Curriculum vitae

Federico Carpi

Contents

PERSONAL INFORMATION

- First name: Federico
- Last name: Carpi
- Birth date: 10 February 1975
- Nationality: Italian
- ORCID: https://orcid.org/0000-0001-8496-5085
- Contact information:
  Federico Carpi
  University of Florence, Department of Industrial Engineering,
  Via di S. Marta, 3 - 50139 Florence, Italy

E-mail: federico.carpi@unifi.it

WEBSITES

- Research Group: www.smart.unifi.it
- Google Scholar page: http://scholar.google.com/citations?user=eaDScloAAAAJ&hl=en

SCIENTIFIC METRICS

Dr Carpi's *h*-index and citation metrics are available on the following personal profile page of Google Scholar Citations: http://scholar.google.com/citations?user=eaDScloAAAAJ&hl=en

SHORT BIOGRAPHY

Federico Carpi is an Associate Professor in Biomedical Engineering at the University of Florence, Department of Industrial Engineering, Florence, Italy. He was born in Pisa, Italy, in 1975 and received from the University of Pisa the Laurea degree in Electronic Engineering in 2001, the Ph.D. degree in Bioengineering in 2005 and a second Laurea degree in Biomedical Engineering in 2008. From 2005 to 2012 he has been a post-Doc researcher at the University of Pisa, School of Engineering, Research Centre "E. Piaggio". From 2012 to 2016 he has been an Associate Professor (Reader) in Biomedical Engineering and Biomaterials at Queen Mary University of London, School of Engineering and Materials Science, UK. Since 2016, he is with the University of Florence, where he leads the 'SMART – Soft Matter ARtificial muscles and Transducers' research group (www.smart.unifi.it). Since 2014, he is also an Adjunct Professor at Beijing University of Chemical Technology, China, and since 2016 a Visiting Professor at Queen Mary University of London, UK. His research interests include smart material-based biomedical and bioinspired mechatronic devices, polymer artificial muscles, as well as electrical and magnetic systems for non-invasive diagnostics. From 2010 to 2014 he has been the Chair of the 'European Scientific Network for Artificial Muscles - ESNAM' (www.cost.eu/actions/MP1003), focused on transducers and artificial muscles based on electroactive polymers, and in 2015 he has coordinated in that field the publication of the first international standards. From 2013 to 2017 he has served as the first President of the 'European Society on Electromechanically Active Polymer Transducers and Artificial Muscles' (www.euroeap.eu). Since 2019, he is included in the ranking of the top 100,000 most influential scientists according to standardized citation metrics. He is an Editorial Board member of several international journals, and member of the scientific committees of several conferences. His publications include about 80 articles in international journals, 3 edited books and several contributions to books and conferences.

EDUCATION

- 2008: *Second Laurea degree: Biomedical Engineering*, University of Pisa, Italy.
- 2005: *PhD degree in Bioengineering*, University of Pisa, Italy.
- 2001: *First Laurea degree: Electronic Engineering*, University of Pisa, Italy.

ACADEMIC POSITIONS

Current Position

- 2016-present: *Associate Professor in Biomedical Engineering*,
  University of Florence, Department of Industrial Engineering, Florence, Italy.

Previous Positions

- 2012-2016: *Associate Professor (Reader) in Biomedical Engineering and Biomaterials*,
  Queen Mary University of London, School of Engineering and Materials Science, London, UK.

- 2005-2012: *Post-Doc Researcher,*
  University of Pisa, School of Engineering, Research Centre "E. Piaggio", Pisa, Italy.

Honorary Positions

- 2016-2019: *Visiting Professor* at the School of Engineering and Materials Science, Queen Mary University of London, UK.
- 2014-present: *Adjunct Professor* at Beijing University of Chemical Technology, Beijing, China.

SCIENTIFIC ACTIVITY

Main Research Topics

Smart material based biomedical and bioinspired mechatronic devices

The development of a huge variety of new biomedical and bioinspired mechatronic systems poses challenges that share the need for innovative technologies for electromechanical transduction, so as to enable applications not feasible or even imaginable with conventional approaches.
Aimed at addressing this need, Prof. Carpi's research activities are focused on the development of innovative technologies based on electromechanically active polymer (EAP) transducers. The fundamental idea is to use 'active materials' that exhibit a mechanical response to an electrical stimulus, while offering, at the same time, light weight, mechanical compliance, compact size, simple structure, low power consumption, acoustically silent operation, and low cost. EAPs exhibit such properties and they are referred to as 'smart materials' because of their ability to deform upon electrical stimulation. In this respect they are also referred to as 'artificial muscle materials', as they can emulate the main functional properties of natural muscles.
The EAP sub-class known as 'dielectric elastomer transducers', studied by Prof. Carpi, shows the greatest potentialities today, in a number of fields of future application. Possible uses range from functional surrogates of natural muscles, to actuators for different kinds of systems, such

as mechatronic/robotic devices, tactile/haptic displays, tuneable optical and acoustic devices, etc.
Since his first graduation thesis, Prof. Carpi has been performing research activities in this field, first at the University of Pisa, Italy, then at Queen Mary University of London, and now at the University of Florence, where he leads the research group 'SMART - Soft Matter ARtificial muscles and Transducers'. The activities of the group are focused on the development of new devices and applications for biomedical and biomimetic/bioinspired systems based electromechanical transducers made of soft smart materials.
At international level, Prof. Carpi has a recognized reputation in this field:

- From 2010 to 2014 he has been the Chair of the 'European Scientific Network for Artificial Muscles (ESNAM)', focused on transducers and artificial muscles based on electroactive polymers, financially supported by the European Commission (www.cost.eu/actions/MP1003).
- Since 2011 he has been the initiator and general scientific organizer of the annual "*EuroEAP: International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles*" (www.euroeap.eu/conference).
- From 2013 to 2017 he has served as the first President of "*EuroEAP – European Society for Electromechanically Active Polymer Transducers and Artificial Muscles*" (www.euroeap.eu).
- In 2015 he has coordinated the publication of the first standards, as a result of a multicentre work involving 18 institutions from 9 countries.
- He is Editor of several Special Issues in peer-reviewed journals in the field.
- He is an invited author of a Perspective Article in the journal Science: F. Carpi, S. Bauer, D. De Rossi, "Stretching dielectric elastomer performance", *Science*, Vol. 330(6012), pp. 1759-1761, 2010.

Prof. Carpi's specific research activities in the field cover the following major areas involved by the whole developmental chain:

Design, manufacturing and testing of new devices

EAPs offer today great potentialities for the development of new devices. The research activities of Prof. Carpi in this ambit are aimed at designing, manufacturing and testing innovative actuators and sensors, most of which have been patented.

Development and characterization of new materials

The research activities of Prof. Carpi to design and manufacture new devices are paralleled by the necessary development of new elastomeric materials with improved electromechanical transduction properties, especially higher dielectric constant, to reduce the driving electric fields.

Demonstration of new applications

The aforementioned activities of Prof. Carpi within the areas of devices and materials are combined with the study and development of specific new applications. The most significant examples are listed below.

1. Biomedical and bioinspired instrumentation

- Assistive technologies:
  - Refreshable Braille displays for the blind people;
  - Vibro-tactile displays for sensory substitution for the blind people;
  - Bioinspired adaptive optical lenses for artificial vision systems.
- Systems for neuro-muscular rehabilitation:
  - Wearable tactile displays for virtual reality-based rehabilitation systems;
  - Wearable sensors for body posture detection;
  - Variable-stiffness orthotic systems for motor rehabilitation of the hand;

- MRI-compatible mechatronic systems for functional investigations and rehabilitations under MRI.
- Systems for medical training and surgical procedures:
  - Wearable tactile displays for virtual-reality-based training or tele-operation;
  - Tactile displays for compliance feedback in minimally invasive surgical tools.

2. Biotechnological instrumentation
- Systems for biomimetic mechanical stimulation of cell cultures for tissue engineering;
- Bioinspired peristaltic pumps for bio-technology.

Study of possible applications also in other fields

Besides biomedical and bioinspired applications, Prof. Carpi's research activities on EAP transducers occasionally explore different fields as well. Some examples are:
- Lightweight space structures;
- Tuneable electronic systems.

Electrical and magnetic systems for non-invasive diagnostics

Invention of a technique to magnetically control gastrointestinal navigations of endoscopic capsules

As an alternative to traditional endoscopic systems for explorations of the digestive tube, the use of so-called endoscopic capsules is progressively increasing today, as a non-invasive and conformable technology. However, the diagnostic efficacy of this technology is currently significantly limited by the impossibility of controlling the motion of the capsule, which proceeds randomly, by means of visceral peristalsis. To solve this problem, Prof. Carpi has proposed an award-winning technique that adopts magnetic fields to manoeuvre the capsule from the exterior of the body. Furthermore, he has demonstrated, with tests in pigs, in vivo, the applicability for such a purpose of a commercial robotic system (currently used in a different field). The work has been performed in cooperation with an US company and university (Stereotaxis, Inc and Washington University School of Medicine, St. Louis).
The results of the work have gained the cover of the journal *IEEE Transactions on Biomedical Engineering*, Vol. 58(2), 2011.
The magnetic control technique is internationally considered today as the most promising solution to solve the motion control problem of endoscopic capsules.

