

Loredana Zollo

CURRICULUM VITAE

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1 Personal Data

Date of birth: 14 Febbraio 1976

Place of birth : Benevento

Civil status: Married

Nationality: Italian

Address (Home): Via Nicola Nisco, 21 – 00179 Roma (Italy)

Address (Office): Università Campus Bio-Medico of Rome

Via Alvaro del Portillo, 21 - 00128 Roma (Italy)

Phone number:

(office) +39–06–225419632/ 225419610

(mobile) +39–347–8205267

Email: l.zollo@unicampus.it

1.1 Current position

She is associate professor of Bio-engineering and head of the Laboratory of Biomedical Robotics and Biomicrosystems at Università Campus Bio-Medico of Rome.

In 2018 she got the National Scientific Qualification for Full Professor of Bio-engineering.

She is the Director of the Master of Science in Biomedical Engineering in the same university and has a faculty position (tenured) in Industrial and Medical Robotics.

1.2 Education

Laurea degree in Electronic Engineering, received from Università degli Studi di Napoli ‘Federico II’ (Italy)

Graduation Thesis: in Industrial Robotics

Title of Graduation Thesis: Compliance control of a robot for assistance to disabled people

Supervisor: Prof. Bruno Siciliano - Università degli Studi di Napoli ‘Federico II’

Co-supervisors: Prof. Paolo Dario, Dr. Cecilia Laschi - ARTS Lab, Scuola Superiore Sant’Anna (Pisa)

Graduation Date: October 24th, 2000

Graduation Grade: Summa cum laude

Doctorate: Research Doctorate degree in Bioengineering received from the Scuola Superiore Sant’Anna of Pisa in May 2004

Title of PhD Thesis: Interaction control of biomedical robotic systems

Supervisory Board: Prof. Paolo Dario, Prof. M. Chiara Carrozza, Dr. Cecilia Laschi - ARTS Lab, Scuola Superiore Sant’Anna (Pisa)

External Supervisor: Prof. Bruno Siciliano - Università degli Studi di Napoli ‘Federico II’

PhD Grade: Summa cum laude

2 Scientific Activity

2.1 Main research interests

Research activities of Loredana Zollo are characterized by a multidisciplinary approach with special attention to human-machine interaction in applications of biomedical robotics and rehabilitation bio-engineering. The study and the knowledge of human component is regarded as a key element of the design of robotic and mechatronic machines. During her graduation thesis, she acquired important competences on control theory of robot manipulators that, in the framework of her PhD in Bioengineering and successive research activity, she gradually enriched with new competences on modelling of human component and design of biomechatronic machines.

Loredana Zollo's main expertise is concerned with : Interaction control of anthropomorphic robot arms – Kinematic and dynamic analysis of robot manipulators – Design and development of control schemes for robot manipulators with flexible components (joints and links) – Design and development of interaction control schemes of robotic machines for rehabilitation – Modelling and control of underactuated mechanisms – Biomechanical modelling of the upper limb – Biological motor control and neurophysiological models of sensory-motor coordination – Design and development of motor control schemes for bio-inspired robotic systems – Multi-sensory integration and sensory-motor coordination of anthropomorphic robotic systems – Grasping and manipulation – Tactile sensing.

Her application fields are the following:

- Robot-aided motor therapy: Design and development of operational machine for upper limb motor recovery; analysis and control of operational and exoskeletal machines for upper and lower limb; analysis and control of artificial hands for prosthetics and robotics.
- Neuro-robotics e biomedical technologies for neuroscience: control of mechatronic and robotic systems for measuring human performance (kinematic and force measures, stiffness estimation); Study of human motor control and analysis of human behavior; design and development of anthropomorphic robotic systems for experimental validation of bio-inspired models of sensory-motor coordination; Hybrid bionic systems for functional recovery and augmentation of human performance.
- Functional assessment: Mechatronic devices for functional assessment; Observation and analysis of basic mechanisms of human upper limb motor control; Methods and techniques for measuring upper limb visco-elastic properties; Use of brain imaging techniques (such as EEG, MEG, fMRI) for evaluating the effects on the patients of robot-aided therapy and generating proper corrective actions; Multimodal evaluation of motor learning mechanisms by the joint use of systems for kinematic and dynamic analysis and systems for stimulation and registration of cerebral activity.
- Robotic and mechatronic devices for personal assistance and service robotics: Systems for assistance to disabled and elderly people; Technological devices for the integration of young disabled at school and university; Personal robots.

