PERSONAL INFORMATION

Name	**MARCO CARRICATO**
Address	DEPARTMENT OF INDUSTRIAL ENGINEERING, UNIVERSITY OF BOLOGNA, VIALE RISORGIMENTO 2, 40136 BOLOGNA (BO), ITALY.
Telephone	+39 051 2093443
E-mail	marco.carricato@unibo.it
Web page	www.unibo.it/faculty/marco.carricato; https://irmalab.org/

WORK EXPERIENCE

• Dates (from – to)	09.12.2019 to date
• Employer	University of Bologna, Viale Risorgimento 2, 40136 Bologna (BO), Italy
• Sector	Education and Research
• Position held	**Full Professor**
• Main activities and responsibilities	Research in the fields of **Robotics**, **Mechanism Theory** and **Industrial Automation**. Teaching in the fields of **Mechanics of Machines**, **Mechanics of Robots** and **Mechanics of Drives**. Head of the **IRMA L@B - Industrial Robotics, Mechatronics & Automation Lab @ Bologna**, within the Dept. of Industrial Engineering.
• Main research interests	Servo-actuated automatic machinery, Cable-driven parallel robots, Analysis and synthesis of parallel robots, Robot kinematics, Screw Theory, Collaborative robotics, Homokinetic transmissions.
• Dates (from – to)	15.09.2014 to 08.12.2019
• Employer	University of Bologna, Viale Risorgimento 2, 40136 Bologna (BO), Italy
• Sector	Education and Research
• Position held	Associate Professor
• Main activities and responsibilities	Research in the fields of **Robotics**, **Mechanism Theory** and **Industrial Automation**. Teaching in the fields of **Mechanics of Machines**, **Mechanics of Robots** and **Mechanics of Drives**.
• Dates (from – to)	01.01.2004 to 14.09.2014
• Employer	University of Bologna, Viale Risorgimento 2, 40136 Bologna (BO), Italy
• Sector	Education and Research
• Position held	Assistant Professor
• Main activities and responsibilities	Research and teaching in the fields of **Mechanics of Machines**, **Robotics**, and **Industrial Automation**.

QUALIFICATIONS

• Dates (from – to)	06.02.2014 to date
• Organisation providing the qualification	Italian Ministry of Education, Universities and Research (MIUR)
• Title of qualification awarded	National Scientific Qualification (ASN) for the roles of Associate Professor and Full Professor, in the field of Mechanics of Machines.
• Dates (from – to)	June 2009
• Organisation providing the qualification	French National Institute for Research in Computer Science and Control (INRIA)
• Title of qualification awarded	Qualified first in the competitive selection for a position of "Chargé de recherche de première classe - CR1" at INRIA - Sophia Antipolis (France).
• Dates (from – to)	December 1998

• Organisation providing the qualification	University of Bologna
• Title of qualification awarded	Professional Engineer Certificate.
• Dates (from – to)	01.05.2018 to date
• Organisation providing the qualification	Cambridge Assessment English
• Title of qualification awarded	Grade A (CEFR Level C2) Certificate in Advanced English

EDUCATION AND TRAINING

• Dates (from – to)	01.01.1999-31.12.2001
• Institution	University of Bologna
• Title of qualification awarded	Ph.D. in Mechanics of Machines; Dissertation: "Singularity-Free Fully-Isotropic Translational Parallel Manipulators".
• Level in national classification	Ph.D.
• Dates (from – to)	01.10.1992-15.07.1998
• Institution	University of Bologna
• Title of qualification awarded	Degree in Mechanical Engineering, with Honours; Dissertation: "Theoretical Contribution for the Static Analysis of Compliant Mechanisms" (in Italian).
• Level in national classification	1st Level Degree (Bachelor equivalent) + 2nd Level Degree (Master equivalent)
• Dates (from – to)	15.09.1987-18.07.1992
• Institution	Scientific High School of Rende (CS)
• Title of qualification awarded	Scientific Diploma, with Honours.
• Level in national classification	Secondary School

TEACHING ACTIVITY

INSTITUTIONAL TEACHING

- 21.09.2020 to date: instructor in charge of the course Fundamentals of Mechanics of Machines for the Second-Cycle (Master) Degree in Automation Engineering;
- 21.02.2019 to date: instructor in charge of the course Laboratory of Robotics and Mechatronics for the Second-Cycle (Master) Degree in Mechanical Engineering;
- 22.02.2016 to date: instructor in charge of the course Mechanics of Machines for the Second-Cycle (Master) Degree in Mechanical Engineering;
- 01.11.2008 to date: instructor in charge of the course Mechanics of Drives for the First-Cycle (Bachelor) Degree in Mechanical Engineering;
- 21.09.2020 to 17.09.2021: instructor in charge of the course Mechanical Drives for the First-Cycle (Bachelor) Degree in Mechatronics;
- 01.05.2005-31.07.2009: instructor in charge of the courses of Mechanics of Machines and Mechanics of Drives for the First-Cycle (Bachelor) Degree in Food Industry Engineering and Chemical Engineering;
- 01.01.1999 to 31.10.2008: assistant instructor for the courses Mechanics of Machines, Mechanics of Drives and Mechanics of Robots for the First-Cycle (Bachelor) and Second-Cycle (Master) Degrees in Mechanical Engineering;

STUDENT SUPERVISION

- 2011 to date: Supervision of 12 PhD Theses: G. Abbasnejad (2014), A. Berti (2015), F. Meoni (2017), G. Mottola (2019), E. Idà (2021), A. Baldassarri (ongoing), S. Comari (ongoing), R. Di Leva (ongoing), L. Guagliumi (ongoing), V. Mattioni (ongoing) P. Ridolfi (ongoing), F. Zaccaria (ongoing); Co-supervision of 2 PhD Theses: V. Di Paola (University of Genoa - Ecole Centrale de Nantes, ongoing), G. Innero (Chinese University of Hong Kong, ongoing).
- 2007 to date: Supervision of 70 Bachelor Theses and 94 Master Theses.

INTERNATIONAL LECTURING

- 07.02.2020: Seminar “Persistent manifolds of SE(3)" at the University of Twente, Enschede, The Netherlands.
- 07.06.2019: Keynote lecture "Persistent manifolds of SE(3)" at the Conference on Geometry: Theory and Applications (CGTA 2019), University of Innsbruck, Austria.
- 07.02.2019: Seminar "Screw theory and its applications in robotics" at the Italian Institute of Technology, Genoa, Italy.
- 17.09.2018-21.09.2018: Lecturer of the 2nd Summer School on Parallel Kinematic Manipulators (PKM 2018), LIRMM (Université de Montpellier - CNRS), Montpellier, France.
- 02.12.2017-10.12.2017: Lecturer of the 8th Int. Summer School on Screw-Theory Based Methods in Robotics (Summer Screws 2017), Monash University, Melbourne, Australia.
- 09.07.2017: Keynote lecture "Screw theory and its applications in robotics" at the IFAC 2017 Workshop: "Rigidity theory for multi-agent systems meets parallel robots: towards the discovery of common models and methods", 20th World Congress of the International Federation of Automatic Control, Toulouse, France.
- 16.05.2016: Keynote lecture "Screw theory and its applications" at the ICRA 2016 Workshop: "Application of the theoretical background in Parallel Robotics to other research areas", 2016 IEEE Int. Conference on Robotics and Automation, Stockholm, Sweden.
- 12.07.2015-20.07.2015: Lecturer of the 6th Int. Summer School on Screw-Theory Based Methods in Robotics (Summer Screws 2015), Beihang University, Beijing, China.
- 03.09.2014-11.09.2014: Lecturer of the 5th Int. Summer School on Screw-Theory Based Methods in Robotics (Summer Screws 2014), University of Bologna, Bologna, Italy.
- 14.06.2012: Lecturer of the 2011 National Course on Industrial Automation and Robotics (organized by the Italian Association of Robotics and Automation), University of Bologna, Italy.

