MATTEO CIANCHETTI
Curriculum Vitae et Studiorum

PERSONAL DATA

First Name   Matteo
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ACADEMIC POSITIONS

- **Assistant professor** (Ricercatore TD - ex art. 24 comma 3 lett. A, nel settore concorsuale 09/G2 - Bioin-gegneria, SSD ING-IND/34) at the Scuola Superiore Sant'Anna, Pisa, Italy, since June 2012.

- **Post-Doc Research Assistant** (Assegno di Ricerca, SSD ING-IND/34) at the Scuola Superiore Sant'Anna, Pisa, Italy, from May 2011 to May 2012.
  Title of the research programme: "Realizzazione di prototipo di robot ispirato al polpo" (fabrication of robot prototype inspired by the octopus).
  Supervisor: Prof. Cecilia Laschi (Scuola Superiore Sant'Anna, Pisa)

- **Visiting Researcher** at the Centre for Biomimetics, University of Reading, Reading, UK, from January 2010 to March 2010 under the supervision of Prof. George Jeronimidis (University of Reading).

- **Research Collaborator** at the Scuola Superiore Sant'Anna in Pisa, Italy, from April 2007 to January 2012 (several contracts).

EDUCATION

- **Ph. D. in Biorobotics** from the Scuola Superiore Sant'Anna in Pisa (Italy) in May 2011 (100/100 cum laude).
  Title of the Ph. D. thesis: "Biomimetic soft-bodied robots: design and development of an artificial muscular hydrostat".
  Co-ordinator: Paolo Dario (Scuola Superiore Sant'Anna, Pisa)
  Tutor: Prof. Cecilia Laschi (Scuola Superiore Sant'Anna, Pisa)

- **Master Degree in Biomedical Engineering (Laurea Specialistica)** from the University of Pisa (Italy) in July 2007 (110/110 with honour).
  Graduation thesis developed at the ARTS Lab (Advanced Robotics Technology and Systems Laboratory) of the Scuola Superiore Sant'Anna in Pisa.
  Title of the graduation thesis: "Studio, progettazione e realizzazione di un sistema di attuazione per un robot biomimetico ispirato all'anatomia dell'*Octopus vulgaris*" (Study, design and fabrication of an actuation system for a biomimetic robot inspired by the *Octopus vulgaris* anatomy).
  Tutors: Prof. Paolo Dario (Scuola Superiore Sant'Anna, Pisa) and Prof. Cecilia Laschi (Scuola Superiore Sant'Anna, Pisa).

- **Bachelor Degree in Biomedical Engineering (Laurea Triennale)** from the University of Pisa (Italy) in December 2004 (110/110).
  Graduation thesis developed at the Department of Chemistry of the University of Pisa.
  Title of the graduation thesis: "Studio di sistemi polimerici a rilascio per applicazioni nel rivestimento di stent aortocoronarici" (Study of polymeric delivery systems for the coating of aortocoronaric stents).
  Tutor: Prof. Mariagrazia Cascone (University of Pisa).

- **International schools:**
  - "Embodied Intelligence summer school", Livorno, Italy, September 20-24, 2010
  - "WSK-TNg2009" WASEDA-SSSA-KIST-TSUKUBA-NAGOYA Summer School in Autumn: "From Communication to Collaboration", Tokyo, Japan, November 2-7, 2009
  - "WSK2008" Waseda-SSSA-Kist Summer School on "Fundamentals of Biorobotics", Volterra (PI), Italy, August 31-September 5, 2008

AWARDS

- **Winner** for the Best Paper Award in IEEE CBS 2018 conference, October 2018.
- **Finalist** for the Surgical Robot Challenge 2016, Hamlyn Symposium, UK Robotics Week, June 2016.
- **Finalist** for Best Application Paper Award from IROS2013 conference, November 2013.
- **Winner** of the Best Demo Award from Living Machines conference, August 2013.
- **Finalist** for Best Paper in Biomimetics Award from RoBio2011 conference, December 2011.
- **Ph.D. scholarship** provided by Scuola Superiore Sant'Anna upon a competitive call, for supporting the Ph.D. programme for 3 years, from January 2008 to January 2011.

LANGUAGES

Italian mother tongue.

Fluent spoken and written **English**, improved abroad (United Kingdom).

EXPERTISE

Research expertise in the following fields:

- Soft Robotics, Biomimetics, Bioinspired Robotics with major in:
    - study of biological models
    - translation of natural principles into novel technological solutions
    - non-conventional soft actuation technologies (ElectroActive Polymers, Shape Memory Alloys, granular jamming and Flexible Fluidic actuators)
    - flexible and variable stiffness structures
    - soft and flexible materials (polymers like silicones and polyurethanes)

Specific computer skills:

- technical computing software: MatLab, Mathcad
- Computer Assisted Design (CAD) software: ProEngineer, Solid works
- Finite Elements Analysis (FEA) software: MARC & Mentat, Comsol, Ansys
- productivity software: Microsoft Office, Latex

Capabilities of:

- autonomous work, but also within an interdisciplinary research team
- formulation of research projects and preparation of proposals
- coordination of research teams
- collaboration with international partners
- management of EU-funded projects and preparation of technical documents
- organization of international scientific events
- dual thinking, conjugating technological and managerial contents

RESEARCH ACTIVITIES

The framework for the research activities led by Dr Matteo Cianchetti to date is Soft Robotics with focus on Soft Mechatronics for Biorobotics (also the name of the Laboratory he heads).

His research activities mainly focus on the development of soft mechatronics technologies both as enabling technologies and for specific applications in different fields. In the OCTOPUS (EU funded) project, he had the opportunity to apply the principles of bioinspired robotics, effectively translating biologically inspired concepts into artificial technologies[1]. At the same time, he was the technical team leader of a group of four scientists investigating how to develop a completely soft 8-arm octopus-like robot. In this context, he acquired theoretical and hands-on experience on several technologies such as ElectroActive Polymers (EAP), Shape Memory Alloys (SMA), Flexible Fluidic Actuators (FFA) and Jamming-based technologies. Other than actuation, he also explored new possibilities for soft sensing especially using smart stretchable textiles and conductive fluids.

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[1] Nature video – Soft Robots (https://www.youtube.com/watch?v=A7AFsk40NGE)

In the last few years these technologies have demonstrated their potential in sensing and actuation, thus while working on the improvement of these investigated solutions and on the development of new enabling technologies, he spent efforts in their use in specific applications where a compliant yet effective interaction is required:
- in assistive robotics, the EU funded I-SUPPORT project aims at developing a new smart and soft arm (a soft robotic shower) that assists elderly people in executing bathing tasks (frame A);
- in surgery, within the EU funded STIFF-FLOP project, he investigated a novel generation of soft and variable stiffness surgical manipulators with unprecedented dexterity[2] (frame B);
- in manufacturing, innovative compliant tools for grasping and manipulation have been developed within the EU funded SMART-E project (frame C);
- in the area of artificial organs, recently, he has received a grant within the EU funded Hybrid Heart project for the development of an artificial heart that relies on a hybrid combination of soft robotics, tissue engineering and wireless energy transfer.