Invention of techniques for non-invasive detections of electroretinographic and electrocochleographic biopotentials

Conventional techniques for detection of bioelectric potentials generated by the retina in response to a light stimulus (electroretinography) or by the cochlea in response to an auditory stimulus (electrocochleography) rely on highly uncomfortable electrodes, which have to be arranged in contact with the cornea (or the conjunctiva) or which have to penetrate (or contact) the tympanic membrane, respectively. To avoid the need for such electrodes, Prof. Carpi has proposed and developed two non-invasive techniques, both of which rely on the use of a physiological conductive solution acting as a distributed electrical interface between an external conductor and the surface of the eye or the tympanic membrane. As compared to conventional techniques, the new method is much more comfortable and, at the same time, improves the stability and the reproducibility of the measurement.

Coordination of Research Groups

- Year 2012 – to present:

Head of the research group 'SMART – Soft Matter ARtificial muscles and Transducers' at the Department of Industrial Engineering, University of Florence, Italy, and earlier (years 2012 – 2016) at Queen Mary University of London, School of Engineering and Materials Science, London, UK.

- Years 2005 – to 2012:
  Coordinator of the *"Artificial Muscles and Smart Materials" Research Group* at the Interdepartmental Research Centre "E. Piaggio" of the University of Pisa, Italy.

Coordination of International Scientific Networks and Associations

- Years 2013 – 2017:
  Elected First President of "*EuroEAP – European Society for Electromechanically Active Polymer Transducers and Artificial Muscles*" (www.euroeap.eu).
- Years 2010 – 2014:
  Founder and Coordinator of the "*European Scientific Network for Artificial Muscles – ESNAM"*. The network was aimed at promoting the scientific and technological development of artificial muscle systems based on electromechanically polymers, gathering all the outstanding European research centres in the field, and several companies either developing electroactive polymer transducers (such as Bayer, Danfoss and Optotune) or having an interest as end users (such as Philips, Festo, Ossur and FIAT Research Center). The network gathered 74 institutions from 31 countries. From 2010 to 2014 the network was awarded with a European COST Action grant – MP1003 (www.cost.eu/actions/MP1003).

Membership and Roles in International Scientific Associations

- Years 2017 – pres:
  Honorary Member, "European Society for Electromechanically Active Polymer Transducers and Artificial Muscles" (www.euroeap.eu).
- Years 2013–2017:
  Elected First President, "European Society for Electromechanically Active Polymer Transducers and Artificial Muscles" (www.euroeap.eu).
- Year 2012:
  Founding Member, "European Society for Electromechanically Active Polymer Transducers and Artificial Muscles" (www.euroeap.eu).
- Years 2010–2014:
  Coordinator, "ESNAM - European Scientific Network for Artificial Muscles" (www.cost.eu/actions/MP1003).
- Year 2008:
  Founding Member, "BIOKON International - The Biomimetics Association" (www.biokon-international.com).

Editor of Journals, Books and Conferences

Editorial board member of journals

- *Bioengineering*, 2023-present;
- *Journal of Functional Biomaterials*, 2023-present;
- *Frontiers in Bioengineering and Biotechnology - Biomaterials* section, 2022-present;
- *Sensors and Actuators Reports*, 2021-present;
- *Actuators*, 2020-present;
- *Int. Journal of Smart and Nano Materials,* 2016-present;
- *Biomimetics*, 2015-present;
- *Frontiers in Robotics and AI - Soft Robotics* section, 2015-present;
- *Int. Journal of Sports and Exercise Medicine*, 2015-present;
- *Extreme Mechanics Letters*, 2014-present;
- *Biomaterials and Biomedical Engineering Journal*, 2013-2015;
- *Int. Journal of Gastroenterology Disorders & Therapy,* 2013-2017;
- *Applied Scientific Reports*, 2013-present;
- *IEEE Transactions on Mechatronics*, 2013-2016;
- *Frontiers in Bioengineering and Biotechnology - Bionics & Biomimetics* section, 2012-2022;
- *World Journal of Gastrointestinal Endoscopy*, 2010-present;
- *Expert Review of Medical Devices*, 2009-present;
- *Bioinspiration & Biomimetics,* 2009-2019.

Guest editor of journal special issues

- *Smart Materials and Structures (Publisher: Institute Of Physics):*

  E. Jager, A. Conn, F. Carpi, A. Richter, “Selected Papers from EuroEAP 2022”.

- *International Journal of Smart and Nano Materials (Publisher: Taylor and Francis):*

  F. Carpi, J. Busfield, M. Tian, L. Zhang, Guest Editors, “Advanced functional elastomers: Europe meets Asia”, Vol. 6(4), 2016.

- *Smart Materials and Structures (Publisher: Institute Of Physics):*

  F. Carpi, F. Vidal, E. Jager, A. Ladegaard Skov, I. Graz, Guest Editors, “Electromechanically active polymer transducers: Research in Europe”, Vol. 22, 2013.

- *Bioinspiration and Biomimetics (Publisher: Institute Of Physics):*

  F. Carpi, R. Erb, G. Jeronimidis, Guest Editors, “Biomimetics of Movement”, Vol. 6(4), 2011.

- *IEEE/ASME Transaction on Mechatronics (Publisher: IEEE):*

  F. Carpi, R. Kornbluh, P. Sommer-Larsen, D. De Rossi and G. Alici, Guest Editors, "Electroactive Polymer Mechatronics", Vol. 16(1), 2011.

- *Polymer International (Publisher: Wiley):*

  F. Carpi, Guest Editor, "Electromechanically active polymers", Vol. 59(3), 2010.

Editor of books

See the section Publications.

Editor of conference proceedings published as books

- Y. Bar-Cohen, F. Carpi, Editors, *Smart Structures and Materials 2011: Electroactive Polymer Actuators and Devices*, Proc. of SPIE, Vol. 7976, 2011.
- P. Vincenzini, Y. Bar-Cohen, F. Carpi, Editors, *Artificial Muscle Actuators Using Electroactive Polymers*, Advances in Science and Technology, Vol. 61, 2009.

Organization of Conferences

Conference chairman/organizer

- **2022**: *Conference Chairman* of "EuroEAP 2022 - Tenth International Conference on Electromechanically Active Polymer Transducers & Artificial Muscles", Chianciano Terme, Italy, 7-9 June 2022.
- **2012–pres.:** *Conference co-Organizer*, "Annual EuroEAP International Conference on Electromechanically Active Polymer Transducers & Artificial Muscles", moving across Europe.
- **2014:** *Conference Chairman* of "EAP Workshop 2014: Electromechanically Active Polymer Transducers and Artificial Muscles", London, UK, 25-26 November 2014.
- **2011:** *Conference Chairman* of "EuroEAP 2011 – First International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles", Pisa, Italy, 8-9 June 2011.
- **2011:** *Conference Co-Chairman* of "SPIE Smart Structures and Materials: Electroactive Polymer Actuators and Devices 2011", San Diego, USA, 7-10 March 2011.
- **2008:** *Coordinator of the International Advisory Board* of the Session 'Artificial muscle actuators using electroactive polymers' of the international conference "CIMTEC 2008: Smart materials, structures and systems", Acireale, Italy, 8-13 June 2008.

Conference committee member

2024

- *Member of the Scientific and Programme Committees* of "EuroEAP 2024 – Twelfth International Conference on Soft Transducers and Electromechanically Active Polymers", Stuttgart, Germany 11-13 June 2024.

2023

- *Member of the Scientific and Programme Committees* of "EuroEAP 2023 – Eleventh International Conference on Soft Transducers and Electromechanically Active Polymers", Bristol, United Kingdom, 6-8 June 2023.

2022

- *Member of the Organizing Committee* of "TERMC 2022 - International Conference on Tissue Engineering and Regenerative Medicine, 2nd edition", Online, 16-17 September 2022.
- *Member* of the Scientific and Programme Committees of "EuroEAP 2022 – Tenth International Conference on Electromechanically Active Polymer (EAP) Transducers & Artificial Muscles", Chianciano Terme, Italy, 7-9 June 2022.

2021

- *Member of the Scientific and Programme Committees* of "EuroEAP 2021 – International Conference on Electromechanically Active Polymer (EAP) Transducers & Artificial Muscles", Online, 1-3 June 2021.

2020

- *Member of the Program Committee* of the international conference "Smart Structures and Materials: Electroactive Polymer Actuators and Devices XXII", SPIE Society, Online, 27 April - 8 May 2020.

2019

- *Member of the Scientific and Programme Committees* of "EuroEAP 2019 – Ninth International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles", Dresden, Germany, 4-6 June 2019.
- *Member of the Program Committee* of the international conference "Smart Structures and Materials: Electroactive Polymer Actuators and Devices XXI", SPIE Society, Denver, USA, 3-7 March 2019.

2018

- *Member of the Scientific Committee* of "XIX Congresso Nazionale della Società Italiana di Analisi del Movimento in clinica (SIAMOC 2018)", Firenze, 3-6 October 2018.
- *Member of the Programme Committee* of "Living Machines 2018 - the Seventh International Conference on Biomimetics and Biohybrid Systems", Paris, France, 16-19 July 2018.
- *Member of the Scientific Committee* of "Sixth National Congress of Bioengineering (GNB 2018)", Milano, Italy, 25-27 June 2018.
- *Member of the Scientific and Programme Committees* of "EuroEAP 2018 – Eighth International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles", Lyon, France, 5-6 June 2018.
- *Member of the Conference Editorial Board* of "RoboSoft 2018 - the first IEEE-RAS International Conference on Soft Robotics", Livorno, Italy, 24-28 April 2018.
- *Member of the Program Committee* of the international conference "Smart Structures and Materials: Electroactive Polymer Actuators and Devices XX", SPIE Society, Denver, USA, 5-8 March 2018.

