Curriculum Vitae
Prof. Andrea Maria Zanchettin

Personal data

Name: Andrea Maria Zanchettin

Birthdate: 1983 May, 22 in CREMONA (CR), Italy

Residence: Italy

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Education

Ph.D. in Information Technology, February 2012, with honor
Politecnico di Milano, Dipartimento di Elettronica e Informazione, Italy
Thesis: Human-centric behaviour of redundant manipulators under kinematic control
Advisor: Prof. Paolo Rocco
Reviewer: Prof. Giuseppe Oriolo (Università di Roma "La Sapienza")

Visiting PhD student, 26-04-2010 – 09-07-2010
Lund University, Department of Automatic Control, Lund Sweden
Advisors: Prof. Rolf Johansson, Prof. Anders Robertsson
Funded by: EU FP7 ROSETTA Project

M.Sc. in Computer Science Engineering, April 2008, grade 110/110, cum laude
Politecnico di Milano, Italy
Thesis: Analisi teorica e sperimentale del sistema di controllo di un motore asincrono per lavabiancheria
Advisor: Prof. Paolo Rocco

B.Sc. in Computer Science Engineering, September 2005, grade 110/110
Politecnico di Milano (Polo territoriale di Cremona)
Thesis: Analisi di strategie di controllo per servomeccanismi elastici
Advisor: Prof. Gianni Ferretti

Diploma di Maturità Scientifica (progetto Brocca), July 2002, grade 100/100
Istituto Industriale Statale J. Torriani (Cremona), Italy

Spoken languages

Italian (mother tongue), English (full professional proficiency).

Working experience

Associate Professor, 03-10-2019 – present
Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria, Italy
SSD: ING-INF/04 – Automatica (09/G1)
Topic: Control and machine learning tools for intelligent human-robot collaboration

Tenure-track Assistant Professor, 01-10-2016 – 02-10-2019
Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria, Italy
SSD: ING-INF/04 – Automatica (09/G1)
Topic: Control tools for intelligent human-robot collaboration

Fixed-term Assistant Professor, 01-03-2014 – 30-09-2016
Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria, Italy
SSD: ING-INF/04 – Automatica (09/G1)
Topic: Sensor-based trajectory generation for robotic manipulators

Post-doctoral Research Assistant, 16-01-2012 – 28-02-2014
Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria, Italy
Funded by: EU FP7 ROSETTA Project
Topic: Safety-oriented motion planning and control for kinematically redundant dual-arm robot manipulators

Research Assistant, 01-06-2008 – 31-12-2008
Politecnico di Milano, Dipartimento di Elettronica e Informazione, Italy
Funded by: Fondazione Politecnico di Milano, in cooperation with Indesit Company
Topic: Control of mechanical systems with low-cost sensors

Teaching activities

2020/2021 Course: Automatic Control A, MSc in Mechanical Engineering
Role: lecturer, 66 hours

2019/2020 Course: Automatic Control A, MSc in Mechanical Engineering
Role: lecturer, 66 hours

2018/2019 Course: Intelligent collaborative robotics (SIDRA PhD summer school, C. Melchiorri, M.E. Valcher)
Role: lecturer (together with Paolo Rocco), 8 hours

Course: Automatic Control A, MSc in Mechanical Engineering
Role: lecturer, 66 hours

2017/2018 Course: Automatic Control, MSc in Physics Engineering
Role: lecturer, 60 hours and teaching assistant, 40 hours

Course: Misurare bene per decidere bene (didattica innovativa)
Role: lecturer, 5 hours

2016/2017 Course: Automatic Control, MSc in Physics Engineering
Role: lecturer, 60 hours and teaching assistant, 40 hours

Course: Project Work, MSc in Automation and Control Engineering
Role: academic tutor

Course: Robot control – State of the art and research trends (PhD course at University of Bergamo)
Role: lecturer, 20 hours

2015/2016 Course: Automatic Control, MSc in Physics Engineering
Role: lecturer, 60 hours

2014/2015 Course: Automatic Control, MSc in Physics Engineering
Role: lecturer, 60 hours and teaching assistant, 7 hours

Course: Sistemi informatici, prof. Nicola Gatti
Role: seminar, 2 hours

2013/2014 Course: Fondamenti di Automatica (per Aerospaziali), prof. Paolo Rocco
Role: teaching assistant, 28 hours

Course: Fondamenti di Automatica (per Aerospaziali), prof. Paolo Rocco
Role: lab assistant, 12 hours

Course: Tecnologie dei Sistemi di Controllo per l'Aeronautica, prof. Gianantonio Magnani
Role: teaching assistant, 16 hours

2012/2013 Course: Fondamenti di Automatica (per Aerospaziali), prof. Paolo Rocco
Role: teaching assistant, 28 hours

Course: Tecnologie dei Sistemi di Controllo per l'Aeronautica, prof. Gianantonio Magnani
Role: teaching assistant, 16 hours

2011/2012 Course: Fondamenti di Automatica (per Aerospaziali), prof. Paolo Rocco
Role: teaching assistant, 28 hours

2010/2011 Course: Fondamenti di Automatica (per Aerospaziali), prof. Paolo Rocco
Role: teaching assistant, 4 hours

2008/2009 Course: Fondamenti di Automatica (per Aerospaziali), prof. Paolo Rocco
Role: teaching assistant, 26 hours

Course: Fondamenti di Automatica (per Aerospaziali), prof. Paolo Rocco
Role: lab assistant, 12 hours

Awards and achievements

Dr. Zanchettin has been recipient of the following awards:

1. Best IEEE RAS Chapter Award for year 2019 (together with Prof. Lucia Pallottino);
2. Innovation Award MECSPE 2019 (finalist) with Smart Robots, ABB, and Vodafone;
3. euRobotics Technology Transfer Award 2018 (third classified) with Smart Robots;
4. National qualification for Associate Professor 2017 (Abilitazione Scientifica Nazionale);
5. Co-authored IROS 2015 Best Student Paper Award (finalist);
6. IEEE I-RAS Young Author Best Paper Award 2014;
7. KUKA Innovation Award 2014 (finalist);
8. B&R First European Industrial Ethernet Award 2009 (fourth classified);
9. Certificate of Merit (Rector of Politecnico di Milano) for the grades during the A.Y. 2003/2004.

Participation in funded projects & technology transfer

Smart Robots SRL, 25-10-2016 – present
Spin-off company of Politecnico di Milano
Role: co-founder, scientific advisor, and member of Board of Directors

Winnica SRL 17-12-2020 – present
Start-up company
Role: co-founder

Preparazione robotizzata di pietanze, 2020 - present
Funded by: FoodPrime srl (Italy)
Topic: robotized preparation of foods in dark kitchens
Contribution: co-principal investigator

SmartColSoleHand, 2020 - present
Funded by: MADE Competence Center 4.0, Ministero dello Sviluppo Economico (Italy)
Partners: Alumotion (Italy), Smart Robots (Italy), Vibram (Italy)
Topic: collaborative robotics for manufacturing
Contribution: principal investigator

IRCRAM4.0, 2020 – present
Funded by: Camozzi (Italy)
Topic: intelligent collaborative robotics for flexible assembly operations
Contribution: co-principal investigator, project idea

TIGHT, 2020 – present
Funded by: Ministero dell'Istruzione, Università e Ricerca (Italy), PRIN 2017
Partners: Università di Siena (Italy), Università di Pisa (Italy), CNR (Italy), Università di Roma Tor Vergata (Italy)
Topic: intelligent human-robot collaboration for assembly operations
Contribution: local unit coordinator

VERIFY, 2020
Funded by: EIT Manufacturing
Partners: Brembo (Italy), Comau (Greece), University of Patras (Greece)
Topic: robotics for machining applications