2.2 Periods Abroad

From September 2003 to November 2003, during her PhD in bio-engineering, Loredana Zollo was visiting student at the Laboratory of Neuroscienze INSERM U483 (led by Prof. Yves Burnod), at Université Pierre et Marie Curie in Paris. Here, she studied in depth problems of sensory-motor coordination and correlation of sensory information coming from different sources in tasks of grasping and object manipulation in humans.

In September 2005 spent about two weeks in Japan as visiting student at University of Tokyo. In the same period she visited the research joint lab (Italy-Japan) of Humanoid and Personal Robotics, called ROBOCASA, sited at Waseda University of Tokyo.

In October 2007, Loredana Zollo was visiting post-doc fellow at the Newman Lab for Biomechanics and Human Rehabilitation of the Massachusetts Institute of Technology (Cambridge, MA, USA) in the framework of the project Interlink/MOTHER.

2.3 Collaboration to International Journals and Conferences

Loredana Zollo regularly serves as reviewer for the following international journals:

- Autonomous Robots
- IEEE Transactions on Biomedical Engineering
- IEEE Transactions on Control Systems Technology
- IEEE Transactions on Mechatronics
- IEEE Transactions on Robotics
- IEEE Transactions on Systems, Man, and Cybernetics
- International Journal of Advanced Robotics
- Journal of Micromechatronics
- Robotics and Autonomous Systems
- IEEE Robotics and Automation Magazine
- Journal of Neuroengineering and Rehabilitation.

Since 2002 she regularly serves as reviewer for the following international conferences:

- IEEE-RAS International Conference on Robotics and Automation (ICRA);
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).
- IEEE International Conference on Rehabilitation Robotics (ICORR).
- IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM).

- IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechanics (BIOROB).
- IEEE / EMBS International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC).

She was editor for the international conferences BioRob2012 and RO-MAN2017, associate editor for IROS2012 and IROS2014 and member of the Organizing Committee of the 5th IARP - IEEE/RAS - EURON Joint Workshop on Technical Challenge for Dependable Robots in Human Environments, 2007. She is member of the IPC of a number of International Conferences.

In 2012–2015 she was member of the editorial board as Associate Editor of the IEEE Robotics and Automation Magazine. She currently is member of the Editorial Board of the International Journal of Advanced Robotic Systems and member of the editorial board of Springer Series on Biosystems and Biorobotics. In 2009–2012 she was co-chair of the IEEE Robotics and Automation’s Technical Committee on Rehabilitation and Assistive Robotics.

In 2010 she was co-organizer of the half-day workshop on “Rehabilitation and Assistive Robots for an Aging Society” that was held in Anchorage, Alaska, on May 8, 2010, in conjunction with ICRA 2010 . In 2011 she co-organized the half-day workshop on “New and Emerging Technologies in Assistive Robotics” in San Francisco, CA, on September 26, 2011, in conjunction with IROS 2011.

She was guest editor of the Special Issues on: (i) “Assistive Robotics” published in *IEEE Robotics and Automation Magazine* on March, 2013; (ii) “New methods of human-robot interaction in medical practice” published in *Computer Methods and Programs in Biomedicine*, 2014; (iii) “Rehabilitation Robotics” published in *Journal of Medical Robotics Research*, 2016.

2.4 Participation in International Scientific Societies and Group Activities

Since 2001 she is member of the IEEE Robotics and Automation Society (RAS), where she served as co-chair of the IEEE Robotics and Automation’s Technical Committee on Rehabilitation and Assistive Robotics.

In 2009 – 2013 she was expert and reviewer for the European Commission within the EU FP7 research program, Future and Emerging Technologies (FET) – Proactive, Embodied Intelligence. Since 2014 she is expert and reviewer for the European Commission within H2020-FETOPEN-2014-2015-RIA and H2020-Call3 - ICT25 and ICT26.

In 2012-2013 she was member of the IEEE-RAS Chapter of the Year Award Evaluation Panel.

In 2014 she was member of the Evaluation Board for “Robotics Business Review Game Changer Awards”.

In 2016 she has been member of the Evaluation Board for “IEEE RAS Italian Chapter Young Author Best Paper Award 2016”.