ACADEMIC SERVICE

INTERNATIONAL FELLOWSHIPS

- 22.06.2013-15.07.2013: visiting researcher at the Hong Kong University of Science & Technology (Hong Kong, China); inviting professor: Prof. Zexiang Li.
- 02.04.2013-03.05.2013: visiting researcher at the École Centrale of Nantes (Nantes, France); inviting researchers: Dr. Philippe Wenger and Dr. Stéphane Caro.
- 27.04.2009-28.08.2009: visiting researcher at INRIA – French National Institute for Research in Computer Science and Control (Sophia Antipolis, France); inviting researcher: Dr. Jean-Pierre Merlet.
- 22.01.2008-10.06.2008: visiting researcher at the Department of Mechanical Engineering of the Guanajuato University (Salamanca, Mexico); inviting professor: Prof. José María Rico Martínez.
- 20.03.2007-28.08.2007: visiting researcher at the Laval University Robotics Laboratory (Quebec City, Canada); inviting professor: Prof. Clément Gosselin.
- 01.01.1998-30.06.1998: visiting researcher at the Center for Intelligent Machines and Robotics of the University of Florida (Gainesville, USA); inviting professor: Prof. Joseph Duffy.

AWARDS

- 2021 CABLECON Best Research Paper Award: awarded to the paper "A New Performance Index for Underactuated Cable-Driven Parallel Robots”, by E. Idà and M. Carricato, presented at the 5th International Conference on Cable-Driven Parallel Robots (CABLECON 2021).
- 2020 I-RIM Best Paper Award Finalist: the paper "Cable-Driven Parallel Robots, Theoretical Challenges and Industrial Applications”, by E. Idà and M. Carricato, was selected as a finalist for the best paper award in the category “Mechanical design of robotic systems” at the 2nd Italian Conference of Robotics and Intelligent Machines (I-RIM 3D 2020).
- 2020 ROMANSY Best Research Paper Award Finalist: the paper "An Analytical Formulation for the Geometrico-static Problem of Continuum Planar Parallel Robots”, by F. Zaccaria, S. Briot, M. T. Chikhaoui, E. Idà and M. Carricato, was selected as a finalist for the best research paper award at the 23rd CISM IFToMM Symposium on Robot Design, Dynamics and Control 2020 (ROMANSY 2020).
- 2020 IFIT Gold Best Student Paper Award: awarded to the paper "Position Analysis of a Class of n-RRR Planar Parallel Robots", by T. Marchi, G. Mottola, J. M. Porta Pleite, F.

Thomas and M. Carricato, presented at the 3rd Int. Conference of IFToMM Italy (IFIT 2020).

- 2019 IEEE-CYBER Best Student Paper Award: awarded to the paper "Effect of Actuation Errors on a Purely-Translational Spatial Cable-Driven Parallel Robot", by G. Mottola, C. Gosselin, and M. Carricato, presented at the 9th IEEE Int. Conference on CYBER Technology in Automation, Control, and Intelligent Systems (IEEE-CYBER 2019).
- 2018 JMD "Reviewer with Distinction" Award: awarded by the ASME Journal of Mechanical Design to reviewers who made a meritorious contribution to the journal in terms of the number, quality, and turnaround time of reviews.
- 2018 MEDER Bronze Best Research Paper Award: awarded to the paper "Unified Pose Parametrization for 1T2R Parallel Manipulators", by Y. Wu and M. Carricato, presented at the 4th IFToMM Symposium on Mechanism Design for Robotics (MEDER 2018).
- Elevation to the grade of IEEE Senior Member since July 2018.
- 2012 TRO "Reviewer with distinction" Award: recognition awarded by the IEEE Transactions on Robotics to reviewers who provided outstanding and timely reviews.
- 2011 AIMETA Junior Prize: awarded by the Italian Association of Theoretical and Applied Mechanics for outstanding research results, as a young scientist, in the field of Mechanics of Machines.
- 2011 IEEE I-RAS Young Author Best Paper Award: awarded by the Italian Chapter of IEEE Robotics & Automation Society to the paper "A New Assessment of Singularities of Parallel Kinematic Chains", by M. Conconi and M. Carricato, published on *IEEE Transactions on Robotics*, 25(4), 2009.
- 2007 IFToMM Young Delegate Grant: awarded by the International Federation for the Promotion of Mechanism and Machine Science (IFToMM) to support the participation at the IFToMM World Congress, 17-21 June 2007, Besançon, France.
- 2002-2003 Masi-Carducci Prize: biennal scholarship awarded by the Dept. of Mechanical, Nuclear, Aviation and Metallurgical Engineering of the University of Bologna to distinguished young researchers in the field of Mechanics of Machines.
- 1992 Soroptimist National Award: awarded by Soroptmist International of Italy for being among the best 118 Italian high-school graduates.

JOURNAL AND CONFERENCE SERVICE

- 05.04.2012 to date: Associate Editor of the Journal *Mechanism and Machine Theory*.
- 01.01.2021 to date: Editorial Board of the *Chinese Journal of Mechanical Engineering (CJME)*.
- 27.09.2021-01.10.2021: Associate Editor of the 2021 IEEE/RSJ Int. Conference on Intelligent Robots and Systems (IROS 2021), Prague, Czech Republic.
- 07.07.2021-09.07.2021: Scientific Committee of the 5th Int. Conference on Cable-Driven Parallel Robots (CableCon 2021), virtual conference.
- 30.05.2021: Co-organizer of the IEEE ICRA 2021 Workshop "Parallel robots or not parallel robots? New frontiers of parallel robotics", Xi'an, China.
- 10.12.2020: Co-organizer of the Workshop "Human-robot collaboration: from industrial to service applications" within the 2nd Italian Conference on Robotics and Intelligent Machines (I-RIM 2020), virtual workshop.
- 06.12.2020-10.12.2020: Scientific Committee of the 17th Int. Symposium on Advances in Robot Kinematics (ARK 2020), conference limited to proceedings, due to the covid-19 emergency.
- 25.10.2020-29.10.2020: Associate Editor of the 2020 IEEE/RSJ Int. Conference on Intelligent Robots and Systems (IROS 2020), virtual conference.
- 30.06.2019-04.07.2019: Scientific Committee of the 4th Int. Conference on Cable-Driven Parallel Robots (CableCon 2019), Kraków, Poland.
- 03.11.2019-08.11.2019: Associate Editor of the 2019 IEEE/RSJ Int. Conference on Intelligent Robots and Systems (IROS 2019), Macau, China.
- 01.07.2018-05.07.2018: Co-organizer of the 16th Int. Symposium on Advances in Robot Kinematics (ARK 2018), Bologna, Italy.
- 22.05.2017-24.05.2017: Scientific Committee of the 7th IFToMM Int. Workshop on Computational Kinematics (CK 2017), Poitiers, France.
- 04.09.2017-07.09.2017: Scientific Committee of the 23rd Congress of the Italian Association of Theoretical and Applied Mechanics (AIMETA 2017), Salerno, Italy.
- 16.05.2016-21.05.2016: Associate Editor of the 2016 IEEE Int. Conference on Robotics and

Automation (ICRA 2016), Stockholm, Sweden.

