Manuel Boldrer

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Born in Trento (Italy) on 29.07.1992
CV Updated to June 2025

Work Experiences

Mar '24 - Now **Researcher**, *Department of Cybernetics, Czech Technical University in Prague*, Czechia
- **Lab:** Multi-robot systems group (MRS)
- **Tasks:** Research and development of coordination algorithms for multiple Unmanned Aerial Vehicles; algorithm deployment and testing in the field; supervision of students; organization of seminars; dissemination and publication of research findings; funding acquisition; peer-review of scientific paper
- **Main outputs: [J8],[J9],[J10]**

May '22 - Nov '23 **Postdoctoral Researcher**, *Cognitive Robotics Department, Delft University of Technology*, The Netherlands
- **Lab:** Reliable Robot Control Lab (R2C)
- **Tasks:** Research and development of secure algorithms for multi-robot Unmanned Grounded Vehicles; algorithm deployment and testing in controlled environments; PhD mentoring; organization of seminars; dissemination and publication of research findings; funding acquisition; peer-review of scientific papers
- **Main outputs: [J6],[J7],[J8]**

Oct '18-Sep '20 **Teaching Assistant**, *held at University of Trento*, Italy
- **Department:** Information Engineering and Computer Science (DISI)
- **Course:** Systems Theory
- **Tasks:** Develop course material; teaching practicals and exercises; student evaluation

Jun-Nov 2018 **Postgraduate Researcher**, *held at University of Trento*, Italy
- **Tasks**: Design and implementation of distributed algorithms for estimation and control of a team of service robots

Education

Nov '18-May '22 **PhD in Mechatronics**, *University of Trento*, Italy
- **PhD Thesis:** Distributed control algorithms for a team of service robots
- **Research Interests:** Multi-robot systems, Distributed control, Mobile robotics

Sep '21-Feb '22 **Visiting Scholar**, *University of California, Riverside*, United States
- **Research Activity:** Networked system control, Reinforcement learning

Sep '15-Mar '18 **MSc in Mechatronics Engineering**, *University of Trento*, Italy
- **Curriculum in Electronics and Robotics**
- **Grade:** magna cum laude
- **Master thesis:** "Control of a Synchrotron with LMI-based Techniques"

Sep '12-Jul '15 **BSc in Industrial Engineering**, *University of Trento*, Italy
- **Bachelor thesis:** "Study of Lateral Vibrations in a Beam"

Sep '06-Jun '12 **Secondary Education Diploma**, *Liceo Scientifico "L. Da Vinci"*, Trento, Italy

Publications

Journal Articles

[J10] **M. Boldrer, V. Krátký, V. Walter, M. Saska**, *Swarming in the Wild: A Distributed Communication-less Lloyd-based Algorithm dealing with Uncertainties*, In IEEE Transactions on Robotics, Under Review.

[J9] **M. Boldrer, V. Krátký, M. Saska**, *Aerial Robots Persistent Monitoring and Target Detection: Deployment and Assessment in the Field*, in Autonomous Robots, Under Review.

[J8] **M. Boldrer, A. Serra-Gomez, L. Lyons, V. Krátký, J. Alonso-Mora, L. Ferranti**, *Rule-Based Lloyd Algorithm for Multi-Robot Motion Planning and Control with Safety and Convergence Guarantees*, in International Journal of Robotics Research, Under Review.

[J7] **L. Lyons, M. Boldrer, L. Ferranti**, *Distributed Attack-Resilient Platooning Against False Data Injection*, IEEE Transactions on Vehicular Technology, Under Review.

[J6] **M. Boldrer, L. Lyons, L. Palopoli, D. Fontanelli, L. Ferranti**, *Time-inverted Kuramoto Model Meets Lissajous Curves: Multi-Robot Persistent Monitoring and Target Detection*, in IEEE Robotics and Automation Letters, 2022
doi: 10.1109/LRA.2022.3224661.

