Curriculum Vitae and Track Record
Leonardo Ricotti

1. Personal Information

Name and Surname: Leonardo Ricotti

Birthdate: 02/03/1982

Born in: Volterra (PI) –Italy

Citizenship: Italian

Spoken languages: Italian, English, Spanish, Portuguese

Sex: Male

E-Mail: leonardo.ricotti@santannapisa.it

URLs: https://www.santannapisa.it/en/regenerative-technologies-laboratory

2. Key Figures

102 Journal papers

47 papers on International Conferences proceedings

50 abstracts/posters at national or international Conferences

8 book chapters

18 patents

Parameter	Scholar	Scopus	ISI WoS
No. of articles	174	131	125
No. of citations	3622	2592	2246
H-index	34	29	27

I obtained the Italian qualification for the profession of Associate Professor of Bioengineering (***Abilitazione scientifica nazionale, Professore di II fascia, settore disciplinare 09/G2***) in December 2014.

I obtained the Italian qualification for the profession of Full Professor of Bioengineering (***Abilitazione scientifica nazionale, Professore di I fascia, settore disciplinare 09/G2***) in December 2020.

The licenses were issued by MIUR (*Ministero dell'Istruzione, dell'Università e della Ricerca*).

3. Short bio: professional and scientific highlights

I obtained a M.Sc. Degree in Biomedical Engineering at University of Pisa in 2007 (full marks, cum laude). In 2008 I was hired as Research Assistant at the CRIM Lab (Center of Research In Micro-bio-robotics) of Scuola Superiore Sant'Anna (SSSA) and I obtained a Ph.D. in Biorobotics (full marks, cum laude) at the same institution, in 2012. I am currently Associate Professor at the BioRobotics Institute at SSSA, where I lead the "Regenerative Technologies" Lab. Here, I carry on an intense research activity and a high-level education activity for M.Sc. students in Bionics Engineering and for Ph.D. students in Biorobotics. My scientific activity has been featured from the beginning by a strongly interdisciplinary and curiosity-driven approach. This allowed me to carry out innovative research efforts at the interface between different disciplines, such as materials science, molecular biology, micro/nanotechnologies, robotics and mechatronics. I have attempted, during my scientific path, to create innovative (and potentially disruptive) "match points" between the different mentioned disciplines. A paradigmatic example is the research line on biohybrid systems. Nowadays, my research efforts focus on technologies for regenerative medicine, artificial and bioartificial organs and biohybrid robots. I have the ambition to invent innovative and potentially game-changing solutions in these fields, by combining bioengineering and biorobotic approaches, and to bring them to the clinics, improving the quality of life of a vast number of people.

4. Education

AcademicDegrees

11/2008 – 04/2012	**Ph.D. in Biorobotics (100/100 cum laude)** at SSSA, Pisa (Italy). Ph.D. Thesis entitled "*Development of Bio-Hybrid Actuators*", defended on 18/04/2012.
10/2004 – 07/2007	**M.Sc. Degree (Laurea Specialistica) in Biomedical Engineering, "Industrial" curriculum (110/110 cum laude)**, at University of Pisa (Italy). The Thesis, discussed on 26/07/2007, was entitled "Development of an oligonucleotides-based sensor for applications in reconfigurable robotics" and it was based on a 7-months research activity carried out abroad, at the Barcelona Science Park of the University of Barcelona (http://www.pcb.ub.edu/homepcb/live/en/p1.asp), in Barcelona (Spain).
10/2001 – 10/2004	**B.Sc. Degree (Laurea Triennale) in Biomedical Engineering, "Industrial" curriculum (110/110)**, at University of Pisa (Italy). The Thesis, discussed on 13/10/2004, was entitled "*Design of a multicompartmental bioreactor for in vitro simulation of human metabolism*" and it was based on a research activity carried out at the Bioengineering and Robotics Research Center "E. Piaggio" of the University of Pisa (**Errore. Riferimento a collegamento ipertestuale non valido.**), Pisa (Italy).

Other Education

01/2011 - 07/2011	**Visiting Ph.D. student** (6 months) at Biocant (Center of Innovation and Biotechnology) (www.biocant.pt) in Coimbra (Portugal).
02/2010 – 12/2010	**Master in "High-Tech Entrepreneurship"** at SIAF (Scuola Internazionale di Alta Formazione), Volterra (PI, Italy). This 1st level master aimed at providing young researchers with the knowledge and instruments needed to create and manage new high-tech spin-off and start-up companies.
14/06/2010 - 21/06/2010	**"Spin Your Thesis!" program**, promoted by the European Space Agency (ESA). The program consisted in carrying out experiments in hypergravity conditions at the ESA facilities, in Noordwijk (The Netherlands).
09/1996 – 07/2001	**High School Degree (100/100)** at the Scientific Lyceum "G. Carducci", Volterra (PI, Italy)

Summer Schools

02/11/2009 - 07/11/2009	**Summer School on BioRobotics WSK'09**, held at Waseda University,

	Tokyo (Japan).
23/08/2009 - 12/09/2009	**European School on Nanosciences and Nanotechnologies (ESONN'09)**, held at the Université de Grenoble (France).
31/08/2008 - 05/09/2008	**Summer School on BioRobotics WSK'08**, organized by SSSA and held in Volterra (Italy).

5. Employment history

From 01/10/2017 - today	**Associate Professor** at the BioRobotics Institute of SSSA. Head of the "*Regenerative Technologies*" Lab. The Lab currently counts on ~30 members (https://www.dropbox.com/s/nrcryn3g1dytsqn/Profiles.pdf?dl=0)
01/01/2014 – 30/09/2017	**Assistant Professor** at the BioRobotics Institute of SSSA. Head of the "*Micro-Nano-Bio Systems and Targeted Therapies*" Lab. *[Contratto da ricercatore a tempo determinato di tipo A, art. 24, comma 3, lett. a), della Legge n. 240/2010. Settore concorsuale: 09/G2 – Bioingegneria]*
01/12/2012 – 31/12/2013	**Postdoctoral fellow in Bioengineering and Biorobotics** at the BioRobotics Institute of SSSA. Research topic: "*Study and development of bioengineering platforms and advanced technological solutions for targeted therapeutic actions*". *[Assegno di ricerca ex art. 22 L. 240/2010. Settore scientifico disciplinare: ING-IND/34]*
15/12/2011 – 13/11/2012	**Postdoctoral fellow in Bioengineering and Biorobotics** at the BioRobotics Institute of SSSA, within the MicroVAST project (MICROsystems for Vascular diagnosticS and inTerventions, http://www.microvast.it/). Research topic: "*Development and characterization of flexible and nanostructured polymeric devices for the realization of therapeutic systems*". *[Assegno di ricerca ex art. 22 L. 240/2010. Settore scientifico disciplinare: ING-IND/34]*
12/09/2011 – 11/04/2012	**Collaboration contract** at the BioRobotics Institute of SSSA, within the EU-funded (FP7) **CA-RoboCom** project (Coordination Action for the design and description of the FET Flagship Candidate Robot Companions for Citizens, www.robotcompanions.eu). Role: senior ICT analyst. *[Contratto di collaborazione (co.co.co)]*
01/11/2008 – 01/11/2011	**Ph.D. Scolarship**, SSSA. International Doctoral School in Innovative Technologies of Information & Communication Engineering and Robotics, Curriculum: Biorobotics (XXIV Ph.D. cycle). Double affiliation: SSSA and Center for Micro-Bio-Robotics of the Italian Institute of Technology (IIT). Research topic: "*Development of bio-hybrid actuators*".
09/01/2009 – 08/11/2009	**Collaboration contract** at the Center of Research In Micro-bio-engineering (CRIM) Lab of SSSA, within the EU-funded (FP7) **REPLICATOR** project (Robotic Evolutionary Self-Programming and Self-Assembling Organisms, http://symbrion.org/tiki-index.php). Research topic: "*Study and development of reconfigurable robotic systems for inspection of non-structured*

	environments". *[Contratto di collaborazione (co.co.co)]*
01/01/2008 – 31/10/2008	**Research assistant in Bioengineering and Biorobotics** at the CRIM Lab of SSSA. Position funded within the **REPLICATOR** project. Research topic: "*Study and development of reconfigurable robotic platforms*". *[Assegno di ricerca ex art. 51 comma 6 L. 449/1997. Settore scientifico disciplinare: ING-IND/34]*

6. Awards and distinctions

25/10/2022

"Cambiamenti" award, 6th edition, for the most innovative Italian companies. Assigned to the spin-off company Relief s.r.l. (of which Leonardo Ricotti was the CSO). Conferred in Pisa by CAN (Association of artesans and small-medium enterprises).

24/10/2022

Most innovative spin-off company in Tuscany – 3rd place. Assigned to a proposal of spin-off company MyEcho s.r.l. (of which Leonardo Ricotti is co-founder). Conferred in Siena during the "Start Cup Toscana" event.

06/10/2022

Starttime prize. Assigned to a proposal of spin-off company MyEcho s.r.l. (of which Leonardo Ricotti is co-founder). Conferred in Salerno during the "Borsa della Ricerca 2022" event, organized by the Emblema Foundation.

28/06/2022

National prize for Innovation, XII edition. Assigned to the spin-off company Relief s.r.l. (of which Leonardo Ricotti was the CSO). Conferred in Rome by the Italian Ministers of University and Research, Technological Innovation and Digital Transition and Public Administration.

30/11/2018

Most innovative spin-off company in Italy – 1st place. Assigned during the Piano Nazionale per l'Innovazione PNICube – Verona (Italy) – 29th – 30th November 2018, to the spin-off company Relief s.r.l. (of which Leonardo Ricotti was the CEO)

31/10/2018

Most innovative spin-off company in Tuscany – 1st place. Assigned during the Start Cup Toscana event – Florence (Italy) – 31/10/2018, to the spin-off company Relief s.r.l. (of which Leonardo Ricotti was the CEO)

26/01/2016

Best Poster Presentation Award – 3rd place. Assigned during the IEEE Life Sciences Grand Challenges Conference - Abu Dhabi (UAE) - 25th – 26th January 2016

31/07/2014
European Biomaterials and Tissue Engineering Doctoral Award. Assigned during the European Biomaterials Society (ESB) Conference – Liverpool (UK) – 31th August – 3rd September 2014

01/08/2013
Best Oral Presentation Award at The International Conference on Biomimetic and Biohybrid systems (Living Machines 2013) – London (UK) – 29th July – 2nd August 2013. Title: "*Three-dimensional tubular self-assembling structure for bio-hybrid actuation*"

05/06/2013
Best Oral Presentation Award at the Italian Biomaterials Society Conference (SIB 2013), affiliated with the European Society for Biomaterials (ESB) – Baveno (VB) – 3rd – 5th June 2013. Title: "*Engineered materials for the development of bio-hybrid actuators*"

21/09/2012
"***Massimo Grattarola*" 2012 Award for the Best Ph.D. Thesis in Bioengineering**. Assigned during the XXXI Annual School of the Italian Bioengineering Group (Gruppo Nazionale di Bioingegneria, GNB), in Bressanone (Bz, Italy)

14/06/2010
Winner of the "Spin Your Thesis! Campaign 2010", promoted by the European Space Agency (ESA), with the project "*Investigation of hypergravity on proliferation metabolism and differentiation of muscle cells*" (G. Ciofani, L. Ricotti, J. Rigosa ; Advisors: Prof. A. Menciassi, Dr. M. Monici)

15/05/2010
Selected as a finalist for the program "Fly Your Thesis 2010"promoted by ESA. The project (MuSpace2010) was within the 12 best proposals promoted by European research groups

10/05/2009
Selected as a finalist for the program "Fly Your Thesis 2009"promoted by ESA. The project (MuSpace) was within the 16 best proposals promoted by European research groups

15/12/2006
"MICRO NANO 25 – The technologies of Tomorrow" Award, appointed for the development of multicompartmental bioreactors (topic of the B.Sc. Thesis). The prize was assigned to the Bioengineering and Robotics Research Center "E. Piaggio" of the University of Pisa. Selected from the Editors of "*R&D Magazine*" and "*Micro Nano Newsletter*" as one of the most innovative products of the year.

28/09/2005

"LaBS 2005" Award for the best B.Sc. Thesis in Bioengineering. The prize was promoted by the Politecnico of Milano and it was assigned during the XXV Annual School of the Italian Bioengineering Conference (Congresso Nazionale di Bioingegneria, GNB), in Bressanone (Bz, Italy).