ROBOTICS, 2019 – present
Funded by: Electrolux (Italy)
Topic: undisclosed
Contribution: co-principal investigator

Smart4CPPS, 2018 – present
Funded by: Regione Lombardia (Italy)
Partners: Università di Bergamo (Italy), Scaglia Indeva (Italy), CNR (Italy), and others
Topic: intelligent factory, smart automation, safe human-robot interaction, collaborative robotics, Industry 4.0

Soluzioni di intelligenza artificiale per la diagnostica predittiva di guasti, 2018 – 2019
Funded by: NUM (Italy)
Topic: use of machine learning for predictive maintenance, Industry 4.0
Contribution: co-principal investigator

Robot Holo Programming, 2018
Funded by: Regione Lombardia (InnoDriver)
Partner: Alascom Services (Italy)
Topic: robot programming through mixed reality, Industry 4.0
Contribution: co-principal investigator

Sperimentazione 5G – Robotica collaborativa per Industria 4.0, 2017 – 2020
Promoted by: Ministero dello Sviluppo Economico (Italy)
Partners: Smart Robots (Italy), Vodafone (Italy), ABB (Italy)
Topic: human-robot collaborative assembly tasks with high-speed low latency connectivity, Industry 4.0
Contribution: co-principal investigator

Future Construction Machines, 2016 – 2019
Funded by: Yanmar Research Europe (Italy)
Topics: interaction control for hydraulic redundant manipulators, control of agricultural mobile manipulators

ROBOTICS, 2016 – 2017
Funded by: Fondazione Politecnico di Milano, Steriline (Italy)
Topic: path planning methods for workspace-sharing industrial robots

INTERACT, 2016 – 2018
Funded by: Fedegari Autoclavi (Italy)
Topic: advanced programming tools for industrial robots in sterile environments
Contribution: co-principal investigator

CREMONA, 2014
Funded by: ABB University Grant (US)
Topic: constraint-based robot programming and control
Contribution: project idea, compliant control for dual-arm prototype redundant robot

Cluster Fabbrica Intelligente – Adaptive, 2014 – 2017
Funded by: MIUR (Cluster Tecnologici Nazionali)
Partners: Università di Bergamo (Italy), Università di Modena e Reggio Emilia (Italy), Loccioni (Italy), Scaglia Indeva (Italy), and others
Topic: intelligent factory, smart automation, safe human-robot interaction, Industry 4.0
Contribution: ergonomic and safe trajectory generation and handover strategies for collaborative robots

SCORPION, 2013 – 2014
Sponsored by: KUKA Innovation Award 2014
Technology supplier: KUKA Roboter (Germany)
Topic: mobile manipulators, reactive motion planning
Contribution: project idea, implementation of model-predictive control strategy

ECHORD – Fidelio experiment, 2011 – 2012
Funded by: EU FP7
Partners: Comau (Italy)
Topic: machine learning techniques for robotic-aided industrial manufacturing

Quadrivio, 2011 – 2012
Funded by: Regione Lazio (FILAS)
Partners: AeroSekur (Italy)
Topic: navigation and control of an unmanned all-terrain robot
Contribution: implementation of the low-level servo control for automatic steering, braking and throttle control

ROSETTA, 2009 – 2013
Funded by: EU FP7
Partners: Lund University (Sweden), University of Munich (Germany), KU Leuven (Belgium), ABB Corporate Research (Sweden and Germany), Fraunhofer IPA (Germany), and others
Topic: safe human-robot interaction for industrial manipulators
Contribution: development of redundancy resolution strategies for collaborative robotic manipulators and ergonomic assessment, demonstration and validation, scientific dissemination of the corresponding results

Washing Machine Robust Control, 2008 – 2009
Funded by: Fondazione Politecnico di Milano, Indesit Company (Italy)
Topic: robust tuning of the velocity loop of a washing machine with low-resolution sensing
Contribution: analysis of source of instability and development of a semi-automatic PID tuning strategy

Technical and professional competencies

Windows, Linux (including real-time kernels) and Mac OS X, Mathworks Matlab & Simulink, Dynasim Dymola, basic knowledge on National Instruments DAQ National Instruments, common programming languages (C, C++, php, SQL, HTML, Modelica, Labview, Matlab) and version control, IEC 61131-3 (SFC, ST e LD), ABB RAPID, development environments (B&R Automation Studio, Michrochip Technology MPLAB, Rockwell Automation IsaGRAF, Microsoft Visual Studio, Apple Xcode, ABB Robot Studio), 3D modelling (Blender), safety standards for machineries and robot (i.e. ISO 10218, ISO TS 15066).

Prof. Andrea Maria Zanchettin has been also lecturer/instructor in several professional courses on industrial robotics and collaborative robotics: Brembo (2017-present), Bosch (2018-2019), UMANA (2020), Confindustria Bergamo (2019-present), Ordine degli Ingegneri di Brescia (2019), MIP (2019), Università di Bergamo (2020), Experis Academy (2021).

Organized events

Dr. Andrea Zanchettin has served as:

- Social Media Chair for IEEE/RSJ IROS 2014 (Chicago, Illinois, USA);
- Scientific organizer of the Workshop on "Assemblaggio 4.0 e robotica collaborativa" (Assembly 4.0 and collaborative robotics), organized by Tecniche Nuove, Milano (Italy), held in Milano in September 2018;
- Scientific organizer of the Workshop on "Automazione 5.0: l'uomo, il robot e l'intelligenza artificiale" (Automation 5.0: the human, the robot, the artificial intelligence), organized by Tecniche Nuove, Milano (Italy), held in Milano in July 2019;
- Publication Co-Chair for I-RIM 3D 2020, online, December 2020;
- Publication Co-Chair for IEEE ARM 2021 (Chongqing, China), 2021;

Together with Dr. Gianni Borghesan (KU Leuven, Belgium) and Dr. Torsten Kroeger (Google Inc., USA), Andrea Zanchettin co-organized the Workshop entitled "Real-time Motion Generation & Control - Constraint-based Robot Programming" held in Chicago (Illinois, USA) in conjunction with IEEE/RSJ IROS 2014 - permanent link: http://cs.stanford.edu/people/tkr/iros2014/.

Together with Hao Ding, Andrea Zanchettin co-organized the Workshop entitled "Robotic co-workers: methods, challenges and industrial test cases" held in Hamburg (Germany) in conjunction with IEEE/RSJ IROS 2015 - permanent link: http://home.deib.polimi.it/zanchettin/IROS2015/.

Together with Hao Ding, Dr. Fabrizio Flacco (CNRS – LIRMM), and Mikael Hedelind, Andrea Zanchettin has co-organized the Workshop entitled "Safety-Related Sensing for Collaborative Applications" held in Deajeon (South Korea) in conjunction with IEEE/RSJ IROS 2016 - permanent link: http://home.deib.polimi.it/zanchettin/IROS2016/.

On May 2020, together with Federica Pascucci (Roma Tre University) and Gianluca Antonelli (Cassino University), I have co-organized the online workshop "Arrivano i nostri… ROBOT" on available robotics solution for COVID-19 pandemic mitigation (the workshop is available here: https://www.youtube.com/watch?v=O_yZH1JUAI8).

Editorial activities

Andrea Zanchettin served and serves as a reviewer for many journals on automatic control and robotics, as well as for major international conferences in the same fields.

