

UNIVERSITA' DEGLI STUDI e-CAMPUS FACOLTA' di Ingegneria Corso di studi in Ingegneria Industriale

DOTT. Roveda Loris

Il dott. Roveda Loris si è laureato nel 2011 all'Università Politecnico di Milano, in Ingegneria Meccanica con la votazione di 107/110.

Ha successivamente frequentato un corso di Dottorato di Ricerca in Ingegneria Meccanica presso l'Università Politecnico di Milano, a seguito del quale ha discusso la propria dissertazione dottorale sviluppata nell'ambito della robotica industriale.

Negli anni i suoi interessi di ricerca hanno riguardato la robotica industriale, e in particolar modo la robotica collaborativa, sviluppando controlli avanzati per la collaborazione uomo-robot e realizzando prototipi di manipolatori collaborativi.

Di seguito un breve riepilogo delle principali attività scientifico-didattiche svolte:

Attività Didattiche:

- Assistente alla didattica: Robotics and Mechatronics, Politecnico di Milano, Settembre 2018 - Febbraio 2019;
- Assistente alla didattica: Production for Made in Italy Lab, Politecnico di Milano, Febbraio 2018 - Luglio 2018;
- Assistente alla didattica: Robotics and Mechatronics, Politecnico di Milano, Settembre 2017 - Febbraio 2018;
- Assistente alla didattica: Mechatronic Systems and Laboratory A, Politecnico di Milano, Ottobre 2014 - Febbraio 2015;
- Assistente alla didattica: Automation Laboratory, Politecnico di Milano, Febbraio 2014 - Luglio 2014;
- Assistente alla didattica: Mechatronic Systems and Laboratory A at Politecnico di Milano, Ottobre 2012 - Febbraio 2013.

Progetti di ricerca:

- Enabling Flexible Future Operators Requiring Task Level Empowering Strength Skills (EFFORTLESS), 2018;
- Enhanced Human Robot cooperation in Cabin Assembly tasks (EURECA), H2020 CleanSky 2, 2017-2020;
- KUKA Innovation Award 2017;
- European Robotics Challenges (EuRoC), European Union's Seventh Framework Programme, 2014-2020;
- Four By Three Project, H2020, 2014-2017;
- Fideas, Regione Lombardia, 2013-2014;
- Active Project, FP7, 2011-2015.

Relazioni presentate in convegni scientifici:

- Loris Roveda, Tito Dinon, Filippo Lucetti, Nicola Pedrocchi, Lorenzo Molinari Tosatti. H2020 CleanSky 2 EURECA: Design and Control of a Cooperative Manipulator for Industrial Installation Tasks. WeRob 2018.
- Loris Roveda, Nicola Castaman, Stefano Ghidoni, Paolo Franceschi, Nicola Bagarello, Nicolò Boscolo, Enrico Pagello, Nicola Pedrocchi. A Human-Robot Cooperative Procedure for the Installation of

Heavy/Bulky Components. SMC 2018.

- Loris Roveda, Nicola Castaman, Paolo Franceschi, Stefano Ghidoni, Nicolò Boscolo, Nicola Bagarello, Enrico Pagello, Nicola Pedrocchi, Lorenzo Molinari Tosatti. H2020 CleanSky 2 EURECA project: control architecture design for a multi-robot framework assisting human operators in the aerospace industry. 8th EASN-CEAS International Workshop on Manufacturing for Growth & Innovation 2018.
- Loris Roveda. A User-Intention Based Adaptive Manual Guidance with Force-Tracking Capabilities Applied to Walk-Through Programming for Industrial Robots. Ubiquitous Robots 2018. DOI: 10.1109/URAI.2018.8442199.
- Loris Roveda, Shaghayegh Haghshenas, Alessio Prini, Tito Dinon, Nicola Pedrocchi, Francesco Braghin, Lorenzo Molinari Tosatti. Fuzzy Impedance Control for Enhancing Capabilities of Humans in Onerous Tasks Execution. Ubiquitous Robots 2018. DOI: 10.1109/URAI.2018.8441800.
- Loris Roveda, Alessio Prini, Tito Dinon, Shaghayegh Haghshenas, Nicola Pedrocchi, Francesco Braghin and Lorenzo Molinari Tosatti. 2017. On the Design and Control of an Empowering Manipulator to Increase the Capabilities of Humans in Industrial Applications. CLAWAR 2017. <https://doi.org/10.1142/97898132310470075>.
- Loris Roveda, Giacomo Pallucca, Nicola Pedrocchi, Francesco Braghin, Lorenzo Molinari Tosatti. 2016. Cartesian Tasks Oriented Friction Compensation Through a Reinforcement Learning Approach. IEEE International Conference on Advanced Intelligent Mechatronics (AIM) 2016. DOI: 10.1109/AIM.2016.7576882.
- Loris Roveda, Niccolò Iannacci, Federico Vicentini, Nicola Pedrocchi, Francesco Braghin, Lorenzo Molinari Tosatti. 2016 Optimal impedance force-tracking control design with impact formulation for interaction tasks. IEEE International Conference on Robotics and Automation (ICRA).
- Loris Roveda, Federico Vicentini, Nicola Pedrocchi, Lorenzo Molinari Tosatti. 2015 Impedance Control Based Force-Tracking Algorithm for Interaction Robotics Tasks: an Analytically Force Overshoots-Free Approach. International Conference on Informatics in Control, Automation and Robotics (ICINCO). DOI: 10.5220/0005565403860391.
- Loris Roveda, Federico Vicentini, Nicola Pedrocchi, Francesco Braghin, Lorenzo Molinari Tosatti. 2015. Impedance Shaping Controller for Robotic Applications Involving Interacting Compliant Environments and Compliant Robot Bases. IEEE International Conference on Robotics and Automation (ICRA). DOI: 10.1109/ICRA.2015.7139470.
- Robert G. Reid, Loris Roveda, Issa A. D. Nesnas, Marco Pavone. Contact Dynamics of Rovers with Internal-Actuation for the Exploration Small Solar System Bodies. 2014. International Symposium on Artificial Intelligence, Robotics and Automation in Space (i-SAIRAS).
- Loris Roveda, Federico Vicentini, Nicola Pedrocchi, Francesco Braghin, Lorenzo Molinari Tosatti. 2014. Impedance Shaping Controller for Robotic Applications in Interaction with Compliant Environments. International Conference on Informatics in Control, Automation and Robotics (ICINCO). DOI: 10.5220/0005059504440450.
- Loris Roveda, Federico Vicentini, Nicola Pedrocchi, Lorenzo Molinari Tosatti. 2014. Force-tracking impedance control for manipulators mounted on compliant bases. IEEE International Conference on Robotics and Automation (ICRA). DOI: 10.1109/ICRA.2014.6906940.
- Loris Roveda, Federico Vicentini, Nicola Pedrocchi, Lorenzo Molinari Tosatti, Francesco Braghin. 2014. Development of impedance control based strategies for light-weight manipulator applications involving compliant environments and compliant bases. ASME 2014 12th Biennial Conference on Engineering Systems Design and Analysis. DOI: 10.1115/ESDA2014-20136.
- Loris Roveda, Federico Vicentini, Lorenzo Molinari Tosatti. 2013. Deformation-tracking impedance control in interaction with uncertain environments. IEEE Intelligent Robots and Systems (IROS). DOI: 10.1109/IROS.2013.6696621.