Moreover, novel solutions for wearable robotics, realistic soft simulators of body parts (frame D) are other examples of other activities Matteo Cianchetti led or supervised where these new smart and soft-bodied technologies are being exploited.

First results in technology transfer are also visible. A big oil and gas company asked for a novel technological solution based on soft robotics to face the issue of inspection and restoration of pipelines. As a personal initiative, he is the promotor of a collaboration with 2 companies for the development of an educational kit based on soft robotics technologies.

Dr Matteo Cianchetti is also very active in the Soft Robotics international community, being directly involved in the RoboSoft Coordination Action for promoting the diffusion of the soft mechatronics technologies and for coordinating efforts among European soft-roboticists actors in developing new solutions. With the support of this consolidated network, Matteo Cianchetti contributed to the organization of two successful editions of the "Soft Robotics Week", an event dedicated to soft robotics with international plenary speakers, summer schools and robotic competitions. More recently, he has been appointed as Local Chair for organizing the first edition of the IEEE-RAS International Conference on Soft Robotics (RoboSoft 2018).
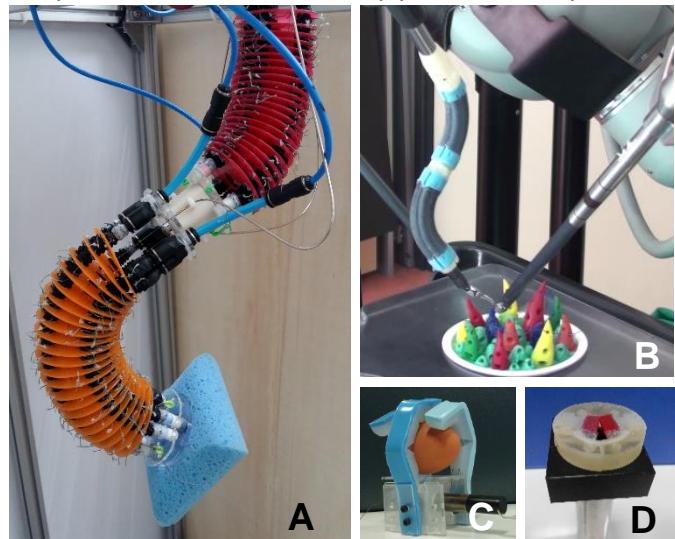
TEACHING ACTIVITIES

- **Academic Year 2018-2019**
  - **Chair** of the course: "Soft and smart materials for Bionics" within the two-year M.Sc. program in Bionics Engineering jointly held by the University of Pisa and the Scuola Superiore Sant'Anna, also delivered to I year PhD students of the BioRobotics Institute of the Scuola Superiore Sant'Anna. 60 hours
  - 22/11/2018 - **Invited lecture** within the course "Principles of Bionics Engineering" of the two-year M.Sc. program in Bionics Engineering jointly held by the University of Pisa and the Scuola Superiore Sant'Anna. Title of the lecture: "Embodiment and Morphological Computation". 3 hours

- **Academic Year 2017-2018**
  - **Chair** of the course: "Soft and smart materials for Bionics" within the two-year M.Sc. program in Bionics Engineering jointly held by the University of Pisa and the Scuola Superiore Sant'Anna, also delivered to I year PhD students of the BioRobotics Institute of the Scuola Superiore Sant'Anna. 60 hours
  - 16/11/2017 - **Invited lecture** within the course "Principles of Bionics Engineering" of the two-year M.Sc. program in Bionics Engineering jointly held by the University of Pisa and the Scuola Superiore Sant'Anna. Title of the lecture: "Embodiment and Morphological Computation". 3 hours

- **Academic Year 2016-2017**
  - **Chair** of the course: "Soft and smart materials for Bionics" within the two-year M.Sc. program in Bionics Engineering jointly held by the University of Pisa and the Scuola Superiore Sant'Anna, also delivered to I year PhD students of the BioRobotics Institute of the Scuola Superiore Sant'Anna. 60 hours

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[2] BBC World News – How the octopus inspires surgical tools (http://www.bbc.co.uk/programmes/p04jbqvj)

- 24/11/2016 - **Invited lecture** within the course "Principles of Bionics Engineering" of the two-year M.Sc. program in Bionics Engineering jointly held by the University of Pisa and the Scuola Superiore Sant'Anna. Title of the lecture: "Embodiment and Morphological Computation". 3 hours

- **Academic Year 2015-2016**
  - **Chair** of the course: "Soft and smart materials for Bionics" within the two-year M.Sc. program in Bionics Engineering jointly held by the University of Pisa and the Scuola Superiore Sant'Anna, also delivered to I year PhD students of the BioRobotics Institute of the Scuola Superiore Sant'Anna. 60 hours
  - 27/11/2015 - **Invited lecture** within the course "Sistemi meccatronici" of the M.Sc. program in Mechanical Engineering of the Polytechnic of Milan. Title of the lecture: "The octopus as paradigm for soft robotics". 2 hours

- **Academic Year 2014-2015**
  - **Chair** of the course: "Innovative actuation technologies" within the PhD program in BioRobotics of the BioRobotics Institute of the Scuola Superiore Sant'Anna. 20 hours + 10 hours of hands-on sessions
  - **Chair** of the course: "Innovative actuation technologies" within the II level Master Telecom program "Smart Solutions - Smart Communities" (2014 edition). 8 hours
  - 13/04/2015 - **Invited lecture** within the SMART-E and RoboSoft joint Summer School "Applications and Frontiers of Soft Robotics" (Livorno) for PhD student. Title of the lecture: "Flexible Fluidic Actuation and Granular Jamming - A primer", available at: http://www.robosoftca.eu/public_downloads/open-sourcetools/Tutorial_FFA-GJ_0.rar. 1 hour + 4 hours of hands-on session

- **Academic Year 2013-2014**
  - **Chair** of the course: "Innovative actuation technologies" within the PhD program in BioRobotics of the BioRobotics Institute of the Scuola Superiore Sant'Anna. 20 hours
  - **Chair** of the course: "Innovative actuation technologies" within the II level Master Telecom program "Smart Solutions - Smart Communities" (2013 edition). 8 hours
  - 16/05/2014 - **Invited lecture** within the "Tecnologie Applicate alle Scienze Chirurgiche" course in the PhD programme on Life and Health Science of the Centro Universitario di Chirurgia Mini-Invasiva, University of Turin. Title of the lecture: "Bioinspired robotic solutions for surgery". 1 hour
  - 21/11/2013 - **Invited lecture** within the ShanghAI Lectures 2013 series. Title of the lecture: "Soft Robotics and Bioinspiration II: Soft actuator design methods", available at: http://robohub.org/shanghai-lectures-2013-lecture-6-soft-robotics-and-bioinspiration-ii/. 1 hour (worldwide live broadcasting)

- **Academic Year 2012-2013**
  - **Chair** of the course: "Shape Memory Alloys actuators: from the model to the realization" within the PhD program in BioRobotics of the BioRobotics Institute of the Scuola Superiore Sant'Anna. 10 hours

- **Academic Year 2011-2012**
  - 27/06/2012 - **Invited lecture** within the "Third EMBODYi Summer School" (Roma) for PhD students. Title of the lecture: "Fundamentals on the use Shape Memory Alloys as actuators". 1 hour

- **Academic Year 2008-2009**
  - 02/04/2009 - **Invited lecture** within the "Brown bag lectures" series for PhD students of the Artificial Intelligence Lab (AILab) of the University of Zurich. 1 hour

- **Teaching support** and assistance to lab activities in the course of "Robotic Perception" led by prof. Cecilia Laschi at the School of Computer Science of the University of Pisa (MS in Computer Science), from 2008 to 2011.