He has served / is serving as an Associate Editor for the following conferences

- IEEE International Conference on Robotics and Automation (ICRA): 2014 – 2016,
- IEEE/RSJ International Conference on Intelligent Robot and Systems (IROS): 2014 – 2016,

as well as an Associate Editor for the following peer-reviewed international journals:

- IEEE RAS Robotics and Automation Letters (RA-L): 2015 – 2018;
- IEEE Transactions on Robotics (T-RO): 2019 – present.

and finally member of the Technical Program Committee (TPC) of the following symposia, conferences and workshops:

- 10th International Workshop on Human Friendly Robotics (HFR 2017) held in Naples (Italy) in October 2017;
- DATE 2019 (Design, Automation, and Test in Europe) conference, held in Florence in March 2019;
- IEEE International Conference on Human-Machine Systems (ICHMS 2020), held online in September 2020;
- 14th International Workshop on Human Friendly Robotics (HFR 2021) to be held in Bologna (Italy) in October 2021.

Since January 2016, Andrea Zanchettin has been member of the Technical and Scientific Board of the national journal Automazione Integrata (published by Tecniche Nuove Group).

In September 2015, Dr. Zanchettin has been appointed as Chair of the IROS iWeb Committee (serving the IROS Steering Committee for the IROS Website Initiative and responsible for iros.org website).

Dr. Zanchettin is member of the IEEE Robotics and Automation Society (RAS) since 2009. He is also member of the IEEE RAS Technical Committees “Algorithms for Planning and Control of Robot Motion” and “Multi-robot systems”.

Since 2017, together with Dr. Hao Ding (ABB Corporate Research), Prof. Miao Li (Wuhan University), and Prof. Julie Shah (MIT), Andrea Zanchettin is co-founder and co-chair of the IEEE RAS Technical Committee on Collaborative Automation for Flexible Manufacturing, https://www.ieee-ras.org/collaborative-automation-for-flexible-manufacturing.

From January 2017 to December 2018, Dr. Zanchettin has been Deputy Chair of the Italian Chapter of the Robotics and Automation Society of IEEE (I-RAS), info at https://r8.ieee.org/italy-ras/. Since January 2019 he is Chair. In 2019, the Chapter has been recognized with the IEEE RAS Best Chapter Award.

Together with Hao Ding and Dr. Mikael Hedelind (Vinnova, Sweden), Andrea Zanchettin is co-editing the book entitled “Safe sensing for industrial human-robot collaboration” (currently in preparation), by Butterworth-Heinemann, Elsevier (https://www.amazon.com/gp/product/0128148578).

Together with Prof. Elizabeth Croft (University of British Columbia), Hao Ding and Miao Li, Andrea Zanchettin has been (Guest) Editor of the IEEE Robotics & Automation Magazine Special Issue on “Human-robot collaboration for production environments” (June 2018), see: http://www.ieee-ras.org/publications/ram/ram-special-issues/special-issue-on-human-robot-collaboration-for-production-environments.

Since May 2021, Prof. Zanchettin has been Executive Vice President for Industrial Activities of the Italian Institute of Robotics and Intelligent Machines (I-RIM, https://i-rim.it/en/).

Together with Chenguang Yang (University of Western England), Miao Li, Hao Ding, and Julie Shah (MIT), Andrea Zanchettin has been (Guest) Editor of the IEEE Robotics & Automation Letters Special Issue on “Learning Compliant Manipulation with Human in the Loop” (to appear in 2022), https://www.ieee-ras.org/publications/ra-l/special-issues/cfp-learning-and-control-for-robot-compliant-manipulation-with-human-in-the-loop.

Seminars, workshops and invited talks

- "Physiological aspects of human-robot collaboration", workshop on "Ergonomic Human-Robot Collaboration: Applications and Future Research" (organized by L. Peternel, W. Kim, A. Ajoudani, E. Yoshida), IROS 2021, 1-10-2021, **invited talk**.
- "Productivity and ergonomics, a trade-off in human-robot collaboration?", workshop on "From human-robot interaction to collaborative control" (organized by M. Benoussaad, A. Ajoudani, T. Tsuji, M. Rakotondrabe), IROS 2021, 27-9-2021, **invited talk**.
- "Humans and Machines", workshop on "Socio-Physical Interaction Skills for Cooperative Human-Robot Systems in Agile Production", I-RIM 2020, 10-12-2020, **invited talk**.
- "Humans and robots: from industrial to intelligent automation", workshop "Task and motion planning for effective human-robot collaboration", I-RIM 2020, 10-12-2020, **invited talk**.
- Keynote talk "A collaborative robotic solution to partly automate SARS-CoV-2 serological tests", IEEE EMBS Grand Challenges Forum: CoViD-19 Healthcare, Screening, Tracing, and Treatment, 13-11-2020, **invited keynote talk,** https://grand-challenges.embs.org/2020covid/speakers/.
- "Towards an intelligent, collaborative and connected factory", workshop "TIGHT" (organized by M. Pozzi, T. Lisini Baldi, M. Bianchi, D. Prattichizzo), IEEE RO-MAN 2020, 2-9-2020, **invited talk**.
- "Humans and Machines: From Industrial Automation to Intelligent Automation", Fondazione Istituto Italiano di Tecnologia, IIT, 14-02-2020, **invited talk**.
- "L'esperienza di Vodafone, Smart Robots e ABB", Giornata di studio ANIPLA "Il futuro della comunicazione industriale dal TSN al 5G", Cinisello Balsamo (Italy), 29-10-2019, **invited talk**.
- "Collaborative robots that understand humans (and vice-versa)", workshop "TIGHT", I-RIM 2019, Roma (Italy), 20-10-2019, **invited talk**.
- "Ottimizzazione di processi produttivi collaborativi mediante intelligenza artificiale", workshop su Automazione 5.0: l'uomo, il robot e l'intelligenza artificiale, organized by Tecniche Nuove, Milano (Italy), 2-7-2019.
- "Vedere per credere: come la visione ha influenzato l'intelligenza nelle macchine", Winter Open Day Event, Politecnico di Milano, Polo Territoriale di Cremona, Cremona (Italy), 26-2-2019.
- "Quadro introduttivo su Industria 4.0", workshop su Assemblaggio 4.0 e robotica collaborativa, organized by Tecniche Nuove, Milano (Italy), 18-9-2018.
- "L'uomo e la macchina: percezione e comunicazione nell'era digitale", Summer Open Day Event, Politecnico di Milano, Polo Territoriale di Cremona, Cremona (Italy), 10-7-2018.
- "Collaborative Robots that understand Humans", Robotics Research Jam, 12-6-2018, Pisa (Italy), **invited talk**.
- "Predizione e classificazione del comportamento umano con tecniche di Machine Learning per la collaborazione produttiva uomo-robot", convegno UCIMU Machine Learning e Manutenzione Predittiva: casi industriali ed esperienze di successo, 6-6-2018, Cinisello Balsamo (Italy), **invited talk**.
- "L'ingegnere: dall'ingegno al congegno", Dissemination talk for future Engineering students at A. Cesaris (high school), Casalpusterlengo (Italy), 29-1-2018.
- "La robotica al Politecnico di Milano", Summer Open Day Event, Politecnico di Miano, Polo Territoriale di Cremona, Cremona (Italy), 11-7-2017.
- "Robotica: passato, presente e futuro", Dissemination talk for future Engineering students at I.I.S. Ghisleri (high school), Cremona (Italy), 23-1-2017.
- "La robotica al Politecnico di Milano", Summer Open Day Event, Politecnico di Miano, Polo Territoriale di Cremona, Cremona (Italy), 12-7-2016.
- "Robotica: passato, presente e futuro", Dissemination talk for future Engineering students at Liceo Scientifico G. Aselli (high school), Cremona (Italy), 2-5-2016.
- Co-author of "An Energy Based Injury Index for Pre-Collision Safety Control in Human-Robot Interaction" (co-authored with R. Rossi, M. Parigi Polverini and P. Rocco), 8th International Workshop on Human-Friendly Robotics, Munich (Germany), 22-10-2015.
- "Metodologie reattive di pianificazione del moto che garantiscono il soddisfacimento di specifiche di sicurezza" (co-authored with P. Rocco), ANIPLA/SIRI Workshop on Collaborative Robots, Cinisello Balsamo (Italy), 9-6-2015, **invited talk**.