2.5 Awards

F. Petrini, S. Raspopovic, M. Bonizzato, F. Giambattistelli, L. Zollo, E. Guglielmelli, S. Micera, “Efferent Microneurography Recordings: A Tool for Motor Control Study and Hand-Prosthesis Decoding”, NER 2013 - 6th International IEEE EMBS Conference on Neural Engineering, San Diego, CA, 2013 (awarded as Best Conference Paper)

E. Noce, L. Zollo, A. Davalli, R. Sacchetti, E. Guglielmelli “Relationship between Neural and Muscular Recordings during Hand Control“, V Congresso del Gruppo Nazionale di Bioingegneria, Naples, Italy, 2016 (awarded as Best Young Researcher Paper Award).

3 Research Activity in the Framework of National and International Projects

She is principal investigator and partner of the following national and international projects in the area of biomedical robotics:

- AIDE (Adaptive Multimodal Interfaces to Assist Disabled People in Daily Activities) – Partner. This is a 3-year European project within HORIZON 2020, Call ICT- 22-2014: Multimodal and Natural computer interaction.
- PPR2 and PPR AS 1/3 (Control of hand prosthesis by invasive neural interfaces) – PI. They are two 3-year national projects (2014–2017 and 2017–2020), funded by the National Institute for Insurance against Industrial Injuries.
- PRIN/HANDBOT (Biomechatronic hand prostheses endowed with bio-inspired tactile perception, bi-directional neural interfaces and distributed sensori-motor control) – Co-PI. This is a 3-year national project (2013-2015), co-funded by the Italian Ministry of Instruction, University and Research.
- NEMESIS (NEurocontrolled MEchatronic prostheSIS) – Partner. This is a 3-year national project (2011-2013) co-funded by the Italian Ministry of Health.
- PRIN/OPENHAND (OPEN neuro-prosthetic HAND platform for clinical trials) – Partner. This is a 2-year national project (2010-2012), co-funded by the Italian Ministry of Instruction, University and Research.
- ECHORD (Large scale integrating Project), EUFP7, ICT priority, Cognitive systems Integration, Robotics – Partner, co-PI of the experiment MAAT (Multimodal Interfaces to improve TherApeutic outcomes in robot Assisted rehabiliTation (2010-2011).
- ITINERIS-2 (2007-2011) projects – Principal Investigator and partner. They are two national funded projects on the technological transfer of lower limb orthoses.
- PRIN/SafeHand (Design and Experimental Analysis of a Cybernetic Prosthetic Hand) – Partner. This is a 2-year national project (2007-2008), co-funded by the Italian Ministry of Instruction, University and Research.
- IST/FET NEUROBOTICS (The fusion of Neuroscience and Robotics for augmenting human capabilities) – Partner (2004-2008).
- SOCRATES/Minerva ROBODIDACTICS. Partner (2007-2009).
- INTERLINK-MOTHER (MOtor THERapy mEdiated by Robotic technology) – Partner. It is 2-year project (2006-2008) sponsored by Italian Ministry of Instruction, University and Research.