[J5] **M. Boldrer, L. Palopoli, D. Fontanelli**, *A Unified Lloyd-based Framework for Multi-Agent Collective Behaviours*, in Elsevier, Robotics and Autonomous Systems, 2022
doi: 10.1016/j.robot.2022.104207.

[J4] **M. Boldrer, F. Pasqualetti, L. Palopoli, D. Fontanelli**, *Multi-Agent Persistent Monitoring via Time-Inverted Kuramoto Dynamics*, in IEEE, Control Systems Letters, 2022
doi: 10.1109/LCSYS.2022.3178294.

[J3] **M. Boldrer, A. Antonucci, P. Bevilacqua, L. Palopoli, D. Fontanelli**, *Multi-Agent Navigation in Human-Shared Environments: a Safe and Socially-Aware Approach*, in Elsevier, Robotics and Autonomous Systems, 2021
doi: 10.1016/j.robot.2021.103979.

[J2] **M. Boldrer, P. Bevilacqua, L. Palopoli, D. Fontanelli**, *Graph Connectivity Control of a Mobile Robot Network with Mixed Dynamic Multi-Tasks*, in IEEE Robotics and Automation Letters, 2021
doi: 10.1109/LRA.2021.3061072.

[J1] **M. Boldrer, M. Andreetto, S. Divan, L. Palopoli, D. Fontanelli**, *Socially-aware Reactive Obstacle Avoidance Strategy based on Limit Cycle*, in IEEE Robotics and Automation Letters, 2020
doi: 10.1109/LRA.2020.2976302.

Refereed Conference Publications

[C6] **M. Boldrer, F. Riz, F. Pasqualetti, L. Palopoli, D. Fontanelli**, *Time-Inverted Kuramoto Dynamics for κ-Clustered Circle Coverage*, In IEEE Conf. on Decision and Control (CDC), doi: 10.1109/CDC45484.2021.968331, 2021.

[C5] **M. Boldrer, D. Fontanelli, A. Antonucci, L. Palopoli**, *A Novel Framework for Multi-Agent Navigation in Human-Shared Environments*, In Italian Institute of Robotics and Intelligent Machines Conference (I-RIM), doi: 10.5281/zenodo.5900505, 2021, (***Best Student Paper Finalist.***)

[C4] **M. Boldrer, L. Palopoli, D. Fontanelli**, *Lloyd-based Approach for Robots Navigation in Human-shared Environments*, In IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), doi: 10.1109/IROS45743.2020.9341272, 2020.

[C3] **M. Boldrer, L. Palopoli, D. Fontanelli**, *Socially-aware Multi-agent Velocity Obstacle based Navigation for Nonholonomic Vehicles*, In IEEE Computer Software and Applications Conference (COMPSAC), doi: 10.1109/COMPSAC48688.2020.00012, 2020.

[C2] **A. Antonucci, P. Bevilacqua, L. Palopoli, M. Boldrer, D. Fontanelli**, *Motion Planning in Crowds: Proxemics as a Base for a Socially Acceptable Behaviour*, In 1st Italian Conference on Robotics and Intelligent Machines (I-RIM), doi: 10.5281/zenodo.4782236, 2019.

[C1] **M. Boldrer, D. Fontanelli, L. Palopoli**, *Coverage control and distributed consensus-based estimation for mobile sensing networks in complex environments*, In IEEE Conf. on Decision and Control (CDC), doi: 10.1109/CDC40024.2019.9028967, 2019.

Language Skills

Italian	Mother tongue
English	Fluent

Computer Skills

Languages	C++, Python
Software/Tools	Vim/Neovim, Tmux, Tmuxinator, Bash, Latex, ROS, Git, Github, Docker, Docker hub, Apptainer, Ansible, Maple/Maplesim, Matlab/Simulink..
OS	Linux, Windows
Soft Skills	Team work, problem solving, adaptability, time management, critical thinking, creativity, leadership, interpersonal skills, work ethic, networking, communication.

Links

Driving license	B
Sports	Table tennis, Tennis, Football, Basketball
Linkedin.com	Manuel Boldrer - Professional profile.
Google Scholar	Google Scholar Profile. Website Personal website