- 28.09.2015-02.10.2015: Associate Editor of the 2015 IEEE/RSJ Int. Conference on Intelligent Robots and Systems (IROS 2015), Hamburg, Germany.
- 26.05.2015-30.05.2015: Associate Editor of the 2015 IEEE Int. Conference on Robotics and Automation (ICRA 2015), Seattle, WA, USA.
- 14.09.2014-18.09.2014: Associate Editor of the 2014 IEEE/RSJ Int. Conference on Intelligent Robots and Systems (IROS 2014), Chicago, IL, USA.
- 03.09.2014-11.09.2014: Chair and Organizer of the 5th Int. Summer School on Screw-Theory Based Methods in Robotics (Summer Screws 2014), Bologna, Italy.
- 19.03.2014: Co-chair of the European Workshop on Applications of Parallel and Cable-driven Robots, Lyon, France.
- 02.07.2012-04.07.2012: Co-Chair of the Robotics track at the ASME 11th Biennial Conference on Engineering Systems Design and Analysis (ESDA2012).
- Peer-reviewer for: Advanced Robotics; Advances in Mechanical Engineering; ASME J. of Mechanical Design; ASME J. of Mechanism and Robotics; IEEE Access; IEEE Robotics and Automation Letters; IEEE Transactions on Robotics; IEEE/ASME Transactions on Mechatronics; Int. J. of Robotics and Automation; J. of Robotic Systems; J. of Zhejiang University - Science A; Mathematical Physics, Analysis and Geometry; Meccanica; Mechanism and Machine Theory; Mechatronics; Robotica; Robotics and Autonomous Systems; Robotics and Computer Integrated Manufacturing; The Int. J. of Robotics Research.

INTERNATIONAL ACADEMIC COMMITTEES AND SERVICE

- 07.2019 to date: Deputy Chair of the Technical Committee for Computational Kinematics of the Int. Federation for the Promotion of Mechanism and Machine Science (IFToMM);
- 10.2017 to date: Member of the Technical Committee for Robotics and Mechatronics of the Int. Federation for the Promotion of Mechanism and Machine Science (IFToMM);
- 11.2013 to date: Member of the Technical Committee for Computational Kinematics of the Int. Federation for the Promotion of Mechanism and Machine Science (IFToMM);
- 06.2012 to date: Member of the American Society of Mechanical Engineers (ASME);
- 03.2010 to date: Member of the Institute of Electrical and Electronics Engineers (IEEE) and the IEEE Robotics and Automation Society (RAS); IEEE Senior Member since 07.2018.
- 03.1999 to date: Member of the Italian Association of Registered Engineers.
- 09.2018: Evaluator of research proposal for The Hong Kong Polytechnic University, China
- 08.2018: Evaluator of promotion application for Victoria University of Wellington, New Zealand;
- 05.2017: Evaluator for the Austrian Science Fund (FWF);
- 07.2014: Evaluator for the Spanish National Agency for Evaluation and Foresight (ANEP);
- 06.2015: Award Committee of the AIMETA (Italian Association of Theoretical and Applied Mechanics) Junior Prize 2015;
- 25.08.2020: Jury for Doctoral Thesis Evaluation at the Universidade Federal de Santa Catarina (Florianópolis, Brasil);
- 07.02.2020: Jury for Doctoral Thesis Evaluation at the University of Twente (Enschede, The Netherlands);
- 17.12.2019: Jury for Doctoral Thesis Evaluation at the École Centrale of Nantes (Nantes, France);
- 10.08.2017: Jury for Doctoral Thesis Evaluation at Laval University (Quebec City, Canada);
- 19.09.2016: Jury for Doctoral Thesis Evaluation at the École Centrale of Nantes (Nantes, France);
- 13.05.2015: Jury for Doctoral Thesis Evaluation at INRIA (Sophia Antipolis, France);
- 08.12.2011: Jury for Doctoral Thesis Evaluation at the École Centrale of Nantes (Nantes, France);
- 28.09.2010: Jury for Doctoral Thesis Evaluation at INRIA (Sophia Antipolis, France);
- 25.02.2009: Jury for Doctoral Thesis Evaluation at Laval University (Quebec City, Canada).

NATIONAL INSTITUTIONAL SERVICE

- 09.07.2021 to date: Member of the national committee for the assignment of the National Scientific Qualification (ASN) for the roles of Associate and Full Professor, in the field of Mechanics of Machines;

- 05.12.2018 to date: Junta of the Interdepartmental Center for Industrial Research on Advanced Applications in Mechanical Engineering and Materials Technology, University of Bologna;
- 23.02.2018 to date: Coordinator of the Ph.D. Degree in Mechanics and Advanced Engineering Sciences, University of Bologna;
- 19.07.2017-23.02.2018: Deputy Coordinator of the Ph.D. Degree in Mechanics and Advanced Engineering Sciences, University of Bologna;
- 28.06.2007 to date: Professor Board of the Ph.D. Degree in Mechanics and Advanced Engineering Sciences, University of Bologna;
- 16.06.2004-24.02.2010: Professor Board of the Ph.D. Degree in Mechanics of Machines, University of Bologna;
- 03.05.2015-15.05.2018: Delegate for International Relations of the Department of Industrial Engineering, University of Bologna.
- 24.11.2010-15.10.2012: Committee for Faculty-Staff Recruiting of the Faculty of Engineering, University of Bologna;
- 06.07.2005-20.07.2012: Junta of the Department of Mechanical, Nuclear, Aviation and Metallurgical Engineering, University of Bologna;
- 05.05.2017: Jury for Doctoral Thesis evaluation at the University of Bologna.
- 14.04.2015: Jury for Doctoral Thesis evaluation at the University of Genoa.
- 22.04.2015: Jury for Doctoral Thesis evaluation at the University of Bologna.
- 15.04.2014: Jury for Doctoral Thesis evaluation at the University of Bologna.
- 24.06, 06.07 and 15.07.2021: Committee for appointment of a Full Professor in Mechanics of Machines at the University of Padua, Italy.
- 18.02 and 10.03.2021: Committee for appointment of a fixed-term research fellow (RTD-B) in Mechanics of Machines at the University of Brescia, Italy.
- 02.11 and 18.11.2020: Committee for appointment of an Associate Professor in Mechanics of Machines at the University of Padua, Italy
- 31.07 and 27.08.2020: Committee for appointment of a fixed-term junior research fellow (RTD-A) in Mechanics of Machines at the University of Modena and Reggio Emilia, Italy.
- 18.04.2019: Committee for evaluation of a fixed-term junior research fellow (RTD-A) in Mechanics of Machines at the Scuola Superiore Sant'Anna, Italy.
- 21-22.10.2008: Committee for appointment of an Assistant Professor in Mechanics of Machines at the University of Ancona, Italy.