Publicazioni:

- Loris Roveda. 2018. Adaptive Interaction Controller for Compliant Robot Base Applications. Accepted for publication. IEEE Access.
- Yuqing Chen, Loris Roveda, David Braun. 2018. Efficiently Computable Constrained Optimal Feedback Controllers. Accepted for publication. IEEE Robotics and Automation Letters. DOI: 10.1109/LRA.2018.2879683. ISSN: 2377-3766.
- Loris Roveda, Giacomo Pallucca, Nicola Pedrocchi, Francesco Braghin, Lorenzo Molinari Tosatti. 2017. Iterative Learning Procedure With Reinforcement for High-Accuracy Force Tracking in Robotized Tasks. Accepted for publication. IEEE Transactions on Industrial Informatics. DOI:10.1109/TII.2017.2748236. ISSN: 1551-3203.
- Loris Roveda, Manuel Beschi, Nicola Pedrocchi, Lorenzo Molinari Tosatti. 2017. High-Accuracy Robotized Industrial Assembly Task Control Schema with Force Overshoots Avoidance. Accepted for publication. Elsevier, Control Engineering Practice. <https://doi.org/10.1016/j.conengprac.2017.10.015>. ISSN: 0967-0661.
- Loris Roveda, Niccolò Iannacci, Lorenzo Molinari Tosatti. 2017. Discrete-Time Formulation for Optimal

Impact Control in Interaction Tasks. Accepted for publication. Journal of Intelligent & Robotic Systems. DOI: 10.1007/s10846-017-0683-6. ISSN: 0921-0296.

- Loris Roveda, Nicola Pedrocchi, Federico Vicentini, Lorenzo Molinari Tosatti. 2016. An Interaction Controller Formulation to Systematically Avoid Force Overshoots through Impedance Shaping Method with Compliant Robot Base. Accepted for publication. Elsevier, Mechatronics. DOI: 10.1016/j.mechatronics.2016.08.001. ISSN: 0957-4158.
- Loris Roveda, Nicola Pedrocchi, Federico Vicentini, Lorenzo Molinari Tosatti. 2016. Industrial Compliant Robot Bases in Interaction Tasks: a Force Tracking Algorithm with Coupled Dynamics Compensation. Accepted for publication. Robotica. DOI: 10.1017/S0263574716000461. ISSN: 0263-5747.
- Loris Roveda, Nicola Pedrocchi, Lorenzo Molinari Tosatti. 2016. Exploiting Impedance Shaping Approaches to Overcome Force Overshoots in Delicate Interaction Tasks. Accepted for publication. International Journal of Advanced Robotic Systems. DOI: 10.1177/1729881416662771. ISSN: 1729-8814.
- Loris Roveda, Niccolò Iannacci, Federico Vicentini, Nicola Pedrocchi, Francesco Braghin, Lorenzo Molinari Tosatti. 2016. Optimal impedance force-tracking control design with impact formulation for interaction tasks. Accepted for publication. IEEE, Robotics and Automation Letters. DOI: 10.1109/LRA.2015.2508061. ISSN: 2377-3766.

