ISTITUTO ITALIANO DI TECNOLOGIA | PhD@IIT

Research Topics for
Doctorate in Mechanical, Energy and Management Engineering, curriculum in Mechanics, Measurement and Materials

Research Topics

1. Mechatronic development of assistive devices and technologies for inclusion and engagement 1
2. Additive manufacturing for sustainable, compliant and soft robots 2

1. Mechatronic development of assistive devices and technologies for inclusion and engagement

Tutor
Alberto Parmiggiani

IIT Facility
Mechanical Workshop, IIT, Genova

Description
The primary goal of the research is to develop solutions that improve the engagement and interaction among abled and impaired individuals within the urban context. More in detail this PhD project will focus on the development of robotics systems and devices to stimulate and support ludic activities of individuals and children with sensory and motorial deficits. You will be working in a multicultural and multi-disciplinary team, where mechanical engineers, electrical engineers, software engineers, and psychologists, each with their expertise, carry out a scientific activity with a shared research goal.

Within the team, your main responsibilities will be to carry out hands-on research, to design, develop and validate device prototypes.

This research will be carried out within RAISE (Robotics and AI for Socio-economic Empowerment) project. The project is funded by the European Union - NextGenerationEU scheme through the National Recovery and Resilience Plan (NRRP), Mission 4, Component 2 Investment 1.4.

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2. Additive manufacturing for sustainable, compliant and soft robots

Tutor
Alberto Parmiggiani

IIT Facility
Mechanical Workshop, IIT, Genova

Description
This PhD project will focus on designing and developing compliant, soft mechatronic devices to be applied in various environmental sustainability contexts such as hydrogeological risks prevention, damage mitigation, ecosystem restoration and pollutants removal. We are looking for a PhD candidate to work on applying mechanics, advanced materials, 3D printing and other additive manufacturing technologies to robotics.

The primary objective of the research is to design and build a new generation of compliant robots. You will have the opportunity to explore and develop novel solutions for the integrated design of flexible, compliant hardware, with functional, soft materials possibly embedding sensing and lightweight actuators.

You will be working in a multicultural and multi-disciplinary team, where mechanical engineers, electrical engineers, software engineers, and designers, each with their expertise, carry out a scientific activity with a shared research goal.
Within the team, your main responsibilities will be to carry out hands-on research, to design, develop and validate device prototypes.

This research will be carried out within RAISE (Robotics and AI for Socio-economic Empowerment) project. The project is funded by the European Union - NextGenerationEU scheme through the National Recovery and Resilience Plan (NRRP), Mission 4, Component 2 Investment 1.4.

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