RESEARCH

COORDINATION OF RESEARCH & TEAMS

- 2020 to date: Founder and Head of the IRMA L@B - Industrial Robotics, Mechatronics & Automation Lab @ Bologna, within the Dept. of Industrial Engineering of the University of Bologna (https://irmalab.org/).
- 2014 to 2019: Coordinator of a research unit within the Group of Robotics, Automation and Articular Biomechanics (GRAB), within the Dept. of Industrial Engineering of the University of Bologna (http://grab.diem.unibo.it/).

COORDINATION OF RESEARCH & INDUSTRIAL PROJECTS

- 2021 to date: Cable-driven parallel robot for automated lifting of moving loads in marine applications, in collaboration with CALZONI, Project coordinator; Grant: €60.000.
- 2021 to date: Electro-mechanical actuation systems for marine applications, in collaboration with CALZONI, Project coordinator; Grant: €38.000.
- 2021 to date: Unconventional collaborative robotics (Ucobotics), University of Bologna Call for Spin-off Projects 2020, Project Coordinator; Grant: €12.000.
- 2020 to date: Collaborative robotics for advanced, interconnected and flexible manufacturing systems (FlexCoBot), BI-REX Competence Center Project, Project Coordinator; Grant: €120.000.
- 2020 to date: Robotic devices for vision-assisted pick&place operations for high-performance automatic-machinery feeding, in collaboration with MARCHESINI, Project Coordinator; Grant: €150.000.
- 2019 to date: Collaboration between operators and safe mobile robotic manipulators for the

factory of the future (COORSA), POR-FESR 2014-2020 Project, Coordination of a team within the local unit; Managed grant: €23.787.

- 2017 to date: Design and simulation of powertrains of traditional and hybrid electric vehicles, in collaboration with LAMBORGHINI, Project Coordinator; Grant: €150.000.
- 2016 to date: Robotized production cells, in collaboration with IMA, Project Coordinator; Grant: €425.000.
- 2019-2020: Robotic solutions for 3D printing, in collaboration with MARK ONE, Project Coordinator; Grant: €33.000.
- 2019: Analysis, design and validation of compact gearboxes with low transmission ratios and limited backlash, in collaboration with SAMP INGRANAGGI, Project Coordinator; Grant: €40.000.
- 2018-2020: Optimization of mechanisms for automatic machinery, in collaboration with CEVOLANI, Project Coordinator; Grant: €71.000.
- 2018: Formation in the field of Mechanics of Machines, in collaboration with G.D, Project Coordinator; Grant: €7.500.
- 2018: Serial and closed-chain gripping and manipulation systems, in collaboration with IMA, “High skills for research and technology transfer” Emilia-Romagna Regional Project; Grant: €31.000.
- 2017: Formation in the field of Mechanics of Machines, in collaboration with GIMA, Project Coordinator; Grant: €8.000.
- 2017: MIUR FFABR Grant (Finanziamento delle attività base di ricerca); Grant: €3.000.
- 2017: Design of innovative mechanisms for automatic machinery for sterile environments, in collaboration with ECOR RESEARCH, Project Coordinator; Grant: €10.000.
- 2017: Cable-driven parallel devices for 3D laser scan systems, in collaboration with GREEN LINE, Project Coordinator; Grant: €33.000.
- 2017: Design and simulation of hydraulic actuation systems, in collaboration with NEXT HYDRAULICS, Project Coordinator; Grant: €35.000.
- 2016-2108: Integrated solutions for next-generation automatic machines (SINERGIE), POR-FESR 2014-2020 Project, Coordination of a team within the local unit; Grant: €89.000.
- 2015-2018: Electro-mechanical actuation systems for marine applications, in collaboration with CALZONI, Project coordinator; Grant: €85.000.
- 2014-2017: Intelligent cable-driven robots (ICABOT): an adaptive approach to robot design and control; PRIN2012 Grant No. 20124SMZ88, Local Coordinator; Grant: €73.000.
- 2014: Optimization of mechanisms for automatic machinery, Project Coordinator, in collaboration with CEVOLANI; Grant: €32.500
- 2013-2016: Energy efficiency and mechanism optimization in servo-actuated automatic machinery, in collaboration with GIMA TT, Project Coordinator; Grant: €90.000.
- 2013-2015: Robotic solutions for flexible and modular automatic machinery, in collaboration with GIMA, Project Coordinator; Grant: €133.000.
- 2015: Electromechanical actuation systems for domestic appliances, Project Coordinator, in collaboration with NUOVA STAR; Grant: €42.000.
- 2014: Strain analysis of automatic-machine components, in collaboration with G.D, Project Coordinator; Grant: €3.100.
- 2013-2014: Formation in the field of Mechanics of Machines, in collaboration with TETRA PAK, Project Coordinator; Grant: €60.000.
- 2013: Analytical models of hydraulic couplings for motorbike applications, in collaboration with PIAGGIO, Project Coordinator; Grant: €6.500.
- 2012-2014: Competitiveness in plastic deformation, INDUSTRY 2015 Project (New Technologies for Made-in-Italy Goods): national coordinator of the research line "New machine architectures" and local coordinator of the Demonstrator "Energy-efficient servo-assisted sheet-metal forming press" (scientific coordination of research activity was in this case disjoint from budget responsibility).

INTERNATIONAL JOURNAL PAPERS

[1] Idà, E., Briot, S., and Carricato, M. 2022. Identification of the inertial parameters of underactuated cable-driven parallel robots. *Mechanism and Machine Theory*, 167, paper no. 104504, pp. 1-14.

[2] Zaccaria, F., Baldassarri, A., Palli, G., and Carricato, M. 2021. A mobile robotized system

for depalletizing applications: design and experimentation. *IEEE Access*, 9, pp. 96682-96691, 2021.

[3] Aleotti, J., Baldassarri, A., Bonfè, M., Carricato, M., Chiaravalli, D., Di Leva, R., Fantuzzi, C., Farsoni, S., Innero, G., Lodi Rizzini, D., Melchiorri, C., Monica, R., Palli, G., Rizzi, J., Sabattini, L., Sampietro, G., Zaccaria, F. 2021. Toward future automatic warehouses: an autonomous depalletizing system based on mobile manipulation and 3D perception. *Applied Sciences*, 11(13), Paper No. 5959, pp. 1-19.

[4] Idà, E., Briot, S., and Carricato, M. 2021. Natural oscillations of underactuated cable-driven parallel robots. *IEEE Access*, 9, pp. 71660-71672.