7. Publications and Patents

Papers on peer-reviewed Journals (J)

* = *these authors equally contributed to this work*

2022:

[J1]. T. Mazzocchi, D. Guarnera, D. Trucco, F.R. Restaino, L. Vannozzi, A. Siliberto, G. Lisignoli, S. Zaffagnini, A. Russo, and L. Ricotti. A novel approach for multiple material extrusion in arthroscopic knee surgery. *Ann. Biomed. Eng.* doi: 10.1007/s10439-022-03061-5 (2022) [I.F. 2021: 4.219]

[J2]. A. Vizzoca, G. Lucarini, E. Tognoni, S. Tognarelli, L. Ricotti, L. Gherardini, G. Pelosi, M. Pellegrino, A. Menciassi, S. Grimaldi, and C. Cinti. Erythro–magneto–HA–virosome: a bio-inspired drug delivery system for active targeting of drugs in the lungs. *Int. J. Mol. Sci.* 23(17): 9893 (2022) [I.F. 2021: 6.208]

[J3]. C. Paci, F. Iberite, L. Arrico, L. Vannozzi, P. Parlanti, M. Gemmi, and L. Ricotti. Piezoelectric nanocomposite bioink and ultrasound stimulation modulate early skeletal myogenesis. *Biomater. Sci.* doi: 10.1039/D1BM01853A (2022) [I.F. 2021: 7.590]

[J4]. L. Vannozzi, A. Lucantonio, A. Castillo, A. De Simone, and L. Ricotti. Modeling self-rollable elastomeric films for building bioinspired hierarchical 3D structures. *Int. J. Mol. Sci.* 23(15): 8467 (2022) [I.F. 2021: 6.208]

[J5]. D. Trucco, L. Riacci, L. Vannozzi, C. Manferdini, L. Arrico, E. Gabusi, G. Lisignoli, and L. Ricotti. Primers for the adhesion of gellan gum-based hydrogels to the cartilage: a comparative study. *Macromol. Biosci.* Doi: 10.1002/mabi.202200096 (2022) [I.F. 2021: 5.859]

[J6]. C. Manferdini, D. Trucco, Y. Saleh, E. Gabusi, P. Dolzani, E. Lenzi, L. Vannozzi, L. Ricotti, and G. Lisignoli. RGD-functionalized hydrogel supports the chondrogenic commitment of adipose mesenchymal stromal cells. *Gels*. 8(6): 382 (2022) [I.F. 2021: 4.432]

[J7]. F. Iberite, E. Gruppioni, and L. Ricotti. Skeletal muscle differentiation of human iPSCs meets bioengineering strategies: perspectives and challenges. *npj Regenerative Medicine.* 7: 23 (2022)

[J8]. T. Mazzocchi, G. Lucarini, I. Roehrer, A. Menciassi, and L. Ricotti. PDMS and DLC-coated unidirectional valves for artificial urinary sphincters: Opening performance after 126 days of immersion in urine. *J. Biomed. Mater. Res. B: App. Biomater.* 110: 817-827 (2022) [I.F. 2021: 3.405]

[J9]. M. Piazzoni, E. Piccoli, L. Migliorini, E. Milana, F. Iberite, L. Vannozzi, L. Ricotti, I. Gerges, P. Milani, C. Marano, C. Lenardi, and T. Santaniello. Monolithic three-dimensional functionally graded hydrogels for bioinspired soft robots fabrication. *Soft Rob.* 9(2): 224-232 (2022) – [I.F. 2021: 7.784]

2021:

[J10]. A. Sorriento, A. Cafarelli, P. Spinnato, A. Russo, G. Lisignoli, F. Rabusseau, P. Cabras, E. Dumont, and L. Ricotti. Design, Development and validation of a knee brace to standardize the US imaging evaluation of knee osteoarthritis. *IEEE J. Transl. Eng. Health Med.* 10: 1-8 (2021) [I.F. 2021: 2,890]

[J11]. L. Riacci, A. Sorriento, and L. Ricotti. Genipin-based crosslinking of jellyfish collagen 3D hydrogels. *Gels.* 7(4): 238 (2021) [I.F. 2021: 4.432]

[J12]. V. Iacovacci, I. Tamadon, E.F. Kauffmann, S. Pane, V. Simoni, L. Marziale, M. Aragona, L. Cobuccio, M. Chiarugi, P. Dario, S. Del Prato, L. Ricotti, F. Vistoli and A. Menciassi. A fully implantable device for intraperitoneal drug delivery refilled by ingestible capsules. *Sci. Robot*. 6(57): eabh3328 (2021) [I.F. 2021: 27.541]

[J13]. A. Cafarelli, A. Marino, L. Vannozzi, J. Puigmartí-Luis, S. Pané, G. Ciofani, and L. Ricotti. Piezoelectric nanomaterials activated by ultrasound: the pathway from discovery to future clinical adoption. *ACS Nano*. 15(7): 11066–11086 (2021) [I.F. 2021: 18.027]

[J14]. L. Vannozzi, E. Catalano, M. Telkhozhayeva, E. Teblum, A. Yarmolenko, E.S. Avraham, R. Konar, G.D. Nessim, and L. Ricotti. Graphene oxide and reduced graphene oxide nanoflakes coated with glycol chitosan, propylene glycol alginate, and polydopamine: characterization and cytotoxicity in human chondrocytes. *Nanomaterials*. 11(8), 2105 (2021) [I.F. 2021: 5.719]

[J15]. F Fontana, F Iberite, A Cafarelli, A Aliperta, G Baldi, Elena Gabusi, Paolo Dolzani, Sandra Cristino, Gina Lisignoli, T Pratellesi, E Dumont, and L Ricotti. Development and validation of low-intensity pulsed ultrasound systems for highly controlled in vitro cell stimulation. *Ultrasonics*. 116: 106495 (2021) [I.F. 2021: 4.062]

[J16]. L. Paternò, M. Ibrahimi, E. Rosini, G. Menfi, V. Monaco, E. Gruppioni, L. Ricotti, and A. Menciassi. Residual limb volume fluctuations in transfemoral amputees. *Sci. Rep.* 11: 1-11 (2021) [I.F. 2021: 4.996]

[J17]. D. Trucco, A. Sharma, C. Manferdini, E. Gabusi, M. Petretta, G. Desando, L. Ricotti, J. Chakraborty, S. Ghosh, and G. Lisignoli. Modeling and fabrication of silk fibroin–gelatin-based constructs using extrusion-based three-dimensional bioprinting. *ACS Appl. Biomater. Sci. Eng.* Doi: 10.1021/acsbiomaterials.1c00410 (2021) [I.F. 2021: 5.395]

[J18]. G. Trovato*, L. Ricotti*, C. Laschi, M. Zecca, S. Cosentino, L. Bartolomeo, S. Hashimoto, A. Takanishi, and P. Dario. The Italy-Japan workshop: a history of bilateral

cooperation, pushing the boundaries of robotics. *IEEE Rob. Autom. Mag.* Doi: 10.1109/MRA.2021.3068559 (2021) [I.F. 2021: 5.229]

[J19]. L. Ricotti, T. Fujie, and E.T. Roche. Bionic organs and tissues. *IEEE Trans. Med. Rob. Bionics.* 3(2): 295-296 (2021)

[J20]. A. Mazzeo, V. Iacovacci, L. Riacci, D. Trucco, G. Lisignoli, F. Vistoli, and L. Ricotti. 3D printed perfusable renal proximal tubule model with different extracellular matrix compositions. *IEEE Trans. Med. Rob. Bionics.* 3(2): 328-336 (2021)

[J21]. F. Campacci, C. Vicini, G. Ciuti, and L. Ricotti. RhinoFit: a bionic nasal device for mitigating post-operative complications after rhinosurgery. *IEEE Trans. Med. Rob. Bionics.* 3(2): 297-305 (2021)

[J22]. S. Ciancia, A. Lucantonio, L. Vannozzi, G.A. Pedrazzini, and L. Ricotti. Thermal analysis of paraffin-embedded tissue blocks for anatomic pathology processes. *J. Biomech. Eng.* Doi: 10.1115/1.4050645 (2021) [I.F. 2021: 1.899]

[J23]. D. Trucco, L. Vannozzi, E. Teblum, M. Telkhozhayeva, G.D. Nessim, S. Affatato, H. Al-Haddad, G. Lisignoli, and L. Ricotti. Graphene oxide-doped gellan gum–PEGDA bilayered hydrogel mimicking the mechanical and lubrication properties of articular cartilage. *Adv. Health. Mater.* Doi: 10.1002/adhm.202001434 (2021) [I.F. 2021: 11.092] – **Cover Page**

[J24]. V. Iacovacci, I. Naselli, A.R. Salgarella, F. Clemente, L. Ricotti, and C. Cipriani. Stability and in vivo safety of gold, titanium nitride and parylene C coatings on NdFeB magnets implanted in muscles towards a new generation of myokinetic prosthetic limbs. *RSC Adv*. 11: 6766 (2021) [I.F. 2021: 4.036]

[J25]. A. Sorriento, A. Poliziani, A. Cafarelli, G. Valenza, and L. Ricotti. A novel quantitative and reference-free ultrasound analysis to discriminate different concentrations of bone mineral content. *Sci. Rep.* 11: 301 (2021) [I.F. 2021: 4.996]

[J26]. J.O. Alcaide, Y. Huan, N. Gabrieli, A. Firrincieli, L. Ricotti, P. Dario, and G. Ciuti. Tether-colon interaction model and tribological characterization for front-wheel driven colonoscopic devices. *Tribology Int.* 156: 106814 (2021) [I.F. 2021: 5.620]

[J27]. S. Affatato, D. Trucco, P. Taddei, L. Vannozzi, L. Ricotti, G.D. Nessim, and G. Lisignoli. Wear behavior characterization of hydrogels constructs for cartilage tissue replacement. *Materials.* 14(2): 428 (2021) [I.F. 2021: 3.748]

[J28]. M. Ibrahimi, L. Paternò, L. Ricotti, and A. Menciassi. A layer jamming actuator for tunable stiffnessand shape-changing devices. *Soft Rob.* Doi: 10.1089/soro.2019.018 (2021) [I.F. 2021: 7.784] – **Cover Page**

2020:

[J29]. S. Pane, T. Mazzocchi, V. Iacovacci, L. Ricotti, and A. Menciassi. Smart Implantable Artificial Bladder: an integrated design for organ replacement. *IEEE Trans. Biomed. Eng.* Doi: 10.1109/TBME.2020.3023052 (2020) [I.F. 2021: 4.756]

[J30]. L. Garcia-Hevia, I. Roehrer, T. Mazzocchi, A. Menciassi, and L. Ricotti. Cytotoxicity of pristine and functionalized tungsten disulfide particles in the urinary system. *J. Nanop. Res.* 22(9): 1-10 (2020) [I.F. 2021: 2.533]

[J31]. L. Vannozzi, T. Mazzocchi, A. Hasebe, S. Takeoka, T. Fujie, and L. Ricotti. A coupled FEM-SPH modeling technique to investigate the contractility of biohybrid thin films. *Adv. Biol.* Doi: 10.1002/adbi.201900306 (2020)

[J32]. L. Vannozzi, P.J. Gouveia, P. Pingue, C. Canale, and L. Ricotti. Novel ultra-thin films based on a blend of PEG-b-PCL and PLLA and doped with ZnO nanoparticles. *ACS Appl. Mater. Interf.* Doi: 10.1021/acsami.0c00154 (2020) [I.F. 2021: 10.383]

[J33]. S. Ciancia, A. Cafarelli, A. Zahoranova, A. Menciassi, and L. Ricotti. Pulsatile drug delivery system triggered by acoustic radiation force. *Front. Bioeng. Biotechnol.* Doi: 10.3389/fbioe.2020.00317 (2020) [I.F. 2021: 6.064]

[J34]. G. Lucarini, A. Vizzoca, C. Cinti, L. Ricotti, and A. Menciassi. Design of an innovative platform for the treatment of cerebral tumors by means of erythro-magneto-HA-virosomes. *Biomed. Phys. Eng. Expr.* Doi: 10.1088/2057-1976/ab89f1 (2020)

[J35]. L. Marziale, G. Lucarini, T. Mazzocchi, L. Ricotti, and A. Menciassi. Comparative analysis of occlusion methods for artificial sphincters. *Artif. Org.* Doi: 10.1111/aor.13684 (2020) [I.F. 2021: 2.663]

[J36]. F. Dedola, F.P. Ulloa Severino, N. Meneghetti, T. Lemaire, A. Cafarelli, L. Ricotti, A. Menciassi, A. Cutrone, A. Mazzoni, and S. Micera. Ultrasound stimulations induce prolonged depolarization and fast action potentials in leech neurons. *IEEE Open J. Eng. Med. Biol.* 1: 23-32 (2020)

[J37]. F. Iberite, I. Gerges, L. Vannozzi, A. Marino, M. Piazzoni, T. Santaniello, C. Lenardi, and L. Ricotti. Combined effects of electrical stimulation and protein coatings on myotube formation in a soft porous scaffold. *Ann. Biomed. Eng.* 48(2): 734-746 (2020) [I.F. 2021: 4.219]

<u>2019</u>:

[J38]. V. Iacovacci, A. Blanc, H. Huang, L. Ricotti, R. Schibli, A. Menciassi, M. Behe, S. Pané, and B.J. Nelson. High-resolution SPECT imaging of stimuli-responsive soft microrobots. *Small.* Doi: 10.1002/smll.201900709 (2019) [I.F. 2021: 15.153]

[J39]. A. Cafarelli, P. Losi, A.R. Salgarella, M.C. Barsotti, I.B. Di Cioccio, I. Foffa, L. Vannozzi, P. Pingue, G. Soldani, and L. Ricotti. Small-caliber vascular grafts based on a

piezoelectric nanocomposite elastomer: Mechanical properties and biocompatibility. *J. Mech. Behav. Biomed. Mater.* 97: 138 (2019) [I.F. 2021: 4.042]

