Curriculum Vitae

Manzardo Matteo

National Interest PhD in Robotics and Intelligent Machines
Smart Mini Factory, Free University of Bozen/Bolzano

Education

Nov 2023 – to date	**Free University of Bozen/Bolzano, Bozen, Italy** Administrative host: **University of Genova, Genova, Italy** **PhD Student** - National Interest PhD in Robotics and Intelligent Machines Research topic: development of intelligent and adaptive robotic algorithms for human-robot collaboration, supervised by prof. Vidoni Renato.
Apr 2026 – May 2026	**Technical University of Munich, Munich, Germany** **Visiting Scientist** Research topic: modelling and evaluation of the inertial properties of a manipulator within a human-robot interaction scenario, in collaboration with Dr. Kirschner Robin.
Jul 2025 – Dec 2025	**University of Oxford, Oxford, United Kingdom** **Visiting Student** Research topic: integration of tiny LiDARs on a robot skin for safe and optimal trajectory planning, supervised by prof. Fallon Maurice and prof. Maiolino Perla.
Sep 2021 – Jul 2023	**Free University of Bozen/Bolzano, Bozen, Italy** **Master Degree** – Master in Industrial Mechanical Engineering Mark: 110 cum Laude/110 Thesis title: *'On the safe and effective motion planning for collaborative workstations'*, supervised by prof. Vidoni Renato.
Sep 2019 - Sep 2021	**Free University of Bozen/Bolzano, Bozen, Italy** **Bachelor Degree** – Bachelor in Industrial Mechanical Engineering Mark: 110 cum Laude/110 Thesis title: *'Path planning of an accurate end-effector of a trimming robot',* supervised by prof. Vidoni Renato.

Work Experience

Jan 2025 – to date and Mar 2025 - Jul 2025	**Fraunhofer Italia Research, Bozen, Italy** **Researcher** Research topic: exploitation of redundancy resolution techniques.
Jan 2024 - Feb 2025	**Autotest Südtirol, Franzensfeste (BZ), Italy** **Consultant** Topic: development of adaptive collaborative robotic workstations for the inclusion of disabled workers.

Aug 2023 - Nov 2023	**Free University of Bozen/Bolzano, Bozen, Italy** **Commissioned Research** Research topic: development of adaptive industrial robotic algorithms.
Jan 2022 - Dec 2022	**Free University of Bozen/Bolzano, Bozen, Italy** **Working Student** Research topic: development of adaptive industrial robotic algorithms.

Awards and Honors

Jun 2024	**Fondazione Il Talento all'Opera, Scuola Universitaria Superiore Sant'Anna Pisa** "Premio al Merito", to the best ranked students of "AIRONE - Artificial Intelligence and RObotics in exteNded rEality".
2018	5th place at 'Italian Games of Chemistry', national level.
2018	19th place at 'Mathematical Olympiad - Team Event', national level.
2018	Qualification for the national finals of 'Physics Olympiad'.
2017	15th place at 'Italian Games of Chemistry', national level.
2017	5th place at 'Mathematical Olympiad - Team Event', national level.
2016	Qualification for the national finals of 'Mathematical Olympiad - Team Event'.

Reviewer Activity

JOURNALS:	
Scientific Reports, Nature Portfolio.	
IEEE Robotics and Automation Letters (RA-L), IEEE.	
Production & Manufacturing Research, Taylor&Francis.	
CONFERENCES:	
IEEE ICRA 2025	IEEE International Conference on Robotics and Automation, Atlanta, United States of America.
ISIEA 2025	International Symposium on Industrial Engineering and Automation, Bozen, Italy.
ISM 2024	International Conference on Industry 4.0 and Smart Manufacturing, Prague, Czech Republic.

Invited Talks

Feb 2025	**NOI Techpark, Bozen, Italy** *Inclu5ion - Industry 5.0 Driven Design of Production Systems for Improving Inclusion and Equality of Disabled Workers*, within the presentation to the public of the Inclu5ion project.

Dec 2024	**University of Udine, Udine, Italy** *Collaborative Industrial Robotics and Exoskeletons: Safety and Applications*, meeting within the course of Mechatronics and Robotics.
Oct 2024	**I-RIM 2024 Conference, Rome, Italy** Workshop: *Trends and challenges in collaborative robotics: perception, motion planning and control*. Talk title: *Safe and adaptive industrial collaborative robotic applications: examples and case studies*. Organized by Scalera Lorenzo, Terreran Matteo, Villagrossi Enrico.

