy, GPyTorch, Pyro, GPJax,
- *Robotics:* ROS/ROS 2
- *Scientific Computing Libraries:* NumPy, Pandas, SciPy, Scikit-Learn, Matplotlib
- *Dev. Tools:* Linux, Git, Docker, MATLAB, LaTeX, Jira, Slack

Soft:

- *Communication:* Presented technical content to academic and industrial audiences.
- *Teamwork:* Led cross-functional teams to achieve research objectives.
- *Problem-Solving:* Applied advanced algorithms in robotics competitions.
- *Adaptability:* Quickly adopted new technologies and research methodologies.
- *Leadership:* Mentored students and managed teams for Project RED.

EDUCATION

- **Ph.D. in Robotics and Industrial Innovation Engineering** Reggio Emilia, Italy
Nov. 2023 – Ongoing
University of Modena and Reggio Emilia
- **M.Sc. in Mechatronics Engineering** Reggio Emilia, Italy
Oct. 2021 – Jul. 2023
University of Modena and Reggio Emilia
- **B.Sc. in Mechatronics Engineering** Reggio Emilia, Italy
Oct. 2018 – Oct. 2021
University of Modena and Reggio Emilia

EXPERIENCE

- **ARSControl Lab** Reggio Emilia, Italy
Nov. 2023 - Present
Ph.D. Student
 - Developing advanced control techniques for drones, including MPC, Nonlinear MPC, MPPI, and $\mathcal{L}_1$ Adaptive Control
 - Exploring learning methodologies for autonomous navigation in unknown environments.
 - Researching multi-robot collaboration, data fusion and coordination.
- *Research Fellow* Jul. 2023 - Nov. 2023
 - Designed decentralized algorithms for multi-robot teams, balancing exploration and coverage in dynamic environments using Gaussian Processes.
- **Project RED** Reggio Emilia, Italy
Oct. 2022 - Oct. 2023
Robotics Division Leader
 - Led a 12-member team in developing a rover system for the European Rover Challenge, focusing on autonomous navigation and manipulation systems on an NVIDIA Jetson Xavier platform. Achievements:
 - Best Remove Navigation Award
 - 3rd Place - Remove Navigation (out of 15 qualified teams and 54 total teams)
 - Top-9 Placement (out of 25 qualified teams and 88 total teams) - On-Site Competition
- *Robotics Division Member* Jun. 2022 - Oct. 2022
 - Developed autonomous navigation and localization strategies, improving system efficiency by 60%.

PUBLICATIONS

- F. Pratissoli, **M. Mantovani**, A. Prorok and L. Sabattini, "Distributed Coverage Control for Time-Varying Spatial Processes," conditionally accepted to Transaction on Robotics (TRO).
- **M. Mantovani**, F. Pratissoli and L. Sabattini, "Online Multi-Robot Federated Learning for Distributed Coverage Control of Unknown Spatial Processes," submitted to IEEE International Conference on Robotics and Automation (ICRA) 2025.
- M. Catellani, **M. Mantovani**, M. Montanari, F. Pratissoli, and L. Sabattini, "Decentralized Learning-Based Coverage Control for Multi-Robot Systems with Obstacle Awareness: A CNN-Driven Approach," submitted to IEEE International Conference on Robotics and Automation (ICRA) 2025.
- **M. Mantovani**, F. Pratissoli and L. Sabattini, "Distributed Coverage Control for Spatial Processes Estimation With Noisy Observations," in IEEE Robotics and Automation Letters (RA-L), vol. 9, no. 5, pp. 4431-4438, May 2024, doi: 10.1109/LRA.2024.3381809 - Presented at IROS 2024.