[J40]. S. Ugolini, T. Mazzocchi, M. Ghionzoli, F. Facchini, L. Ricotti, G. Ciuti, A. Menciassi, and A. Messineo. Sensorized orthosis for non-operative treatment of *Pectus Carinatum* in pediatric patients. *IEEE Trans. Med. Rob. Bion.* 1(2): 115 (2019)

[J41]. A. Hasebe, Y. Suematsu, S. Takeoka, T. Mazzocchi, L. Vannozzi, L. Ricotti, and T. Fujie. Biohybrid actuators based on skeletal muscle-powered microgrooved ultra-thin films consisting of poly (styrene-block-butadiene-block-styrene). *ACS Biomater. Sci. Eng.* Doi: 10.1021/acsbiomaterials.8b01550 (2019) [I.F. 2021: 5.395]

[J42]. S. Rosa, C. Praça, P.R. Pitrez, P. José Gouveia, X.L. Aranguren, L. Ricotti, and L. Silva Ferreira. Functional characterization of iPSC-derived arterial- and venous-like endothelial cells. *Sci. Rep*. 9: 3826 (2019) [I.F. 2021: 4.996]

<u>2018</u>:

[J43]. A. Cardona, V. Iacovacci, T. Mazzocchi, A. Menciassi, and L. Ricotti. Novel nanostructured coating on PDMS substrates featuring high resistance to urine. *ACS Appl. Bio Mater.* 2(1): 255-265 (2018)

[J44]. V. Iacovacci, L. Ricotti, E. Sinibaldi, G. Signore, F. Vistoli, and A. Menciassi. Intravascular magnetic catheter enables the retrieval of nanoagents from the bloodstream. *Adv. Sci.* Doi: 10.1002/advs.201800807 (2018) [I.F. 2021: 17.521] – **Cover Page**

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Proceedings of International peer-reviewed Conferences (C)

(*) = Leonardo Ricotti was the presenter / speaker

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[C1]. H. Al-Haddad, D. Guarnera, I. Tamadon, G. Ballardini, D. Luchetta, S.M. Isolani, C. Gianfaldoni, F. Vistoli, A. Menciassi, P. Dario, V. Iacovacci, and L. Ricotti. Optimizing the Capsule-Based Refilling Strategy for an Implantable Insulin Delivery Device Tailored on Human Anatomy. *BioRob (9th International Conference on Biomedical Robotics & Biomechatronics)*, 2022, August 21-24, Seoul (Korea) - **Best Paper Award (2nd prize)**

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[C2]. D. Guarnera, F. Iberite, M. Piazzoni, I. Gerges, T. Santaniello, L. Vannozzi, C. Lenardi, and L. Ricotti. Effects of the 3D geometry reconstruction on the estimation of 3D porous scaffold permeability. *EMBC (43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society)*, 2021, November 1-5, held in Virtual modality

[C3]. A. Sorriento, A. Cafarelli, G. Valenza, and L. Ricotti. *Ex-vivo* quantitative ultrasound assessment of cartilage degeneration. *EMBC (43rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society)*, 2021, November 1-5, held in Virtual modality

[C4]. G. Baldi, A. Cafarelli, R. Bisogno, S. Vetrano, and L. Ricotti. Modelling of in vivo LIPUS stimulation of murine intestinal wall. *IUS (IEEE International Ultrasonics Symposium)*, 2021, September 11-16, held in Virtual modality

2019:

[C5]. F. Iberite, M. Salerno, C. Canale, A. Rosa, and L. Ricotti. Influence of substrate stiffness on human induced pluripotent stem cells: preliminary results. *EMBC (41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society)*, 2019, July 23-27, Berlin (Germany)

[C6]. I. Tamadon, V. Simoni, V. Iacovacci, F. Vistoli, L. Ricotti, and A. Menciassi. Miniaturized peristaltic rotary pump for non-continuous drug dosing. *EMBC (41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society)*, 2019, July 23-27, Berlin (Germany)

[C7]. L.Vannozzi, G. Mariotti, F. Pignatelli and L. Ricotti. Nanocomposite thin films based on polyethylene vinyl acetate and piezoelectric nanomaterials. *EMBC (41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society)*, 2019, July 23-27, Berlin (Germany)

[C8]. F. Fontana, F. Iberite, L. Morchi, T. Pratellesi, A. Cafarelli, and L. Ricotti. Highly controlled and usable system for Low-Intensity Pulsed Ultrasound Stimulation of Cells. *EMBC (41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society)*, 2019, July 23-27, Berlin (Germany)

[C9]. V. Iacovacci, L. Ricotti, G. Signore, F. Vistoli, E. Sinibaldi, and A. Menciassi. Retrieval of magnetic medical microrobots from the bloodstream. *IEEE International Conference on Robotics and Automation (ICRA)*, 2019, May 20-24, Montreal (Canada)

[C10]. H. Al-Haddad, L. Vannozzi, D. Trucco, G. Lisignoli, and L. Ricotti. Gellan gum/poly (ethylene glycol) di-acrylate hydrogels with tunable mechanical properties for articular cartilage engineering. *Conference of the Tissue Engineering and Regenerative Medicine International Society (TERMIS-EU),* 2019, May 27-31, Rhodes (Greece)

[C11]. M. Ibrahimi, L. Paternò, L. Ricotti, and A. Menciassi. Multipurpose layer jamming actuator. *The Hamlyn Symposium on Medical Robotics,* 2019, June 23-26, London (UK)

<u>2018</u>:

[C12]. L. Paternò, M. Ibrahimi, E. Rosini, A. Menciassi, and L. Ricotti. Transfemoral residual limb volume change due to physical activity. *IEEE International Conference on NeuroRehabilitation (ICNR)*, 2018, October 16-20, Pisa (Italy), pp. 146-150, Springer

[C13]. A. Milani, T. Mazzocchi, V. Iacovacci, N. Pinzi, L. Ricotti, and A. Menciassi. Magnetic sensing system for monitoring the volume of an artificial bladder. *7th IEEE International Conference on Biomedical Robotics and Biomechatronics (Biorob)*, 2018, August 26-29, Twente (The Netherlands), pp. pp. 877-882, IEEE

[C14]. G. Lucarini, T. Mazzocchi, L. Marziale, L. Ricotti, and A. Menciassi. Magnetically-controlled artificial urinary sphincters for severe urinary incontinence. *7th IEEE International Conference on Biomedical Robotics and Biomechatronics (Biorob)*, 2018, August 26-29, Twente (The Netherlands), pp. 1242-1247, IEEE

[C15]. A. Zahoranová, A. R. Salgarella, M. Majerčíková, P. Šrámková, E. Pavlova, R. Luxenhofer, J. Kronek, I. Lacík, and L. Ricotti. Modulation of drug release from poly(2-

oxazoline) micelles by physical stimuli. *Polymers: Design, Function andApplication Conference*, 2018, March 21-23, Barcelona (Spain)

2017:

[C16]. G. Lucarini, T. Mazzocchi, L. Marziale, L. Ricotti, and A. Menciassi. Magnetically-controlled artificial urinary sphincters for severe urinary incontinence. CBS (*IEEE International Conference on Cyborg and Bionic Systems*), 2017, October 17-19, Beijing (China)

[C17]. A.R. Salgarella, P. Šrámková, A. Zahoranová, J. Kronek, A. Menciassi, I. Lacík, and L. Ricotti. Ultrasound-mediated drug release from micelles based on poly(2-oxazoline) terpolymers and triblock copolymer. ESB (*28th Annual Conference of the European Society for Biomaterials*), 2017, September 4-8, Athens (Greece)

[C18]. L. Vannozzi, C. Canale, P. Pingue, A. Menciassi, and L. Ricotti. Composite ultra-thin films made ofbased on a blend of poly(ethylene glycol)-b-poly(ε-caprolactone) and poly(lactic acid) and doped with zinc oxide nanopowder. ESB (*28th Annual Conference of the European Society for Biomaterials*), 2017, September 4-8, Athens (Greece)

2016:

[C19]. S.C. Rosa, P. Gouveia, L. Ricotti, A. Menciassi and L. Ferreira. Combining induced pluripotent stem cells and nanofilms to generate human arterial and venous endothelial patches. *10th World Biomaterials Congress,* 2016, May 17-22, Montréal (Canada). Published in *Front. Bioeng. Biotechnol.* doi: 10.3389/conf.FBIOE.2016.01.00645, 2016

[C20]. G. Lucarini, V. Iacovacci, L. Ricotti, and A. Menciassi. Indipendent control of magnetic millirobots for targeted drug delivery: simulation-based feasibility study. CRAS (*6th Joint Workshop on New Technologies for Computer/Robot Assisted Surgery*), 2016, September 12-14, Pisa (Italy)

[C21]. G. Lucarini, V. Iacovacci, L. Ricotti, and A. Menciassi. Magnetic milli/micro robotic solutions for medical applications. MARSS (*International Conference on Manipulation, Automation and Robotics at Small Scales*), 2016, July 18-22, Paris (France)

2015:

[C22]. A. Cafarelli, A. Diodato, M. Mura, S. Tognarelli, L. Ricotti, G. Ciuti, A. Menciassi. A tissue-mimicking phantom for in-vitro accuracy evaluation of USgHIFU procedures. EUFUS (*European Symposium on Focused Ultrasound Therapy*), 2015, October 15-16, London (UK) – **Best Oral Presentation Award**

[C23]. L. Vannozzi, L. Ricotti, T. Santaniello, I. Gerges, C. Lenardi, A. Menciassi, P. Dario. Polymeric nanofilms, self-assembled structures and 3D porous matrices: building blocks

of future bio-hybrid actuators. MiNaB-ICT (*International Workshop on "Micro-Nano-Bio-ICT Convergence"*), 2015, July 11-13, Otranto (Italy)

[C24]. G. Lucarini, V. Iacovacci, L. Ricotti, A. Menciassi, P. Dario. Magnetic microfilm for cancer cell manipulation in lab-on-a-chip platforms. MiNaB-ICT (*International Workshop on "Micro-Nano-Bio-ICT Convergence"*), 2015, July 11-13, Otranto (Italy)

[C25]. G. Lucarini, V. Iacovacci, L. Ricotti, A. Menciassi, P. Dario. Magnetic millirobot for targeted drug delivery. MiNaB-ICT (*International Workshop on "Micro-Nano-Bio-ICT Convergence"*), 2015, July 11-13, Otranto (Italy)

[C26]. G. Lucarini, V. Iacovacci, L. Ricotti, N. Comisso, P. Dario, A. Menciassi. Magnetically driven microrobotic system for cancer cell manipulation. *EMBC (37^{th} Annual International Conference of the IEEE Engineering in Medicine and Biology Society)*, 2015, August 25-29, Milan (Italy)

[C27]. (*) L. Vannozzi, L. Ricotti, S. Alyassi, C. Bearzi, C. Gargioli, R. Rizzi, K. Khalaf, P. Dario, A. Menciassi. Microgrooved ultra-thin films as building blocks of future bio-hybrid actuators. *EMBC (37^{th} Annual International Conference of the IEEE Engineering in Medicine and Biology Society)*, 2015, August 25-29, Milan (Italy)

[C28]. A.R. Salgarella, L. Ricotti, M. Righi, A. Cafarelli, G. Giudetti, S. Micera, A. Cutrone, S. Bossi, J. Kronek, A. Zahoranová, P. Šramková, D. Treľová, I. Lacík, A. Menciassi. Advanced nano-doped materials for long-term neural interfaces. *IEEE Nano (15^{th} International Conference on Nanotechnology)*, 2015, July 27-30, Rome (Italy)

[C29]. V. Iacovacci, G. Lucarini, L. Ricotti, P. Dario, P.E. Dupont, and A.Menciassi. Magnetic bi-component millirobot for targeted drug delivery. *The Hamlyn Symposium on Medical Robotics,* 2015, June 20-23, London (UK)

[C30]. A. Menciassi, L. Ricotti. Challenges and opportunities for actuation in microrobotics and medical applications. 4M/ICOMM *(International Conference on Micromanufacturing),* 2015, March 31 – April 2, Milan (Italy)

<u>2014</u>:

[C31]. P.J. Gouveia, S. Rosa, L. Ricotti, R.N. Carvalho, A. Menciassi, L. Ferreira. Cardiokit: a system for cardiac tissue engineering and toxicity assessment. *TERMIS (Tissue Engineering and Regenerative Medicine International Society) Conference,* 2014, December 13-16, Washington D.C. (USA). Published in: *Tissue Eng: Part A.* 20: S124-S124; 2014

[C32]. (*) L. Ricotti, T. Ranzani, V. Calarota, and A. Menciassi. Thin and flexible pressure/deformation sensors based on piezoelectric nanocomposites. *IEEE Sensors,* 2014, November 2-5, Valencia (Spain)

[C33]. (*) L. Ricotti, and A. Menciassi. Biomaterials for 2D and 3D bio-hybrid robotic devices. *ESB (26th European Conference on Biomaterials*), 2014, August 31 – September 3, Liverpool (UK)

2013:

[C34]. V. Iacovacci, L. Ricotti, P. Dario, and A. Menciassi. Mechatronic refilling device for long-term implantable artificial organs. *SMIT (International Conference of the Society for Medical Innovation and Technology)*, 2013, September 5-7, Baden Baden (Germany)

[C35]. (*) L. Ricotti, G. Ciofani, V. Mattoli, P. Dario, and A. Menciassi. Engineered materials for the development of bio-hybrid actuators. *SIB (Congresso della Società Italiana di Biomateriali)*, 2013, June 3-5, Baveno (Italy) – **Best Oral Presentation Award**

[C36]. (*) L. Ricotti, L. Vannozzi, P. Dario, and A. Menciassi. Three-dimensional tubular self-assembling structure for bio-hybrid actuation. *Living Machines (The International Conference on Biomimetic and Biohybrid systems)*, 2013, July 29 – August 2, London (UK) - **Best Oral Presentation Award**

2012:

[C37]. G. Ciofani, S. Danti, L. Ricotti, D. D'Alessandro, S. Moscato, A. Menciassi, and V. Mattoli: Applications of ceramic nanoparticles in nanomedicine. *Thermec (7th International Conference on Advanced Materials)*, 2011, August 1-5, Quebec City (Canada). Published on the Proceedings of Materials Science Forum. 706-709: 467-471; 2012

2011:

[C38]. G. Ciofani, L. Ricotti, J. Rigosa, A. Menciassi, and M. Monici: Hypergravity effects on proliferation and differentiation of C2C12 muscle-like cells. *IAC (62nd International Astronautical Congress)*, 2011, October 3-7, Cape Town (South Africa)

[C39]. G.G. Genchi, L. Ricotti, G. Ciofani, V. Mattoli, and A. Menciassi: C2C12 muscle cell patterning for biorobotics applications. *ESB (24th European Conference on Biomaterials)*, 2011, September 4-8, Dublin (Ireland)

[C40]. (*) L. Ricotti, T. Assaf, A. Menciassi, and P. Dario: A novel strategy for long-term implantable artificial pancreas. *EMBC (33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society)*, 2011, August 30 – September 3, Boston, Massachussets (USA)

[C41]. (*) L. Ricotti, A. Polini, G.G. Genchi, G. Ciofani, D. Iandolo, V. Mattoli, A. Menciassi, P. Dario, and D. Pisignano: Nanostructured, highly aligned poly(hydroxy butyrate) electrospun fibers for differentiation of skeletal and cardiac muscle cells. *EMBC (33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society)*, 2011, August 30 – September 3, Boston, Massachussets (USA)

[C42]. (*) L. Ricotti, and A. Menciassi: Novel fully implantable artificial pancreas with insulin refilling system based on swallowable capsules. ATTD (*4th International Conference on Advanced Technologies & Treatments for Diabetes*), 2011, February 16-19, London (UK)

2010:

[C43]. G. Ciofani, S. Danti, L. Ricotti, D. D'Alessandro, S. Moscato, V. Mattoli, and A. Menciassi: Potential applications of barium titanate nanoparticles in nanomedicine: a preliminary study. *IEEE Nano (10th International Conference on Nanotechnology)*, 2010, August 17-20, Seoul (Korea)

2009:

[C44]. G. Ciofani, L. Ricotti, A. Menciassi, S. Danti, S. Moscato, C. Nesti, and M. Petrini: Investigation of interactions between boron nitride nanotubes and C2C12 cells. *IEEE Nano (9th International Conference on Nanotechnology)*, 2009, July 26-30, Genova (Italy)

[C45]. S. Kernbach, E. Meister, O. Scholz, R. Humza, J. Liedke, L. Ricotti, J. Jemai, J. Havlik, and W. Liu: Evolutionary robotics: the next-generation-platform for on-line and on-board artificial evolution. *CEC (IEEE Congress on Evolutionary Computation)*, 2009, May 18-21, Trondheim (Norway)

2008:

[C46]. S. Kernbach, E. Meister, F. Schlachter, K. Jebens, M. Szymanski, J. Liedke, D. Laneri, L. Winkler, T. Schmickl, R. Thenius, P. Corradi, and L. Ricotti: Symbiotic robot organisms: REPLICATOR and SYMBRION projects. *PerMIS (Performance Metrics for Intelligent Systems)*, 2008, August 19-21, Gaithersburg, Maryland (USA)

[C47]. S. Kernbach, L. Ricotti, J. Liedke, P. Corradi, and M. Rothermel: Study of macroscopic morphological features of symbiotic robotic organisms. *IROS (International Conference on Intelligent Robots and Systems)*, 2008, September 22-26, Nice (France)

Abstracts or posters presented at National and International Conferences (Ab)

(*) = Leonardo Ricotti was the presenter / speaker

2022:

[Ab1]. P. Cabras, A. Cafarelli, L. Ricotti, and E. Dumont. LIPUS stimulation of the knee cartilage: in-vitro-to-in-vivo translation. *International Ultrasonics Symposium,* October 10-13, 2022, Venice (Italy)

[Ab2]. A.Cafarelli, C. Manferdini, E. Gabusi, D. Trucco, P. Dolzani, Y. Saleh, M. Columbaro, L. Vannozzi, M. Cain, G. Lisignoli, and L. Ricotti. Low intensity pulsed ultrasound and piezoelectric nanoparticles boost cartilage regeneration. *International Ultrasonics Symposium,* October 10-13, 2022, Venice (Italy)

[Ab3]. E. Redolfi Riva, C. Zinno, F. Iberite, L. Ricotti, and S. Micera. In vitro testing of PCL/Chitosan tubular scaffold for peripheral nerve repair. *7th International Conference on Multifunctional, Hybrid and Nanomaterials,* October 18-22, 2022, Genoa (Italy)

[Ab4]. L. Vannozzi, A. Lucantonio, A. Castillo, A. De Simone, and L. Ricotti. Self-foldable elastomeric films for building bioinspired hierarchical 3D structures. *International Conference on Biofabrication.* September 25-28, 2022, Montecatini Terme (Italy)

[Ab5]. D. Trucco, L. Vannozzi, L. Agresti, L. Riacci, G. Lisignoli, and L. Ricotti. Visible light-crosslinked methacrylated gellan gum hydrogels for the embedding of human chondrocytes. *International Conference on Biofabrication.* September 25-28, 2022, Montecatini Terme (Italy)

[Ab6]. C. Paci, F. Iberite, L. Vannozzi, Paola Parlanti, and L. Ricotti. Combination of ultrasound stimulation and 3D printed piezoelectric nanocomposite bioink for skeletal muscle tissue engineering. *International Conference on Biofabrication.* September 25-28, 2022, Montecatini Terme (Italy)

[Ab7]. (*) A. Cafarelli, E. Drago, L. Vannozzi, F. Iberite, and L. Ricotti. Piezoelectric thin films as substrates for skeletal muscle differentiation and triggering. *International Conference on Biofabrication.* September 25-28, 2022, Montecatini Terme (Italy)

[Ab8]. (*) D. Trucco, L. Vannozzi, C. Manferdini, A. Cafarelli, E. Gabusi, Y. Saleh, M. Columbaro, G. Lisignoli, and L. Ricotti. Nano-doped piezoelectric hydrogels and low-intensity pulsed ultrasound boost the chondrogenic differentiation of human adipose tissue-derived stromal cells. *International Conference on Biofabrication,* September 25-28, 2022, Montecatini Terme (Italy)

[Ab9]. L. Ricotti, D. Trucco, L. Vannozzi, A. Cafarelli, C. Manferdini, E. Gabusi, P. Dolzani, Y. Saleh, M. Columbaro, and G. Lisignoli. Nano-doped piezoelectric hydrogels and low-intensity pulsed ultrasound boost the chondrogenic differentiation of human adipose tissue-derived stromal cells. *ESB (32nd Annual Conference of the European Society for Biomaterials),* September 4-8, 2022, Bordeaux (France)

[Ab10]. C. Manferdini, E. Gabusi, P. Dolzani, Y. Saleh, D. Trucco, M. Columbaro, L. Vannozzi, A. Cafarelli, L. Ricotti, and G. Lisignoli. Low-intensity pulsed ultrasound induces chondrogenic differentiation of adipose-stromal cells in 3D piezoelectric hydrogel. *OARSI World Congress on Osteoarthritis*, April 7-10, 2022, Berlin (Germany). Published in *Osteoarthritis and Cartilage*, Vol. 30, Suppl. 1, S59

2021:

[Ab11]. C. Manferdini, E, Gabusi, D. Trucco, P. Dolzani, Y. Saleh, A. Cafarelli, L. Ricotti, and G. Lisignoli. Low-intensity pulsed ultrasound stimulation enhances chondrogenic differentiation of ASCs in a 3D hydrogel. *EORS (29th Annual Meeting of the European Orthopaedic Research Society)*, September 15-17, 2021, Rome (Italy). Published in *Orthopaedic Proceedings*, Vol. 103-B, No. SUPP_13

[Ab12]. A. Menciassi, L. Ricotti, G. Lucarini, T. Mazzocchi, L. Marziale, E. Gruppioni, F. Prata, R. Papalia, and R.M. Scarpa. An innovative magnetic endourethral sphincter against urinary incontinence: a preliminary pilot study. *ESAO (47th Annual Congress of the Europeran Society for Artificial Organs)*, September 7-11, 2021, held in Virtual modality

[Ab13].H. Al-Haddad, L. Arrico, D. Guarnera, A. Menciassi, P. Dario, F. Vistoli, C. Gianfaldoni, V. Iacovacci, I. Tamadon, and L. Ricotti. Optimized design of an insulin-carrying capsule magtnetically docked for non-invasive hormone refilling in an implantable artificial pancreas. *ESAO (47th Annual Congress of the Europeran Society for Artificial Organs)*, September 7-11, 2021, held in Virtual modality

[Ab14]. D. Luchetta, I. Tamadon, L. Arrico, A. Menciassi, P. Dario, F. Vistoli, V. Iacovacci, and L. Ricotti. A soft reservoir coupled to a micro peristaltic pump for intraperitoneal insulin delivery. *ESAO (47th Annual Congress of the Europeran Society for Artificial Organs)*, September 7-11, 2021, held in Virtual modality

[Ab15]. C. Paci, F. Iberite, L. Vannozzi, L. Arrico, E. Catalano, and L. Ricotti. Piezoelectric bioink for skeletal muscle tissue engineering. *ESB (31st Annual Conference of the European Society for Biomaterials)*, September 5-9, 2021, held in Virtual modality

[Ab16]. C. Laschi, M. Cianchetti, L. Ricotti, M. Calisti, and H. Gomez. Soft BioRobotics: rethinking material role for life-like robot behaviour. *MRS Spring Meeting and Exhibit*, April 17-23, 2021, held in Virtual modality

[Ab17]. L.M. Monteiro, P.J. Gouveia, S. Rosa, F. Vasques-Novoa, R. Gomes, I. Bardi, L. Ricotti, R. Cerqueira, A. Leite-Moreira, F. Perbellini, C. Terraciano, P. Pinto-do-O, L. Ferreira, and D.S. Nascimento. Flexible piezoelectric patches for improvement of heart tissue activity. *TERMIS (6th World Congress of the Tissue Engineering and Regenerative Medicine International Society),* November 15-19, 2021, held in Virtual modality. Published in *Tissue Engineering, Part A*, Vol. 28, S349-S350

[Ab18]. D. Trucco, L. Vannozzi, E. Teblum, M. Telkhozhayeva, G. Nessim, S. Affatato, H. Al-Haddad, G. Lisignoli, and L. Ricotti. Graphene oxide-doped gellan gum gellan gum-PEGDA hydrogel mimicking the mechanical and lubrication properties of articular cartilage. *TERMIS (6th World Congress of the Tissue Engineering and Regenerative*

Medicine International Society), November 15-19, 2021, held in Virtual modality. Published in *Tissue Engineering, Part A*, Vol. 28, S452

[Ab19]. F. Iacoponi, F. Fontana, E. Catalano, C. Manferdini, D. Trucco, A. Cafarelli, G. Lisignoli, and L. Ricotti. Dose-controlled low-intensity pulsed ultrasound to modulate inflammatory response. *TERMIS (6th World Congress of the Tissue Engineering and Regenerative Medicine International Society),* November 15-19, 2021, held in Virtual modality. Published in *Tissue Engineering, Part A*, Vol. 28, S553

[Ab20]. C. Manferdini, E. Gabusi, D. Trucco, P. Dolzani, Y. Saleh, A. Cafarelli, L. Ricotti, and G. Lisignoli. Low-Intensity pulsed ultrasound stimulation enhances chondrogenic differentiation of ASCs in a 3D hydrogel. *TERMIS (6th World Congress of the Tissue Engineering and Regenerative Medicine International Society),* November 15-19, 2021, held in Virtual modality

[Ab21]. F. Iberite, C. Paci, L. Vannozzi, L. Arrico, and L. Ricotti. Combination of ultrasound stimulation and 3D-printed piezoelectric hydrogel for skeletal muscle tissue engineering. *MRS Fall Meeting and Exhibit*, November 29 – December 2, 2021, Boston (USA)