SUPERVISION AND TUTORING

- **Supervision** of PhD students:
  1. **Main supervisor** of Debora Zrinscak, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Development of a bioinspired soft robotic actuation system for a total artificial heart", from October 2018.
  2. **Main supervisor** of Atta Nizamani, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Analysis, identification and set-up of technologies for developing miniature compliant actuators/effectors for biomedical applications", from October 2017 to September 2018.
  3. **Main supervisor** of Dario Lunni, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Study and development of efficient control strategy for soft robot", from October 2016.

4. **Main supervisor** of Mariangela Manti, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "How to obtain variable stiffness mechanisms. Investigation at three different levels: Passive, Semi-Active and Active", from October 2013 to June 2017.
5. **Main supervisor** of Vito Cacucciolo, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Cheap control and morphological computation in Muscular Hydrostats using an evolutionary computation approach", from October 2013 to March 2017.
6. **Main supervisor** of Maurizio Follador, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Actuation mechanisms and adhesion systems for bioinspired soft robots", from January 2014 to April 2015.

1. **Co-supervisor** of Giacomo Picardi, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Morphing body investigation on legged locomotion", from October 2016 to January 2018.
2. **Co-supervisor** of Haider Abidi, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Soft robotics focused on surgical and assistive applications", from October 2015 to December 2018.
3. **Co-supervisor** of Thomas George Thuruthel, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Reinforcement learning for soft robotics application", from October 2015 to January 2018.
4. **Co-supervisor** of Taimoor Shah, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Design and development of a highly flexible arm (with Omni-directional bending and stiffness changing capabilities)", from June 2014 to June 2018.
5. **Co-supervisor** of Yasmin Ansari, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Control of Soft Robotic Manipulators", from June 2014 to June 2018.
6. **Co-supervisor** of Angela Grassi, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "New technologies for quantitative assessment of spontaneous movements in infancy", from March 2015 to June 2017.
7. **Co-supervisor** of Emilio Trigili, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Development of a soft multi-joint system with variable stiffness for wearable exoskeletons", from October 2015 to June 2016.
8. **Co-supervisor** of Iris De Falco, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "A soft variable stiffness manipulator for minimally invasive surgery", from January 2015 to January 2016.
9. **Co-supervisor** of Giada Gerboni, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Novel actuation strategies for flexible and modular multi-DOF instruments for minimally invasive surgery", from March 2012 to October 2015.
10. **Co-supervisor** of Tommaso Ranzani, Ph.D. student in Biorobotics at Scuola Superiore Sant'Anna, Title of the research program: "Soft mechatronic devices for minimally invasive interventions", from March 2012 to October 2014.

- **Supervision** of M.Sc. and B.Sc. students:
  1. **Main Supervisor** of Giorgio Bondì, M.Sc Thesis in Bionics Engineering (University of Pisa and Scuola Superiore Sant'Anna), a.y. 2019-2020.
  2. **Main Supervisor** of Davide Bray, M.Sc Thesis in Aerospace Engineering (University of Pisa and Scuola Superiore Sant'Anna), a.y. 2019-2020.
  3. **Main Supervisor** of Stefano Albini, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2019-2020
  4. **Main Supervisor** of Vanni Magliola, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2018-2019.
  5. **Main supervisor** of Filomena Petrella, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2017-2018. Thesis title: "Development and test of an optimized soft anklet"
  6. **Main supervisor** of Daniele D'Accolti, M.Sc Thesis in Bionics Engineering (University of Pisa and Scuola Superiore Sant'Anna), a.y. 2017-2018. Thesis title: "Design and development of a magnetically driven actuation system for a soft total artificial heart"
  7. **Main supervisor** of Debora Zrinscak, M.Sc Thesis in Mechatronics Engineering (Polytechnic of Turin), a.y. 2017-2018. Thesis title: "Study and development of a bioinspired actuation system for a soft robotic total artificial heart"

1. **Co-supervisor** of Giovanni Tarantino, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2017-2018. Thesis title: "Progettazione e realizzazione di un dispositivo robotico soft per endoscopia gastrica minimamente invasiva"
2. **Co-supervisor** of Cristina Scalas, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2015-2016. Thesis title: "Studio e sviluppo delle tecnologie di attuazione per la realizzazione di un manipolatore robotico soft per assistenza agli anziani"
3. **Co-supervisor** of Elisabetta Surace, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2015-2016. Thesis title: "Design e sviluppo di un elettropalatografo per la valutazione dell'articolazione della parola realizzato con materiali piezoresistivi flessibili"
4. **Co-supervisor** of Alberto Merlo, M.Sc Thesis in Mechanical Engineering (Polytechnic of Milan), a.y. 2015-2016. Thesis title: "Studio di un attuatore SMA ad elevate prestazioni"
5. **Co-supervisor** of Emilio Trigili, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2014-2015. Thesis title: "Study and development of a soft semi-active rotational joint for wearable robotics"
6. **Co-supervisor** of Alessandro Rossi, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2013-2014. Thesis title: "Studio di un sistema di attuazione con tecnologie di soft robotics per applicazioni endoscopiche"
7. **Co-supervisor** of Viviana Aprile, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2013-2014. Thesis title: "Study and realisation of an actuators system based on electroactive polymers (EAPs)"
8. **Co-supervisor** of Giovanni Rateni, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2013-2014. Thesis title: "Design and development of a Soft Robotic instrument for manipulation in Minimally Invasive Surgery"
9. **Co-supervisor** of Mariangela Manti, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2012-2013. Thesis title: "Modello teorico e sperimentale della laringe come simulatore del funzionamento fisiologico"
10. **Co-supervisor** of Alessia Licofonte, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2010-2011. Thesis title: "Sensorization of continuum robots for reconstructing spatial configuration: theoretical model and experimental validation on a robotic prototype"
11. **Co-supervisor** of Maria Elena Giannaccini, M.Sc Thesis in Biomedical Engineering (University of Pisa), a.y. 2009-2010. Thesis title: "Implementazione di tecniche di controllo bioispirate per la realizzazione di pattern di movimento tipici del polpo (Octopus vulgaris) su una piattaforma robotica"

