

## PhD in BioRobotics

### Overview

The PhD Programme in BioRobotics is an innovative, cross-sectoral and interdisciplinary three-year course of advanced studies and supervised research, established at Sant'Anna School of Advanced Studies in 2012.

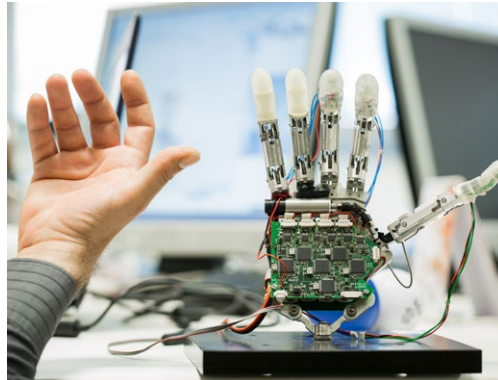
It enrolls 100+ students, on average 30 students or more per year, and thus is among the largest doctoral schools in robotics and biomedical engineering worldwide.

The Programme aims at educating and training young students to study, design, and develop radically novel robots, machines, systems and services, putting the human being and society at the center of the process, according to principles of technological, environmental, social, ethical, and economic sustainability. In the BioRobotics PhD path, robotic technologies are bio-applied (e.g. dedicated to medical applications) or bio-inspired, with the aim to significantly enhance their abilities.

PhD students can benefit from a living research environment, with a continuous supervision by BioRobotics leaders who accompany them in the execution of their research projects. They will be trained in preparing research articles for international scientific journals and international events, as well as in intellectual property and industrial oriented issues.

### Areas of study and research facilities

PhD projects will be carried out in very well equipped, state-of-the-art laboratories (mainly dedicated to projects of biomedical engineering, biomimetic and soft robotics,



rehabilitation technologies, micro-engineering, surgical robotics, neural engineering, robotic companions) and through an individual and team work performed under the supervision of a full-time faculty.

During the three years of the PhD programme, students have to collect:

- 20 ECTS (European Credit Transfer System) by the attendance of internal courses, but also of external courses, summer schools, projectual works.
- 160 ECTS for research activities, distributed over the three years.

The PhD programme in BioRobotics guarantees a wide and multidisciplinary educational offer, organized both on horizontal clusters, which contain the fundamental teachings on the scientific issues characterizing the cultural approach of Biorobotics, and on vertical clusters, which contain the courses proposed by the scientific themes of The BioRobotics Institute, namely: wearable and collaborative technologies, artificial organs and prostheses, medical robotics and regenerative medicine, mathematical and computational modeling, bioinspired and soft robotics, bioelectronics and neuroscience robotics.

### Job Opportunities

Placement information of PhDs in BioRobotics report an occupation rate of 100% in a very short time from graduation, if not even before the thesis defense, both in the academic field (with positions at prestigious universities such as, for example, Harvard University, Stanford University, Boston University, ETH Zurich, EPFL, University of Pittsburgh, University of Alabama, Khalifa University) and in national and international research centers. A quite large rate of PhDs find an industrial job, both in existing companies and in high-tech start-up ones.

### Highlights

- PhD students in BioRobotics work in a stimulating environment, with multiple opportunities of scientific and personal growth.
- State of the Art technologies and novel equipment from the Excellent Department of Robotics and AI allow to design and develop in a short time all the brilliant project ideas of the PhD students.
- Variegated teaching offer, merging fundamental courses with high-level seminars and tailored on the specific needs of the students.
- Multiple collaborations with industries also in the form of Joint Labs between industries and university.
- Multiple collaborations with hospitals and clinical centers, for a straightforward translation of the bioengineering activities.
- Multiple collaborations with international teams, thanks to a 30-year tradition of European and International collaborative projects.

*Photo Credit: Hauke Seyfarth*

### Info and contacts

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