[Ab22]. L. Riacci, D. Trucco, L. Arrico, L. Vannozzi, and L. Ricotti. Primers for the adhesion of gellan gum-based hydrogels to cartilage. *MRS Fall Meeting and Exhibit*, November 29 – December 2, 2021, Boston (USA)

2020:

[Ab23]. T. Minuti, P. Cigni, A. Mannini, M. Costagli, A. Cucini, S. Melotto, S. Rapetti, and L. Ricotti. An innovative exoskeleton to measure the isometric strength of lower limbs: retrospective study to investigate the correlation with injuries on professional soccer players. *Costa Blanca Sports Science Events*, December 18-19, 2020, held remotely

[Ab24]. L. Vannozzi, D. Trucco, E. Teblum, M. Telkhozhayeva, S. Affatato, G. Lisignoli, G.D. Nessim, and L. Ricotti. Development of a bilayered hydrogel with cartilage-mimicking mechanical and lubrication properties. MRS (*Materials Research Society Fall Meeting and Exhibit*), November 27 – December 4, 2020, held remotely

[Ab25]. D. Luchetta, I. Bernardeschi, T. Mazzocchi, and L. Ricotti. Innovative materials for dialysate regeneration: towards a miniaturized wearable artificial kidney. ESAO (*World Congress for Artificial Organs*), 2020, held remotely. Published in *Int. J. Artif. Org.* 43(8): 506-555, 2020

[Ab26]. F. Iacoponi, F. Iberite, F. Fontana, and L. Ricotti. Biological evaluation of highly controlled low-intensity pulsed ultrasound stimulation (LIPUS) set-ups. ESAO (*World Congress for Artificial Organs*), 2020, held remotely. Published in *Int. J. Artif. Org.* 43(8): 506-555, 2020

[Ab27]. A. Cafarelli, A. Poliziani, L. Ricotti, A. Sorrienti, and G. Valenza. Non-invasive and quantitative assessment of tissue composition based on radio-frequency ultrasound data analysis. ESAO (*World Congress for Artificial Organs*), 2020, held remotely. Published in *Int. J. Artif. Org*. 43(8): 506-555, 2020

[Ab28]. (*) L. Ricotti, A. Russo, I. Bernardeschi, and G. Lisignoli. ADMAIORA: a potentially ground-breaking approach for cartilage regeneration and osteoarthritis treatment. WCO-IOF-ESCEO (*World Congress on Osteoporosis, Oteoarthritis and Musculoskeletal Diseases*), 2020, held remotely. Published on *Osteoporosis Int*. 31 (SUPPL 1), S402-S403 (2020)

[Ab29]. T. Mazzocchi, S. Pane, V. Iacovacci, L. Ricotti, and A. Menciassi. A mechatronic approach for bladder replacement: Towards a long-term fully implantable artificial bladder. *36th Annual European Association of Urology Congress*, 2020, July 9-12, Milan (Italy)

2019:

[Ab30]. M. Ibrahimi, L. Paternò, L. Ricotti, and A. Menciassi. Variable stiffness/shape band to enhance fitting and comfort in wearable devices. *World Congress of the International Society for Prosthetics and Orthotics (ISPO)*, 2019, October 5-8, Kobe (Japan)

[Ab31].F. Vistoli, E. Kauffmann, V. Iacovacci, L. Ricotti, and A. Menciassi. Towards a novel fully-implantable artificial pancreas: site of implant and surgical procedure. *Conference of the European Society for Organ Transplantation (ESOT),* 2019, September 15-18, Copenhagen (Denmark)

[Ab32]. F. Campacci, G. Ciuti, L. Ricotti, and F. Vicini. RhinoFit. *National Congress of the Italian Society of Otorhinolaryngology (SIOeChCF)*, 2019, May 29 – June 1, Rimini (Italy)

2018:

[Ab33]. G. Lucarini, L. Marziale, L. Ricotti, A. Menciassi, C. Polito, A. Tognarelli, T. Di Vico, and D. Pistolesi. Magnetically-controlled artificial urinary sphincters. SIUD (*National Congress of the Urodynamic Italian Society*), 2018, June 7-9, Naples (Italy)

2017:

[Ab34]. V. Iacovacci, L. Ricotti, I. Tamaddon, G. Tortora, P. Dario, and A. Menciassi. Towards a fully implantable autonomous artificial pancreas. ESAO (*World Congress for Artificial Organs*), 2017, September 6-9, Vienna (Austria)

[Ab35]. T. Mazzocchi, V. Iacovacci, A. Cadorna, A. Milani, N. Pinzi, L. Ricotti and A. Menciassi. Novel long-term urine-resistant artificial bladder. ESAO (*World Congress for Artificial Organs*), 2017, September 6-9, Vienna (Austria)

[Ab36]. T. Mazzocchi, L. Marziale, G. Lucarini, P. Dario, L. Ricotti, and A. Menciassi. Magnetically-controlled artificial urinary sphincters. ESAO (*World Congress for Artificial Organs*), 2017, September 6-9, Vienna (Austria)

[Ab37]. A. Zahoranová, D. Treľová, A.R. Salgarella, L. Ricotti, G. Giudetti, A. Cutrone, P. Šramková, D. Chorvát Jr., D. Haško, C. Canale, S. Micera, J. Kronek, A. Menciassi, and I. Lacík. Soft and non-fouling polizwitterionic coatings for neural interfaces. DVSPM (*Danube Vltava Sava Polymer Meeting*), 2017, September 5-8, Vienna (Austria)

[Ab38]. A. Hasebe, L. Vannozzi, T. Mazzocchi, L. Ricotti, S. Takeoka, and T. Fujie. Engineered bio-hybrid actuators consisting of microgrooved nanosheets and skeletal muscle cells. ACS (*254th ACS National Meeting & Exposition*), 2017, August 20-24, Washington DC (USA)

[Ab39]. (*) A. Cadorna, V. Iacovacci, T. Mazzocchi, N. Pinzi, A. Menciassi, and L. Ricotti. Urine-resistant nanocoatings on elastomeric substrates for achieving a reliable long-term artificial bladder. MRS (*Materials Research Society Fall Meeting and Exhibit*), 2017, November 26-December 1, Boston (USA)

[Ab40]. (*) L. Ricotti, I. Di Cioccio, A.R. Salgarella, A. Cafarelli, P. Losi, M.C. Barsotti, I. Foffa, P. Dario, A. Menciassi, and G. Soldani. Nanocomposite small diameter vascular graft stimulated by ultrasound waves. MRS (*Materials Research Society Fall Meeting and Exhibit*), 2017, November 26-December 1, Boston (USA)

2016:

[Ab41]. (*) L. Vannozzi, S. Alyassi, L. Ricotti, K. Khalaf, A. Menciassi, and P. Dario. Bio-hybrid systems and their building blocks: new frontiers of biorobotics and bionics. *IEEE Life Sciences Grand Challenges Conference,* 2016, January 25-26, Abu Dhabi (UAE) **Best Poster Presentation Award – 3rd place**

2015:

[Ab42]. L. Vannozzi, L. Ricotti, A. Menciassi. Muscle-neuron co-culture on poly (lactic acid) co-cultured ultra-thin films for biohybrid actuation. Biofabrication (*International Conference on Biofabrication*), 2015, November 7-9, Utrecth (The Netherlands)

[Ab43]. G. Gori, L. Ricotti, D. Cei, D. Giacopelli, A. Menciassi, and A. Ahluwalia. Development of a biohybrid thin-film-based device, reproducing *in vitro* the permeability and the peristalsis of the intestinal barrier. *Advances in Cell and Tissue Culture*, 2015, June 15-17, Tirrenia (Pisa, Italy)

2014:

[Ab44]. L. Ricotti, G. Ciuti, M. Ghionzoli, A. Menciassi, and A. Messineo. Metal-polymer composite Nuss bar for "minimally" invasive bar removal after Pectus Excavatum treatment. *IPEG (International Pediatric Endosurgery Group)*, 2014, July 22-26, Edimburgh (Scotland)

2013:

[Ab45]. M. Ghionzoli, L. Ricotti, G. Ciuti, R. Lo Piccolo, F. Tocchioni, A. Menciassi, and A. Messineo. Is a shorter bar the solution to avoid bar dislocation? *IPEG (International Pediatric Endosurgery Group)*, 2013, June 17-22, Beijing (China)

2012:

[Ab46]. (*) L. Ricotti, T. Fujie, G. Ciofani, V. Mattoli, and A. Menciassi. Novel technologies for bio-hybrid actuators based on living cell co-culture. *Terzo Congresso Nazionale di Bioingegneria (GNB)*, 2012, June 26-29, Rome (Italy)

2011:

[Ab47]. F. Greco, T. Fujie, S. Taccola, L. Ricotti, A. Menciassi, and V. Mattoli. Macro and nanowrinkled conductive polymer surface on shape-memory polymer substrates: tuning of surface microfeatures towards smart biointerfaces. *MRS (Materials Research Society)*, 2011, November 28 – December 2, Boston, Massachussets (USA)

[Ab48]. T. Fujie, F. Greco, S. Taccola, L. Ricotti, A. Menciassi, and V. Mattoli: Anisotropic cellular alignment on nano-wrinkled polymeric surface. *MRS (Materials Research Society)*, 2011, November 28 – December 2, Boston, Massachussets (USA)

2010:

[Ab49]. G. Ciofani, S. Danti, D. D'Alessandro, L. Ricotti, S. Moscato, M. Petrini, and A. Menciassi. Cellular stimulation mediated by boron nitride nanotubes. Secondo Congresso Nazionale di Bioingegneria (GNB), 2010, July 8-10, Torino (Italy)

[Ab50]. (*) L. Ricotti, S. Taccola, V. Pensabene, V. Mattoli, A. Menciassi, and P. Dario. Biocompatibility and functionality of PLA nanosheets. Secondo Congresso Nazionale di Bioingegneria (GNB), 2010, July 8-10, Torino (Italy)

8. Relevant collaborations

In the following, the most relevant national and international collaborations established with research groups, companies and clinicians are reported:

Research group/company	Key people	Collaboration topic(s)
Research groups		
Advanced Therapies Group, Biocant - Center of Innovation and Biotechnology, University of Coimbra (Coimbra, Portugal)	Prof. Lino Ferreira (http://biomaterials.biocant.pt/wp/team/principal-investigator/)	Smart biomaterials Stem cell engineering Lab-on-a-chip systems for cardiotoxicity drug screening
Nexus of Nano, Bio and Electronics for Human Healthcare, Tokyo Institute of Technology (Tokyo, Japan)	Prof. Toshinori Fujie (https://sites.google.com/view/fujie-laboratory/)	Ultra-thin films for biomedical applications Ultra-thin films for wet robotics applications
Center for Micro-BioRobotics, Italian Institute of Technology, (Pontedera, Italy)	Dr. Barbara Mazzolai (https://www.iit.it/barbara-mazzolai) Dr. Virgilio Mattoli (https://www.iit.it/virgilio-mattoli)	Advanced materials Micro/nano fabrication techniques
Polymer Institute, Slovak Academy of Sciences (Bratislava, Slovak Republic)	Prof. Igor Lacik (https://www.sav.sk/?lang=en&doc=user-org-user&user_no=1646)	Advanced materials for biomedical implants Multi-functional smart polymeric coatings
Multi-Scale Robotics Lab, ETH Zurich (Zurich, Switzerland)	Prof. Salvador Panè I Vidal (https://msrl.ethz.ch/the-lab/team/sp_details.html)	Microrobotics Remotely controllable drug delivery systems
Physical Intelligence Department, Max Planck Institute (Stuttgart, Germany)	Prof. Metin Sitti (http://pi.is.mpg.de/members.html)	Microrobotics Microfabricated bio-hybrid systems and bio-robots
Biomedical Engineering Group, Department of Information Enginnering, University of Padova (Padova, Italy)	Prof. Claudio Cobelli (http://www.dei.unipd.it/~cobelli/)	Mechatronics for bionic organs Artificial pancreas
Bio Medical Wet Robotics Laboratory, Osaka University (Osaka, Japan)	Prof. Keisuke Morishima (http://www.dma.jim.osaka-u.ac.jp/view?l=en&u=4343)	Wet robotics Biohybrid systems
Companies		
Tensive s.r.l. (Milano, Italy)	Dr. Irini Gerges (http://www.tensivemed.co	Advanced biomaterials for

	m/it)	biohybrid systems
Image Guided Therapy (Pessac, France)	Dr. Erik Dumont (http://www.imageguidedtherapy.com/)	Ultrasonic technologies for biomedical applications
BAC Technology S.r.l. (Incisa Valdarno, Italy)	Mr. Tiziano Pratellesi (https://www.bactechnology.it/)	Ultrasonic and electromagnetic tools for cell/tissue stimulation
Clinicians		
Department of Translational Research and new Technologies in Medicine and Surgery, of the University of Pisa (Pisa, Italy)	Prof. Fabio Vistoli (https://esot.org/team/fabio-vistoli/)	Pre-clinical validation of implantable devices
Laboratory of Orthopedic Pathophysiology and Regenerative Medicine, of the Istituto Ortopedico Rizzoli (Bologna, Italy)	Dr. Alessandro Russo (http://www.ior.it/curarsi-al-rizzoli/dr-alessandro-russo) Dr. Paolo Spinnato (http://www.ior.it/curarsi-al-rizzoli/dr-paolo-spinnato)	Innovative technologies for orthopedic applications
Asl2 of Lucca (Urology) and with the Clinica Urologica Universitaria of Pisa (Pisa, Italy)	Prof. Novello Pinzi (http://www.pinzinovello.it/)	Design of an advanced prototype of artificial urinary sphincter and its validation through cadaver tests
Meyer Children's Hospital (Florence, Italy)	Prof. Antonio Messineo and Dr. Marco Ghionzoli (https://www.meyer.it/index.php/en/)	Development of sensorized prostheses and ortheses aimed at correcting thoracic deformities