2017

- *Member of the Programme Committee* of "Living Machines 2017 - the Sixth International Conference on Biomimetics and Biohybrid Systems", Stanford University, California, USA, 25-28 July 2017.
- *Member of the Scientific and Programme Committees* of "EuroEAP 2017 – Seventh International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles", Cartagena, Spain, 6-7 June 2017.
- *Member of the Program Committee* of the international conference "Smart Structures and Materials: Electroactive Polymer Actuators and Devices XIX", SPIE Society, Las Vegas, USA, 26-29 March 2017.

2016

- *Member of the Programme Committee* of "Living Machines 2016 - the Fifth International Conference on Biomimetics and Biohybrid Systems", Edinburgh, Scotland, 18-22 July 2016.
- *Member of the Scientific and Programme Committees* of "EuroEAP 2016 – Sixth International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles", Copenhagen, Denmark, 15-16 June 2016.
- *Member of the International Advisory Board* of Symposium H "Electroactive Polymers and Shape Memory Polymers: Advances in Materials and Devices" of "CIMTEC 2016 - 5th International Conference - Smart and Multifunctional Materials, Devices, Structures", Perugia, Italy, 5-10 June 2016.
- *Member of the Program Committee* of the international conference "Smart Structures and Materials: Electroactive Polymer Actuators and Devices XVIII", SPIE Society, Las Vegas, USA, 21-24 March 2016.

2015

- *Member of the Programme Committee* of "Living Machines 2015 - the Fourth International Conference on Biomimetics and Biohybrid Systems", Barcelona, Spain, 28-31 July 2015.

- *Member of the Scientific and Programme Committees* of "EuroEAP 2015 – Fifth International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles", Tallinn, Estonia, 9-10 June 2015.
- *Member of the Program Committee* of the international conference "Smart Structures and Materials: Electroactive Polymer Actuators and Devices XVII", SPIE Society, San Diego, USA, 8-12 March 2015.

2014

- *Member of the Scientific and Programme Committee* of "EAP Workshop 2014: Electromechanically Active Polymer Transducers and Artificial Muscles", London, UK, 25-26 November 2014.
- *Member of the Programme Committee* of "Living Machines 2014 - the Third International Conference on Biomimetics and Biohybrid Systems", Milan, Italy, 30 July- 1 August, 2014.
- *Member* of the *Programme Committee* of AIM 2014, IEEE/ASME International Conference on Advanced Intelligent Mechatronics, Besançon, France, 8-11 July 2014.
- *Member of the Scientific and Programme Committee* of "EuroEAP 2014 – Fourth International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles", Linkoping, Sweden, 10-11 June 2014.
- *Member of the Program Committee* of the international conference "Smart Structures and Materials: Electroactive Polymer Actuators and Devices", SPIE Society, San Diego, USA, 10-13 March 2014.

2013

- *Member of the Programme Committee* of "Living Machines 2013 - the Second International Conference on Biomimetics and Biohybrid Systems", London, 29 July - 2 August 2013.
- *Member of the Scientific and Programme Committees* of "EuroEAP 2013 – Third International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles", Dübendorf (Zürich), Switzerland, 25-26 June 2013.
- *Member of the Program Committee* of the international conference "Smart Structures and Materials: Electroactive Polymer Actuators and Devices", SPIE Society, San Diego, USA, 10-14 March 2013.

2012

- *Member of the Programme Committee* of "Living Machines 2012 - the First International Conference on Biomimetics and Biohybrid Systems", Barcelona, Spain, 9-12 July 2012.
- *Member of the International Scientific Advisory Committee* of the international conference "Design and Nature 2012- Sixth International Conference on Comparing Design in Nature with Science and Engineering", Coruna, Spain, 11-13 June 2012.
- *Member of the Scientific and Programme Committees* of "EuroEAP 2012 – Second International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles", Potsdam, Germany, 29-30 May 2012.

2011

- *Member of the Conference Committee* of the international conference NOMS (Nano-Opto-Mechanical-Systems), SPIE Optics and Photonics, San Diego, August 2011.
- *Member of the Scientific and Programme Committees* of "EuroEAP 2011 – First International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles", Pisa, Italy, 8-9 June 2011.
- *Member of the Program Committee* of the international conference "Smart Structures and Materials: Electroactive Polymer Actuators and Devices", SPIE Society, San Diego, USA, 7-10 March 2011.

2010

- *Member of the International Scientific Advisory Committee* of the international conference "Design and Nature 2010 - Fifth International Conference on Comparing Design in Nature with Science and Engineering", Pisa, Italy, 28-30 June 2010.
- *Member of the Programme Committee* of the "Actuator 2010 - International Conference and Exhibition on New Actuator Systems and Applications", Bremen, Germany, 14 June 2010.
- *Member of the Program Committee* of the international conference "Smart Structures and Materials: Electroactive Polymer Actuators and Devices", SPIE Society, San Diego, USA, 8-11 March 2010.

2009

- *Member of the Program Committee* of the international conference "Smart Structures and Materials: Electroactive Polymer Actuators and Devices", SPIE Society, San Diego, 9-12 March 2009.

Conference associate editor

- *Associate Editor* of "RoboSoft 2025 - the 8th IEEE-RAS International Conference on Soft Robotics, Lausanne, Switzerland, 23-26 April 2025.
- *Associate Editor* of "RoboSoft 2018 - the first IEEE-RAS International Conference on Soft Robotics", Livorno, Italy, 24-28 April 2018.
- *Associate Editor* of "the 2014 IEEE/ASME International Conference on Advanced Intelligent Mechatronics", Besançon, France, 8-11 July 2014.
- *Associate Editor* of "IROS 2012 - the 2012 IEEE/RSJ International Conference on Intelligent Robots and Systems", Vilamoura, Algarve, Portugal, 7-12 October 2012.

Research Projects and Industrial Contracts

	Type	Contractor	Title	Ref. N.	Period	Budget	Role
P42.	Research project	Fondo di Beneficenza di Intesa Sanpaolo	PERSONAL HEART - Biostampa 3D di organoidi di camera cardiaca con cellule staminali indotte da paziente	Progetto B/2024/0152	2025-26	108.4 k€	Coordinator
P41.	Research project	Ministero dell'Università e della Ricerca	ZEAP - Zipping electro-active polymers for high-performance miniature actuators	PRIN 2022 Project 2022C25PKY	2025-27	59 k€	Principal Investigator of research unit
P40.	Research project	Fondazione Compagnia di San Paolo	VISION CARE - Variable-astigmatism-and-focus lenses for ophthalmological technology in developing countries	Bando vEIColo, Pratica numero: 2024.0198; ID RoI: 121467	2024-25	40 k€	Coordinator
P39	Research project	European Space Agency	Wearable sensors of astronaut postures	ESA Initial Support for Innovation programme - Open Discovery & Preparation activities, Contract 4000141620	2023-2026	90 k€	Coordinator
P38.	Marie Skłodowska-Curie Actions (MSCA) Doctoral Network	European Commission	SOFTWEAR - SOFT actuators for Wearables, Exoskeletons, and Augmenting Robotics	HORIZON-MSCA-2021 Project 101072920	2022-2026	260 k€	Principal Investigator of research unit
P37.	Research project	Ministero dell'Università e della Ricerca	AGE-IT - Ageing well in an ageing society	PNRR project (Partenariato Esteso PE8 Conseguenze e sfide dell'invecchiamento), CUP	2023-2025	230 k€	Task leader

				B83C22004800006			
P36.	Research project	Ministero dell'Università e della Ricerca	Fit4MedRob - Fit for Medical Robotics	PNC project (Piano Nazionale Complementare al PNRR), grant # PNC0000007	2022-2026	200 k€	Task leader
P35.	Research project	Fondazione Cassa di Risparmio di Firenze	Biomedical Engineering laboratories	--	2022-2026	500 k€	Coordinator
P34.	Research project	Fondazione Cassa di Risparmio di Firenze	HAPTICS - Healthy Aging Programmes with Tactile Interfaces as a Cognitive Support	n. 2020.1389	2022-2023	75 k€	Coordinator
P33.	Research project	Ministero dello Sviluppo Economico	AIDA - Sistema di adattamento attivo di impedenza acustica a polimeri elettroattivi	Proof of Concept (POC) MISE ARNO 2020 – POCARNO, CUP C56I20000020006	2021-2022	34 k€	Coordinator
P32.	Research project	Fondazione Cassa di Risparmio di Firenze	REHub - Rehabilitation Engineering Hub	--	2020-2021	75 k€	Co-Principal Investigator
P31.	Research project	Fondazione Cassa di Risparmio di Firenze	MOVE-SENSE - Monitoraggio dei movimenti di operatori sanitari con sensori indossabili intelligenti	n. 2018.0979	2020-2021	35 k€	Coordinator
P30.	Industrial contract	GN Hearing Care Corporation	Electroactive polymer-based acoustic filters	--	2020-2021	29 k€	Principal Investigator of research unit
P29.	Research project	Regione Toscana	BMI-FOCUS - Brain machine interface in space manned missions: amplifying focused attention for error counterbalancing	POR FESR 2014-2020	2018-2020	275 k€	Co-Principal Investigator of research unit
P28.	Research project	Regione Toscana	WELLNESS@WORK - Sistema personalizzabile per la tutela del benessere negli ambienti lavorativi	POR FESR 2014-2020	2018-2019	111 k€	Principal Investigator of research unit
P27.	Industrial contract	GN Hearing Care Corporation	Acoustic properties of electroactive polymers	--	2018-2019	29 k€	Principal Investigator of research unit
P26.	Research contract	Queen Mary University of London	Development of dielectric elastomer actuator prototypes	--	2017	10 k£	Principal Investigator of research unit
P25.	Research contract	University of Delaware	Artificial muscle actuators for mechanizing a unilatertal pediatric shoulder/elbow orthosis	--	2016-2018	15 k$	Principal Investigator of research unit
P24.	PhD studentship	China Scholarship Council	New properties of water and implications for biomaterials and medical devices	--	2015-2018	Standard PhD studentship	Principal Investigator of research unit
P23.	Marie Skłodowska-Curie Action, Innovative Training Network	European Commission	MICACT – MICroACTuators	H2020-MSCA-ITN-2014, grant n° 641822	2015-2018	273 k€	Principal Investigator of research unit
P22.	PhD studentship	Queen Mary University of London, Institute of Bioengineering	Study of new properties of water for the development of biomaterials and medical devices	--	2014-2017	Standard PhD studentship	Principal Investigator of research unit
P22.	Research project	Centre for Public Engagement Large Award (UK)	PauseInMotion	--	2014-2016	36 k£	Coordinator
P21.	Research project	National Science Foundation	EFRI-ODISSEI - Novel Perpetual Reconfigurable and	--	2014-2018	--	Scientific consultant