- "Control tools for safe human-robot coexistence", Tutorial on Planning, Control, and Sensing for Safe Human-Robot Interaction (organized by F. Flacco, S. Haddadin, T. Kroeger, D. Lee), IEEE International Conference on Robotics and Automation, 2015, Seattle (WA, USA), 26-5-2015, **invited talk**.
- "Robotica: passato, presente e futuro", Dissemination talk for future Engineering students, Fidenza, (Italy), 18-5-2015.
- "From human motion modelling to constraint-based robot programming", workshop on Redundancy, inequalities and the tools to address them (organized by A. Escande, F. Flacco, N. Mansard, L. Righetti), IEEE International Conference on Humanoids 2014, Madrid (Spain), 18-11-2014, **invited talk**.
- Co-author of "Towards Safe Human-Robot Interaction: evaluating in real-time the severity of possible collisions in industrial scenarios" (co-authored with M. Ragaglia, L. Bascetta, P. Rocco), 7th International Workshop on Human-Friendly Robotics, Pontedera (Italy), 24-10-2014.
- "L'ingegnere: dall'ingegno al congegno", Dissemination talk for future Engineering students at Liceo Scientifico G. Aselli (high school), Cremona (Italy), 3-5-2014.
- Co-author of "Task constraints classification and exploitation for safe and productive human-robot interaction" (co-authored with N.M. Ceriani and P. Rocco), 6th International Workshop on Human-Friendly Robotics, Rome (Italy), 25-10-2013.
- Co-author of "A distributed proximity sensor for safe human-robot interaction" (co-authored with G. Buizza Avanzini, P. Rocco, N.M. Ceriani and L. Bascetta), 6th International Workshop on Human-Friendly Robotics, Rome (Italy), 25-10-2013.
- "Human arm motion synthesis: data-driven and biomechanics-based approaches" (co-authored with E. Giovannitti, N.M. Ceriani, and P. Rocco), IEEE ICRA 2013 Workshop on Computational Techniques in Natural Motion Analysis and Reconstruction, Karlsruhe (Germany), 6-5-2013.
- "Human-centric behaviour of redundant manipulators for ergonomic human-robot coexistence" (co-authored with P. Rocco), 5th International Workshop on Human-Friendly Robotics, Royal Military Academy of Brussels (Belgium), 18-10-2012.
- "Sensor-based trajectory generation for safe human-robot cooperation" (co-authored with B. Lacevic), IEEE/RSJ IROS 2012 Workshop on Robot Motion Planning: Online, Reactive, and in Real-time, Vilamoura, Algarve (Portugal), 12-10-2012.
- "L'ingegnere: dall'ingegno al congegno" - Dissemination talk for future Engineering students at Liceo Scientifico G. Aselli (high school), Cremona (Italy), 8-5-2012.
- "Optimisation-based design for linear control systems", seminar held at Politecnico di Milano, Dipartimento di Elettronica e Informazione, Milano (Italy), 23-11-2010.

Participation in International Conferences

1. International Conference on Advanced Robotics, ICAR 2009, Munich (Germany), June 2009, 22nd-26th.
2. IEEE International Conference on Robotics and Automation, ICRA 2010, Anchorage (Alaska, USA), May 2010, 3rd-8th.
3. IFAC Symposium on Nonlinear Control Systems, NOLCOS 2010, Bologna (Italy), September 2010, 1st-3rd.
4. IEEE International Conference on Robotics and Automation, ICRA 2011, Shanghai (China), May 2011, 9th-13th.
5. IFAC World Congress, Milan (Italy), August/September 2011, 28th-2nd.
6. IEEE International Conference on Robotics and Automation, ICRA 2012, St. Paul (Minnesota, USA), May 2012, 14th-18th.
7. IFAC Symposium on Robot Control, SYROCO 2012, Dubrovnik (Croatia), September 2012, 5th-7th.
8. IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2012, Vilamoura, Algarve (Portugal), October 2012, 7th-12th.
9. IEEE International Conference on Robotics and Automation, ICRA 2013, Karlsruhe (Germany), May 2013, 6th-10th.
10. IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2013, Tokyo (Japan), November 2013, 3rd-7th.

11. IEEE Conference on Decision and Control, CDC 2013, Florence (Italy), December 2013, 10th-13th.
12. IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2014, Chicago (Illinois, USA), September 2014, 14th-18th.
13. IEEE International Conference on Humanoids, Humanoids 2014, Madrid (Spain), November 2014, 18th-20th.
14. IEEE International Conference on Robotics and Automation, 2015, Seattle (WA, USA), May 2015, 26th-30th.
15. IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2015, Hamburg (Germany), September/October 2015, 27th-2nd.
16. IEEE International Conference on Robotics and Automation, 2016, Stockholm (Sweden), May 2016, 16th-20th.
17. IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2016, Daejeon (Korea), October 2016, 9th-14th.
18. IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2017, Vancouver (BC, Canada), September 2017, 24th-28th.
19. IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2018, Madrid (Spain), October 2018, 1st-5th.
20. IEEE International Conference on Robot and Human Interactive Communication, RO-MAN 2020, August 31st - September 4th, 2020, online.
21. IEEE International Conference on Human-Machine Systems, ICHMS 2020, September 7th - 9th, 2020, online.
22. IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2020, September 2020, 24th-28th, online.

List of publications

Peer-reviewed International Journals

[IJ1] R. Maderna, M. Pozzi, A.M. Zanchettin, P. Rocco, D. Prattichizzo – *"Flexible Scheduling and Tactile Communication for Human-Robot Collaboration"*, Robotics and Computer Integrated Manufacturing, accepted.

[IJ2] L. Roveda, B. Maggioni, E. Marescotti, A. Shahid, A.M. Zanchettin, A. Bemporad, D. Piga – "*Pairwise preferences based optimization of a path-based velocity planner in robotic sealing tasks*", IEEE Robotics and Automation Letters, accepted, **also to be presented during IROS 2021, online.**

[IJ3] D. Bazzi, F. Roveda, A.M. Zanchettin, P. Rocco - "*A unified approach for virtual fixtures and goal-driven variable admittance control in manual guidance applications*", IEEE Robotics and Automation Letters, accepted, **also to be presented during IROS 2021, online.**

[IJ4] A.M. Zanchettin - "*Robust scheduling and dispatching rules for high-mix collaborative manufacturing systems*", Flexible Services and Manufacturing Journal, available online.

[IJ5] C. Messeri, A.M. Zanchettin, P. Rocco, E. Gianotti, A. Chirico, S. Magoni, and A. Gaggioli – *"On the effects of leader-follower roles in dyadic human-robot synchronisation"*, IEEE Transactions on Cognitive and Developmental Systems, available online.

[IJ6] A. Casalino, A.M. Zanchettin, L. Piroddi, P. Rocco – *"Optimal scheduling of human-robot collaborative assembly operations with time Petri Nets"*, IEEE Transactions on Automation Science and Engineering, vol. 18, issue 1, January 2021.

[IJ7] N. Lucci, B. Lacevic, A.M. Zanchettin, P. Rocco – *"Combining Speed and Separation Monitoring with Power and Force Limiting for Safe Collaborative Robotics Applications"*, IEEE Robotics and Automation Letters, vol. 5, issue 4, October 2020, **also presented during IROS 2020, September 2020, online**.

[IJ8] F. Ferraguti, R. Villa, C. Talignani Landi, A.M. Zanchettin, P. Rocco, C. Secchi – *"A Unified Architecture for Physical and Ergonomic Human-Robot Collaboration"*, Robotica, vol. 38, issue 4, pp. 669-683, April 2020.