9. Editorial activity

Associate Editor / Editorial Board Member roles

- **Associate Editor** of the IEEE Transactions on Medical Robotics and Bionics (from November 2018) (https://www.ieee-ras.org/publications/t-mrb/editorial-board)
- **Associate Editor** of the IEEE Transactions on Nanobioscience (I.F. 2.935) (from January 2016) (http://tnb.embs.org/editorial-board/associate-editors/)
- **Associate Editor** for the IEEE Engineering in Medicine and Biology Conference (EMBC) 2019, 2021, 2022
- **Associate Editor** for the IEEE International Conference on Robotics and Automation (ICRA) 2016

Guest Editor roles

- **Guest Editor** of a Focused Section on IEEE Transactions on Medical Robotics and Bionics, entitled: "*Bionic Organs and Tissues*", published in 2021
- **Guest Editor** of a Special Issue on Biomedical Microdevices (I.F. 2.227), entitled: "*Biohybrid Systems and Living Machines*", published in 2012
- **Guest Editor** of a Special Issue on Journal of Nanoparticle Research (I.F. 2.101), entitled: "*Nanotechnology in Biorobotic Systems*", published in 2015

10. Invited presentations and scientific meeting organization

Invited presentations

03/12/2021	**Invited talk** at the M3D+it (Medical 3D printing and innovative technologies Conference), held remotely. Talk title: "*ADMAIORA: Smart Materials and Ultrasound for Cartilage Healing*".
26/05/2021	**Invited seminar** in the framework of the SPCE-TC virtual seminar series, organized by the University of Coimbra (Portugal). Seminar title: "*Ultrasound and other enabling technologies for regenerative medicine*"
03/07/2020	**Invited talk** at the Mini-Symposium "*Low Intensity Focused Ultrasound: engineering developments and therapeutic applications*", organized in the framework of EMBC 2020 (Montreal, Canada). Talk title: "*Low intensity pulsed ultrasound for regenerative medicine*".
19/06/2019	**Invited lecture** at TU Dresden (Dresden, Germany), Microswimmers Lecture Series. Title: "*Integrating biological and artificial components into small scale bio-hybrid robots*"
13/05/2019	**Invited Keynote talk** at the World Congress on Functional Materials

	(Valencia, Spain). Talk title: "*Ultrasound and responsive materials for biomedical applications: direct and indirect effects*"
30/01/2018	**Invited talk** at the International Workshop "From insulin mimetics to the artificial pancreas", organized by Bar-Ilan University (Tel-Aviv, Israel). Talk title: "*Fully implantable robotic pancreas refilled by smart pills*".
23/01/2018	**Invited talk** at the III International Symposium on Nanoparticles / Nanomaterials and Applications (ISN²A 2018) (Capariça, Portugal). Talk title: "*Ultrasound-responsive nanomaterials for biomedical applications*".
08/12/2017	**Invited talk** at the Italy-Japan Workshop on "Robotics and sports science" (Tokyo, Japan). Talk title: "*Analysis of balance and other performance-related parameters in soccer players*".
05/12/2017	Invited seminar at Waseda University (Tokyo, Japan). Seminar title: "*Miniaturized robots and biorobots for advanced therapies*".
11/07/2017	**Invited lesson** at the XIX International School of Materials Science and Technology (Ischia, Italy). Lesson title: "*Multiscale materials for biohybrid actuators*".
01/06/2016	**Invited seminar** at Biocant (Center of Innovation and Biotechnology), University of Coimbra (Coimbra, Portugal). Presentation title: "*Miniaturized robots for advanced therapies*".
26/01/2016	**Invited seminar** at Khalifa University (Abu Dhabi, UAE). Presentation title: "*Milli, micro and nano therapeutic systems*".
28/09/2015	**Invited talk** at the IROS Conference (*IEEE/RSJ International Conference on Intelligent Robots and Systems*), 2015, September 28 - October 02, Hamburg (Germany), in the framework of a Workshop entitled "*From Plants and Animals to Robots: Movements, Sensing, and Control: Two worlds in comparison*". Presentation title: "*Bio-hybrid muscle cell-based actuators*".
31/08/2014	**Invited talk** at the ESB Conference (*26th European Conference on Biomaterials*), 2014, August 31 – September 3, Liverpool (UK). Title: "*Biomaterials for 2D and 3D bio-hybrid robotic devices*".

Organization of scientific meetings

25-28/09/2022	**Program Chair** and **member of the Scientific Advisory Committee** of the Conference Biofabrication 2022, held on September 25-28, 2022, Montecatini Terme (Italy)
11/09/2021	**Organizer** of a **Symposium** on "*Biomaterials, stem cells and enabling technologies for osteoarticular tissues regeneration*", held at ESAO (47th

	Congress of the European Society for Artificial Organs), 2021, September 7-11, 2021 – conference held remotely
26/07/2019	**Organizer** of a **Mini-Symposium** on "*Physical triggers and nano-biomaterials for tissue regeneration*", held at EMBC (41st *Annual International Conference of the IEEE Engineering in Medicine and Biology Society*), 2019, July 23-27, Berlin (Germany).
19/07/2018	**Organizer** of a **Mini-Symposium** on "*Fully implantable biomechatronic organs*", held at EMBC (40th *Annual International Conference of the IEEE Engineering in Medicine and Biology Society*), 2018, July 17-21, Honolulu (USA).
17/07/2018	**Organizer** of a **Workshop** on "*Bio-hybrid organic machines: an ambitious bridge between bioengineering and robotics*", held at EMBC (40th *Annual International Conference of the IEEE Engineering in Medicine and Biology Society*), 2018, July 17-21, Honolulu (USA).
18/07/2017	**Organizer** of a **Special Session** on "*Multistimuli responsive untethered microsystems: Towards biomedical applications*", held at MARSS (*International Conference on Manipulation, Automation and Robotics at Small Scales*), 2017, July 17-21, Montréal (Canada).
02/06/2017	**Organizer** of a **Workshop** on "*Biohybrid Machine by Small-scale Robotics and Systems*", held at ICRA (*IEEE International Conference on Robotics and Automation*), 2017, May 29 – June 3, Singapore.
16/08/2016	**Organizer** of a **Workshop** on "*Endoluminal Robots: Advanced Diagnosis and Targeted Therapies*", held at EMBC (*38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*), 2016, August 16-20, Orlando (USA).
27/08/2015	**Organizer** of a **Mini-Symposium** on "*Bio-Hybrid Systems: Enabling Technologies for Quasi-Living Robots*", held at EMBC (*37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*), 2015, August 25-29, Milan (Italy).

11. Teaching and supervision activities

Teaching activity

Academic year: 2022/2023	**Holder of the course** "*Bionic Organs and Tissues*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **60 h** of lectures. **Holder of the course** "*Soft lithography and biomaterials characterization*" (Course delivered to PhD students in Biorobotics): **20 h** of lectures. **Teaching activity** in the context of a Seasonal School in "*From minimally invasive surgery to nanorobotics: a voyage in the field of intervention robotics*", organized by SSSA: **3 h** of lectures. **Teaching activity** in the context of a Master in "*Regenerative Medicine*", organized by UniCamillus - International Medical University in Rome: **1 h** of lectures. **Teaching activity** for clinical personnel (ECM credits): "*ADMAIORA project: articular cartilage regeneration in osteoarthrosis*" (Course organized by the Istituto Ortopedico Rizzoli): **2 h** of lectures.
Academic year: 2021/2022	**Holder of the course** "*Micro-Nano Robotics and Biomaterials*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **60 h** of lectures. **Holder of the course** "*Microfabrication through soft lithography and SEM/AFM characterization*" (Course delivered to PhD students in Biorobotics): **20 h** of lectures. **Teaching activity** for the course "*Principles of Bionics Engineering*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **5 h** of lectures.
Academic year: 2020/2021	**Holder of the course** "*Micro-Nano Robotics and Biomaterials*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **60 h** of lectures. **Teaching activity** for the course "*Principles of Bionics Engineering*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **5 h** of lectures.
Academic year:	**Holder of the course** "*Micro-Nano Robotics and Biomaterials*" (M.Sc.

2019/2020	in Bionics Engineering, jointly offered by University of Pisa and SSSA): **60 h** of lectures. **Teaching activity** for the course "*Principles of Bionics Engineering*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **5 h** of lectures.
Academic year: 2018/2019	**Holder of the course** "*Micro-Nano Robotics and Biomaterials*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **60 h** of lectures. **Teaching activity** for the course "*Principles of Bionics Engineering*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **10 h** of lectures. **Holder of the course** "*Microfabrication through soft lithography and SEM/AFM characterization*" (Course delivered to undergraduate students of Scuola Superiore Sant'Anna "*Allievi Ordinari*" and to PhD students in Biorobotics): **20 h** of lectures.
Academic year: 2017/2018	**Holder of the course** "*Miniaturized therapeutic and regenerative systems*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **60 h** of lectures. **Teaching activity** for the course "*Principles of Bionics Engineering*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **15 h** of lectures and constant support for the organization and delivery of the entire course (60 h).
Academic year: 2016/2017	**Holder of the course** "*Miniaturized therapeutic and regenerative systems*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **60 h** of lectures. **Teaching activity** for the course "*Principles of Bionics Engineering*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **7 h** of lectures and constant support for the organization and delivery of the entire course (60 h). **Teaching activity** for the course "*Robotics for minimally invasive therapy*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **5 h** of lectures. **Teaching activity** for the course "*Medical robotics*" (M.Sc. in Biomedical Engineering, University of Pisa): **3 h** of lectures.
Academic year:	**Holder of the course** "*Micro-nano-bio systems for medical and*

2015/2016	*technological applications*", in the framework of the Ph.D. program in BioRobotics of SSSA: **35 h** of lectures. **Teaching activity** for the course "Biomechanics", module of "Biomechatronics" (M.Sc. in Biomedical Engineering, University of Pisa): **8 h** of lectures. Officially nominated as subject expert: "**Cultore della Materia**". **Teaching activity** for the course "*Principles of Bionics Engineering*" (M.Sc. in Bionics Engineering, jointly offered by University of Pisa and SSSA): **5 h** of lectures and constant support for the organization and delivery of the entire course (60 h).
Academic year: 2014/2015	**Holder of the course** "*Micro-nano-bio systems for medical and technological applications*", in the framework of the Ph.D. program in BioRobotics of SSSA: **35 h** of lectures. **Teaching activity** for the course "Biomechanics", module of "Biomechatronics" (M.Sc. in Biomedical Engineering, University of Pisa): **5 h** of lectures. Officially nominated as subject expert: "**Cultore della Materia**". **Teaching activities** for the course "Rehabilitation Bioengineering" (M.Sc. in Biomedical Engineering, University of Pisa): **3 h** of lectures.
Academic year: 2013/2014	**Teaching activity** for the course "Biomechanics", module of "Biomechatronics" (M.Sc. in Biomedical Engineering, University of Pisa): **5 h** of lectures. Officially nominated as subject expert: "**Cultore della Materia**". **Teaching activities** for the course "Rehabilitation Bioengineering" (M.Sc. in Biomedical Engineering, University of Pisa): **5 h** of lectures. 31/10/2013: **Invited lecture** for the Ph.D. course in "*Medical Nanotechnology*" of the European School of Molecular Medicine (Milano). Title: "*Micro/nano fabrication technologies and applications to miniaturized artificial and living systems*" – **2 h** of lectures
Academic year: 2012/2013	**Teaching activity** for the course "Biomechanics", module of "Biomechatronics" (M.Sc. in Biomedical Engineering, University of Pisa): **8 h** of lectures. **Teaching activities** for the course "Rehabilitation Bioengineering" (M.Sc. in Biomedical Engineering, University of Pisa): **5 h** of lectures.
Academic year:	**Teaching activity** for the course "Biomechanics", module of

2011/2012	"Biomechatronics" (M.Sc. in Biomedical Engineering, University of Pisa): **8 h** of lectures. **Teaching activities** for the course "Rehabilitation Bioengineering" (M.Sc. in Biomedical Engineering, University of Pisa): **3 h** of lectures.