- **Internees**:
  1. Antonio López Díaz del Campo (University of Castilla-La Mancha (UCLM), Spain). Internship: "Hydrogels for soft robotics", from 09/07/2018 to 30/09/2018
  2. Matteo De Benedetti (University of Pavia, Italy). Internship topic: "Introduction to Model-free Reinforcement Learning for control of Soft Robots", from 13/03/2017 to 24/03/2017
  3. Elisa Pavarino (IUSS Pavia, Italy). Internship topic: "Fabrication and experimental evaluation of a soft manipulator based on cable driven actuators and a variable stiffness system", from 06/03/2017 to 17/03/2017
  4. Narimene Trichine (Khalifa University, Abu Dhabi). Internship topic: "A piece-wise constant curvature model for describing the behaviour of the I-SUPPORT robotic system", from 19/05/2016 to 15/07/2016
  5. Whitney Crooks (Tuft University, Boston). Internship topic: "Soft robots fabrication techniques", from 02/05/2016 to 27/05/2016
  6. Kotaro Fukui (Waseda University, Tokyo). Internship topic: "Investigation for a Squeezing Mechanism", from 01/07/2009 to 15/12/2009

- **Other**:
  o Lab training supervisor of students from University of Pisa and Scuola Superiore Sant'Anna:
    1. Fabrizio Grani, topic: "Design, integration and testing of a variable stiffness mechanism based on fiber jamming transition for a surgical soft robotic manipulator"
    2. Ingibjorg Tomasdottir, topic "Adjustable Stiffness Interfaces"

EDITORIAL ACTIVITIES

- **Peer reviewer** on a regular base for international journals: *AAAS* **Science Robotics**, *Elsevier* **Robotics and Autonomous Systems**, *Elsevier* **Sensors and Actuators A**, *Elsevier* **Materials Today**, **Frontiers in Bioengineering and Biotechnology**, **Frontiers in Robotics and AI**, *Hindawi* **Applied Bionics and Biomechanics**, *IEEE* **Robotics and Automation Magazine**, *IEEE* **Robotics and Automation Letters**,

IEEE **Transactions on Industrial Electronics**, *IEEE* **Transactions on Robotics**, *IEEE/ASME* **Transactions on Mechatronics**, *IEEE/ASME* **Transactions on Biomedical Engineering**, *IoP* **Bioinspiration & Biomimetics**, *IoP* **Smart Materials and Structures**, *Mary Ann Liebert* **Soft Robotics**, *MDPI* **Actuators**, MDPI **Energies**, MDPI **Applied Sciences**, *Nature* **Scientific Reports**, **PNAS,** *Royal Society* **Journal of the Royal Society Interface**, *RSC* **Soft Matter**, *Sage* **Advances in Mechanical Engineering**, *Springer* **Biomedical Microdevices,** *Springer* **International Journal of Intelligent Robotics and Applications**, *Wiley* **Advanced Materials**, *Wiley* **Advanced Materials Technologies**, *World Scientific* **Journal of Medical Robotics Research**, *World Scientific* **International Journal of Humanoid Robotics**.

- **Peer reviewer** on a regular base for international conferences: *IEEE* **International Conference on Robotics and Automation (ICRA)**, *IEEE/RSJ* **International Conference on Intelligent Robots and Systems (IROS)**, *IEEE* **Engineering in Medicine and Biology International Conference (EMBC)**, *IEEE* **International Conference on Biomedical Robotics and Biomechatronics (BioRob)**, *IEEE* **International Conference on Soft Robotics**, **Robotics: Science and Systems (RSS)**.

- **Guest editor** for:
  - SAGE International Journal of Advanced Robotics, Special Issue: "Soft Robotics Interacting with the Real World" (2016).
  - Frontiers in Robotics and AI, Research Topic: "At the Frontiers of Soft Robotics: Lessons Learnt from the RoboSoft Grand Challenge" (2016).
- **Associate editor** for:
  - the IEEE Robotics and Automation Letters since 2018.
  - the international journal Frontiers in Robotics and AI (specialty section on Soft Robotics) since 2016.
  - the IEEE International Conference on Robotics and Automation (ICRA 2019), Montreal, Canada, May 20-24, 2019.
  - the IEEE International Conference on Soft Robotics (RoboSoft 2019), Seoul, Korea, April 14-18, 2019.
  - the IEEE International Conference on Soft Robotics (RoboSoft 2018), Livorno, Italy, April 24-28, 2018.
  - the IEEE International Conference on Robotics and Automation (ICRA 2017), Singapore, May 29 – June 3, 2017.
  - the IEEE International Conference on Robotics and Automation (ICRA 2016), Stockholm, Sweden, May 16-21, 2016.
  - the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2013), Tokyo Big Sight, Japan, November 3-8, 2013.
- **Other** editorial activities:
  - Editor for the book "Soft Robotics: Trends, Applications and Challenges" Proceedings of the Soft Robotics Week, April 25-30, 2016, Livorno, Italy - Series: Biosystems & Biorobotics, Vol. 17, Springer, online since September 2016.
  - Review Editor for Frontiers in Robotics and AI
  - Review Editor for Frontiers in Bioengineering and Biotechnology

SCIENTIFIC RESPONSIBILITIES

- **Head** of the "Soft mechatronics of Biorobotics" Lab of the BioRobotics Institute of the Scuola Superiore Sant'Anna since 2012.
- **External reviewer and panellist** for PhD defense at University of Leeds.
- **External reviewer and panellist** for PhD defense at University of Genova and IIT.
- **External reviewer and panellist** for PhD defense at University of Salford.
- **External reviewer** for the European Research Council (Consolidator programme).
- **Member of the review panel** for the central self-governing research funding organisation for science and research in Germany (Deutsche Forschungsgemeinschaft, DFG - http://www.dfg.de/en/index.jsp).
- **External reviewer** for the Swiss National Science Foundation (the Switzerland's foremost institution in the promotion of scientific research - http://www.snf.ch/en/theSNSF/Pages/default.aspx).
- **External reviewer** for The Estonian Research Council (ETAg) in Mobilitas Pluss postdoctoral grant applications (researcher mobility programme co-funded by the European Regional Fund - http://www.etag.ee/en/funding/programmes/mobilitas-pluss/).
- **External reviewer** for the Netherlands Organisation for Scientific Research, NWO - https://www.nwo.nl/en/)
- **External reviewer** for the Research Foundation Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO - http://www.fwo.be/en/).