4 Scientific Publications

4.1 Refereed International Journal Publications

- [Ra-59] Scotto Di Luzio F, Simonetti D, Cordella F, Miccinilli S, Sterzi S, Draicchio F, Zollo L (2018), “Bio-cooperative approach for the human-in-the-loop control of an end-effector rehabilitation robot”, *Frontiers in Neurorobotics*, Vol. 12, DOI: 10.3389/fnbot.2018.00067.
- [Ra-58] Noce E, Ciancio AL, Zollo L (2018), “Spike detection: The first step towards an ENG-based neuroprotheses”, *Journal of Neuroscience Methods*, Vol. 308, pp. 294–308, DOI: 10.1016/j.jneumeth.2018.07.008
- [Ra-57] Crea S, Nann M, Trigili E, Cordella F, Baldoni A, Badesa FJ, Catalán JM, Zollo L, Vitiello N, Aracil NG, Soekadar SR (2018), “Feasibility and safety of shared EEG/EOG and vision-guided autonomous whole-arm exoskeleton control to perform activities of daily living”, *Scientific Reports*, Vol. 8, DOI: 10.1038/s41598-018-29091-5.
- [Ra-56] Noce E, Dellacasa Bellingegni A, Ciancio AL, Sacchetti R, Davalli A, Guglielmelli E, Zollo L (2018) “EMG and ENG-envelope pattern recognition for prosthetic hand control”, *Journal of Neuroscience Methods*, Vol. 311, pp. 38–46, DOI: 10.1016/j.jneumeth.2018.10.004.
- [Ra-55] Bertomeu-Motos A, Blanco A, Badesa FJ, Barrios JA, Zollo L, Garcia-Aracil N (2018), “Human arm joints reconstruction algorithm in rehabilitation therapies assisted by end-effector robotic devices”, *JOURNAL OF NEUROENGINEERING AND REHABILITATION*, doi: 10.1186/s12984-018-0348-0
- [Ra-54] Lauretti C, Cordella F, Ciancio AL, Trigili E, Catalan JM, Badesa FJ, Crea S, Pagliara S, Sterzi S, Vitiello N, Garcia-Aracil N, Zollo L (2018), “Learning-by-demonstration for motion planning of upper-limb exoskeletons”, *FRONTIERS IN NEUROBOTICS*, doi: 10.3389/fnbot.2018.00005
- [Ra-53] Cutti AG, Cordella F, D’Amico G, Sacchetti R, Davalli A, Guglielmelli E, Zollo L (2017), “A motion analysis protocol for kinematic assessment of poly-articulated prosthetic hands with cosmetic gloves”, *ARTIFICIAL ORGANS*, doi: 10.1111/aor.13006
- [Ra-52] Cordella F, Di Corato F, Siciliano B, Zollo L (2017), “A stochastic algorithm for automatic hand pose and motion estimation”, *MEDICAL AND BIOLOGICAL ENGINEERING AND COMPUTING*, ISSN: 1741-0444, doi: 10.1007/s11517-017-1654-6
- [Ra-51] Lotti F, Ranieri F, Vadalà G, Zollo L, Di Pino G (2017), “Invasive Intraneural Interfaces: Foreign Body Reaction”, *FRONTIERS IN NEUROSCIENCE*, vol. 11, ISSN: 1662-453X, doi: 10.3389/fnins.2017.00497
- [Ra-50] Romeo RA, Oddo CM, Carrozza MC, Guglielmelli E, Zollo L (2017). “Slippage detection with piezoresistive tactile sensors”, *SENSORS*, vol. 17, ISSN: 1424-8220, doi: 10.3390/s17081844