		(USA)	Multi-Band Origami Folding/Unfolding Electromagnetic Systems for Cognitive Intelligence Applications				
P20.	Research project	National Institute for Health Research (UK)	Co-design of hand therapy devices for epidermolysis bullosa	Grant II-LB-0813-20002	2014-2017	280 k£	Principal Investigator of research unit
P19.	Research project	Ministero dell'Università e della Ricerca	MIND - Engineering physiologically and pathologically relevant organ models for the Investigation of age related diseases	PRIN 2010-2011, prot. 2010J8RYS7	2013-2016	262.5 k€	WP leader
P18.	Research project	European Commission	STAMAS - Smart technology for artificial muscle applications in space	FP7- SPACE-2012-1, grant n° 312815	2013-2015	93 k€	Co-applicant
P17.	PhD studentship	China Scholarship Council	Electrical Breakdown of Dielectric Elastomer Actuator Materials	--	2012-2015	Standard PhD studentship	Principal Investigator of research unit
P16.	Research project	European Commission	AUTORECON - Autonomous co-operative machines for highly reconfigurable assembly operations of the future	FP7-FoF.NMP.2011-2, grant n° 285189	2011-2014	40 k€	Scientific consultant
P15.	Research project	Fondazione Cassa di Risparmio di Pisa (IT)	POLOPTEL - Polymer systems with new optical, electrical and adhesive functionalities	--	2011-2014	100 k€	-Scientific Committee Member -Task leader
P14.	COST Action	COST / European Science Foundation	ESNAM - European Scientific Network for Artificial Muscles	COST Action CGA-MP1003-1	2010-2014	620 k€	Coordinator (Chair)
P13.	Research project	European Commission	CEEDS - The collective experience of empathic data systems	FP7-ICT-2009.8.4, grant n° 258749	2010-2014	100 k€	Task leader (wearable vibro-tactile displays)
P12.	Research project	European Commission	VIACTORS - Variable impedance actuation systems embodying advanced interaction behaviours	FP7-ICT-2007-3, grant n° 231554	2009-2012	130 k€	Task leader (EAP actuators)
P11.	Research contract	Thales Alenia Space Italia (IT)	EAP sensors installation on IMOD ribbons	TAS-IT 2951557497	2009	5 k€	Scientific co-responsible
P10.	Research contract	L'Oreal (FR)	Wearable actuators to activate skin mechanotransduction	L'Oreal C080302	2008	24 k€	Scientific co-responsible
P9.	Research contract	European Space Agency	Non invasive brain-machine interfaces	ESTEC/Contract No. 19706/06/NL/HE	2006	12 k€	Scientific responsible
P8.	Research contract	European Space Agency	Contractile linear actuator and sensor based on dielectric elastomers	ESTEC/Contract No. 19789/06/NL/PA	2006	32 k€	Scientific responsible
P7.	Research contract	European Space Agency	Bio-inspired distributed system for thermal (or particles) transport	ESTEC/Contract No. 19704/06/NL/HE	2006-2007	28 k€	Scientific responsible
P6.	Research contract	Toyota Europe (BE)	Polymer based artificial muscle	TMEM / CP Contract 28-1-05	2005	32 k€	Scientific co-responsible
P5.	Research contract	European Space Agency	EAP actuators	Kayser Italia– CP / Contract No. 18548/NL/PA	2004-2007	320 k€	WP leader
P4.	Research contract	European Space Agency	EAP-based artificial muscles as an alternative to space mechanisms	ESTEC/Contract No. 18150/04/NL/MV	2004	15 k€	Scientific co-responsible
P3.	Research project	European Commission	FLEXIFUNBAR - Multifunctional barrier for flexible structure	NMP2-CT-2004, grant n° 505864	2004-2008	343 k€	-Scientific Committee Member -Activity leader
P2.	Industrial contract	BMW (DE)	Sensing and actuating fabrics for automotive interiors	BMW purchase order 1 610 463	2003	53 k€	Internal co-responsible of activity

P1.	Research project	European Commission	BIOLOCH - Bio-mimetic structures for locomotion in the Human body	IST-2001-34181	2001-2005	300 k€	Internal co-responsible of activity

Speaker at Conferences, Seminars, Courses and Schools

2025

98. *INVITED:*
"Mechanochromic soft robotic skin", *RoboSoft 2025 - The 8th IEEE-RAS International Conference on Soft Robotics*, '*Soft Robotic Actuation and Sensing Based on Functional Materials' Workshop*, Lausanne, Switzerland, 23 April 2025.

97. *INVITED:*
Keynote Lecture, "DEA tunable lenses: expanding horizons by extending the focal range", *SPIE Smart Structures and Nondestructive evaluation: Electroactive Polymer Actuators, Sensors and Devices (EAPAD) 2025*, Vancouver, Canada, 18 March 2025.

2024

96. *INVITED:*
"Soft actuators-based pneumatic tactile displays and electrically tunable lenses", *seminar at Google - Touch & Haptics Research Group*, Mountain View, California, USA, 10 September 2024.

95. *INVITED:*
Keynote Lecture, "Wearable pneumatic tactile display to render the softness of virtual reality objects", *Eurohaptics 2024 Conference, 'Enabling artificial agents to communicate with humans through touch' Workshop*, Lille, France, 30 June 2024.

94. "Wearable tactile display of softness for virtual reality-based cognitive rehabilitation", *ForItAAL 2024 - 13th Forum of Italian Ambient Assisted Living*, Florence, Italy, 27 June 2024.

93. "Finger-mounted tactile display of softness for virtual reality", *2024 IEEE International Workshop on Metrology for Industry4.0 & IoT*, Florence, Italy, 29 May 2024.

92. "Wearable tactile display of softness for virtual reality-based cognitive rehabilitation", *Age-It: Ageing Well in an Ageing Society*, Venice, Italy, 20 May 2024.

91. *INVITED:*
Keynote Lecture, "Wearable pneumatic tactile displays of softness for virtual reality", *IEEE Haptics Symposium 2024*, *'Frontiers of Softness in Science and Engineering' Cross-Cutting Challenge,* Long Beach, California, USA, 7 April 2024.

2023

90. *INVITED:*
"Wearable pneumatic tactile displays of softness for virtual reality", *IEEE World Haptics 2023*, '*Soft Haptics: challenging issues in soft actuators/sensors for haptic applications' Workshop*, Delft, The Netherlands, 10 July 2023.

89. *INVITED:*
"Electrically tuneable focusing or transmission of light through elastomeric thin structures", *EUROPL 2023 - International Congress and Expo on Optics, Photonics and Lasers*, Online, 30 June 2023.

88. *INVITED:*
"Electroactive polymers as 'artificial muscle' materials: new opportunities for biomaterials and tissue engineering", *BIOMATMEET 2023 - Second International Meet on Biomaterials and Tissue Engineering*, Online, 17 April 2023.

87. *INVITED:*
"Biomedical and bioinspired mechatronics using electroactive smart elastomers", *CMPFORUM 2023 - International Forum on Condensed Matter Physics,* Online, 6 February

2023.

2022

86. *INVITED:*
"Monitoring flexions and torsions of the trunk: dielectric elastomer stretch sensors vs inertial sensors", *Sensors-eCon2022: Sensors Research eConference*, Online, 22 November 2022.

85. *INVITED:*
Keynote Lecture, "Electroactive polymer-based smart scaffolds for tissue engineering and regenerative medicine", *TERMC 2022 - International Conference on Tissue Engineering and Regenerative Medicine – 2nd edition,* Online, 16 September 2022.

84. *INVITED:*
Keynote Lecture*,* "Enabling new biomedical and bioinspired mechatronic systems with electroactive smart elastomers", *V-PSCM 2022 - Polymer Science & Composite Materials, Virtual event*, 17 June 2022.

83. *INVITED:*
"Simulation of material softness: wearable non-vibratory tactile displays for online shopping", *PI Apparel Europe 2022,* Online, 26 April 2022.

2021

82. *INVITED:*
"Soft optics for robotics", *Italian Institute for Robotics and Intelligent Machines Workshop: Next generation components for robotics,* Online, 9 October 2021.

81. *INVITED:*
"Multifunctional electrically tunable lenses made of dielectric elastomer actuators", *Werner Siemens-Stiftung Scientific Hornbach Workshop – Smart Implants,* Online, 8 October 2021.