[5] Marchi, T., Mottola, G., Porta, J. M., Thomas, F., and Carricato, M. 2021. Position and singularity analysis of a class of planar parallel manipulators with a reconfigurable end-effector. *Machines*, 9(1), Paper No. 7, pp. 1-19.

[6] Lin, D., Mottola, G., Carricato, M., and Jiang, X. 2020. Modeling and control of a cable-suspended sling-like parallel robot for throwing operations. *Applied Sciences*, 10(24), Paper No. 9067, pp. 1-17.

[7] Idà, E., Marian, D., and Carricato, M. 2020. A deployable cable-driven parallel robot with large rotational capabilities for laser-scanning applications. *IEEE Robotics and Automation Letters*, 5(3), pp. 4140-4147.

[8] Wu, Y., and Carricato, M. 2020. Persistent manifolds of the special Euclidean group SE(3): A review. *Computer Aided Geometric Design*, 79, Paper No. 101872, pp. 1-24.

[9] Zavatta, M., Chianura, M., Pott, A., Carricato, M. 2020. A vision-based referencing procedure for cable-driven parallel manipulators, *ASME Journal of Mechanisms and Robotics*, 12(4), Paper No. 044502, pp. 1-7.

[10] Idà, E., Bruckmann, T., and Carricato, M. 2019. Rest-to-rest trajectory planning for underactuated cable-driven parallel robots. *IEEE Transactions on Robotics*, 35(6), pp. 1338 - 1351.

[11] Wu, Y., and Carricato, M. 2019. Workspace optimization of a class of zero-torsion parallel wrists. *Robotica*, 37(7), pp. 1174-1189.

[12] Mottola, G., Gosselin, C., and Carricato, M. 2019. Dynamically feasible motions of a class of purely-translational cable-suspended parallel robots. *Mechanism and Machine Theory*, 132, pp. 193-206.

[13] Meoni, F., and Carricato, M. 2018. Optimal selection of the motor-reducer unit in servo-controlled machinery: a continuous approach. *Mechatronics*, 56, pp. 132-145.

[14] Wu, Y., and Carricato, M. 2018. Line-symmetric motion generators. *Mechanism and Machine Theory*, 127, pp. 112-125.

[15] Wu, Y., and Carricato, M. 2018. Symmetric subspace motion generators. *IEEE Transactions on Robotics*, 34(3), pp. 716-735.

[16] Mottola, G., Gosselin, C., and Carricato, M. 2018. Dynamically feasible periodic trajectories for generic spatial three-degree-of-freedom cable-suspended parallel robots. *ASME Journal of Mechanisms and Robotics*, 10(3), Paper No. 031004, pp. 1-10.

[17] Wu, Y., and Carricato, M. 2017. Synthesis and singularity analysis of N-UU parallel wrists: A symmetric space approach. *ASME Journal of Mechanisms and Robotics*, 9(5), Paper No. 051013, pp. 1-11.

[18] Wu, Y., and Carricato, M. 2017. Identification and geometric characterization of Lie triple screw systems and their exponential images. *Mechanism and Machine Theory*, 107, pp. 305-323.

[19] Selig, J. M., and Carricato, M. 2017. Persistent rigid-body motions and Study's "Ribaucour" problem. *Journal of Geometry*, 108(1), pp. 149-169.

[20] Löwe, H., Wu, Y., and Carricato, M. 2016. Symmetric subspaces of SE(3). *Advances in Geometry*, 16 (3), pp. 381-388.

[21] Meoni, F., and Carricato, M. 2016. Design of non-overconstrained energy-efficient multi-axis servo presses for deep-drawing applications. *ASME Journal of Mechanical Design*, 138(6), Paper No. 065001, pp. 1-9.

[22] Wu, Y., Löwe, H., Carricato, M. and Li, Z. 2016. Inversion symmetry of the Euclidean group: theory and application in robot kinematics. *IEEE Transactions on Robotics*, 32(2), pp. 312-326.

[23] Berti, A., Merlet, J.-P., and Carricato, M. 2016. Solving the direct geometrico-static problem of underconstrained cable-driven parallel robots by interval analysis. *Int. Journal of Robotics Research*, 35(6): 723-739.

[24] Abbasnejad, G., and Carricato, M. 2015. Direct geometrico-static problem of

underconstrained cable-driven parallel robots with *n* cables. *IEEE Transactions on Robotics*, 31(2), pp. 468-478.

[25] Martini, A., Troncossi, M., Carricato, M., and Rivola, A. 2015. Static balancing of a parallel kinematics machine with *Linear-Delta* architecture: theory, design and numerical investigation. *Mechanism and Machine Theory*, 90, pp. 128-141.

[26] Martini, A., Troncossi, M., Carricato, M., and Rivola, A. 2014. Elastodynamic behavior of balanced closed-loop mechanisms: numerical analysis of a four-bar linkage. *Meccanica*, 49(3), pp. 601-614.

[27] Carricato, M., and Zlatanov, D. 2014. Persistent Screw Systems. *Mechanism and Machine Theory*, 73, pp. 296-313.

[28] Carricato, M. 2013. Direct Geometrico-Static Problem of Underconstrained Cable-Driven Parallel Robots with Three Cables. *ASME Journal of Mechanisms and Robotics*, 5(3), Paper No. 031008, pp. 1-10.

[29] Carricato, M. 2013. Inverse Geometrico-Static Problem of Underconstrained Cable-Driven Parallel Robots with Three Cables. *ASME Journal of Mechanisms and Robotics*, 5(3), Paper No. 031002, pp. 1-11.

[30] Carricato, M., and Merlet, J.-P. 2013. Stability Analysis of Underconstrained Cable-Driven Parallel Robots. *IEEE Transactions on Robotics*, 29(1), pp. 288-296.

[31] Abbasnejad, G., and Carricato, M. 2012. Real Solutions of the Direct Geometrico-Static Problem of Under-Constrained Cable-Driven Parallel Robots with 3 Cables: a Numerical Investigation. *Meccanica*, 47(7), pp. 1761-1773.

[32] Carricato, M. 2009. Decoupled and Homokinetic Transmission of Rotational Motion via Constant-Velocity Joints in Closed-Chain Orientational Manipulators. *ASME Journal of Mechanisms and Robotics*, 1(4), Paper No. 041008, pp. 1-14.

[33] Conconi, M., and Carricato, M. 2009. A New Assessment of Singularities of Parallel Kinematic Chains. *IEEE Transactions on Robotics*, 25(4), pp. 757-770.

[34] Carricato, M., and Gosselin, C. 2009. A Statically Balanced Gough/Stewart-type Platform: Conception, Design and Simulation. *ASME Journal of Mechanisms and Robotics*, 1(3), Paper No. 031005, pp. 1-16.

[35] Carricato, M., and Gosselin, C. 2009. On the Modeling of Leg Constraints in the Dynamic Analysis of Gough/Stewart-Type Platforms. *ASME Journal of Computational and Nonlinear Dynamics*, 4(1), Paper No. 011008, pp. 1-8.