[IJ9] S. Zhang, A.M. Zanchettin, R. Villa, S. Dai – *"Trajectory Planning Based on Non-Convex Global Optimization for Serial Manipulators"*, Applied Mathematical Modelling, vo. 84, pp. 89-105, August 2020.

[IJ10] S. Zhang, A.M. Zanchettin, R. Villa, S. Dai – *"Real-time Trajectory Planning Based on Joint-Decoupled Optimization in Human-Robot Interaction"*, Mechanism and Machine Theory, vol. 144, February 2020.

[IJ11] A.M. Zanchettin, P. Rocco, S. Chiappa, R. Rossi – *"Towards an optimal avoidance strategy for collaborative robots"*, Robotics and Computer Integrated Manufacturing, vol. 59, pp. 47-55, October 2019.

[IJ12] M. Parigi Polverini, A.M. Zanchettin, P. Rocco – "*A Constraint-Based Programming Approach for Robotic Assembly Skills Implementation*", Robotics and Computer Integrated Manufacturing, vol. 59, pp. 69-81, October 2019.

[IJ13] A.M. Zanchettin, A. Casalino, L. Piroddi, P. Rocco – *"Prediction of human activity patterns for human-robot collaborative assembly tasks"*, IEEE Transactions on Industrial Informatics, vol. 15, issue 7, pp. 3934-3942, July 2019.

[IJ14] M. Ragaglia, A.M. Zanchettin, P. Rocco – *"Trajectory generation algorithm for safe Human-Robot Collaboration based on multiple depth sensor measurements"*, IFAC Mechatronics, vol. 55, pp. 267-281, November 2018.

[IJ15] A. Casalino, C. Messeri, M. Pozzi, A.M. Zanchettin, P. Rocco, D. Prattichizzo – *"Operator awareness in human-robot collaboration through wearable vibrotactile feedback"*, IEEE Robotics and Automation Letters, vol. 3, issue 4, October 2018, **also presented during IROS 2018, October 2018, Madrid (Spain)**.

[IJ16] A. Ajoudani, A.M. Zanchettin, S. Ivaldi, A. Albu-Schaeffer, K. Kosuge, O. Khatib – *"Progress and prospects of the human–robot collaboration"*, Autonomous Robots, vol. 42, issue 5, pp. 957-975, June 2018.

[IJ17] D. Nicolis, M. Palumbo, A.M. Zanchettin, P. Rocco – "*Occlusion-free Visual Servoing for the Shared Autonomy Teleoperation of Dual-Arm Robots*", IEEE Robotics and Automation Letters, vol. 3, issue 2, pp. 796-803, April 2018, **also presented during ICRA 2018, May 2018, Brisbane (Australia)**.

[IJ18] G. Buizza Avanzini, A.M. Zanchettin, P. Rocco – *"Constrained model predictive control for mobile robotic manipulators",* Robotica, vol. 36, issue 1, pages 19-38, January 2018.

[IJ19] M. Parigi Polverini, A.M. Zanchettin, P. Rocco – *"A Computationally Efficient Safety Assessment for Collaborative Robotics Applications"*, Robotics and Computer Integrated Manufacturing, vol. 46, pp. 25-37, August 2017.

[IJ20] M. Parigi Polverini, D. Nicolis, A.M. Zanchettin, P. Rocco – *"Implicit Robot Force Control based on Set Invariance"*, IEEE Robotics and Automation Letters, vol. 2, issue 3, pp. 1288-1295, 2017, **also presented during ICRA 2017, May 2017, Singapore**.

[IJ21] A.M. Zanchettin, P. Rocco – *"Motion planning for robotic manipulators using robust constrained control"*, Control Engineering Practice, vol. 59, pp. 127-136, February 2017.

[IJ22] M. Ragaglia, A.M. Zanchettin, L. Bascetta, P. Rocco – *"Accurate sensorless lead-through programming for lightweight robots in structured environments"*, Robotics and Computer Integrated Manufacturing, vol. 39, pp. 9-21, June 2016.

[IJ23] A.M. Zanchettin, N.M. Ceriani, P. Rocco, H. Ding and B. Matthias – *"Safety in human-robot collaborative manufacturing environments: metrics and control"*, IEEE Transactions on Automation Science and Engineering, vol. 13, issue 2, pp. 882-893, April 2016.

[IJ24] D. Nicolis, A.M. Zanchettin, P. Rocco - "*Constraint-based and sensorless force control with an application on a lightweight dual-arm robot*", IEEE Robotics and Automation Letters, vol. 1, issue 1, pp. 340-347, January 2016, **also presented during ICRA 2016, May 16th-21st, 2016, Stockholm, Sweden**.

[IJ25] N.M. Ceriani, A.M. Zanchettin, P. Rocco, A. Stolt, A. Robertsson – "*Reactive task adaptation based on hierarchical constraints classification for safe industrial robots*", IEEE/ASME Transactions on Mechatronics, vol. 20, issue 6, pp. 2935-2949, 2015.

[IJ26] A.M. Zanchettin, B. Lacevic, P. Rocco - "*Passivity-based control of robotic manipulators for safe cooperation with humans*", International Journal of Control, vol. 88, issue 2, pp. 429-439, 2015.

[IJ27] G. Buizza Avanzini, N.M. Ceriani, A.M. Zanchettin, P. Rocco, L. Bascetta - "*Safety control of industrial robots based on a distributed distance sensor*", IEEE Transactions on Control System Technology, volume 22, issue 6, pp. 2127-2140, November 2014.

[IJ28] A.M. Zanchettin, L. Bascetta, P. Rocco - "*Achieving Humanlike Motion: Resolving Redundancy for Anthropomorphic Industrial Manipulators*", IEEE Robotics & Automation Magazine, volume 20, issue 4, pp. 131-138, December 2013, **I-RAS Young Author Best Paper Award 2014**.

[IJ29] A.M. Zanchettin, L. Bascetta, P. Rocco - "*Acceptability of robotic manipulators in shared working environments through human-like redundancy resolution",* Applied Ergonomics, volume 44, issue 6, pp. 982–989, November 2013.

[IJ30] B. Lacevic, P. Rocco, A. M. Zanchettin - "*Safety assessment and control of robotic manipulators using danger field*", IEEE Transactions on Robotics, volume 29, issue 5, pp. 1257-1270, October 2013.

[IJ31] A.M. Zanchettin, A. Calloni, M. Lovera - "*Robust magnetic attitude control of satellites*", IEEE/ASME Transactions on Mechatronics, volume 18, issue 4, pp. 1259-1268, August 2013.

[IJ32] L. Bascetta, P. Rocco, A.M. Zanchettin, G. Magnani - "*Velocity control of a washing machine: a mechatronic approach*", IFAC Mechatronics, volume 22, issue 6, pp. 778–787, September 2012.

[IJ33] A.M. Zanchettin, P. Rocco - "*A general user-oriented framework for holonomic redundancy resolution in robotic manipulators using task augmentation*", IEEE Transactions on Robotics, volume 28, issue 2, pp. 514-521, April 2012.

[IJ34] L. Bascetta, G. Magnani, P. Rocco, A.M. Zanchettin - "*Performance limitations in Field Oriented Control for asynchronous machines with low resolution position sensing*", IEEE Transactions on Control System Technology, volume 18, issue 3, pp. 559-573, May 2010.

Editorials on International Journals

[EIJ1] A.M. Zanchettin, E. Croft, H. Ding, M. Li - *"Collaborative Robots in the Workplace"*, IEEE Robotics and Automation Magazine, pp. 16-17, June 2018.