Supervision activity

Supervision of Ph.D. students	1. Main supervisor of Alessia Bacci, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Hydrogels for osteoarticular tissue regeneration*". Research activity started in October 2022. 2. Main supervisor of Francesco Iacoponi, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Biophysical stimulation tools for tissue healing/regeneration*". Research activity started in October 2022. 3. Main supervisor of Angelo Sciullo, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Biomaterials and fabrication techniques for skeletal muscle engineering*". Research activity started in October 2022. 4. Main supervisor of Sofia Sirolli, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Smart materials for controlled drug delivery*". Research activity started in October 2022. 5. Main supervisor of Hind Al-Haddad, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Miniaturized technologies for artificial organs*". Research activity started in October 2020. 6. Main supervisor of Diego Trucco, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Biomaterials and 3D printing technologies for osteoarticular tissue regeneration*". Research activity started in October 2019. 7. Main supervisor of Sabrina Ciancia, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Biomedical and mechatronic solutions for laboratory automation*". Research activity started in October 2019. 8. Main supervisor of Francesco Fontana, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Physical stimulation and smart materials for tissue*

	healing and regeneration". Research activity started in October 2018. 9. Co-supervisor of Angela Sorriento, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Innovative technologies for quantitative diagnosis in orthopaedics*". Research activity started in October 2017. 10. Main supervisor of Federica Iberite, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Pushing the boundaries of skeletal muscle tissue engineering with multiple biophysical stimulations*". Research activity started in October 2017. 11. Co-supervisor of Adil Farooq, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Design and development of electronic solutions for implantable artificial organs*". Research activity to be started in October 2017. 12. Co-supervisor of Sozer Canberk, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Mechatronic solutions for minimally invasive devices*". Research activity started in October 2017. 13. Co-supervisor of Linda Paternò, PhD student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Fluidic mechanisms for the development of hybrid actuators and innovative biomedical systems*". Research activity started in October 2016. **Best Ph.D. Thesis Award, GNB Annual School, 2020** 14. Co-supervisor of Izadyar Tamaddon, Ph.D. student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Development of implantable and intraoperative medical devices*". Research activity started in October 2015. 15. Co-supervisor of Giulia Gori, Ph.D. student in Bioengineering at the Bioengineering and Robotics Research Center "E. Piaggio" of University of Pisa. Collaboration topic: "*Development of an in vitro biomimetic device aimed at reproducing the intestinal barrier*". Research activity started in January 2015. 16. Main supervisor of Alice Salgarella, Ph.D. student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Living/non-living interfaces for medical and technological applications*". Research activity started in November 2014. 17. Main supervisor of Lorenzo Vannozzi, Ph.D. student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research

	program: "*Biohybrid microsystems actuated by living cells*". Research activity started in November 2013. 18. Main supervisor of Veronica Iacovacci, Ph.D. student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Milli- and Micro-scale Endovascular Therapeutic Vectors*". Research activity started in November 2013. **Best Ph.D. Thesis Award, GNB Annual School, 2017** 19. Co-supervisor of Andrea Cafarelli, Ph.D. student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Study of direct and mediated effects of ultrasound on biological tissues*". Research activity started in November 2013. 20. Co-supervisor of Rossella Fontana, Ph.D. student in Biorobotics at the BioRobotics Institute of SSSA. Title of the 3-years research program: "*Electronics and control algorithms for artificial organs*". Research activity started in November 2012.
Tutoring of M.Sc. and B.Sc. students (thesis activities)	1. Carlotta Salvatori: "*Soft catheter actuated by engineered muscle tissues for drug release*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2022-2023 2. Erika Roventini: "*Anti-fouling coatings for minimizing fibrotic reactions*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2021-2022 3. Fabio Orlando: "*Biophysical stimulation of human macrophage, to promote anti-inflammatory effects*", B.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2021-2022 4. Soria Gasparini: "*Pulsed electromagnetic fields for treating inflammation*", M.Sc. Thesis in Bionics Engineering (SSSA and University of Pisa), a.y. 2021-2022 5. Ignazio Niosi: "*Development of acellular scaffolds for the treatment of osteochondral defects*", M.Sc. Thesis in Biomedical Engineering (Politecnico of Milan), a.y. 2021-2022 6. Sara Loggini: "*Development of 3D constructs via bioprinting for skeletal muscle tissue engineering*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2021-2022 7. Giorgia Marola: "*Design, development and testing of an add-on device for ecographic probes, for standardized the diagnosis and monitoring of joint pathologies*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2021-2022 8. Francesco Rocco Restaino: "*Development of an interface to improve*

	usability of an artificial sphincter", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2020-2021 9. Daniele Iachetta: "*3D bioprinting for vascularization of large-scale tissues*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2020-2021 10. Elena Drago: "*Thin polymeric piezoelectric films for the culture and control of skeletal muscle tissues*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2020-2021 11. Claudia Paci: "*3D bioprinting of nanocomposite hydrogels for skeletal muscle engineering*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2020-2021 - **Best M.Sc. Thesis Award, GNB Annual School, 2021** 12. Alessio Siliberto: "*Novel bioprinting strategies for in situ delivery of hydrogels on the cartilage tissue*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2019-2020 13. Francesco Iacoponi: "*Ultrasound stimulation for osteoarthritis treatment*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2019-2020 14. Denise Luchetta: "*Novel materials enabling an implantable/wearable artificial kidney*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2019-2020 15. Tommaso Minuti: "*Force and balance monitoring on soccer players*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2019-2020 16. Laura Riacci: "*Injectable gellan gum hydrogels for cartilage regeneration*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2018-2019 17. Arturo Castillo: "*Design, modeling and development of 3D hierarchical bioactuators*", M.Sc. Thesis in Bionics Engineering (SSSA and University of Pisa), a.y. 2018-2019 18. Alberto Niosi: "*Electronic nose for recognition of odorants in industrial environments*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2018-2019 19. Hind Al-Haddad: "*Nanocomposites for cartilage substitution*", M.Sc. Thesis in Bionics Engineering (SSSA and University of Pisa), a.y. 2018-2019 20. Angela Mazzeo: "*Development of a bioartificial kidney*", M.Sc. Thesis

	in Bionics Engineering (SSSA and University of Pisa), a.y. 2018-2019 – **Best M.Sc. Thesis Award, GNB Annual School, 2019** 21. Federica Campacci: "*Development of novel polymeric nasal fillers*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2017-2018 22. Irene Roherer: "*Development and testing of urine-resistant polymeric valves for artificial sphincters*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2017-2018 23. Sabrina Ciancia: "*Development of an ultrasound-triggered on-demand drug delivery system*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2017-2018 – **Best M.Sc. Thesis Award, GNB Annual School, 2018** 24. Giulia Mariotti: "*Piezoelectric cardiac patch for the treatment of myocardial infarction*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2017-2018 25. Alice Milani: "*Design of a sensing architecture for artificial bladder*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2017-2018 26. Angelo Cadorna: "*Development of urine-resistant nanocoatings for artificial bladder*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2017-2018 27. Ilaria Di Cioccio: "*Development of smart vascular grafts based on nanodoped biomaterials*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2016-2017 28. Michele Ibrahimi: "*Design and development of a smart socket for lower limb prostheses*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2016-2017 29. Leonardo Marziale: "*Development of a minimally invasive extraurethral artificial urinary sphincter*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2016-2017 30. Carmine Perri: "*Wireless power transfer technology for a fully implantable artificial pancreas*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2016-2017 31. Alessio Vizzoca: "*Development of magnetic microvectors for cancer therapy*", M.Sc. Thesis in Biotechnology (University of Pisa), a.y. 2016-2017 32. Francesca Sbaraglia: "*Development of an electromagnetic system for*

the localization of magnetic herythrocytes", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2016-2017

33. Martina Lucignani: "*Development of thin microgrooved polyacrylamide films for cell co-cultures and bioactuation*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2015-2016
34. Aliria Poliziani: "*Development of polymers and nanocomposites for phantoms and cell culture substrates*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2015-2016
35. Matteo Rocchi: "*Development of a polymeric coating for insulin clotting prevention in implantable artificial pancreas*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2015-2016
36. Sara Ugolini: "*Custom-fitted orthotic brace in nonoperative treatment of Pectus Carinatum: our experience*", M.Sc. Thesis in Medicine and Surgery (University of Florence), a.y. 2014-2015
37. Valerio Calarota: "*Development of a nano-doped matrix as stiffening sensor for applications in soft robotics*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2014-2015
38. Rosanna D'Andrea: "*Development of a novel device for the treatment of Pectus Excavatum*",M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2014-2015
39. Alice Salgarella: "*Design, fabrication and preliminary evaluation of a new bio-hybrid tactile transducer*", M.Sc. Thesis in Biomedical Engineering (Politecnico di Torino), a.y. 2013-2014
40. Giulia Gori: "*Development of a bio-hybrid nanomembrane for cell co-culture: an in vitro drug screening tool*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2013-2014 – **Best M.Sc. Thesis Award, GNB Annual School, 2014**
41. Ilaria Sanzari: "*Multifunctional device for scaffold stimulation: protein electroadsorption on nanostructured conductive polymers*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2012-2013
42. Veronica Iacovacci: "*Design and development of a mechatronic implantable system for the refilling of artificial organs*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2012-2013. – **Best M.Sc. Thesis Award, GNB Annual School 2013**
43. Lorenzo Vannozzi: "*Design and development of a 3D system for bio-hybrid actuation*", M.Sc. Thesis in Biomedical Engineering

	(University of Pisa), a.y. 2012-2013 44. Stefano Betti: "*Design and development of an implantable sensorized medical device for the correction of Pectus Excavatum*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2012-2013 45. Alberto Niosi: "*Balance analysis and talent recognition in amateur and professional soccer players*", B.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2011-2012 46. Irene Bernardeschi: "*Ultra-thin film for cell culture, growth and differentiation*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2009-2010 47. Giada Graziana Genchi: "*Development and characterization of a novel bio-hybrid robotic actuator driven by C2C12 skeletal muscle cells*", M.Sc. Thesis in Industrial and Environmental Biotechnologies (University of Bari), a.y. 2009-2010 48. Paola Devilla: "*Interaction between boron nitride nanotubes and cell cultures for biomedical applications*", M.Sc. Thesis in Biomedical Engineering (University of Pisa), a.y. 2008-2009
Supervision of internees	1. Mariana de Oliveira (University of Lisbon, Portugal). Theme: "*Investigation of the adhesion strength of nanocomposite hydrogels onto ex vivo cartilage and bone tissues*". Period: from 24/05/2021 to 13/08/2021 2. John Euler Chamorro Fuertes (University of Cauca, Colombia). Theme: "*Small-scale robots for biomedical applications*". Period: from 17/09/2019 to 18/10/2019 3. Mariana Pereira (University of Lisbon, Portugal). Theme: "*Development of hydrogels with nanoparticles*". Period: from 01/07/2019 to 01/09/2019 4. Yoshitaka Suematsu (Waseda University, Japan). Theme: "B*io-hybrid robots based on SBS thin films*". Period: from 14/02/2018 to 27/02/2018 5. Anna Zahoranova (Slovak Academy of Sciences, Slovakia). Theme: "*Ultrasound mediated drug release from polymeric micelles*". Period: from 01/10/2017 to 15/02/2018 6. Martin Alonso Muñoz Medina (University of Cauca, Colombia). Theme: "*Magnetic composite materials and advanced simulation tools for controllable microrobots*". Period: from 12/06/2017 to 14/07/2017

	7. Arihiro Hasebe (Waseda University, Japan). Theme: "*Elastomeric thin film assembly for bio-hybrid robots*". Periods: from 01/09/2016 to 30/09/2016, from 18/11/2017 to 25/11/2017 and from 14/02/2018 to 27/02/2018 8. Aurélie Leroux (Strasbourg University, France). Theme: "*Magnetic microrobots*". Period: from 06/06/2016 to 26/08/2016 9. Matteo Guidi (Polytechnic of Milan). Theme "*Development of hydrogels for drug delivery*". Period: from 30/03/2016 to 30/04/2016 10. Pedro Gouveia (University of Coimbra, Portugal). Theme: "*Development of flexible nanofilms for cardiac tissue engineering*". Period: from 15/07/2014 to 22/09/2014 11. Shaikha Alyassi (Khalifa University, UAE). Theme: "*This films for bio-hybrid actuators*". Period: from 23/06/2014 to 04/08/2014

12. Other Education initiatives

From 01/2015 to 02/2022	Member (and SSSA referent) of the working group dedicated to the preparation of the proposal for a new **Master Degree in Bionics Engineering**, jointly proposed to MIUR by the University of Pisa and SSSA. The new Master Degree started in September 2015.
From 09/2013 to today	Participation to the organization and delivery of Education activities for local high school students. Some examples are: • "*Festa della Robotica*", at the *Istituto Tecnico Industriale* of Pomarance (Pisa); • Dissemination events organized with the "*Liceo Scientifico G. Carducci*" of Volterra (Pisa); • Involvement of high school students in laboratory research activities (*alternanza scuola-lavoro*) organized with the "*Liceo Scientifico Il Pontormo*" of Empoli.

13.Involvement in research projects

Throughout my career, I have been involved in the following national and international research projects, with a significant technical role:

12/2011 – 12/2013	**MicroVAST** project (MICROsystems for Vascular diagnosticS and inTerventions, http://www.microvast.it/), funded by the Fondazione Cassa di Risparmio di Pisa. Role: R&D developer.
09/2011 – 04/2012	EU-funded (FP7) **CA-RoboCom** project (Coordination Action for the design and description of the FET Flagship Candidate Robot

	Companions for Citizens, www.robotcompanions.eu). Role: senior ICT analyst.
01/2008 - 11/2009	EU-funded (FP7) **REPLICATOR** project (Robotic Evolutionary Self-Programming and Self-Assembling Organisms, http://sssa.bioroboticsinstitute.it/projects/Replicator). Role: R&D developer.