- **Personal contribution** to the formulation, proposal preparation, and accomplishment of research projects on Soft Robotics:
  - the HybridHeart Research and Innovation Action (RIA), funded by the European Commission in the ICT-FET Open Programme under contract 767195, total grant € 3.04 million, from November 2017 to October 2022.
    The project aims at developing the first fully biocompatible, soft actuated heart combining in situ tissue engineering and soft robotics.
  - the I-SUPPORT Research and Innovation Action (RIA) funded by the European Commission in the HEALTH Programme under contract 643666, total grant €3.56 million, from March 2015 to February 2018.
    The project envisions the development and integration of an innovative, modular, ICT-supported service robotics system that supports and enhances frail older adults' motion and force abilities and assists them in successfully, safely and independently completing the entire sequence of bathing tasks, such as properly washing their back, their upper parts, their lower limbs, their buttocks and groin, and to effectively use the towel for drying purposes. Advanced modules of cognition, sensing, context awareness and actuation will be developed and seamlessly integrated into the service robotics system to enable the robotic bathing system to adapt to the frail senior citizens population' abilities and enable frail senior users to interact with the robotic system in a master-slave mode, thus, performing bathing activities in an intuitive and safe way.
  - the RoboSoft Coordination Action (CA) "A Coordination Action for Soft Robotics", funded by the European Commission in the ICT-FET Programme under contract 619319, total grant €952 thousand, from October 2013 to September 2016.
    The fast and still growing interest in Soft Robotics at international level is allowing the development of several new technologies and advancements, but with the risk to remain scattered and not efficiently exploited. This awareness led to the conclusion that a working framework, a coordination action was extremely necessary and timely. This idea received a support by the EU recognizing the leadership of the BioRobotics Institute in the Soft Robotics area also thanks to the works I contributed to.
  - the SMART-E Marie Curie ITN "Sustainable Manufacturing through Advanced Robotics Training in Europe", funded by the European Commission in the PEOPLE Programme under contract 608022, total grant €3.95 million, from November 2013 to October 2017.
    The project is preparing the next generation of leading Advanced Roboticists to secure a Sustainable Manufacturing sector in Europe. It is training 13 Early Stage Researchers (ESRs) and 2 Experienced Researchers (ERs) and develop a leading European doctoral training programme, sustainable beyond the network's duration. One of the three grand challenges which the programme pursues is strongly related to Soft Robotics: Dexterous, Soft and Compliant Robotics in Manufacturing.
  - the STIFF-FLOP Integrating Project (IP) "STIFFness controllable Flexible and Learn-able manipulator for surgical OPerations", funded by the European Commission in the ICT-Challenge 2 Programme "Congnitive Systems and Robotics" under contract 287728, total grant €7.35 million, from January 2012 to December 2015.
    It aimed at creating soft, flexible robotic tools to improve "keyhole" or minimally invasive surgery (MIS). Departing from the traditional robotic manipulation concepts that rely on fixed stiffness distributions, the STIFF-FLOP project takes inspiration from biological principles found again in the octopus who can turn its arms from a completely soft state into a state of precise and powerful articulation.
  - the OCTOPUS Integrating Project (IP) "Novel Design Principles and Technologies for a New Generation of High Dexterity Soft-bodied Robots Inspired by the Morphology and Behaviour of the Octopus", funded by the European Commission in the ICT-FET Programme "Embodied Intelligence", under contract 231608, total grant €9.74 million, from February 2009 to January 2013.
    The proposal that I contributed to prepare received an extremely positive evaluation and a score of 14 (over 15) which ranked it first among the FET proposals. The grand challenge of this research is investigating and understanding the principles that give rise to the octopus sensory-motor capabilities and incorporating them in new design approaches and robotics technologies to build an embodied artefact, based broadly on the anatomy of the 8-arm body of an octopus, and with similar performances in water, in terms of dexterity, speed, control, flexibility, and applicability.
- **Principal Investigator** (for SSSA) of the EU funded project HybridHeart.
- **Technical team leader** of the SSSA research group working on industrial research projects related to the development of technological solutions based on soft robotics:
  - RoboPipe Project. Development of an in-pipe robot for inspection and restoration.
- **Technical team leader** of the SSSA research groups working on several European projects. The activities of the teams have been focused on the development of soft robotics technologies for stretchable sensors, for soft and variable stiffness actuators and for flexible/compliant mechanisms. Integration of mechatronic

components always requires coordination efforts, but in Soft Robotics this becomes even more important and difficult. Soft mechatronics components are literally fused together thus the behavior of the single parts is going to affect the overall performance. The most important projects:

- OCTOPUS (Large-scale Integrating Project FP7-ICT-2007.8.5) - 6 people focusing on the development of the soft robotic arm inspired by the octopus, including: soft actuators based on EAP, SMA and cables; stretchable sensors based on smart electrically conductive textiles or optics; compliant mechanisms resembling the octopus connective tissue for supporting the robot; a sensorized skin; a bioinspired control algorithm; geometrically exact models to describe the arm motion.
- STIFF-FLOP (Large-scale Integrating Project FP7-ICT-2011.2.1) - 4 people focusing on the development of the surgical manipulator and in particular: study and design of the actuation principle most suitable for the specific environment; development and optimization of functionalities; miniaturization for minimizing invasiveness.
- I-SUPPORT (Research and Innovation Action H2020-PHC-2014 EU.3.1) - 7 people focusing on the development of the soft robotic manipulator for performing automatic showering tasks, including all the hardware parts related to the device: the actuation system (based on cables and FFA), the stretchable sensors (based on EAP), the external waterproof skin and the tip interacting with the user.

- Other than the aforementioned projects, fund raising activities are continuously carried out. During the last 8 years he proactively contributed to the conceiving, writing and submission of more than 50 research proposals.

- **Responsible** of the industrial collaboration with RoboTech srl and GREAT Robotics within the regional project RES "Robotica Educativa Soft" to combine the know-how possessed by the partners to create a new educational product inspired by the principles of soft robotics, total grant 54k€ (March 2018 – February 2020).

- **Responsible** of the industrial collaboration with STMicroelectronics and SAES Getters within the regional project "SMAtt" for the development of an actuation device based on Shape Memory Alloys, total grant 60k€ (September 2012 – September 2014).

- **Responsible** for the procedure to obtain financial support within the Tuscany region call 1.5 "infrastrutture per il trasferimento tecnologico" PRSE 2007-2010 / P.I.R. – Linea di azione 1 "infrastrutture per i settori produttivi" PAR FAS 2007 – 2013, tipologia II – "realizzazione di centri di competenza". Total grant for the BioRobotics Institute 144k€.

- **Personal contributions** to the opening and activation of the Research Centre on Sea Technologies and Marine Robotics located in Livorno. It represents a delocalized laboratory of the BioRobotics Institute of Scuola Superiore Sant'Anna, devoted to the research activities focused on the study of marine organisms and to the development of new sea technologies (robotic platforms, sensors and Microsystems).

- **Organizer** of the "Corso di aggiornamento professionale - SIAF (Società Italiana di Audiologia e Foniatria): la laringologia nel terzo millennio", Pisa, Italy, November 24, 2018

- **Organizer** of the Workshop "Continuum and Soft Robots for medical interventions" at the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2018), Madrid, Spain, October 1-5, 2018

- **Organizer** of the two editions of the Soft Robotics Week (2015 and 2016), event that annually gathers the most prominent international actors on Soft Robotics and includes the plenary meeting of the RoboSoft community; a summer school for PhD students and a Challenge for soft robots.