Chapters in Peer-reviewed International Books

[IBC1] G. Buizza Avanzini, A.M. Zanchettin, P. Rocco - *"Reactive Constrained Model Predictive Control for Redundant Mobile Manipulators"*, in E. Menegatti et al. (eds.), Intelligent Autonomous Systems 13, Advances in Intelligent Systems and Computing, Springer 2016.

[IBC2] N.M. Ceriani, A.M. Zanchettin, P. Rocco - *"Collision Avoidance with Task Constraints and Kinematic Limitations for Dual Arm Robots"*, in E. Menegatti et al. (eds.), Intelligent Autonomous Systems 13, Advances in Intelligent Systems and Computing, Springer 2016.

Proceedings of Peer-reviewed International Conferences

[IC1] M. Crivellari, O. Sanni, A.M. Zanchettin, A. Ghalamzan Esfahani – *"Deep robot path planning from demonstrations for breast cancer examination"*, Towards Autonomous Robotic Systems Conference TAROS 2021.

[IC2] A. Wahrburg, S. Guida , N. Enayati, A.M. Zanchettin, R. Rocco - "*FlexDMP - Extending Dynamic Movement Primitives towards Flexible Joint Robots*", IEEE International Conference on Robotics and Automation, ICRA 2021, May 30th - June 5th, 2021, Xi'an (China) and online.

[IC3] B. Maggioni, E. Marescotti, A.M. Zanchettin, D. Piga, L. Roveda - *"Velocity planning of a robotic task enhanced by fuzzy logic and dynamic movement primitives"*, IFSA Winter Conference on Automation, Robotics and Communications for Industry 4.0, ARCI 2021, February 3-5, 2021, online.

[IC4] D. Bazzi, C. Messeri, A.M. Zanchettin and P. Rocco, "*Identification of robot forward dynamics via neural network*", International Conference on Automation, Control and Robots, ICACR 2020, Rome (Italy), October 11-13, 2020.

[IC5] C. Messeri, A.M. Zanchettin and P. Rocco, "*Human-Robot Assembly Task with Holographic Projections for Inexperienced Operators*", International Conference on Automation, Control and Robots, ICACR 2020, Rome (Italy), October 11-13, 2020.

[IC6] R. Maderna, M. Ciliberto, A.M. Zanchettin, P. Rocco – *"Robust real-time monitoring of human task advancement for collaborative robotics applications"*, IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2020, Las Vegas (USA), October 25th-29th, 2020.

[IC7] A. Casalino, N. Massarenti, A.M. Zanchettin, P. Rocco – *"Predicting the human behaviour in human-robot co-assemblies: an approach based on suffix trees"*, IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2020, Las Vegas (USA), October 25th-29th, 2020.

[IC8] C. Messeri, L. Rebecchi, A.M. Zanchettin, P. Rocco – *"A particle filter technique for human pose estimation in case of occlusion exploiting holographic human model and virtualized"*, IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2020, Las Vegas (USA), October 25th-29th, 2020.

[IC9] D. Bazzi, M. Lapertosa, A.M. Zanchettin, P. Rocco – *"Goal-driven variable admittance control for robot manual guidance"*, IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2020, Las Vegas (USA), October 25th-29th, 2020.

[IC10] B. Lacevic, A.M. Zanchettin, P. Rocco – *"Towards the Exact Solution for Speed and Separation Monitoring for Improved Human-Robot Collaboration"*, International Conference on Robot and Human Interactive Communication, RO-MAN 2020, August 31st - September 4th, 2020, online.

[IC11] A. Wahrburg, S. Guida, N. Enayati, A.M. Zanchettin, P. Rocco – *"Extending Dynamic Movement Primitives towards High-Performance Robot Motion"*, International Workshop on Advanced Motion Control, AMC 2020, September 14th - 16th, 2020, online.

[IC12] A.M. Zanchettin, M. Marconi, C. Ongini, R. Rossi, P. Rocco – *"A Formal Control Architecture for Collaborative Robotics Applications"*, IEEE International Conference on Human-Machine Systems, ICHMS 2020, September 7th - 9th, 2020, online.

[IC13] N. Enayati, S. Mariani, A. Wahrburg, A.M. Zanchettin - *"Variable-Impedance and Force Control for Robust*

Learning of Contact-rich Manipulation Tasks from User Demonstration", IFAC World Congress 2020, July 12th - 17th, 2020.

[IC14] R. Maderna, M. Poggiali, A.M. Zanchettin, P. Rocco – *"An online scheduling algorithm for human-robot collaborative kitting"*, IEEE International Conference on Robotics and Automation, ICRA 2020, May 31st - June 4th, 2020, online.

[IC15] A. Casalino, E. Mazzocca, M.G. Di Giorgio, A.M. Zanchettin, P. Rocco – "*Task scheduling for human-robot collaboration with uncertain duration of tasks: a fuzzy approach*", International Conference on Control, Mechatronics and Automation, ICCMA 2019, Delft (The Netherlands), November 6th-8th, 2019.

[IC16] A.M. Zanchettin, E. Lotano, P. Rocco - *"Collaborative Robot Assistant for the Ergonomic Manipulation of Cumbersome Objects"*, IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2019, Macau, November 4th-8th, 2019.

[IC17] A. Casalino, A. Brameri, A.M. Zanchettin, P. Rocco - *"Adaptive swept volumes generation for human-robot coexistence using Gaussian Processes"*, IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2019, Macau, November 4th-8th, 2019.

[IC18] A. Casalino, A.M. Zanchettin, P. Rocco - *"MT-RRT: a general purpose multithreading library for path planning"*, IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2019, Macau, November 4th - 8th, 2019.

[IC19] R. Maderna, P. Lanfredini, A.M. Zanchettin, P. Rocco - *"Real-time monitoring of human task advancement"*, IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2019, Macau, November 4th - 8th, 2019.

[IC20] M. Pencelli, R. Villa, A. Argiolas, G. Ferretti, M. Niccolini, M. Ragaglia, P. Rocco, A.M. Zanchettin - *"Accurate Position Control for Hydraulic Servomechanisms"*, International Symposium on Automation and Robotics in Construction, ISARC 2019, Banff (Canada), May 21st - 24th, 2019.

[IC21] M. Pencelli, R. Villa, A. Argiolas, M. Niccolini, M. Ragaglia, P. Rocco, A.M. Zanchettin - *"On the estimation of resonance frequencies of hydraulically actuated systems"*, International Symposium on Automation and Robotics in Construction, ISARC 2019, Banff (Canada), May 21st - 24th, 2019.

[IC22] A. Casalino, D. Bazzi, A.M. Zanchettin, P. Rocco - *"Optimal Proactive Path Planning for Collaborative Robots in Industrial Contexts"*, IEEE International Conference on Robotics and Automation, ICRA 2019, Montreal (Canada), May 20th – 24th, 2019.

[IC23] M. Pencelli, R. Villa, A. Argiolas, G. Ferretti, M. Niccolini, M. Ragaglia, P. Rocco and A.M. Zanchettin - "*Accurate Dynamic Modelling of Hydraulic Servomechanisms*", Design, Automation and Test in Europe, DATE 2019, Florence (Italy), March 25th - 29th, 2019.

[IC24] A. Casalino, S. Guzman, A.M. Zanchettin, P. Rocco – *"Human pose estimation in presence of occlusion using depth camera sensors, in human-robot coexistence scenarios"*, IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2018, Madrid (Spain), October 1st - 5th, 2018.

[IC25] D. Nicolis, A.M. Zanchettin, P. Rocco – *"Human Intention Estimation based on Neural Networks for Enhanced Collaboration with Robots"*, IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2018, Madrid (Spain), October 1st - 5th, 2018.

[IC26] A.M. Zanchettin, S. Formentin, R. Loddo, R. Paparella – "*Direct Data-Driven Control of Cavity Tuners in*

Particle Accelerators", SYSID 2018, 18th IFAC Symposium on System Identification, Stockholm (Sweden), July 9th-11th, 2018.

