

Micro-Nano-Bio Systems and Targeted Therapies Lab: key people



Leonardo Ricotti is Associate Professor of Bioengineering and Biorobotics at SSSA and head of the “Micro-nano-bio systems and targeted therapies” Lab at the BioRobotics Institute. He holds a M.Sc. course on “Miniaturized therapeutic and regenerative technologies” and a PhD course on “Micro-nano-bio systems for medical and technological applications”. He has supervised or co-supervised 10 PhD students, working on therapeutic micro-devices, biomaterials and artificial organs, and 30 M.Sc. theses on bioengineering topics. He carries out innovative research efforts at the interface between different disciplines, such as robotics and mechatronics, materials science, molecular biology and biotechnology and he aims at creating innovative (and potentially disruptive) “match points” between different disciplines. He is co-author of ~90 scientific publications (60 on ISI journals), 6 book chapters on micro-nano systems for biomedical applications. He is also inventor of 9 patents. He is Associate Editor of the IEEE Transactions on NanoBioscience and of the IEEE Transactions on Medical Robotics and Bionics. In 2012, he received the “Massimo Grattarola” award for the best PhD Thesis in bioengineering (Thesis title: “Development of bio-hybrid actuators”). In July 2014, he was awarded with the European Biomaterials and Tissue Engineering Doctoral Award. In 2018, he received regional and national prizes as member of the spin-off company Relief s.r.l. He currently coordinates an European project (ADMAIORA - ADvanced nanocomposite MAterials fOr in situ treatment and ultRASound-mediated management of osteoarthritis), funded in the H2020 framework.

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Lorenzo Vannozzi is a post-doctoral fellow at SSSA, within the “*Micro-nano-bio systems and targeted therapies*” Lab of the BioRobotics Institute. In 2013, he received a Master degree in Biomedical Engineering at University of Pisa, with a thesis entitled “Design and development of a 3D system for bio-hybrid actuation” and in 2017 he obtained a PhD in Biorobotics, defending a thesis entitled “Novel actuated microsystems”. His research activity deals with the exploration of 3D microfabrication technologies, included 3D bioprinting, for bioengineering purposes, and the design, development and testing of drug delivery platforms for local therapies. He has an interdisciplinary approach involving materials science, mechatronics and molecular biology. He supported the teaching activity of Prof. Leonardo Ricotti within the M.Sc course on “Miniaturized therapeutic and regenerative technologies”, with practical classes on material synthesis and characterization. He is author or co-author of 13 scientific publications. In 2018, he received the “Julia Polak European Doctorate Award” from the European Society of Biomaterials committee. He is or has been involved in different Italian and European projects (MOTU, M2Neural and GeT Small), for which he provided important technical contributions.

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Federica Iberite is a Ph.D. student in Biorobotics at SSSA, within the “Micro-nano-bio systems and targeted therapies” Lab of The BioRobotics Institute.

In 2017 she received a Master’s Degree in Genetics and Molecular Biology in Basic and Biomedical Research at “Sapienza” University of Rome, with a dissertation about the functional characterization of a novel long non-coding RNA involved in the regulation of Neurogenin2, a master gene of neural differentiation. During her university career, she received two grants for academic merits.

Her current research activity concerns the integration of living and non-living elements for the development of biohybrid actuators by exploiting muscle cells contraction ability. She is also investigating the effect of different mechanical stimuli on cell differentiation for regenerative medicine purposes.

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Francesco Fontana is a Ph.D. student in Biorobotics at The BioRobotics Institute of Scuola Superiore Sant'Anna. In 2017 he received the Master degree in Chemical Engineering at University of Salerno, with a thesis entitled "Configuration of a plant for supercritical CO₂ - assisted electrospinning". His research activity regards the development of an *in vitro* highly controlled combined stimulation system (low intensity ultrasounds plus electromagnetic pulses) of relevant cell lines for modelling neuropathies (in particular the Guillain-Barrè syndrome). The aim is to bring anti-inflammatory and regenerative effects. The second topic concerns the development and characterization of engineered nanocomposite hydrogels for cartilage regeneration.

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Sabrina Ciancia is an Assistant Researcher in Biorobotics at The BioRobotics Institute of Scuola Superiore Sant'Anna. In 2018, she received a Master's degree in biomedical engineering at University of Pisa, with a thesis on controlled and pulsatile drug delivery enabled by ultrasound. She was awarded with the "NearLab" prize by the National Bioengineering Group, for the best master thesis in the Neuroengineering and Medical Robotics field. Her research activity concerns the development of smart systems for controlled drug delivery and biomedical technologies for laboratory automation.

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