80. *INVITED:*
Keynote Lecture*,* "Electroactive polymers as 'artificial muscle' materials: New opportunities for biomaterials and tissue engineering", *TERMC 2021 - International Conference on Tissue Engineering and Regenerative Medicine*, Online, 20 September 2021.

79. *INVITED:*
"Monitoring flexions and torsions of the trunk: dielectric elastomer stretch sensors vs inertial sensors", *EuroEAP 2021 – International Conference on Electromechanically Active Polymer (EAP) Transducers & Artificial Muscles*, Online, 1 June 2021.

2020

78. *INVITED:*
"Electrically tuneable focussing or transmission of light through elastomeric thin structures", *Third Huawei Optical Innovations Summit,* Munich, Germany, 21 October 2019.

77. "Wearable kinematic monitoring system based on piezocapacitive sensors", *pHealth 2019 - 16th International Conference on Wearable, Micro & Nano technologies for Personalized Health*, Genova, Italy, 10-12 June 2019.

2018

76. *INVITED:*
Plenary Talk, "Wearable elastomeric devices for detecting finger movements and returning tactile feedback", *XIX Congress of the Italian Society of Clinical Movement Analysis (SIAMOC 2018)*, Florence, Italy, 4 October 2018.

75. "Soft wearable non-vibratory tactile displays", RoboSoft 2018 - the first IEEE-RAS International Conference on Soft Robotics", Livorno, Italy, 25 April 2018.

2016

74. *INVITED:*
Keynote Lecture, "Enabling new biomedical and bioinspired mechatronic systems with electroactive smart elastomers", *Workshop on Active Materials (Electro- or Magneto-Responsive Solids)*, ESPCI- École Supérieure de Physique et de Chimie Industrielles, Paris, France, 12 April 2016.

73. *INVITED:*

"Enabling haptic devices with electroactive smart elastomers", *IEEE Haptics Symposium 2016, 'Smart material actuators' Workshop*, Philadelphia, USA, 8 April 2016.

72. *INVITED:*
"Electroactive smart elastomers for orthotics and prosthetics: opportunities and challenges", *Seminar*, *Center for Physical Therapy and Biomechanics, University of Delaware*, Newark, USA, 7 April 2016.

71. *INVITED:*
"Enabling new biomedical and bioinspired mechatronic systems with electroactive smart elastomers", *Seminar, Tandon School of Engineering, New York University*, New York, USA, 6 April 2016.

2015

70. *INVITED:*
"Muscle-like soft actuation based on electro-responsive smart materials", *The 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2015),* Workshop "From Plants and Animals to Robots: Movements, Sensing, and Control. Two worlds in comparison", Hamburg, Germany, 28 September 2015.

69. *INVITED:*
"Dielectric elastomer actuators: devices and examples of applications", *The 2015 MICACT Training School on Dielectric Elastomer Transducers,* EPFL, Neuchâtel, Switzerland, 8-10 September 2015.

68. *INVITED:*
"Electrically tuneable lenses made of electromechanically active polymers"*, X International Workshop on Adaptive Optics for Industry and Medicine – AOIM 2015,* Padova, Italy, 18 June 2015.

67. *INVITED:*
"Enabling new biomedical and bioinspired mechatronic systems with electroactive smart elastomers", *Seminar, Italian Institute of Technology,* Genova, Italy, 17 June 2015.

66. *INVITED:*
"Electroactive polymer devices for biomedical and bioinspired mechatronic systems", *Course for the Programme of the PhD degree in Bioengineering at the University of Pisa,* Pisa, Italy, 10, 17 and 24 April 2015.

65. *INVITED:*
"Enabling new biomedical and bioinspired mechatronic systems with electroactive smart elastomers", *Seminar, Politecnico di Torino*, Torino, Italy, 9 February 2015.

2014

64. "Limb compression band made of dielectric elastomer actuators ", *EAP Workshop 2014: Electromechanically Active Polymer Transducers and Artificial Muscles*, London, UK, 25-26 November 2014.

63. "Finger-tip tactile display based on dielectric elastomer actuators", *EAP Workshop 2014: Electromechanically Active Polymer Transducers and Artificial Muscles*, London, UK, 25-26 November 2014.

62. *INVITED:*
Keynote Lecture, "Electro-responsive elastomeric actuators for biomedical and bioinspired mechatronic systems", *First International Conference on Polymer Science and Engineering,* Beijing, China, 12 November 2014.

61. *INVITED:*
"Standardization of dielectric elastomer transducers", *ESNAM Training School on Dielectric Elastomer Transducers*, Darmstadt, Germany, 25-27 March 2014.

2013

60. "Predictive stress-stretch models of dielectric elastomers up to the characteristic flex", *Proc. of EuroEAP 2013 – Third International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Dübendorf (Zürich), Switzerland, 25-26 June 2013.

59. *INVITED:*
Keynote Lecture, "Enabling new biomedical and bioinspired mechatronic systems with electroactive elastomeric actuators", *Medical Technology Expo 2013*, Coventry, UK, 10 April 2013.

58. *INVITED:*
"Enabling new biomedical and bioinspired mechatronic systems with electroactive polymer actuators", *Seminar*, *University of Oxford,* Oxford, UK, 14 January 2013.

2012

57. *INVITED:*
"Dielectric elastomer actuators: devices and examples of applications", *ESNAM Training School on Dielectric EAPs*, Neuchatel, Switzerland, 16-18 October 2012.

56. *INVITED:*
"Hydrostatically-coupled elastomeric actuators as artificial muscles for soft-bodied robots inspired to the muscular hydrostat", *Living Machines 2012 - the First International Conference on Biomimetics and Biohybrid Systems*, *'Biological Muscular Hydrostats' Workshop,* Barcelona, Spain, 9-12 July 2012.

55. "Bioinspired tunable lens driven by electroactive polymer artificial muscles", *Living Machines 2012 - the First International Conference on Biomimetics and Biohybrid Systems*, Barcelona, Spain, 9 July 2012.

54. *UPON SELECTION:*
"Assistive technologies 2020: the role of smart materials", *GNB 2012 - Terzo Congresso del Gruppo Nazionale di Bioingegneria*, *Horizon 2020 Lectures,* Rome, 26-29 June 2012.

53. *INVITED:*
Keynote Lecture, "Smart materials: a matter of intelligence", *EMBODYi ("Embodied Intelligence" initiative, ICT-FET programme) PhD Summer School on 'Smart materials, sensors, and actuators within embodied intelligence systems'*, Rome, 25-29 June 2012.

52. *INVITED:*
"Electroactive elastomeric actuators for biomedical and bioinspired systems", *BioRob 2012 - The 4th IEEE International Conference on Biomedical Robotics and Biomechatronics, 'Smart Materials and Actuators for Soft Robotics' session,* Rome, 25 June 2012.

51. *INVITED:*
"New dielectric elastomer actuators for biomedical and bioinspired systems", *CIMTEC 2012 - 4th International Conference on Smart Materials, Structures and Systems, 'Symposium C: Electroactive Polymers: Advances in Materials and Devices'*, Montecatini Terme, 13 June 2012.

50. *INVITED:*
"Smart materials: a matter of intelligence", *'Brown Bag' lecture*, *Artificial Intelligence Laboratory, Department of Informatics, University of Zurich*, 5 June 2012.

49. "Finger-tip tactile display based on hydrostatically coupled dielectric elastomer actuators for virtual reality systems", *EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012.

48. "Bioinspired tunable lens made of dielectric elastomer artificial muscles", *EuroEAP 2012 – Second International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Potsdam, Germany, 29-30 May 2012

47. *INVITED:*
"Smart material based biomedical and bioinspired mechatronic systems", *Seminar*, Queen Mary University, London, UK, 21 February 2012.

2011

46. *INVITED:*
"Dielectric elastomer transducers: a great potential beyond high potentials", *Seminar*, *EMPA Academy*, Duebendorf, Svitzerland, 9 November 2011.

45. *INVITED:*

"Bioinspired tunable lens made of elastomeric artificial muscles", *6th World Congress on Biomimetics, Artificial Muscles and Nano-Bio*, Cergy, France, 26 October 2011.

44. *INVITED:*
"Braille displays based on dielectric elastomer actuators", *Seminar*, *Bayer MaterialScience*, Leverkusen, Germany, 29 September 2011.

43. *INVITED:*
"Electromechanically active polymer artificial muscles for future soft robotics and biomimetics", *Barcelona Cognition, Brain and Technology – BCBT, Summer School 2011* - European coordination action "Convergent Science Network of Biomimetic and Biohybrid Systems, Barcelona, Spain, 9 September 2011.

42. "Towards variable-stiffness dynamic hand splints based on dielectric elastomer transducers", *EuroEAP 2011 - First International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Pisa, Italy, 9 June 2011.

41. "Refreshable Braille cells based on dielectric elastomer actuators", *EuroEAP 2011 - First International conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*, Pisa, Italy, 8 June 2011.

40. *INVITED:*
"Dielectric Elastomer Transducers: a Great Potential Beyond High Potentials", *Seminar*, University of Potsdam, Germany, 29 April 2011.

39. "Dielectric elastomer actuators with granular coupling", *SPIE Smart Structures and Materials 2011: Electroactive Polymer Actuators and Devices*, San Diego, USA, 7-10 March 2011.

38. "Opportunities of hydrostatically coupled dielectric elastomer actuators for haptic interfaces", *SPIE Smart Structures and Materials 2011: Electroactive Polymer Actuators and Devices*, San Diego, USA, 7-10 March 2011.