[36] Carricato, M. 2005. Fully Isotropic Four-Degrees-of-Freedom Parallel Mechanisms for Schoenflies Motion. *Int. Journal of Robotics Research*, 24(5), pp. 397-414.

[37] Carricato, M., and Parenti-Castelli, V. 2004. A Novel Fully Decoupled Two-Degrees-of-Freedom Parallel Wrist. *Int. Journal of Robotics Research*, 23(6), pp. 661-667.

[38] Carricato, M., and Parenti-Castelli, V. 2003. Kinematics of a Family of Translational Parallel Mechanisms with Three 4-DOF Legs and Rotary Actuators. *Journal of Robotic Systems*, 20(7), pp. 373-389.

[39] Carricato, M., and Parenti-Castelli, V. 2003. Position Analysis of a New Family of 3-DOF Translational Parallel Manipulators. *ASME Journal of Mechanical Design*, 125(2), pp. 316-322.

[40] Carricato, M., and Parenti-Castelli, V. 2003. A Family of 3-DOF Translational Parallel Manipulators. *ASME Journal of Mechanical Design*, 125(2), pp. 302-307.

[41] Carricato, M., and Parenti-Castelli, V. 2002. Singularity-Free Fully-Isotropic Translational Parallel Mechanisms. *Int. Journal of Robotics Research*, 21(2), pp. 161-174.

[42] Carricato, M., Duffy, J., and Parenti-Castelli, V. 2002. Catastrophe Analysis of a Planar System with Flexural Pivots. *Mechanism and Machine Theory*, 37(7), pp. 693-716.

[43] Carricato, M., Parenti-Castelli, V., and Duffy, J. 2001. Inverse Static Analysis of a Planar System with Flexural Pivots. *ASME Journal of Mechanical Design*, 123(1), pp. 43-50.

SHORT COMMUNICATIONS

[1] Kong, X., Gosselin, C., and Carricato, M. 2011. Comments on “Design and analysis of a totally decoupled 3-DOF spherical parallel manipulator” by D. Zhang and F. Zhang (Robotica, Available on CJO 19 Nov, 2010, doi:10.1017/S0263574710000652). *Robotica*, 29(7), pp. 1101-1103.

PATENTS

[1] Carricato, M., Mattioni, V., Vincenzi, S., and Tizi, G. Dispositivo robotico ad architettura parallela (Robotic arrangement with parallel architecture). Domanda di brevetto italiano numero: 102020000000478, data di presentazione: 13/01/2020. WIPO application number: PCT/IB2021/050185, date of receipt: 12/01/2021.

[2] Carricato, M., and Conconi, M. 2010. Closed-chain rotational mechanism having decoupled and homokinetic actuation. International (WIPO) Patent No. WO2010/134119 (A1), US Patent No. US2012/0137816 (A1), Italian Patent No. 0001394602.

[3] Carricato, M., and Parenti-Castelli, V. 2005. Meccanismo parallelo a tre gradi di libertà con piattaforma traslante (3-DOF parallel mechanism with translating platform). Italian Patent No. 0001326349.

INTERNATIONAL CONFERENCE PAPERS AND BOOK CHAPTERS

[1] Idá, E., and Carricato, M. 2021. A new performance index for underactuated cable-driven parallel robots. In: Cable-Driven Parallel Robots – Proc. of the 5th Int. Conference on Cable-Driven Parallel Robots, eds. M. Goutteferde, T. Bruckmann and A. Pott, Springer, pp. 24-36.

[2] Mattioni, V., Idá, E., and Carricato, M. 2021. Force-distribution sensitivity to cable-tension errors: a preliminary investigation. In: Cable-Driven Parallel Robots – Proc. of the 5th Int. Conference on Cable-Driven Parallel Robots, eds. M. Goutteferde, T. Bruckmann and A. Pott, Springer, pp. 129-141.

[3] Lin, D., Mottola, G., Carricato, M., Jiang, X. and Li, Q. 2020. Dynamically-feasible trajectories for a cable-suspended robot performing throwing operations. In: *ROMANSY 23 – Robot Design, Dynamics and Control, Proc. of the 23rd CISM IFToMM Symposium*. eds. G. Venture, J. Solis, Y. Takeda and A. Konno, Springer, pp. 547-555.

[4] Zaccaria, F., Briot, S., Chikhaoui, M. T., Idà, E. and Carricato, M. 2020. An analytical formulation for the geometrico-static problem of continuum planar parallel robots. In: *ROMANSY 23 – Robot Design, Dynamics and Control, Proc. of the 23rd CISM IFToMM Symposium*. eds. G. Venture, J. Solis, Y. Takeda and A. Konno, Springer, pp. 512-520.

[5] Marchi, T., Mottola, G., Porta, J. M., Thomas, F., and Carricato, M. 2020. Position analysis of a class of *n*-RRR planar parallel robots. In: *Advances in Italian Mechanism Science – Proc. of the 3rd Int. Conference of IFToMM Italy*, eds. V. Niola and A. Gasparetto, Springer, pp. 353-361.

[6] Idá, E., and Carricato, M. 2020. Cable-Driven Parallel Robots, theoretical challenges and industrial applications. *2020 I-RIM Conference*, Rome, Italy (virtual event), pp.1-2.

[7] Baldassarri, A., Innero, G., Di Leva, R., Palli, G. and Carricato, M. 2020. Development of a mobile robotized system for palletizing applications. *25th IEEE Int. Conference on Emerging Technologies and Factory Automation (ETFA 2020)*, Vienna, Austria, pp. 395-401.

[8] Olivieri, S., Marini, F., Idà, E. and Carricato, M. 2020. Towards multidisciplinary engineering curriculum design: a pilot study to teach control education in mechanical engineering with Matlab/Simulink and Arduino. *Proc. of the 48th SEFI Annual Conference on Engaging Engineering Education (SEFI2020)*, Enschede, The Netherlands, pp. 1014-1021.

[9] Idà, E., Briot, S. and Carricato, M. 2020. Robust trajectory planning of under-actuated cable-driven parallel robot with 3 cables. *Advances in Robot Kinematics 2020*, eds. J. Lenarčič and B. Siciliano, Springer, pp. 65-72.

[10] Pedrosa, E., Lim, G. H., Amaral, F., Pereira, A., Cunha, B., Azevedo, J. L., Dias, P., Dias, R., Reis, L. P., Shafii, N., Tudico, A., Mazzotti, C., Carricato, M., Badini, S., Rea, D. and Lau, N. 2020. TIMAIRIS: Autonomous blank feeding for packaging machines. In: *Bringing Innovative Robotic Technologies from Research Labs to Industrial End-users*, eds. F. Caccavale, C. Ott, B. Winkler and Z. Taylor, Springer, pp. 153-186.

[11] Idá, E., Merlet, J.-P. and Carricato, M. 2019. Automatic self-calibration of suspended under-actuated cable-driven parallel robot using incremental measurements. In: *Cable-Driven Parallel Robots – Proc. of the 4th Int. Conference on Cable-Driven Parallel Robots*, eds. A. Pott and T. Bruckmann, Springer, pp. 333-344.