- [Ra-49] Dellacasa Bellingegni A, Gruppioni E, Colazzo G, Davalli A, Sacchetti R, Guglielmelli E, Zollo L (2017) “NLR, MLP, SVM, and LDA: A comparative analysis on EMG data from people with trans-radial amputation”, *JOURNAL OF NEUROENGINEERING AND REHABILITATION*, vol. 14, 82, ISSN: 1743-0003, doi: 10.1186/s12984-017-0290-6
- [Ra-48] Simonetti D, Zollo L, Milighetti S, Miccinilli S, Bravi M, Ranieri F, Magrone G, Guglielmelli E, Di Lazzaro V, Sterzi S (2017), “Literature Review on the Effects of tDCS Coupled with Robotic Therapy in Post Stroke Upper Limb Rehabilitation”, *FRONTIERS IN HUMAN NEUROSCIENCE*, vol. 11, 268, ISSN: 1662-5161, doi: 10.3389/fnhum.2017.00268
- [Ra-47] Lauretti C, Cordella F, Guglielmelli E, Zollo L (2017), “Learning by Demonstration for Planning Activities of Daily Living in Rehabilitation and Assistive Robotics”, *IEEE ROBOTICS AND AUTOMATION LETTERS*, vol. 2, p. 1375-1382, ISSN: 2377-3766
- [Ra-46] Simonetti D, Zollo L, Vollero L, Iannello G, Guglielmelli E (2016), “A Modular Telerehabilitation Architecture for Upper-limb Robotic Therapy”, *Advances in Mechanical Engineering*, vol. 9, doi: 10.1177/1687814016687252.
- [Ra-45] Simonetti D, Zollo L, Papaleo E, Carpino G, Guglielmelli E (2016). “Multi-modal adaptive interfaces for 3D robot-mediated upper limb neuro-rehabilitation: an overview of bio-cooperative systems”. *ROBOTICS AND AUTONOMOUS SYSTEMS*, ISSN: 0921-8890, doi: 10.1016/j.robot.2016.08.012
- [Ra-44] R. Barone, R.A. Romeo, A.L. Ciancio, A. Davalli, R. Sacchetti, E. Guglielmelli and L. Zollo, “Multilevel control of an anthropomorphic prosthetic hand for grasp and slip prevention”, *Advances in Mechanical Engineering*, 2016, Vol. 8(9), pp. 1-13, DOI: 10.1177/1687814016665082.
- [Ra-43] F. Cordella, A.L. Ciancio, R. Sacchetti, A. Davalli, A.G. Cutti, E. Guglielmelli, L. Zollo, “Literature review on needs of upper limb prosthesis users”, *Frontiers in Neuroscience*, 2016.
- [Ra-42] A.L. Ciancio A.L., F. Cordella, R. Barone., R.A. Romeo, A. Dellacasa Bellingegni, R. Sacchetti, A. Davalli, G. Di Pino, F. Ranieri, V. Di Lazzaro, E. Guglielmelli, L. Zollo, “Control of Prosthetic Hands via the Peripheral Nervous System”, *Frontiers in Neuroscience*, 2016, 10, 116.
- [Ra-41] V. Di Lazzaro, F. Capone, G. Di Pino, G. Pellegrino, L. Florio, L. Zollo, D. Simonetti, F. Ranieri, N. Brunelli, M. Corbetto, S. Miccinilli, M. Bravi, S. Milighetti, E. Guglielmelli, S. Sterzi, “Combining Robotic Training and Non-Invasive Brain Stimulation in Severe Upper Limb-Impaired Chronic Stroke Patients”, *Frontiers in Neuroscience*, 2016.
- [Ra-40] Oddo CM, Raspopovic S, Artoni F, Mazzoni A, Spigler G, Petrini F, Giambattistelli F, Vecchio F, Miraglia F, Zollo L, Di Pino G, Camboni D, Carrozza MC, Guglielmelli E, Rossini PM, Faraguna U, Micera S. “Intraneural stimulation elicits

- discrimination of textural features by artificial fingertip in intact and amputee humans”. *ELIFE*, 2016, ISSN: 2050-084X, doi: <http://dx.doi.org/10.7554/eLife.09148>.
- [Ra-39] P. Saccomandi, C. M. Oddo, L. Zollo, D. Formica, R. Romeo, C. Massaroni, M. A. Caponero, N. Vitiello, E. Guglielmelli, S. Silvestri, E. Schena, “Feedforward Neural Network for Force Coding of an MRI-Compatible Tactile Sensor Array Based on Fiber Bragg Grating”, *J. Sensors*, 2015, Article ID 367194.
- [Ra-38] Meola VC, Caligiore D, Sperati V, **Zollo L**, Ciancio AL, Taffoni F, Guglielmelli E, Baldassarre G . “Interplay of Rhythmic and Discrete Manipulation Movements During Development: A Policy-Search Reinforcement-Learning Robot Model”. *IEEE TRANSACTIONS ON AUTONOMOUS MENTAL DEVELOPMENT*, 2015, Vol. 6, pp. 1–19, ISSN: 1943–0604.
- [Ra-37] E. Papaleo, **L. Zollo**, N. Garcia-Aracil, F.J. Badesa, R. Morales, S. Mazzoleni, S. Sterzi, E. Guglielmelli, “Upper-limb kinematic reconstruction during stroke robot-aided therapy”, *Medical and Biological Engineering and Computing*, 2014, doi: 10.1007/s11517-015-1276-9.
- [Ra-36] P. Saccomandi, E. Schena, C.M. Oddo, **L. Zollo**, S. Silvestri, E. Guglielmelli, “Microfabricated Tactile Sensors for Biomedical Applications: A Review”, *Biosensors*, 2014, vol. 4, pp. 422–448, doi: 10.3390/bios4040422
- [Ra-35] N. Garcia-Aracil, **L. Zollo**, A. Casals, J.M. Sabater-Navarro, “New methods of human-robot interaction in medical practice”, *Computer Methods and Programs in Biomedicine*, 2014, vol. 116, pp. 49–51.
- [Ra-34] **L. Zollo**, E. Lopez, L. Spedaliere, N. Garcia Aracil, E. Guglielmelli, “Identification of Dynamic Parameters for Robots with Elastic Joints”, *Advances in Mechanical Engineering*, 2014, Article ID 843186 (in press).
- [Ra-33] **L. Zollo**, N. Zacccheddu, A. Ciancio, M. Morrone, M. Laineri-Milazzo, E. Guglielmelli, S. Sterzi, “Comparative Analysis and Quantitative Evaluation of Ankle-Foot Orthoses for Foot Drop in Chronic Hemiparetic Patients”, *European Journal of Physical and Rehabilitation Medicine*, 2014, in press.
- [Ra-32] D. Formica, M. Petrarca, S. Rossi, **L. Zollo**, E. Guglielmelli, P. Cappa, “Shoulder motor performance assessment in the sagittal plane in children with hemiplegia during single joint pointing tasks”, *BioMedical Engineering OnLine*, 2014, vol. 13, DOI: 10.1186/1475-925X-13-106.
- [Ra-31] G. Di Pino, A. Maravita, **L. Zollo**, E. Guglielmelli, V. Di Lazzaro, “Augmentation-Related Brain Plasticity”, *Frontiers in Systems Neuroscience*, 2014, vol. 8, doi: 10.3389/fn-sys.2014.00109.
- [Ra-30] F.J. Badesa, R. Morales, N. Garcia-Aracil, N. Perez-Vidal, J.M. Sabater, E. Papaleo, A. Salerno, **L. Zollo**, E. Guglielmelli, “New Concept of Multimodal Assistive Robotic Device”, *IEEE Robotics and Automation Magazine*, 2014, in press.