2010

37. *INVITED:*
"Dielectric Elastomer Transducers: a Great Potential Beyond High Potentials", *Seminar*, *Harvard University, School of Engineering and Applied Sciences*, Cambridge, USA, 30 November 2010.

36. *INVITED:*
Opening Speech, "Hydrostatically coupled dielectric elastomer actuators: new opportunities for haptics", Symposium on "Polymer-Based Smart Materials - Process, Properties, and Application" - *Material Research Society (MRS) Fall Meeting 2010*, Boston, USA, 29 November 2010.

35. *INVITED:*
"Hydrostatically coupled dielectric elastomer actuators: new opportunities for hand rehabilitation", *International Workshop on "Actuation and Sensing in Robotics"*, Saarbrücken, Germany, 6 October 2010.

34. *INVITED:*
Opening Speech, "Hydrostatically coupled dielectric elastomer actuators: new opportunities for haptics", Symposium on *Matériaux Polymères pour la Conversion et/ou le Stockage de l'Énergie*, University of Cergy-Pontoise, Cergy, France, 10 September 2010.

33. "Natural and artificial helical structures", *Design and Nature V*, Pisa, Italy, 28-30 June 2010.

32. *INVITED:*
"Electroactive polymer artificial muscles: an overview", *Design and Nature V*, Pisa, Italy, 29 June 2010.

31. *INVITED:*
"Electroactive Polymer Actuators: From Lab to Market", *Actuator 2010 - International Conference and Exhibition on New Actuator Systems and Applications*, Bremen, Germany, 14 June 2010.

30. "Hydrostatically coupled dielectric elastomer actuators for tactile displays and cutaneous stimulators", *SPIE Smart Structures and Materials 2010: Electroactive Polymer Actuators and Devices*, San Diego, USA, 8-11 March 2010.

29. *INVITED:*
"Design and development of new devices and applications", *PhD winter school on Dielectric Elastomer Actuator Technology*, Ascona, Switzerland, 14 January 2010.

2009

28. "Electromechanically active polymers: new opportunities for biomaterials and tissue engineering", *Medical Physics and Biomedical Engineering - World Congress 2009*, Monaco, Germany, 7-12 September 2009.
27. "Robotic magnetic manoeuvring of endoscopic video capsules: phantom tests", *Medical Physics and Biomedical Engineering - World Congress 2009*, Monaco, Germany, 7-12 September 2009.
26. "A new concept for dielectric elastomer actuators: hydrostatic coupling", *SPIE Europe's Microtechnologies for the New Millennium - Smart Sensors, Actuators, and MEMS IV*, Dresden, Germany, 4-6 May 2009.
25. "Dielectric elastomer actuators with hydrostatic coupling", *SPIE Smart Structures and Materials 2009: Electroactive Polymer Actuators and Devices*, San Diego, USA, 9-12 March 2009.

2008

24. "Silicone made contractile dielectric elastomer actuators inside 3-Tesla MRI environment", *IEEE/RSJ 2008 International Conference on Intelligent Robots and Systems (IROS 2008),* Nice, France, 22-26 September 2008.
23. *INVITED:*
"Dispositivi polimerici e convenzionali integrabili in sistemi indossabili", *XXVII Scuola Annuale del Gruppo Nazionale di Bioingegneria (GNB) - Dispositivi indossabili per la salute e la protezione dell'uomo,* Bressanone, 16 September 2008.
22. "Buckling actuator and sensor based on dielectric elastomers", *Actuator 2008 - International Conference and Exhibition on New Actuator Systems and Applications*, Bremen, Germany, 9-11 June 2008.
21. "Elastomeric contractile actuators for hand rehabilitation splints", *SPIE Smart Structures and Materials 2008: Electroactive Polymer Actuators and Devices*, San Diego, USA, 10-13 March 2008.
20. "Enhancement of the electromechanical transduction properties of a silicone elastomer by blending with a conjugated polymer", *SPIE Smart Structures and Materials 2008: Electroactive Polymer Actuators and Devices*, San Diego, USA, 10-13 March 2008.

2007

19. *INVITED:*
"Contractile folded dielectric elastomer actuators", *SPIE Smart Structures and Materials 2007: Electroactive Polymer Actuators and Devices*, San Diego, USA, 19-22 March 2007.

2006

18. "Dielectric elastomer actuators driven by human electrophysiological signals", *Actuator 2006 - International Conference and Exhibition on New Actuator Systems and Applications*, Bremen, Germany, 14-16 June 2006.
17. "A new contractile linear actuator made of dielectric elastomers with folded structure", *Actuator 2006*, Bremen, Germany, 14-16 June 2006.
16. "Bubble-like dielectric elastomer actuator with integrated sensor: device and applications", *Actuator 2006 - International Conference and Exhibition on New Actuator Systems and Applications*, Bremen, Germany, 14-16 June 2006.
15. "Electrophysiological activation of polymer actuators", *Third World Congress on Biomimetics, Artificial Muscles and Nano-Bio*, Lausanne, Switzerland, 25-27 May 2006.
14. *INVITED:*
"Wearable mechanosensing for posture recognition and emerging technologies in electroactive polymer actuation", *Smart Fabrics 2006*, Miami Beach, USA, 6-8 March 2006.
13. "Activation of dielectric elastomer actuators by means of human electrophysiological signals", *SPIE Smart Structures and Materials 2006: Electroactive Polymer Actuators and*

Devices, San Diego, USA, 27 February – 2 March 2006.

12. "Buckling dielectric elastomer actuators and their use as motors for the eyeballs of an android face", *SPIE Smart Structures and Materials 2006: Electroactive Polymer Actuators and Devices*, San Diego, USA, 27 February – 2 March 2006.
11. "Contractile dielectric elastomer actuator with folded shape", *SPIE Smart Structures and Materials 2006: Electroactive Polymer Actuators and Devices*, San Diego, USA, 27 February – 2 March 2006.
10. *INVITED:*
"Biomimetic dielectric elastomer actuators", *BioRob 2006 - The First IEEE/RAS-EMBS International Conference on Biomedical Robotics and Biomechatronics*, Pisa, Italy, 20-22 February 2006.

2005

9. *INVITED:*
"Materiali polimerici elettroattivi", *Seminar per il Dottorato di Ricerca in Ingegneria Chimica e dei Materiali, Università di Pisa*, 24 June 2005.
8. "Electroactive polymers: new materials for spacecraft structures", *European Conference on Spacecraft Structures Materials and Mechanical Testing*, Noordwijk, The Netherland, 10-12 May 2005.
7. *INVITED:*
"A new contractile linear actuator made of dielectric elastomers", *SPIE Smart Structures and Materials 2005: Electroactive Polymer Actuators and Devices*, San Diego, USA, 7-10 March 2005.
6. "Eyeball pseudo-muscular actuators for an android face", *SPIE Smart Structures and Materials 2005: Electroactive Polymer Actuators and Devices*, San Diego, USA, 8 March 2005.

2004

5. "Theoretical description and fabrication of a new dielectric elastomer actuator showing linear contractions", *Actuator 2004 - International Conference and Exhibition on New Actuator Systems and Applications*, Bremen, Germany, 14-16 June 2004.
4. "Physically functionalised materials for personal monitoring and support", *European Workshop On The Applications Of Nanotechnology In Environment And Health*, Ispra (Varese), 17-19 May 2004.

2002

3. *INVITED:*
"Helical dielectric elastomer actuators", *Seminar*, *Stanford Research Institute*, Menlo Park, California, USA, 14 December 2002.
2. "Performances of dielectric elastomer planar actuators", *Actuator 2002 - International Conference and Exhibition on New Actuator Systems and Applications*, Bremen, Germany, 10-12 June 2002.
1. "Characterization of dielectric elastomer planar actuators", *7th National Conference on Sensors and Microsystems*, Bologna, 4-6 February 2002.

Publications

Journal papers

2025

J83. Monciatti, A. M., Lapini, M., Gemignani, J., Frediani, G., Carpi, F. (2025). Unpleasant odors compared to pleasant ones cause higher cortical activations detectable by fNIRS and observable mostly in females, *APL Bioengineering*, 9, 016101. https://doi.org/10.1063/5.0231217

2024

J82. Frediani, G., Carpi, F. (2024). Tactile sensitivity to softness in virtual reality can increase when visual expectation and tactile feedback contradict each other, *Journal of Neural Engineering*, 21, 066041. https://doi.org/10.1088/1741-2552/ada0e8

J81. Frediani, G., Carpi, F. (2024). How to make the skin contact area controllable by optical calibration in wearable tactile displays of softness. *Sensors*, 24, 6770. https://doi.org/10.3390/s24206770

J80. Deidda, V., Ventisette, I., Langione, M., Giammarino, L., Pioner, J.M., Credi, C., Carpi, F. (2024). 3D-printable gelatin methacrylate-xanthan gum hydrogel bioink enabling human induced pluripotent stem cell differentiation into cardiomyocytes. *Journal of Functional Biomaterials*, 15(10), 297. https://doi.org/10.3390/jfb15100297

J79. Ventisette, I., Mattii, F., Dallari, C., Capitini, C., Calamai, M., Muzzi, B., Pavone, F.S., Carpi, F. and Credi, C. (2024). Gold-hydrogel nanocomposites for high-resolution laser-based 3d printing of scaffolds with SERS-sensing properties, *ACS Applied Bio Materials*, 7(7), 4497-4509. https://doi.org/10.1021/acsabm.4c00379