[12] Idá, E., and Carricato, M. 2019. Modelling, design and control of cable-driven parallel robots. *2019 I-RIM Conference*, Rome, Italy, pp.1-2.

[13] Mottola, G., Gosselin, C. and Carricato, M. 2019. Effect of actuation errors on a purely-translational spatial cable-driven parallel robot. *9th IEEE Int. Conference on CYBER Technology in Automation, Control and Intelligent Systems*, Suzhou, China, pp. 701-707.

[14] Wu, Y., Selig, J.M., and Carricato, M. 2019. Parallel robots with homokinetic joints: the zero-torsion case. In: *Advances in Mechanism and Machine Science – Proc. of the 15th IFToMM World Congress on Mechanism and Machine Science*, ed. T. Uhl, Springer, pp. 269-278.

[15] Wu, Y., and Carricato, M. 2018. Unified pose parametrization for 1T2R parallel

manipulators. In: *Mechanism Design for Robotics – Proc. of the 4th IFToMM Symposium on Mechanism Design for Robotics (MEDER 2018)*, eds. A. Gasparetto and M. Ceccarelli, Springer, Cham, pp. 57-68.

[16] De Jong, J. J., Wu, Y., Carricato, M., and Herder J. 2018. A pure-inertia method for dynamic balancing of symmetric planar mechanisms. *Advances in Robot Kinematics 2018*, eds. J. Lenarčič and V. Parenti-Castelli, Springer, Cham, pp. 277-284.

[17] Wu, Y., and Carricato, M. 2018. Line-symmetric motion generators. *Advances in Robot Kinematics 2018*, eds. J. Lenarčič and V. Parenti-Castelli, Springer, Cham, pp. 347-355.

[18] Tudico, A., Lau, N., Pedrosa, E., Amaral, F., Mazzotti, C., and Carricato, M. 2017. Improving and benchmarking motion planning for a mobile manipulator operating in unstructured environments. In: *Progress in Artificial Intelligence, 18th EPIA Conference on Artificial Intelligence (EPIA 2017)*, eds. E. Oliveira, J. Gama, Z. Vale and H. Lopes Cardoso, Springer, pp. 498-509.

[19] Idá, E., Berti, A., Bruckmann, T. and Carricato, M. 2017. Rest-to-Rest Trajectory Planning for Planar Underactuated Cable-Driven Parallel Robots. In: *Cable-Driven Parallel Robots – Proc. of the 3rd Int. Conference on Cable-Driven Parallel Robots*, eds. C. Gosselin, P. Cardou, A. Pott and T. Bruckmann, Springer, pp. 207-218.

[20] Mottola, G., Gosselin, C., and Carricato, M. 2017. Dynamically-Feasible Elliptical Trajectories for Fully Constrained 3-DOF Cable-Suspended Parallel Robots. In: *Cable-Driven Parallel Robots – Proc. of the 3rd Int. Conference on Cable-Driven Parallel Robots*, eds. C. Gosselin, P. Cardou, A. Pott and T. Bruckmann, Springer, pp. 219-230.

[21] Wu, Y., and Carricato, M. 2017. Optimal Design of N-UU Parallel Mechanisms. *Computational Kinematics – Proc. of the 7th Int. Workshop on Computational Kinematics (CK 2017)*, eds. S. Zeghloul, L. Romdhane and M. A. Laribi, Springer, Dordrecht, pp. 394-402.

[22] Selig, J.M., Wu, Y., and Carricato, M. 2017. Motion Interpolation in Lie Subgroups and Symmetric Subspaces. *Computational Kinematics – Proc. of the 7th Int. Workshop on Computational Kinematics (CK 2017)*, eds. S. Zeghloul, L. Romdhane and M. A. Laribi, Springer, Dordrecht, pp. 467-474.

[23] Wu, Y., Müller, A. and Carricato, M. 2016. The 2D Orientation Interpolation Problem: A Symmetric Space Approach. *Advances in Robot Kinematics 2016*, eds. J. Lenarčič and J.-P. Merlet, Springer, Cham, pp. 293-302.

[24] Berti, A., Gouttefarde, M. and Carricato, M. 2016. Dynamic recovery of cable-suspended parallel robots after a cable failure. *Advances in Robot Kinematics 2016*, eds. J. Lenarčič and J.-P. Merlet, Springer, Cham, pp. 331-339.

[25] Wu, Y., and Carricato, M. 2015. Identification and Geometric Characterization of Lie Triple Screw Systems. *14th World Congress in Mechanism and Machine Science,* Taipei, Taiwan, pp. 90-99.

[26] Wu, Y., and Carricato, M. 2015. Design of a Novel 3-DoF Serial-Parallel Robotic Wrist: a Symmetric Space Approach. In: *Robotics Research – Proc. of the 12th Int. Symposium on Robotics Research,* eds. A. Bicchi and W. Burgard, Vol. 1, Springer, Cham, pp. 389-404.

[27] Wu, Y., Löwe, H., and Carricato, M. 2015. Symmetric Subspaces of Euclidean Group: Characterization and Robotic Applications. *IMA Conference on Mathematics of Robotics*, Oxford, UK.

[28] Hamaza, S., Lambert, P. Carricato, M., and Herder, J. 2015. The QuadroG Robot, a Parallel Robot With a Configurable Platform for Haptic Applications. *2015 ASME Int. Design Engineering Technical Conferences*, Boston, MA, USA, Paper No. DETC2015-46841, pp. 1-11.

[29] Carricato, M., and Zlatanov, D. 2014. Characterization of the Subsystems in the General Three-System of Screws. In *Advances in Robot Kinematics*, eds. J. Lenarčič and O. Khatib, Springer, Dordrecht, pp. 253-261.

[30] Zlatanov, D., and Carricato, M. 2014. Characterization of the Subsystems in the Special Three-Systems of Screws. In *Advances on Theory and Practice of Robots and Manipulators – Proc. of ROMANSY 2014*, eds. M. Ceccarelli and V. A. Glazunov, Springer, Dordrecht, pp. 37-45.

[31] Berti, A., Merlet, J.-P. and Carricato, M. 2014. Workspace Analysis of Redundant Cable-Suspended Parallel Robots. In *Cable-Driven Parallel Robots – Proc. of the 2nd Int. Conference on Cable-Driven Parallel Robots*, eds. A. Pott and T. Bruckmann, Springer, Cham, pp. 41-53.

[32] Martini, A., Troncossi, M., Carricato, M., and Rivola, A. 2014. Static Balancing of a Parallel Kinematics Machine with Linear-Delta Architecture. *ASME 2014 12th Biennal Conference on Engineering Systems Design and Analysis*, Copenhagen, Denmark, Paper No. ESDA2014-20449.

[33] Martini, A., Troncossi, M., Carricato, M., and Rivola, A. 2014. Multibody model and simulation of a statically balanced Parallel Kinematics Machine. *3rd Joint International Conference on Multibody System Dynamics - 7th Asian Conference on Multibody Dynamics*, Busan, Korea.

[34] Meoni, F., Lutey, A., Fortunato, A. and Carricato, M. 2014. A multi-axis deep drawing servo press with non-overconstrained architecture. *ASME 2014 Manufacturing Science and Engineering Conference*, Detroit, USA, Vol. 2, Paper No. MSEC2014-3970.