- **Organizer** of the Workshop "New Frontiers and Applications for Soft Robotics" at the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2015), Hamburg, Germany, September 28 – October 03, 2015

- **Chair** of the Organized Session "Embodied Intelligence: Embodied Soft Robots" at the IEEE/RAS International Conference on Robotics and Automation (ICRA 2012), St. Paul, Minnesota, USA, May 14-18, 2012

- **Chair** of the Organized Sessions "Smart materials and actuators for Soft Robotics" at the IEEE/RAS International Conference on Biomedical Robotics and Biomechatronics (BioRob 2012), Rome, Italy, June 24-28, 2012

- **Technical Program Chair** member for the 2017 International Conference on Materials Science and Engineering Application (ICMSEA2017), Nanjing, China, April 21-23, 2017

- **Program Committee** member for the "Multi-Learn-2017" workshop at EUSIPCO'17, Kos Island, Greece, Sept 2, 2017

- **Scientific committee** member of the SMART-E final conference (in collaboration with Festival Internazionale della Robotica), Pisa, Italy, September 7-8, 2017

- **Local Arrangement Chair** of the IEEE RoboSoft 2018 conference, Livorno, Italy, April 24-28, 2018

ACADEMIC ROLES, MEMBERSHIPS AND QUALIFICATIONS

- **Member** of the Faculty Board (Collegio dei Docenti) of the BioRobotics Institute of the Scuola Superiore Sant'Anna since June 2012.
- **Member** of Boards of the Scuola Superiore Sant'Anna for PhD defences, admission to undergraduate and PhD positions, selections for post-doc fellowships and collaborators, regularly since June 2012.
- **Member** of International scientific Societies:
  - IEEE Member (www.ieee.org) since 2005
  - Member of the IEEE Robotics & Automation Society (RAS) since 2005
  - Member of the IEEE Engineering in Medicine and Biology Society (EMBS) since 2005 (scientific secretary of the EMBS TC on BioRobotics in 2015)
- **Qualification** "Abilitazione Scientifica Nazionale" (ASN), national scientific qualification to function as associate professor in Italian Universities, granted by MIUR on 30/03/2017.
- **Qualification** "Abilitazione alla professione di Ingegnere Industriale" granted by MIUR on 03/07/2012.

DISSEMINATION

- **Oral presentations to international conferences**:
  - IEEE International Conference on Soft Robotics (RoboSoft 2018), 25/04/2018, Livorno – Italy, title: "Preliminary experimental study on variable stiffness structures based on fiber jamming for soft robots"
  - Surgical Robot Challenge 2016 of the Hamlyn Symposium within the UK Robotics Week 2016, 25/06/2016, London – UK, title: "Soft Laparoscopic Tool for MIS"
  - International Symposium on Adaptive Motion of Animals and Machines (AMAM 2015), 24/07/2015, Cambridge – MA, title: "Cephalopod-inspired soft robots - design criteria and modeling frameworks"
  - IEEE Conference on Biomedical Robotics and Biomechatronics (BioRob 2012), 25/06/2012, Roma – Italy, title: "Sensorization of continuum soft robots for reconstructing their spatial configuration"
  - IEEE Conference on Robotics and Automation (ICRA 2012), 17/05/2012, St. Paul – MN, title: "Design and development of a soft robotic octopus arm exploiting embodied intelligence"
  - IEEE Conference on Intelligent and Robotic Systems (IROS 2013), 05/11/2013, Tokyo – Japan, title: "STIFF-FLOP Surgical Manipulator Mechanical design and experimental characterization of the single module"
  - International workshop on bio-inspired robots, 08/04/2011, Nantes – France, title: "Novel Design Principles for a Biomimetic Soft-Robot based on the In Vivo Characterization of the Morphology and Mechanics of Octopus Arm"
  - IEEE Engineering in Medicine and Biology Conference (EMBC 2007), 23/08/2007, Lyon – France, title: "Biorobotic Investigation on the Muscle Structure of an Octopus Tentacle"
- **Invited lectures to international conferences and workshops**:
  - International Workshop for Soft Artifacts, 04/12/2018, Tokyo – Japan, title: "The octopus as a model for building soft robots"
  - International Italy - Japan Workshop "The First Robots: Leonardo da Vinci and history and future of mechanisms", 03/12/2018, Tokyo – Japan, title: "Nature as an ancient yet modern source of inspiration"
  - International Symposium of the Material Research Society (MRS 2018 – fall meeting), 26/11/2018, Boston – USA, title: "Soft materials and soft robotics for future robot abilities and applications"
  - International Workshop on "Robotics for Man and Biosphere", 22/06/2018, Brussels – Belgium, title: "Life-inspired soft robotics for life-applied technologies"
  - IEEE International Conference on Soft Robotics (RoboSoft 2018) – Workshop on towards Soft Perceptive Robots: From Robotic and Biologically-Inspired Solutions, to Soft Sensing Technologies", 24/04/2018, Livorno – Italy, title: "Stretchable sensors for manipulators working in wet conditions: a "user" perspective"
  - International Conference on Modern Materials and Technologies (CIMTEC 2016), 09/06/2016, Perugia – Italy, title: "An octopus-inspired robot (and how it can change robotics paradigms)"
  - International Conference NanotechITALY 2015, 25/11/2015, Bologna – Italy, title: "Soft Robots Manufacturing (Key Enabling Technologies and Open Challenges)"
  - IEEE International Conference on Advanced Robotics (ICAR 2015) – Workshop on Bioinspired Soft Robotics, 31/07/2015, Istanbul – Turkey, title: "How to build a soft robot? learn from an octopus"
  - International Workshop on Human Friendly Robotics, 24/10/2014, Pisa – Italy, title: "Soft Mechatronics for Human-Friendly Robotics"

- IEEE International Conference on Robotics and Automation (ICRA 2014) – Workshop on Soft Robots, 05/06/2014, Hong Kong – China, title: "The OCTOPUS project as an incubator of Soft Robotics technologies"
- IEEE and KROS Conference on Ubiquitous Robots and Ambient Intelligence (URAI 2013), 01/11/2013, Jeju – Korea, title: "The octopus as paradigm for soft robotics"

- **Invited lectures to national conferences**:
  - XLVIII Congresso della Società Italiana di Foniatria e Logopedia, 19/06/2014, Rome, title: "La Biorobotica per un modello del piano glottico"
  - XXXIV Congresso Nazionale della Società Italiana di Audiologia e Foniatria, 18/10/2013, Venice, title: "La biorobotica per un modello fisico della laringe"

- **Participation to international events and exhibitions**:
  - Interactive demo at Tuscany stand at the universal exposition EXPO 2015, Milano – Italy, May 2015 – October 2015.
  - Interactive stand at the European Future Technologies Conference and Exhibition (FET11), Budapest – Hungary, from 03/05/2011 to 06/05/2011.
  - Interactive stand at the Innovation Convention 2011, Bruxelles – Belgium, from 04/12/2011 to 06/12/2011.
  - Interactive stand at EXPO ICT 2010, Bruxelles – Belgium, from 25/09/2010 to 30/09/2010.