14. Fund raising

I was able to attract competitive funds for the following projects:

1. **REBORN** (Remodelling of the infarcted heart: piezoelectric multifunctional patch enabling the sequential release of of therapeutic factors), funded by the European Commission, HORIZON-CL4-2022-RESILIENCE-01-13. Funding: 4.9 M€ (budget for my group: 506 k€). January 2023 – December 2026. Role: PI of the SSSA Unit

2. **BioMeld** (A modular framework for designing and producing biohybrid machines), funded by the European Commission, HORIZON-CL4-2021-DIGITAL-EMERGING-01-27. Funding: 4.4 M€ (budget for my group: 596 k€). January 2023 – December 2025. Role: PI of the SSSA Unit

3. **MIO-PRO** (Muscoli Ingegnerizzati Paziente-specifici per il Ripristino di Canali Mioelettrici e il Controllo di Protesi), funded by INAIL. Funding: 1.5 M€ (budget for my group: 1 M€) November 2020 – October 2023. Role: Project Coordinator

4. **FORGETDIABETES** (A Bionic Invisible Pancreas to Forget Diabetes), funded by the European Commission, FETPROACT-EIC-05-2019. Funding: 3.9 M€ (SSSA budget: 750 k€). October 2020 – April 2025. Role: PI of the SSSA Unit

5. **ImmUniverse** (*Better control and treatment of immune-mediated diseases by exploring the universe of microenvironment imposed tissue signatures and their correlates in liquid biopsies*), funded by the European Commission, H2020-JTI-IMI2-2018-15. Funding: 15.5 M€ (SSSA budget: 360 k€). January 2020 – December 2024. Role: PI of the SSSA Unit

6. **ADMAIORA** (*ADvanced nanocomposite MAterIals fOr in situ treatment and ultRAsound-mediated management of osteoarthritis*), funded by the European Commission, H2020-NMBP-TR-IND-2018-2020. Funding: 5.4 M€ (SSSA budget: 1.0 M€). February 2019 – February 2023. Role: Project Coordinator and PI of the SSSA Unit

7. **ALA** (*Advanced Laboratory Automation*), funded by Inpeco AS. Funding: 3.7 M€ (budget for my WP: 850 k€). December 2018 – May 2022. Role: WP Leader

8. **UltraHeal** (*Combined low-intensity Ultrasound and electromagnetic fields for the treatment of neuropathies*), funded by BAC Technology s.r.l. Funding: 32 k€. October 2018 – October 2019. Role: Project Coordinator.

9. **ROBO-IMPLANT** (*Dispositivo ROBOtico IMPiantabile per riLAscio controllato di farmaci a livello iNTraperitoneale*), funded by Tuscany Region. Started on 03/04/2017. Duration: 2 years. Funding: 1.3 M€ (budget dedicated to SSSA: 680 k€). Role: Project Manager.

10. **FORGETDIAB** (*Forget Diabetes: Adaptive Physiological Artificial Pancreas*), funded by MIUR (*Ministero dell'Istruzione, dell'Università e della Ricerca*). Started on 27/02/2017. Duration: 3 years. Funding: 293 k€ (budget dedicated to SSSA: 56 k€). Role: Project Manager.

11. **MOTU** (*Protesi Robotica di Arto Inferiore con Smart Socket ed Interfaccia Bidirezionale per Amputati di Arto Inferiore*), funded by INAIL. Started on 04/05/2017. Duration: 3 years. Funding: 3.9 M€. (budget dedicated to our WP: 850 k€). Role: WP co-Principal Investigator.

12. **RELIEF** (*Ripristino della continEnza urinaria e del controlLo della minzIonE mediante sFintere artificiale*), funded by INAIL (*Istituto nazionale Assicurazione Infortuni sul Lavoro*). Started on 21/02/2017. Duration: 3 years. Funding: 600 k€. Role: Co-Principal Investigator.

13. **VESPRO** (*Protesi di VEscica e Sfintere per il riPristino funzionale dell'apparato uRinariO*), funded by Fondazione Cassa di Risparmio di Lucca. Started on 19/08/2016. Duration: 2 years. Funding: 60 k€. Role: Project Manager.

14. **Bio-Enable** (*Integrated infrastructure for supporting industry-oriented research on bioactive molecules, biomolecules, biomaterials, in vitro and in vivo*), funded by Tuscany Region (*Bando IR 2015 – sostegno alle infrastrutture di ricerca*). Started in September 2015. Duration: 5 years. Funding: 2.4 M€ (budget dedicated to SSSA: 350 k€). Role: Technical Project Manager.

15. **Micro/nano robotic coordinated manipulation for cell analysis and 3D assembly**, joint project between SSSA and the Beijing Institute of Technology (BIT), funded by the international collaborative Natural Science Foundation of China (NSFC). Started in May 2016. Duration: 5 years. Funding: 350 k€. Role: Member of the SSSA working group.

16. **Smart APP** (*Smart Artificial Pancreas refilled by mechatronic Pills*), funded by Scuola Superiore Sant'Anna. Started in January 2015. Duration: 1 year. Funding: 15 k€. Role: Project Coordinator.

17. **M2Neural** (*Multifunctional Materials for Advanced Neural Interfaces*), funded by the M-ERA.NET Transnational framework. Started in November 2014. Duration: 3 years. Funding: 355 k€ (budget dedicated to SSSA: 293 k€). Role: Project Manager.

18. **SUAVES** (*Artificial Urinary System based on bladder and sphincter endoprostheses*), funded by Fondazione Cassa di Risparmio di Lucca. Started in June 2014. Duration: 2 years. Funding: 90 k€. Role: Project Manager.

19. **GeT Small** (*TarGeted Therapy at Small Scale*), funded by Scuola Superiore Sant'Anna. Started in November 2013. Duration: 2 years. Funding: 40 k€. Role: Project Manager.

15.Referee appointments

I regularly serve as a reviewer for the following Journals and Conferences:

1. Nature Materials
2. Nature Communications
3. Science Robotics
4. Science Advances
5. ACS Nano
6. Biomaterials
7. Advanced Healthcare Materials
8. Advanced Materials Technologies
9. Lab on a Chip
10. ACS Applied Materials and Interfaces
11. Biofabrication
12. APL Bioengineering
13. PLoS ONE
14. Soft Robotics
15. Scientific Reports
16. Bioinspiration & Biomimetics
17. IEEE Transactions on Mechatronics
18. IEEE Transactions on Biomedical Engineering
19. IEEE Transactions on Robotics
20. IEEE Robotics and Automation Letters
21. Biomedical Microdevices
22. Robotics and Autonomous Systems
23. Sensors and Actuators B: Chemical
24. International Journal of Nanomedicine
25. Journal of Nanoparticle Research
26. Acta Biomaterialia
27. Biomacromolecules
28. Ultrasound in Medicine and Biology
29. Journal of The Royal Society Interface
30. Biomedical Materials
31. Journal of Materia Chemistry B
32. Journal of Biosciences
33. Journal of Biomaterials and Tissue Engineering
34. Journal of Biomaterials Science: Polymer Edition
35. Polymers
36. Regenerative Medicine
37. Bio-Design and Manufacturing
38. Bioprinting
39. Journal of Motor Behavior

40. Artificial Organs
41. Sensors
42. Actuators
43. Applied Bionics and Biomechanics
44. International Journal of Molecular Sciences
45. Journal of Human Sport and Exercise
46. Journal of Sport and Health Science
47. Research in Sports Medicine
48. Physiotherapy Quarterly
49. Sports Biomechanics
50. Journal of Visualized Experiments
51. IEEE International Conference on Robotics and Automation (ICRA)
52. Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)
53. IEEE/RSJ International *Conference* on Intelligent Robots and Systems (IROS)
54. IEEE International Conference on Biomedical Robotics and Biomechatronics (BioRob)
55. EMBS Micro and Nanotechnology in Medicine Conference (MNM)
56. IEEE International Conference on Cyborg and Bionic Systems (ICBS)

I served as **reviewer of Grant Proposals** for the **European Research Council (ERC)** as follows: 1 ERC Consolidator proposal in 2013, 1 ERC Consolidator proposal in 2014, 2 ERC Starting proposal in 2018, 1 ERC Starting proposal in 2020.

I signed a contract as **remunerated expert evaluator** for H2020 proposals in the following calls: H2020-NMBP-TO-IND-2020-twostage, H2020-NMBP-TR-IND-2020-twostage, H2020-NMBP-STIND-2020-twostage (11 proposals evaluated).

I regularly serve as **reviewer** of grant proposals and periodic technical reports for the Università Campus Bio-Medico (Rome, Italy), for the Dutch Research Council (NWO) and for the Swiss National Science Foundation.

I served as external reviewer for the Italian Ministry of Research and Education (MIUR), evaluating some papers for the VQR (*Italian Research Quality Evaluation*) 2011-2014 and 2015-2019.

16. Academic roles/services memberships and qualifications

Academic roles

From 25/01/2021 to today	**Deputy Director** of the BioRobotics Institute, Scuola Superiore Sant'Anna
From 21/12/2016 to 12/02/2022	Formal **delegate of the BioRobotics Institute Director** for teaching and other didactic activities in connection with University of

	Pisa.
From 10/2015 to today	Member of the **evaluation committee** for the undergraduate students' excellence path within Scuola Superiore Sant'Anna
From 01/2014 to today	Member of the **selection committee** for the admission of PhD students to the PhD program in Biorobotics, at the BioRobotics Institute of Scuola Superiore Sant'Anna
From 01/2014 to today	Member of the **examination board** for the assignment of PhD degrees in Biorobotics, at the BioRobotics Institute of Scuola Superiore Sant'Anna. From January 2014, I took part of the examination boards of 24 PhD students. I also received an invitation from University of Coimbra, University of Milan and University of Siena to serve as external member for the PhD examination board of such Universities.
From 05/2022 to today	Member of the "Collegio dei Docenti", dedicated to the **PhD program steering** (PhD in Robotics and Intelligent Machines, University of Genova)
From 01/2014 to today	Member of the "Collegio dei Docenti", dedicated to the **PhD program steering** (PhD in Biorobotics, the BioRobotics Institute of Scuola Superiore Sant'Anna)
From 01/2014 to today	**Faculty Member** of The BioRobotics Institute, Scuola Superiore Sant'Anna

Main service activities

From 2015 to 2022	Main responsible of the SSSA working group dedicated to **create from scratch, periodically check and revise the didactic contents and the organization framework of the Master of Science in Bionics Engineering** (LM-21), jointly offered by Scuola Superiore Sant'Anna and University of Pisa (https://www.bionicsengineering.it/edu/).
From 08/2015 to today	Scientific secretariat activity dedicated to steer the **creation of a new highly interdisciplinary journal (IEEE Transactions on Medical Robotics & Bionics)**, in the framework of the Biorobotics Technical Committee, within the EMBS Society. The proposal was enthusiastically accepted by the EMBS AdCom and it is now targeting to bridge EMBS and RAS communities.
From 2014 to 2019	**Member of the working group** dedicated to the preparation of the Italian delegation contribution (Country Review) at the Annual

	World Micromachine Summit (http://www.mms2015.org/) (Chief of the delegation: Prof. Paolo Dario (Scuola Superiore Sant'Anna); other members: ST Microelectronics, FBK and IMM-CNR.
From 04/2012 to 06/2013	**Member of the working group** dedicated to the preparation of the **FET Flagship project proposal** "Robot Companions for Citizens" (planned project duration: 10 years, planned funding: 1 Billion €). The proposal was scored 3rd, after "Graphene" and "Human Brain Project", thus resulting the first proposal between the non-funded ones.

Memberships and qualifications

Member of the Institute of Electric and Electronics Engineers (IEEE) - # 90475534	
Member of the IEEE Engineering in Medicine and Biology Society (EMBS)	
Member of the EMBS Technical Committee on Biorobotics	
Member of the IEEE Nanotechnology Council	
Member of the International Society of Bionic Engineering (ISBE)	
Ordinary Member of the European Society of Biomaterials (ESB)	
12/2020	Italian qualification for the profession of Full Professor of Bioengineering (Abilitazione scientifica nazionale, Professore di I fascia, settore disciplinare 09/G2) obtained in December 2020. The license was issued by MIUR (Ministero dell'Istruzione, dell'Università e della Ricerca).
12/2014	Italian qualification for the profession of Associate Professor of Bioengineering (Abilitazione scientifica nazionale, Professore di II fascia, settore disciplinare 09/G2) obtained in December 2014. The license was issued by MIUR (Ministero dell'Istruzione, dell'Università e della Ricerca).
11/2007	Italian qualification (*abilitazione*) for the profession of Industrial Engineering, obtained after a written and oral exam (*Esame di Stato*), held on November 2007. The license was issued by MIUR (Ministero dell'Istruzione, dell'Università e della Ricerca) on 03/07/2012.