[IC27] A. Casalino, F. Cividini, A.M. Zanchettin, L. Piroddi, P. Rocco – "*Human-robot collaborative assembly: a use-case application*", INCOM 2018, 16th IFAC Symposium on Information Control Problems in Manufacturing, Bergamo (Italy), June 11th - 13th, 2018.

[IC28] R. Maderna, A. Casalino, A.M. Zanchettin, P. Rocco – "*Robotic handling of liquids with spilling avoidance: a constraint-based control approach*", IEEE International Conference on Robotics and Automation, ICRA 2018, Brisbane (Australia), May 21st-25th, 2018.

[IC29] A.M. Zanchettin, P. Rocco - "*Probabilistic inference of human arm reaching target for effective human-robot collaboration*", IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2017, Vancouver (Canada), September 24th - 28th, 2017.

[IC30] M. Parigi Polverini, A.M. Zanchettin, F. Incocciati, P. Rocco - "*Robust Constraint-Based Robot Control for Bimanual Cap Rotation*", IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2017, Vancouver (Canada), September 24th - 28th, 2017.

[IC31] M. Parigi Polverini, D. Nicolis, A.M. Zanchettin, P. Rocco - "*Robust Set Invariance for Implicit Robot Force Control in Presence of Contact Model Uncertainty*", IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2017, Vancouver (Canada), September 24th - 28th, 2017.

[IC32] D. Nicolis, A.M. Zanchettin, P. Rocco - "*A Hierarchical Optimization Approach to Robot Teleoperation and Virtual Fixtures Rendering*", IFAC World Congress 2017, Toulouse (France), July 9th - 14th 2017.

[IC33] D. Quarta, M. Pogliani, M. Polino, F. Maggi, A.M. Zanchettin, S. Zanero - "*An Experimental Security Analysis of an Industrial Robot Controller*", IEEE Symposium on Security and Privacy, San Josè (USA), May 22nd - 24th, 2017.

[IC34] A. Casalino, A.M. Zanchettin, P. Rocco - "*Online planning of optimal trajectories on assigned paths with dynamic constraints for robot manipulators*", IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2016, Daejeon (Korea), September 9th - 14th, 2016.

[IC35] A.M. Zanchettin, P. Rocco - "*Robust constraint-based control of robot manipulators: an application to a visual aided grasping task*", IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2016, Daejeon (Korea), September 9th - 14th, 2016.

[IC36] M. Parigi Polverini, R. Rossi, G. Morandi, L. Bascetta, A.M. Zanchettin, P. Rocco - "*Performance Improvement of Implicit Integral Robot Force Control through Constraint-Based Optimization*", IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2016, Daejeon (Korea), September 9th - 14th, 2016.

[IC37] M. Parigi Polverini, A.M. Zanchettin, S. Castello, P. Rocco – "*Sensorless and constraint based peg-in-hole task execution with a dual-arm robot*", IEEE International Conference on Robotics and Automation, ICRA 2016, Stockholm (Sweden), May 16th-21st, 2016.

[IC38] C. Lamperti, A.M. Zanchettin, P. Rocco – "*A redundancy resolution method for an anthropomorphic dual-arm manipulator based on a musculoskeletal criterion*", IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2015, Hamburg (Germany), September 28th – October 2nd, 2015.

[IC39] G. Buizza Avanzini, A.M. Zanchettin, P. Rocco – "*Constraint-based model predictive control for holonomic mobile manipulators*", IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2015, Hamburg (Germany), September 28th – October 2nd, 2015.

[IC40] R. Rossi, M. Parigi Polverini, A.M. Zanchettin, P. Rocco – "*Pre-collision control strategy for human-robot Interaction based on dissipated energy in potential inelastic impacts*", IROS 2015, Hamburg (Germany), September 28th – October 2nd, 2015, **Best Student Paper Award Finalist**.

[IC41] M. Ragaglia, A.M. Zanchettin, P. Rocco – "*Safety-aware trajectory scaling for human-robot collaboration with prediction of human occupancy*", International Conference on Advanced Robotics, ICAR 2015, Istanbul (Turkey), July 2015, 27th -31st.

[IC42] A.M. Zanchettin, P. Rocco – "*Reactive Motion Planning and Control for Compliant and Constraint-Based Task Execution*", IEEE International Conference on Robotics and Automation, ICRA 2015, Seattle (Washington, USA), May 2015, 26th-30th.

[IC43] M. Parigi Polverini, A.M. Zanchettin, P. Rocco – "*Collision Avoidance in Human-Robot Interaction Based on Kinetostatic Safety Field*", IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2014, Chicago (Illinois, USA), September 14th-18th.

[IC44] M. Ragaglia, L. Bascetta, P. Rocco, A.M. Zanchettin *"Integration of perception, control and injury knowledge for safe human-robot interaction"*, IEEE International Conference on Robotics and Automation, ICRA 2014, Hong Kong (China), May/June 2014, 31st-5th.

[IC45] A.M. Zanchettin, P. Rocco - *"Near time-optimal and sensor-based motion planning for robotic manipulators"*, IEEE Conference on Decision and Control, CDC 2013, Florence (Italy), December 2013, 10th-13th.

[IC46] A.M. Zanchettin, P. Rocco - "*Path-consistent safety in mixed human-robot collaborative manufacturing environments*", IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2013, Tokyo (Japan), November 2013, 3rd-7th.

[IC47] N.M. Ceriani, A.M. Zanchettin, P. Rocco, A. Stolt, A. Robertsson - "*A constraint-based strategy for task-consistent safe human-robot interaction*", IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2013, Tokyo (Japan), November 2013, 3rd-7th.

[IC48] N.M. Ceriani, G. Buizza Avanzini, A.M. Zanchettin, L. Bascetta, P. Rocco - "*Optimal placement of spots in distributed proximity sensors for safe human-robot interaction*", IEEE International Conference on Robotics and Automation, ICRA 2013, Karlsruhe (Germany), May 2013, 6th-10th.

[IC49] A.M. Zanchettin, B. Lacevic, P. Rocco - "*A novel passivity-based control law for safe human-robot coexistence*", IEEE/RSJ International Conference on Robots and Intelligent Systems, IROS 2012, Vilamoura, Algarve (Portugal), October 2012, 7th-12th.

[IC50] A. Barcellini, L. Bascetta, M. Raymo, P. Rocco, A.M. Zanchettin, A. Robertsson - "*Integrating an anti-collision system based on laser Time-Of-Flight sensor in an industrial robot controller*", IFAC Symposium on Robot Control, SYROCO 2012, Dubrovnik (Croatia), September 2012, 5th-7th.

[IC51] A. Calloni, A. Corti, A.M. Zanchettin, M. Lovera - "*Robust attitude control of spacecraft with magnetic actuators"*, American Control Conference, ACC 2012, Montreal (Canada), June 2012, 27th-29th, **invited paper**.

[IC52] A.M. Zanchettin, P. Rocco - "*Dual-arm redundancy resolution based on null-space dynamically-scaled posture optimization"*, IEEE International Conference on Robotics and Automation, ICRA 2012, St. Paul (Minnesota, USA), May 2012, 14th-18th.

[IC53] A.M. Zanchettin, M. Lovera - "*H_\infty attitude control of magnetically actuated satellites"*, IFAC World Congress, Milan (Italy), August/September 2011, 28th-2nd.

[IC54] A.M. Zanchettin, P. Rocco - "*On the use of functional redundancy in industrial robotic manipulators for optimal spray painting"*, IFAC World Congress, Milan (Italy), August/September 2011, 28th-2nd.