BIBLIOMETRIC DATA
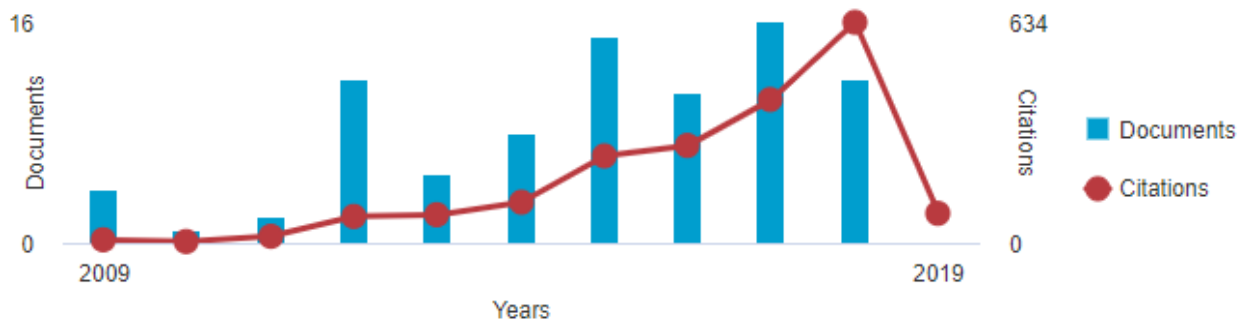
(Source: Scopus, February 15, 2019)

MATTEO CIANCHETTI
List of publications

INTERNATIONAL JOURNALS WITH PEER REVIEW

[IJ1] Brancadoro M, Manti M, Grani F, Tognarelli S, Menciassi A, **Cianchetti M** (2019) "Toward a variable stiffness surgical manipulator based on fiber jamming transition", *Frontiers in Robotics and AI* (section Soft Robotics), 6(12).

[IJ2] Nacci A, Romeo SO, Cavaliere MD, Macerata A, Bastiani L, Paludetti G, Galli J, Marchese MR, Barillari MR, Barillari U, Berrettini S, Laschi C, **Cianchetti M**, Manti M, Ursino F, Fattori B (2019) "Comparison of electroglottographic variability index in euphonic and pathological voice", *Acta otorhinolaryngologica italica*, in press.

[IJ3] Olivieri A, Maselli M, Lodi M, Storace M, **Cianchetti M** (2018) "Model-based compensation of rate-dependent hysteresis in a piezoresistive strain sensor", *IEEE Transactions on Industrial Electronics*, accepted.

[IJ4] Hassan T, **Cianchetti M**, Moatamedi M, Mazzolai B, Laschi C, Dario P (2018) "Finite Element Modeling and Design of a Pneumatic Braided Muscle Actuator with Multi-functional Capabilities", *IEEE Transactions on Mechatronics*, 24(1), 109-119.

[IJ5] **Cianchetti M**, Laschi C, Menciassi A, Dario P (2018) "Biomedical applications of soft robotics", *Nature Reviews Materials*, 3, 143-153.

[IJ6] Diodato A, Brancadoro M, De Rossi G, Abidi H, Dall'Alba D, Muradore R, Ciuti G, Fiorini P, Menciassi A, **Cianchetti M** (2018) "Soft Robotic Manipulator for Improving Dexterity in Minimally Invasive Surgery", *Surgical Innovation*, 25(1), 69-76.

[IJ7] Abidi H, Gerboni G, Brancadoro M, Fras J, Diodato A, **Cianchetti M**, Wurdemann H, Althoefer K, Menciassi A (2018) "Highly Dexterous 2-module Soft Robot for Intra-organ Navigation in Minimally Invasive Surgery", *The International Journal of Medical Robotics and Computer Assisted Surgery*, e1875.

[IJ8] Ansari Y, Manti M, Falotico E, **Cianchetti M**, Laschi C (2018) "Multi-objective optimization for stiffness and position control in a soft robot arm module", *IEEE Robotics and Automation Letters*, 3(1), 108-115 (also presented at IROS 2017).

[IJ9] Hassan T, **Cianchetti M**, Mazzolai B, Laschi C, Dario P (2017) "Active-Braid, a Bio-Inspired Continuum Manipulator", *IEEE Robotics and Automation Letters*, 2(4), 2104-2110 (also presented at IROS 2017).

[IJ10] George Thuruthel T, Falotico E, Manti M, Pratesi A, **Cianchetti M**, Laschi M (2017) "Learning Closed Loop Kinematic Controllers for Continuum Manipulators in Unstructured Environments", *Soft robotics*, 4(3), 285-296.

[IJ11] De Falco I, **Cianchetti M**, Menciassi A (2017) "A soft multi-module manipulator with variable stiffness for minimally invasive surgery", *Bioinspiration & Biomimetics*, 12, 056008.

[IJ12] Grassi A, Cecchi F, Maselli M, Röling M, Laschi C, **Cianchetti M** (2017) "Warp-Knitted Textile as a Strain Sensor: Characterization Procedure and Application in a Comfortable Wearable Goniometer", *IEEE Sensors*, 17(18), 5927-5936.

[IJ13] Cacucciolo V, Shigemune H, **Cianchetti M**, Laschi C, Maeda S (2017) "Conduction Electrohydrodynamics with Mobile Electrodes: A Novel Actuation System for Untethered Robots", *Advanced Science*, 1, 1600495.

[IJ14] Gerboni G, Diodato A, Ciuti G, **Cianchetti M**, Menciassi A (2017) "Feedback control of soft robot actuators via commercial flex bend sensors", *IEEE Transactions on Mechatronics*, 22(4), 1881-1888.

[IJ15] Polygerinos P, Correll N, Morin S, Mosadegh B, Onal C, Petersen K, **Cianchetti M**, Tolley M, Shepherd R (2017) "Soft robotics: Review of Fluid-Driven Intrinsically Soft Devices; manufacturing, sensing, control, and Applications in Human-Robot Interaction", *Advanced Engineering Materials*, e201700016.

[IJ16] Sato T, Yamanishi Y, Cacucciolo V, Kuwajima Y, Shigemun H, **Cianchetti M**, Laschi C, Maeda S (2017) "Electrohydrodynamic Conduction Pump with Asymmetrical Electrode Structures in the Microchannels", *Chemistry Letters*, 46(7), 950-952.

[IJ17] Renda F, **Cianchetti M**, Abidi H, Dias J, Seneviratne L (2017) "Screw-Based Modeling of Soft Manipulators with Tendon and Fluidic Actuation", *Journal of Mechanisms and Robotics*, 9(4), 041012.