- [Ra-29] R. Morales, F. Badesa, N. Garcia-Aracil, JM Sabater-Navarro, **L. Zollo**, “Soft robotic manipulation of onions and artichokes in the food industry”, *Advances In Mechanical Engineering*, 2014, doi: 10.1155/2014/345291
- [Ra-28] F.J. Badesa, R. Morales, N. Garcia-Aracil, J.M. Sabater, **L. Zollo**, E. Papaleo, E. Gugliemelli, “Dynamic Adaptive System for Robot-Assisted Motion Rehabilitation”, *IEEE Systems Journal*, 2014, doi: 10.1109/JSYST.2014.2318594.
- [Ra-27] F. Cordella, **L. Zollo**, A. Salerno, D. Accoto, E. Guglielmelli, B. Siciliano, “Human Hand Motion Analysis and Synthesis of Optimal Power Grasps for a Robotic Hand”, *International Journal of Advanced Robotic Systems*, 2014, vol. 11, pp. 1–13, doi: 10.5772/57554.
- [Ra-26] A. Sudano, D. Accoto, **L. Zollo**, E. Guglielmelli, “Design, development and scaling analysis of a variable stiffness magnetic torsion spring”, *International Journal of Advanced Robotic Systems*, 2013, vol. 10, doi: 10.5772/57300.
- [Ra-25] F.J. Badesa, R. Morales, N. Garcia-Aracil, J.M. Sabater, A. Casals, **L. Zollo**, “Auto-adaptive robot-aided therapy using machine learning techniques”, *Computer Methods and Programs in Biomedicine*, 2013, doi: 10.1016/j.cmpb.2013.09.011 .
- [Ra-24] D. Accoto, G. Carpino, F. Sergi, N.L. Tagliamonte, **L. Zollo**, E. Guglielmelli, “Design and Characterization of a Novel High-Power Series Elastic Actuator for a Lower Limbs Robotic Orthosis”, *International Journal of Advanced Robotic Systems*, 2013, vol. 10, doi: 10.5772/56927.
- [Ra-23] S. Mazzoleni, L. Puzzolante, **L. Zollo**, E. Guglielmelli, P. Dario, F. Posteraro, “Mechanisms of motor recovery in chronic and subacute stroke patients following a robot-aided training”, *IEEE Transactions on Haptics*, 2013, doi: 10.1109/TOH.2013.73.
- [Ra-22] **L. Zollo**, K. Wada, H.F.M. Van der Loos, “Special Issue on Assistive Robotics [From the Guest Editors]”, *IEEE ROBOTICS AND AUTOMATION MAGAZINE*, 2013, vol. 20, pp. 16–19.
- [Ra-21] **L. Zollo**, A. Salerno, M. Vespignani, D. Accoto, M. Passalacqua, E. Guglielmelli, “Dynamic Characterization and Interaction Control of the CBM-Motus Robot for Upper-Limb Rehabilitation”, *International Journal of Advanced Robotic Systems*, 2013, vol. 10, doi: 10.5772/56928.
- [Ra-20] A.L. Ciancio, **L. Zollo**, G. Baldassarre, D. Caligiore, E. Guglielmelli, “The role of learning and kinematic features in dexterous manipulation: a comparative study with two robotic hands”, *International Journal of Advanced Robotic Systems*, 2013, doi: 10.5772/56479.
- [Ra-19] G. Pellegrino, L. Tomasevic, M. Tombini, G. Assenza, E. Gallotta, S. Sterzi, V. Giacobbe, **L. Zollo**, E. Guglielmelli, G. Cavallo, F. Vernieri, F. Tecchio, “Inter-hemispheric coupling changes associate with motor improvements after robotic stroke rehabilitation”, *Restorative Neurology and Neuroscience*, 2012.