J78. Potnik, V., Frediani, G., & Carpi, F. (2024). How to easily make self-sensing pneumatic inverse artificial muscles. *Biomimetics*, 9(3), 177. https://doi.org/10.3390/biomimetics9030177

2023

J77. Carpi, F., Valles, M.C., Frediani, G., Toci, T. Grippo, A. (2023). EEG investigation on the tactile perceptual performance of a pneumatic wearable display of softness. *Actuators*, 12, 431. https://doi.org/10.3390/act12120431

J76. Sasso, G., Pugno, N., Busfield, J.J.C. & Carpi, F. (2023). Soft robotic patterning of liquids. *Scientific Reports*, *13*, 15739. https://doi.org/10.1038/s41598-023-41755-5

2022

J75. Mazzolai, B., Mondini, A., Del Dottore, E., Margheri, L., Carpi, F., Suzumori, K., ... & Lendlein, A. (2022). Roadmap on soft robotics: multifunctionality, adaptability and growth without borders. *Multifunctional Materials*, *5*(3), 032001. https://doi.org/10.1088/2399-7532/ac4c95

2021

J74. Frediani, G., Vannetti, F., Bocchi, L., Zonfrillo, G., & Carpi, F. (2021). Monitoring flexions and torsions of the trunk via gyroscope-calibrated capacitive elastomeric wearable sensors. *Sensors*, *21*(20), 6706. https://doi.org/10.3390/s21206706

J73. Frediani, G., Bocchi, L., Vannetti, F., Zonfrillo, G., & Carpi, F. (2021). Wearable detection of trunk flexions: Capacitive elastomeric sensors compared to inertial sensors. *Sensors*, *21*(16), 5453. https://doi.org/10.3390/s21165453

J72. Chen, L., Ghilardi, M., Busfield, J. J., & Carpi, F. (2021). Electrically tunable lenses: a review. *Frontiers in Robotics and AI*, 8, 678046. https://doi.org/10.3389/frobt.2021.678046

J71. Colombini, G., Duradoni, M., Carpi, F., Vagnoli, L., & Guazzini, A. (2021). LEAP motion technology and psychology: A mini-review on hand movements sensing for neurodevelopmental and neurocognitive disorders. *International Journal of Environmental Research and Public Health*, *18*(8), 4006. https://doi.org/10.3390/ijerph18084006

J70. Frediani, G., Boys, H., Ghilardi, M., Poslad, S., Busfield, J. J., & Carpi, F. (2021). A soft touch: wearable tactile display of softness made of electroactive elastomers. *Advanced Materials Technologies*, *6*(6), 2100016. https://doi.org/10.1002/admt.202100016

2020

J69. Frediani, G., & Carpi, F. (2020). Tactile display of softness on fingertip. *Scientific Reports*, *10*(1), 20491. https://doi.org/10.1038/s41598-020-77591-0

J68. Chen, L., Busfield, J. J., & Carpi, F. (2020). Electrically tunable directional light scattering from soft thin membranes. *Optics Express*, *28*(14), 20669-20685. https://doi.org/10.1364/OE.392015

J67. Costa, J., Ghilardi, M., Mamone, V., Ferrari, V., Busfield, J. J., Ahluwalia, A., & Carpi, F. (2020). Bioreactor with electrically deformable curved membranes for mechanical stimulation of cell cultures. *Frontiers in Bioengineering and Biotechnology*, *8*, 22. https://doi.org/10.3389/fbioe.2020.00022

2019

J66. Chen, L., Ghilardi, M., Busfield, J. J., & Carpi, F. (2019). Electrically tuning soft membranes to both a higher and a lower transparency. *Scientific Reports*, *9*(1), 20125. https://doi.org/10.1038/s41598-019-56505-9

J65. Ghilardi, M., Boys, H., Török, P., Busfield, J. J., & Carpi, F. (2019). Smart lenses with electrically tuneable astigmatism. *Scientific Reports*, *9*(1), 16127. https://doi.org/10.1038/s41598-019-52168-8

2018

J64. Calabrese, L., Frediani, G., Gei, M., De Rossi, D., & Carpi, F. (2018). Active compression bandage made of electroactive elastomers. *IEEE/ASME Transactions on Mechatronics*, *23*(5), 2328-2337. https://doi.org/10.1109/TMECH.2018.2860789

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Awards, Prizes and Honours

•2025: *EAP-in-Action Demonstration Session (3rd classified)* for the work "The Circle: a thin elastomeric tunable lens with large focal range" by G. Sasso, S. Remillard, J. Busfield and F. Carpi, presented at SPIE Electroactive Polymer Actuators, Sensors, and Devices (EAPAD) 2025, Vancouver, Canada, 17-20 March 2025.

•2024: *EuroEAP 2024 Society Challenge Award (2nd classified)* for the work "The circle - a new thin tunable lens for soft opto-mechatronics" by G. Sasso, S. Remillard, J. Busfield and F. Carpi, presented at EuroEAP 2024 – Twelfth International Conference on Soft Transducers and Electromechanically Active Polymers, Stuttgart, Germany 11-13 June 2024.

•2023: *EuroEAP 2023 Society Challenge Award (1st classified)* for the work "3D soft touch pad enabled by vision-based mechanochromic sensing" by G. Sasso, R. R. Ramirez Herrera, Y. Sun, J. Busfield and F. Carpi, presented at EuroEAP 2023 – 11th International Conference on Soft Transducers and Electromechanically Active Polymers, Bristol, United Kingdom, 6-8 June 2023.

•2019: *Best Presentation Award*, IRCO - International Rubber Conference Organisation, for the work "Changes in optical transparency of a soft membrane using a dielectric elastomer actuator" by L. Chen, M. Ghilardi, F. Carpi and J.J.C. Busfield, presented at IRC 2019 – International Rubber Conference, London, UK, 3-5 September 2019.

•2017: *EuroEAP 2017 Society Challenge Award (2nd classified)* for the work "Double cone dielectric elastomer actuator-driven positioning system" by M. Ghilardi, H. Boys, J. Busfield and F. Carpi, presented at EuroEAP 2017 – Seventh International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles, Cartagena, Spain, 6-7 June 2017.
•2016: *Best Poster Award (2nd classified),* EuroEAP Society for the work "Enabling wearable soft tactile displays with dielectric elastomer actuators" by G. Frediani, H. Boys, S. Poslad and F. Carpi, presented at EuroEAP 2016 – Sixth International Conference on Electromechanically Active Polymer Transducers and Artificial Muscles, Helsingør (Copenhagen), Denmark, 14-15 June 2016.
•2015: *Best Poster Prize*, CellTox - Associazione Italiana Tossicologia In Vitro, for the work: D. Cei, G. Gori, C. Curreli, G. Frediani, D. Giacopelli, J. Costa, C. Domenici, F. Carpi, A. Ahluwalia, "EAP actuator as a dynamic in vitro model of the intestinal epithelium", presented at the international conference Advances in Cell and Tissue Culture, Pisa, Italy, 15-17 June 2015.
•2015: *Faculty of 1000 Poster Prize*, "Faculty of 1000" (https://f1000.com), for the work: D. Cei, G. Gori, C. Curreli, G. Frediani, D. Giacopelli, J. Costa, C. Domenici, F. Carpi, A. Ahluwalia, "EAP actuator as a dynamic in vitro model of the intestinal epithelium", presented at the international conference Advances in Cell and Tissue Culture, Pisa, Italy, 15-17 June 2015.
•2015: *Highlights of 2015, Smart Materials and Structures journal*, for the paper "Standards for dielectric elastomer transducers", on the basis of "referee endorsement, novelty and scientific impact". The paper is the result of a multicentre work (involving 18 institutions from 9 countries) that has set the world-first standards in the field of electromechanically active polymer transducers.
•2014: *Adjunct Professor*, Beijing University of Chemical Technology, Beijing, China, 12 November 2014.
•2013: *Elected President*, European Society for Electromechanically Active Polymer Transducers and Artificial Muscles (EuroEAP), Zurich, Switzerland, 27 June 2013.
•2012: *Invited (upon competitive selection) for a Horizon 2020 Lecture* at GNB 2012 – Third Congress of the National Bioengineering Group, Rome, 26-29 June 2012 (Title of the Lecture: "Assistive technologies 2020: the role of smart materials").
•2011: *Conference Grant for European Early Stage Researchers*, *European Science Foundation*, Belgium, to present a paper at the conference "Electroactive Polymer Actuators and Devices (EAPAD) XIII", San Diego, 7-10 March 2011.
•2010: *Winner of 2010 Applied Innovation Contest*, PolyPower, Denmark. Team leader, 7 February 2011.
•2008: *Spontaneous Modelling from the company ANSYS, Inc*. of a device designed by Prof. Carpi (contractile folded actuator based on dielectric elastomers), as an example to demonstrate the electroelastic modelling capabilities of the ANSYS Multiphysics software.
•2005: *Vespucci Award, Regional Council of Tuscany*, Italy, for the following patent: F. Carpi, A. Carpi, "Sistema per la movimentazione magnetica di una capsula endoscopica", Italian Patent N. 0001358850, 2005

INSTITUTIONAL AND PROFESSIONAL ACTIVITIES

Institutional Responsibilities

•2021–pres.: *Director*, MSc Programme in Biomedical Engineering, Univ. of Florence, Italy.
•2021–pres.: *Board Member*, School of Engineering, Univ. of Florence, Italy.
•2021–pres.: *Responsible,* "Rehabilitation Bioengineering" section, Rehabilitation Centre, Don Carlo Gnocchi Foundation, Florence, Italy.
•2017–pres.: *Board Member*, PhD Programme in Industrial Engineering, Univ. of Florence, Italy.
•2017: *Examination Committee Member*, National Habilitation for Engineers, Univ. of Florence, Italy.
•2016–pres.: *Examination Committee Member*, Master and Bachelor theses at the School of Engineering, Univ. of Florence, Italy.
•2016–2020: *Graduate Student Advisor*, Biomedical Engineering, Univ. of Florence, Italy.
•2014-2016: *Director*, MSc Programmes in Biomedical Engineering (including MSc in Biomedical Engineering and MSc in Medical Electronics and Physics), Queen Mary University of London, School of Engineering and Materials Science, London, UK.