[IJ18] Ansari Y, Manti M, Falotico E, Mollard Y, **Cianchetti M**, Laschi C (2017) "Towards the development of a soft manipulator as an assistive robot for the personal care of elderly people", *International Journal of Advanced Robotics Systems*, 14(2).

[IJ19] Macerata A, Nacci A, Manti M, **Cianchetti M**, Matteucci J, Romeo SO, Fattori B, Berrettini S, Laschi C, Ursino F (2017) "Evaluation of the Electroglottographic signal variability by amplitude-speed combined analysis", *Biomedical Signal Processing and Control*, 37, 61-68.

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[IJ22] Laschi C, Mazzolai B, **Cianchetti M** (2016) "Soft robotics: Technologies and systems pushing the boundaries of robot abilities", *Science Robotics*, 1, eaah3690.

[IJ23] Gerboni G, Brancadoro M Tortora G, Diodato A, **Cianchetti M**, Menciassi A (2016) "A novel linear elastic actuator for minimally invasive surgery: development of a surgical gripper", *Smart Materials and Structures*, 25(10), 105025.

[IJ24] Calisti M, **Cianchetti M**, Manti M, Corucci F, Laschi C (2016) "Contest-driven soft-robotics boost: the RoboSoft Grand Challenge", *Frontiers in Robotics and AI*, 55(3).

[IJ25] Cacucciolo V, Renda F, Poccia E, Laschi C, **Cianchetti M** (2016) "Modelling the Nonlinear Response of Fibre-reinforced Bending Fluidic Actuators", *Smart Materials and Structures*, 25(10), 105020.

[IJ26] Manti M, Cacucciolo V, **Cianchetti M** (2016) "Stiffening in Soft Robotics: a review", *IEEE Robotics and Automation Magazine*, 23(3), 93-106.

[IJ27] **Cianchetti M**, Laschi C (2016) "Pleasant to the touch", *IEEE Pulse Magazine*, 3, 34-37.

[IJ28] Shiva A, Stilli A, Noh Y, Faragasso A, De Falco I, Gerboni G, **Cianchetti M**, Menciassi A, Althoefer K, Wurdemann H (2016) "Tendon-based stiffening for a pneumatically actuated soft manipulator", *IEEE Robotics and Automation Letters*, 2(1), 632-637 (also presented at ICRA 2016).

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[IJ30] Maeda S, Kato T, Otsuka Y, Hosoya N, **Cianchetti M**, Laschi C (2016) "Large deformation of self-oscillating polymer gel", *Phys. Rev. E*, American Physical Society, 93, 010501.

[IJ31] Minnocci A, **Cianchetti M**, Mazzolai B, Sebastiani L, Laschi C (2015) "Cryo-scanning electron microscopy investigation of the Octopus Vulgaris arm structures for the design of an octopus-like arm artefact", *Microscopy Research and Technique*, 78(12), 1133-1145.

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[IJ35] Follador M, **Cianchetti M**, Mazzolai B (2015) "Design of a compact bistable mechanism based on dielectric elastomer actuators" *Meccanica*, *Springer Netherlands,* 50(11) 2741-2749.

[IJ36] Vannozzi L, Ricotti L, **Cianchetti M**, Bearzi C, Gargioli C, Rizzi R, Dario P, Menciassi A (2015) "Self-assembly of polydimethylsiloxane structures from 2D to 3D for bio-hybrid actuation", *Bioinspiration & Biomimetics*, 10, 056001.

[IJ37] De Falco I, Gerboni G, **Cianchetti M**, Menciassi A (2015) "Design and fabrication of an elastomeric unit for soft modular robots in minimally invasive surgery" *Journal of Visualized Experiments*, (105), e53118. [video]

[IJ38] **Cianchetti M**, Calisti M, Margheri L, Kuba M, Laschi C (2015) "Bioinspired locomotion and grasping in water: the soft eight-arm OCTOPUS robot" *Bioinspiration & Biomimetics* (Special Issue on Octopus-inspired robotics), 10, 035003.

[IJ39] Ranzani T, Gerboni G, **Cianchetti M**, Menciassi A (2015) "A bioinspired soft manipulator for minimally invasive surgery" *Bioinspiration & Biomimetics* (Special Issue on Octopus-inspired robotics), 10, 035008.

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[IJ41] Elsayed Y, Vincensi A, Lekakou C, Geng T, Saaj CM, Ranzani T, **Cianchetti M**, Menciassi A (2014) "Finite Element Analysis and Design Optimization of a Pneumatically Actuating Silicone Module for Robotic Surgery Applications" *Soft Robotics*, 1(4) 255-262.

[IJ42] **Cianchetti M**, Licofonte A, Follador M, Rogai F, Laschi C (2014) "Bioinspired Soft Actuation System using Shape Memory Alloys" *Actuators* (Special Issue on Soft Actuators), 3(3), 226-244.

[IJ43] **Cianchetti M**, Ranzani T, Gerboni G, Nanayakkara T, Althoefer K, Dasgupta P, Menciassi A (2014) "Soft robotics technologies to address shortcomings in today's minimally invasive surgery: the STIFF-FLOP approach" *Soft Robotics*, 1(2) 122-131.

[IJ44] Renda F, Giorelli M, Calisti M, **Cianchetti M**, Laschi C (2014) "Dynamic Model of a Multi-Bending Soft Robot Arm Driven by Cables" *IEEE Transactions on Robotics*, 30(5), 1109-1122.

[IJ45] Laschi C, **Cianchetti M** (2014) "Soft Robotics: new perspectives for robot bodyware and control" *Frontiers in Bioengineering and Biotechnology*, 2(3).

[IJ46] Zheng T, Branson DT, Guglielmino E, Kang R, Medrano Cerda GA, **Cianchetti M**, Follador M, Godage IS and Caldwell DG (2013) "Model Validation of an Octopus Inspired Continuum Robotic Arm for Use in Underwater Environments" *Journal of Mechanisms and Robotics*, 5(2), 021004.

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INTERNATIONAL CONFERENCES WITH PEER REVIEW

[IC1] Gabrieli N, Ortega Alcaide J, **Cianchetti M**, Menciassi A, Ciuti G (2018) "A novel soft device for assisting magnetically-driven soft-tethered capsule navigation", 2018 IEEE International Conference on Cyborg and Bionic Systems – CBS 2018, (2nd prize Best Paper Award), 261-265.

[IC2] Thuruthel TG, Manti M, Falotico E, **Cianchetti M**, Laschi C (2018) "Induced Vibrations of Soft Robotic Manipulators for Controller Design and Stiffness Estimation", Conf Proc IEEE on Biomedical Robotics and Biomechatronics – BioRob 2016, 550-555.

[IC3] Lunni D, Del Dottore E, Sadeghi A, **Cianchetti M**, Sinibaldi E, Mazzolai B (2018) "Investigation of Tip Extrusion as an Additive Manufacturing Strategy for Growing Robots", in Biomimetic and Biohybrid Systems, Lecture Notes in Computer Science, Springer, 64-74.

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