[35] Fantetti, F., Zaniboni, C., and Carricato, M. 2014. Robotic solutions for flexible and modular automatic machines. *European Workshop on Applications of Parallel and Cable-driven Robots*, Lyon, France, pp. 1-2.

[36] Carricato, M., and Abbasnejad, G. 2013. Direct Geometrico-Static Analysis of Under-Constrained Cable-Driven Parallel Robots with 4 Cables. In *Cable-Driven Parallel Robots*, eds. T. Bruckmann and A. Pott, Springer-Verlag, Berlin Heidelberg, pp. 269-285.

[37] Berti, A., Merlet, J.-P. and Carricato, M. 2013. Solving the Direct Geometrico-Static Problem of 3-3 Cable-Driven Parallel Robots by Interval Analysis: Preliminary Results. In *Cable-Driven Parallel Robots*, eds. T. Bruckmann and A. Pott, Springer-Verlag, Berlin Heidelberg, pp. 251-268.

[38] Abbasnejad, G., and Carricato, M. 2013. Direct Geometrico-Static Problem of Underconstrained Cable-Driven Parallel Robots with Five Cables. *Computational Kinematics – Proc. of the 6th Int. Workshop on Computational Kinematics (CK 2013)*, eds. F. Thomas and A. Pérez Gracia, Springer, Dordrecht, pp. 59-66.

[39] Carricato, M. 2013. Four-Dimensional Persistent Screw Systems of the General Type. *Computational Kinematics – Proc. of the 6th Int. Workshop on Computational Kinematics (CK 2013)*, eds. F. Thomas and A. Pérez Gracia, Springer, Dordrecht, pp. 299-306.

[40] Troncossi, M., Mozaffari Foumashi, M., Carricato, M., and Parenti-Castelli V. 2012. Feasibility Study of a Hand Exoskeleton for Rehabilitation of Post-Stroke Patients. *ASME 2012 11th Biennal Conference on Engineering Systems Design and Analysis*, Nantes, France, Paper No. ESDA2012-82128.

[41] Carricato, M., Abbasnejad, G., and Walter, D. 2012. Inverse Geometrico-Static Analysis of Under-Constrained Cable-Driven Parallel Robots with Four Cables. In *Latest Advances in Robot Kinematics*, eds. J. Lenarčič and M. Husty, Springer, Dordrecht, pp. 365-372.

[42] Carricato, M. 2012. Persistent Screw Systems of Dimension Four. In *Latest Advances in Robot Kinematics*, eds. J. Lenarčič and M. Husty, Springer, Dordrecht, pp. 147-156.

[43] Carricato, M., and Rico Martínez, J.M. 2011. Persistent Screw Systems of Dimension Three. *13th World Congress in Mechanism and Machine Science*, Guanajuato, Mèxico.

[44] Carricato, M., and Merlet, J.-P. 2011. Inverse Geometrico-Static Problem of Under-Constrained Cable-Driven Parallel Robots with Three Cables. *13th World Congress in Mechanism and Machine Science*, Guanajuato, Mèxico, Paper No. A7_283.

[45] Carricato, M., and Merlet, J.-P. 2011. Direct Geometrico-Static Problem of Under-Constrained Cable-Driven Parallel Robots with Three Cables. *2011 IEEE Int. Conference on Robotics and Automation*, Shanghai, China, pp. 3011-3017.

[46] Carricato, M., and Merlet, J.-P. 2010. Geometrico-Static Analysis of Under-Constrained Cable-Driven Parallel Robots. In *Advances in Robot Kinematics: Motion in Man and Machine*, eds. J. Lenarčič and M.M. Stanišić, Springer, Dordrecht, pp. 309-319.

[47] Carricato, M., and Rico Martínez, J.M. 2010. Persistent Screw Systems. In *Advances in Robot Kinematics: Motion in Man and Machine*, eds. J. Lenarčič and M.M. Stanišić, Springer, Dordrecht, pp. 185-194.

[48] Martini A., Troncossi M., Carricato M., and Rivola A. 2009. Modal and Kineto-Elastodynamic Analyses of Balanced Four-Bar Linkages. *Multibody Dynamics 2009, ECCOMAS Thematic Conference*, Warsaw, Poland, pp. 1-20.

[49] Conconi, M., and Carricato, M. 2008. A New Assessment of Singularities of Parallel Kinematic Chains. In *Advances in Robot Kinematics: Analysis and Design*, eds. J. Lenarčič and P. Wenger, Springer, Dordrecht, pp. 3-12.

[50] Carricato, M., and Gosselin, C. 2008. A Statically Balanced Gough/Stewart-Type Platform.

2008 ASME Int. Design Engineering Technical Conferences, New York, NY, USA, Paper No. DETC2008-50000, pp. 933-943.

[51] Carricato, M. 2007. Homokinetic transmission of rotational motion via constant-velocity joints in closed-chain wrists. *12th World Congress in Mechanism and Machine Science*, Besançon, France, pp. 284-290.

[52] Carricato, M., and Parenti-Castelli, V. 2004. On the Topological and Geometrical Synthesis and Classification of Translational Parallel Mechanisms. *11th World Congress in Mechanism and Machine Science*, Tianjin, China, pp. 1624-1628.

[53] Carricato, M., and Parenti-Castelli, V. 2002. Comparative Position, Workspace and Singularity Analyses of Two Isotropic Translational Parallel Manipulators with Three 4-dof Legs. *MuSMe 2002, Int. Symposium on Multibody Systems and Mechatronics*, Mexico City, Mexico, Paper No. M22, pp. 1-15.

[54] Carricato, M., and Parenti-Castelli, V. 2002. Singularity-Free Fully-Isotropic Translational Parallel Manipulators. *2002 ASME Design Engineering Technical Conferences*, Montreal, QC, Canada, Paper No. MECH-34323, pp. 1041-1050.

[55] Carricato, M., and Parenti-Castelli, V. 2001. A Two-Decoupled-DOF Spherical Parallel Mechanism for Replication of Human Joints. *Servicerob 2001, European Workshop on Service and Humanoid Robots*, Santorini, Greece, pp. 5-12.

[56] Carricato, M., and Parenti-Castelli, V. 2001. A 2-DOF Parallel Mechanism for a Human Shoulder Prosthesis. *RAAD 2001, 10th Int. Workshop on Robotics in Alpe-Adria-Danube Region*, Vienna, Austria, Paper No. RD-093, pp. 1-6.

[57] Carricato, M., and Parenti-Castelli, V. 2001. Position Analysis of a New Family of 3-DOF Translational Parallel Manipulators. *2001 ASME Design Engineering Technical Conferences*, Pittsburgh, PA, USA, Paper No. DAC-21036, pp. 267-276.

[58] Carricato, M., and Parenti-Castelli, V. 2001. A Family of 3-DOF Translational Parallel Manipulators. *2001 ASME Design Engineering Technical Conferences*, Pittsburgh, PA, USA, Paper No. DAC-21035, pp. 259-266.