•2013-2014: *Director*, MSc Programme in Medical Electronics and Physics, Queen Mary University of London, School of Engineering and Materials Science, London, UK.

Reviewer and Selection Committee Member for Academic/Research Positions

2024:
- *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, University of Florence, November 2024.

2023:
- *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, University of Florence, September 2023.

2022:
- *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, University of Florence, November 20232
- *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, University of Florence, October 2022.
- *Reviewer*, promotion to Associate Professor, School of Engineering, University of Bristol, UK, March 2022.
- *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, Scuola Superiore Sant'Anna, Pisa, February 2022.

2021:
- *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, University of Pisa, September 2021.
- *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, University of Florence, August 2021.

2020:
- *Reviewer*, selection of Director of Max Planck Institute for Intelligent Systems, Stuttgart, Germany, January 2020.

2019:
- *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, Scuola Superiore Sant'Anna, Pisa, February 2019.

2018:
- *Selection Committee Member*, selection of a Researcher in Industrial Bioengineering, Scuola Superiore Sant'Anna, Pisa, February 2018.

2015:
- *Selection Committee Member*, selection of an Associate Professor in Applied Mathematics and Control, Mads Clausen Institute, University of Southern Denmark, Denmark, May 2015.

2014:
- *Selection Committee Member*, selection of an Associate Professor in Industrial Bioengineering, Scuola Superiore Sant'Anna, Pisa, June 2014.
- *Reviewer*, promotion to Full Professorship, School of Engineering and Applied Science, University of California at Los Angeles, USA, August 2014.

2013:
- *Reviewer*, promotion to Readership, School of Engineering, University of Bristol, UK, March 2013.

Reviewer and Expert Panel Member of Research Projects for the European Commission, National Agencies and Foundations

2023

- *Natural Sciences and Engineering Research Council of Canada*, Canada, June 2023.
- *Swiss National Science Foundation (SNSF),* Switzerland, June 2023.
- *Estonian Research Council* (Reviewer and Expert Panel Member), June 2023.

2022

- *Swiss National Science Foundation (SNSF),* BRIDGE Discovery Funding program, Switzerland, June 2022.
- *Young Researchers Programme "Rita Levi Montalcini",* Italy, April 2022.
- *Estonian Research Council* (Reviewer and Expert Panel Member), February 2022.

2021

- *Estonian Research Council*, June 2021.

2020

- *Swiss National Science Foundation (SNSF)*, Div. Mathematics, Physical and Engineering Sciences, December 2020.

2017

- *Swiss National Science Foundation (SNSF)*, *Sinergia funding,* August 2017.

2016

- *UK-India Education and Research Initiative (UKIERI),* November 2016.
- *European Research Council (ERC), Starting Grant, 2016 call*, April 2016.
- *Nanyang Technological University, Singapore*, April 2016.

2015

- *Swiss National Science Foundation (SNSF)*, *Div. Mathematics, Physical and Engineering Sciences,* May 2015.
- *The Danish Council for Independent Research, Technology and Production Sciences (DFF),* April 2015.
- *Swiss National Science Foundation (SNSF)*, March 2015.
- *Qatar National Research Fund (QNRF), 8th cycle of the National Priorities Research Program (NPRP),* February 2015.

2014

- *Canadian Institutes of Health Research (CIHR), Collaborative Health Research Projects - NSERC (the Natural Sciences and Engineering Research Council of Canada), Partnered Committee,* November 2014.
- *NSERC (the Natural Sciences and Engineering Research Council of Canada), Collaborative Research and Development (CRD),* November 2014.
- *COST (European Cooperation in Science and Technology) Action Trans Domain Proposals,* June 2014.

2013

- *Qatar National Research Fund,* May 2013.
- *Israel Science Foundation,* April 2013.
- *Agence Nationale de la Recherche – Blanc programme*, France, April 2013.
- *The Broad Foundation, Broad Medical Research Program Inflammatory Bowel Disease Grants,* USA, March 2013.

2012

- *Portuguese Foundation for Science and Technology*, August 2012.
- *New Zealand Ministry of Business, Innovation and Employment (previously the Ministry of Science and Innovation)* - strategic investment plan (SIP), July 2012.
- *Indo Swiss Joint Research Programme - PEP30,* May 2012.
- *Romanian Research Council*, May 2012.
- *Swiss National Science Foundation*, April 2012.
- *Agence Nationale de la Recherche – Blanc programme,* Second project proposal, France, February 2012.
- *Agence Nationale de la Recherche – Blanc programme,* First project proposal, France, February 2012.

2011

- *Estonian Science Foundation - Programme Mobilitas,* December 2011.
- *European Commission – Marie Curie Fellowships* (registration reference number 188978), August 2011.
- *Agence Nationale de la Recherche – Département programmes non thématiques* (programme ANR-DFG Chemistry 2011), France, July 2011.
- *European Commission – Information Society and Media – Future and Emerging Technologies* (appointment letter AL00067094), January 2011.

2010

- *Swiss National Science Foundation - Div. Mathematics, Physical and Engineering Sciences*, December 2010.

Member of PhD Evaluation Committees

Invited Member of the PhD evaluation Committees of the following PhD graduation theses:
• M. Mete, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, June 2024.
• L. Ciarella, Technical University of Dresden, Germany, March 2024.
• G. Baldini, University of Genova, Italy, October 2023.
• N. Zamperlin, University of Trento, Italy, July 2023.
• J. Ashby, The University of Auckland, New Zealand, June 2022.
• F. Beco Albuquerque, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, April 2022.
• M. Carricato, University of Bologna, Italy, January 2022.
• S. R. Krupp, Nanyang Technological University, Singapore, November 2021.
• A. Iannarelli, Delft University of Technology, The Netherlands, January 2021.
• C. J. Richards, University of Wollongong, Australia, October 2020.
• R. Diteesawat, University of Bristol, UK, July 2020.
• A. Ankit, Nanyang Technological University, School of Material Science and Engineering Singapore, November 2019.
• S. Pourazadi, Simon Fraser University, School of Engineering Science, Canada, November 2019.
• J. Costa, University of Pisa, Centro 'E Piaggio', Italy, November 2018.
• M. Pieroni, University of Pisa, Centro 'E Piaggio', Italy, September 2017.
• A. Razak, Technical University of Denmark, The Danish Polymer Centre, Denmark, April 2017.
• La T. Giang, Nanyang Technological University, School of Mechanical and Aerospace Engineering, Singapore, 2015.
• A. Bowers, University of Bristol, Bristol Robotics Laboratory, UK, 2015.
• L. S. Hsien, Nanyang Technological University, School of Mechanical and Aerospace Engineering, Singapore, 2015.
• L. Maffli, EPFL - École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, August 2014.
• S. Risse, University of Potsdam, Faculty of Science, Potsdam, Germany, July 2013.

• S. Akbari, EPFL - École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, March 2013.
• G. Ouyang, Vestfold University College, Institute for Microsystems Technology, Norway, September 2012.

TEACHING

Academic years from 2016/17 onwards:
MSc Programme in Biomedical Engineering, University of Florence, Italy:
- *Module Organiser of 'Fundamentals of Bioelectricity for Prosthetic and Diagnostic Systems'*;
- *Module Organiser of 'Biomaterials and Biological Tissues Engineering'*.

Academic years from 2013/14 to 2015/16:
Bachelor Programme in Biomedical Engineering, Queen Mary University of London, School of Engineering and Materials Science, UK:
- *Module Organiser of 'Neuromuscular Bioelectricity and Biomechanics';*
- *Module Deputy Organiser of 'Engineering Instrumentation'*.

MSc Programme in Medical Electronics and Physics, Queen Mary University of London, School of Engineering and Materials Science, UK:
- *Module Organiser of 'Radiation Physics and Lasers';*
- *Module Organiser of 'Ultrasound and Imaging';*
- *Module Organiser of 'Digital Electronics'*.

Academic year 2012/13:
Bachelor Programme in Biomedical Engineering, Queen Mary University of London, School of Engineering and Materials Science, UK:
- *Module Organiser of 'Neuromuscular Biomechanics';*
- *Module Deputy Organiser of 'Engineering Instrumentation'*.

Academic years from 2007/08 to 2011/12:
Bachelor Programme in Biomedical Engineering, School of Engineering, University of Pisa, Italy:
- *Module Deputy Organiser of 'Bioelectric Phenomena'*.

Academic year 2006/07:
Bachelor Programme in Biomedical Engineering, School of Engineering, University of Pisa, Italy:
- *Module Organiser (as a Contract Professor) of 'Bioelectric Phenomena'*.

Academic years from 2002/03 to 2005/06:
Bachelor Programme in Biomedical Engineering, School of Engineering, University of Pisa, Italy:
- *Module Deputy Organiser of 'Bioelectric Phenomena'*.