- [Ra-18] D. Formica, H.I. Krebs, S.K. Charles, **L. Zollo**, E. Guglielmelli, N. Hogan, “Passive wrist joint stiffness estimation”, *Journal of Neurophysiology*, 2012, DOI: 10.1152/jn.01014.2011.
- [Ra-17] F. Cordella, **L. Zollo**, E. Guglielmelli, B. Siciliano, “A bio-inspired grasp optimization algorithm for an anthropomorphic robotic hand”, *International Journal on Interactive Design and Manufacturing*, 2012, vol. 6, pp. 113–122.
- [Ra-16] **L. Zollo**, L. Rossini, M. Bravi, G. Magrone, S. Sterzi, E. Guglielmelli, “Quantitative evaluation of upper-limb motor control in robot-aided rehabilitation”, *Medical and Biological Engineering and Computing*, 2011, vol. 9, vol. 49, pp. 1131–1144.
- [Ra-15] **L. Zollo**, E. Gallotta, E. Guglielmelli, S. Sterzi, “Robotic Technologies and Rehabilitation: New Tools for Upper-limb Therapy and Assessment in Chronic Stroke.”, *European Journal of Physical and Rehabilitation Medicine*, 2011, vol. 47, pp. 223–236.
- [Ra-14] I. Gaudiello, D. Caligiore, G. Schiavone, A. Salerno, F. Sergi, **L. Zollo**, E. Guglielmelli, D. Parisi, “Effects on space representation of using a tool and a button”, *Cognitive Processing*, 2009, vol. 10, pp. 153–154.
- [Ra-13] M. Tombini, F. Zappasodi, **L. Zollo**, G. Pellegrino, G. Cavallo, E. Guglielmelli, P.M. Rossini, “Brain activity preceding a 2D manual catching task”, *Neuroimage*, 2009, vol. 47, pp. 1735–1746.
- [Ra-12] L. Lonini, L. Dipietro, **L. Zollo**, H. I. Krebs, E. Guglielmelli, “An internal model for acquisition and retention of motor learning during arm reaching”, *Neural Computation*, 2009, vol. 21, pp. 2009–2027.
- [Ra-11] E. Gallotta, G. Magrone, A. Romanelli, M. Milazzo, **L. Zollo**, D. Formica, E. Guglielmelli, S. Sterzi, “Neurorehabilitation of the upper limb using robotic systems”, *Journal of Rehabilitation Medicine*, 2008, suppl. 47, p. 276.
- [Ra-10] A. Romanelli, E. Gallotta, G. Magrone, M. Milazzo, **L. Zollo**, D. Formica, E. Guglielmelli, S. Sterzi, “OEP-based evaluation of chest wall kinematics in post-stroke hemiparetic patients”, *Journal of Rehabilitation Medicine*, 2008, suppl. 47, p. 282.
- [Ra-9] **L. Zollo**, S. Eskiizmirli, G. Teti, C. Laschi, Y. Burnod, E. Guglielmelli, M.A. Maier, “An anthropomorphic robotic platform for progressive and adaptive sensorimotor learning”, *International Journal of Advanced Robotics*, 2008, vol. 22, pp. 91–118.
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Date

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Signature

Loredana Zollo