[IC55] I. Symeonidis, S. Peldschus, A.M. Zanchettin, P. Rocco, D. Bortot, K. Bengler - "*Database of human reach motions in work environment"*, First International Symposium on Digital Human Modeling, DHM 2011, Lyon (France), June 2011, 14th-16th.

[IC56] A.M. Zanchettin, P. Rocco, A. Robertsson, R. Johansson - "*Exploiting task redundancy in industrial manipulators during drilling operations"*, IEEE International Conference on Robotics and Automation, ICRA 2011, Shanghai (China), May 2011, 9th-13th.

[IC57] A.M. Zanchettin, P. Rocco, L. Bascetta, I. Symeonidis, S. Peldschus - "*Kinematic analysis and synthesis of the human arm motion during a manipulation task"*, IEEE International Conference on Robotics and Automation, ICRA 2011, Shanghai (China), May 2011, 9th-13th.

[IC58] A.M. Zanchettin, P. Rocco, G. Ferretti - "*Numerical issues in integrating holonomic kinematic inversion algorithms for redundant manipulators"*, IFAC Symposium on Nonlinear Control Systems, NOLCOS 2010, Bologna (Italy), September 2010, 1st-3rd.

[IC59] A.M. Zanchettin, P. Rocco, L. Bascetta, I. Symeonidis, S. Peldschus - "*Kinematic motion analysis of the human arm during a manipulation task"*, International Symposium on Robotics and German Conference on Robotics, ISR/Robotik 2010, Munich (Germany), June 2010, 7th-9th.

[IC60] P. Rocco, A.M. Zanchettin - "*General parameterization of holonomic kinematic inversion algorithms for redundant manipulators"*, IEEE International Conference on Robotics and Automation, ICRA 2010, Anchorage (Alaska, USA), May 2010, 3rd-8th.

[IC61] L. Bascetta, G. Magnani, P. Rocco, A.M. Zanchettin - "*Design and implementation of the low-level control system of an All-Terrain Mobile Robot"*, International Conference on Advanced Robotics, ICAR 2009, Munich (Germany), June 2009, 22nd-26th.

[IC62] G. Magnani, P. Rocco, L. Trevisan, A.M. Zanchettin, A. Rusconi - "*Torque control in the joint of a space robotic arm"*, IEEE International Conference on Mechatronics, ICM 2009, Malaga (Spain), April 2009, 14th-17th.

Patents

[P1] A.M. Zanchettin – "*Metodo e relativo sistema di controllo di sicurezza di un robot*", applicant: Politecnico di Milano, April 2021 (IT/102021000010472).

[P2] M. Pozzi, D. Prattichizzo, A.M. Zanchettin, P. Rocco – "*Metodo per generare un segnale di consapevolezza di un robot collaborativo e relativo sistema hardware*", applicants: Università di Siena and Politecnico di Milano, August 2018 (IT 102018000007934).

[P3] A.M. Zanchettin, A. Casalino, L. Piroddi, P. Rocco – "*A predictive control method of a robot and related control system*", applicants: Politecnico di Milano and Smart Robots srl, June 2018 (PCT/IB2019/054763).

[P4] A.M. Zanchettin, P. Rocco - *"Method and device for controlling the motion of one or more collaborative robots"*, applicant: Politecnico di Milano, May 2017 (PCT/IB2017/052932).

Proceedings of National Conferences

[NC1] A. Casalino, A.M. Zanchettin, P. Rocco – "*Enhancing the collaboration between human and robots through activity prediction and reactive scheduling"*, Automatica.it 2019, Ancona (Italy), September 2019, 11th-13th.

[NC2] D. Nicolis, A.M. Zanchettin, P. Rocco – "*Hierarchical Optimal Control for Shared Human-Robot Authority in Bilateral Dual-Arm Teleoperation Systems*", Automatica.it 2018, Firenze (Italy), September 2018, 12th-14th.

[NC3] A.M. Zanchettin – "*Inferring human motion to enhance human-robot collaboration*", Automatica.it 2017, Milano (Italy), September 2017, 11th-13th.

[NC4] M. Parigi Polverini, A.M. Zanchettin, S. Formentin, P. Rocco – "*Performance Improvement in Implicit Force Control for Industrial Robots*", Automatica.it 2017, Milano (Italy), September 2017, 11th-13th.

[NC5] M. Ragaglia, A.M. Zanchettin, L. Bascetta, P. Rocco – "*Perception and Control Strategies for Safe Human-Robot Interaction*", Automatica.it 2015, Bari (Italy), September 2015, 7th-9th.

[NC6] N.M. Ceriani, A.M. Zanchettin, P. Rocco – "*Task-constrained Collision Avoidance for Dual Arm Robots using Quadratic Programming*", Automatica.it 2014, Bergamo (Italy), September 2014, 8th-10th.

[NC7] L. Bascetta, G. Buizza Avanzini, N. Ceriani, M. Ragaglia, P. Rocco, A.M. Zanchettin – "*Interazione sicura uomo-robot in ambiente industriale*", Motion Control 2013, Cinisello Balsamo (Italy), November 2013, 20th-21st.

[NC8] A.M. Zanchettin, N.M. Ceriani, P. Rocco - "*Reactive motion planning for robotic manipulators: problem setting and challenges*", Automatica.it 2013, Palermo (Italy), September 2013, 16th-18th.

[NC9] L. Bascetta, P. Rocco, A.M. Zanchettin, G. Magnani - "*Controllo di velocità di una lavabiancheria: dall'analisi meccatronica alla taratura automatica del regolatore*", Automatica.it 2012, Benevento (Italy), September 2012, 12th-14th.

[NC10] L. Bascetta, G. Ferretti, B. Lacevic, G. Magnani, P. Rocco, A.M. Zanchettin - "*Robotica industriale umano-centrica: il progetto ROSETTA"*, Motion Control 2010, Cinisello Balsamo (Italy), November 2010, 10th-11th.

[NC11] A. Locatelli, P. Rocco, N. Schiavoni, A.M. Zanchettin - "*Ripetibilità dei movimenti nei manipolatori robotici a ridondanza cinematica"*, Motion Control 2010, Cinisello Balsamo (Italy), November 2010, 10th-11th.

Chapters in National Books

[NBC1] A.M. Zanchettin, P. Rocco – "*La robotica collaborativa intelligente come strumento per una maggiore produttività*", in C. Lupi (ed.), Il futuro della Fabbrica, ESTE, May 2019.

Printed National Journals

[NJ1] A.M. Zanchettin – "*Algoritmi e intelligenza artificiale – La fabbrica evolve con la tecnologia*", Sistemi & Impresa, ESTE, March 2021.

[NJ2] A.M. Zanchettin – "*Automazione 5.0: l'uomo, il robot e l'intelligenza artificiale*", Automazione Integrata, Tecniche Nuove, July 2019.

[NJ3] A.M. Zanchettin – "*Assemblaggio 4.0 e robotica collaborativa*", Automazione Integrata, Tecniche Nuove, September 2018.

[NJ4] A.M. Zanchettin - "*Robot 4.0: istruzioni per l'uso*", Industrie 4.0, Tecniche Nuove, March 2017.

[NJ5] P. Rocco, A.M. Zanchettin - "*Robotica: la collaborazione uomo-macchina per la creazione di nuovo valore"*, Sistemi & Impresa, ESTE, January/February 2016.

[NJ6] L. Bascetta, P. Bolzern, G. Ferretti, B. Lacevic, A. Locatelli, G. Magnani, P. Rocco, N. Schiavoni, A.M. Zanchettin - "*Robotica industriale umano-centrica: il progetto ROSETTA"*, Automazione e Strumentazione, Quine Business Publisher, June 2011.

Autorizzo il trattamento dei miei dati personali
ai sensi del Decreto Legislativo 10 agosto 2018, n. 101
e del GDPR (Regolamento UE 2016/679).

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