Language Skills

Italian	Mother tongue
English	C1 (Test of the Free University of Bolzano)
German	B2 (Goethe Institut; Lesen:77/100, Hören 80/100, Schreiben: 98/100, Sprechen: 100/100)

Programming Skills

In my professional experience, I deployed the following programming languages/frameworks:

- C++
- C#
- Python
- Matlab
- ROS1 and ROS2
- Adept V+
- UR Script & UR Polyscope
- FANUC Teach Pendant Programming Language

Publications

JOURNAL PAPERS

Manzardo M., Tranquillini A., Vidoni R., An Active Airbag System for Safer Human-Robot Collaboration: Impact Modelling, Prototype Development and Validation , *IEEE/ASME Transactions on Mechatronics*, 2026. (Scopus Q1)

Manzardo M., Fraboni F., Morandini S., Gualtieri L., Vidoni R., Pietrantoni L., Dynamic velocity scaling for industrial collaborative robots: a gaze-driven approach, *Scientific Reports*, 2026. (Scopus Q1)

Manzardo M., Vidoni R., Safe and Fluent Industrial Human Robot Collaboration Via Combination of PFL, SSM and Escape Trajectories, *IEEE Robotics and Automation Letters (RA-L)*, 2025. (Scopus Q1)

Manzardo M, Carabin G, Vidoni R, Optimal path planning method for a bush trimming robot with a non-omnidirectional end-effector, *IEEE Robotics and Automation Letters (RA-L)*, 2025. (Scopus Q1)

CONFERENCE PAPERS

Manzardo M., Sigmund G., Hahl M., Gualtieri L., Vidoni R., Inclusion of Disabled Workers in Production Environments trough Industrial Collaborative Robots: a Company Case Study, *International Conference on Industry of the Future and Smart Manufacturing (ISM 2025)*, La Valletta, Malta, November 2025.

Ciaghi D., Manzardo M., Gasparetto A., Vidoni R., Gualtieri L., Human Motion Tracking for Action Recognition through wearable sensors: an IMU Based Approach, *2nd International Conference and Exhibition „Mechanical Engineering Solutions“ (MES 2025)*, Yerevan, Armenia, September 2025.

Ciaghi D., Manzardo M., Soto G., Vidoni R., Gualtieri L., Multimodal Intention Recognition for Dynamic Tool Sharing in Anthropocentric Human-Robot Collaboration, 34th *International Conference of Flexible Automation and Intelligent Manufacturing“ (FAIM 2025)*, New York, United States of America, June 2025.

Mallavarapu R.R., Manzardo M., Yan Y., Huesing M., Corves B., Gualtieri L., Vidoni R., Experimental Evaluation of Sensor Redundancy and Filtering for Human Tracking in Industrial Collaborative Applications, *4th International Symposium on Industrial Engineering and Automation (ISIEA 2025)*, Bozen, Italy, June 2025.

Manzardo M., Vidoni R., On the improvement of the combination of Power and Force Limiting and Speed and Separation Monitoring for an effective Human Robot Collaboration, *6th International Conference on Industry 4.0 and Smart Manufacturing (ISM 2024)*, Prague, Czech Republic, November 2024.

Manzardo M., Yicheng Y., Rojas R.A., Shahidi A., Vidoni R., Hüsing M., Corves B., Redundant Hybrid Robots for resilience in future smart factories, *3rd International Symposium on Industrial Engineering and Automation (ISIEA 2024)*, Bozen, Italy, June 2024.

Manzardo M., Carabin G., Gualtieri L., Vidoni R., Cycle time reduction through redundancy optimization in industrial robotic tasks, *16th IFToMM World Congress [WC2023]*, Tokyo, Japan, November 2023.

Manzardo M., Carabin G., Vidoni R., Design of a path planning method for a robotized optimal trimming, *4th International Conference of IFToMM Italy (IFIT2022)*, Naples, Italy, September 2022.

Free Time

Feb 2018 – to date	**‘Italian Football Referees Association’, Schio (VI), Italy** Football referee, regional level.

I used to take part in the activities of ‘San Sebastiano’ parish, Thiene (VI), Italy as member of the ‘Gruppo Giovani’ and, then, as children’s entertainer. I have been member for 7 years of the Scout Association ‘Thiene 2’, Thiene (VI), Italy. As sport, I used to compete in climbing and skiing. Nowadays I practice them in my free time.

Bolzano, 27.jul.2026

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