INTERNATIONAL PROJECTS

- **ERC StG wHiSPER** (investigating Human Shared PErception with Robots): investigates how to make a robot able to **perceive the world** around it and the **actions** of others like a **human being** would do.

- **PROMEN-AID** (proactive memory in AI for Development): deals with the application of **cognitive architectures developed by the European Human Brain Project (HBP)**, demonstrating their effectiveness in industrial contexts of human-robot collaboration.

- **APRIL** (multipurpose robotics for mAniPulation of defoRmable materIaLs in manufacturing processes): aims at the creation of low-cost, **multifunctional robots** that support tasks in **production lines** to manipulate **deformable** objects of different types.

- **RAISE** (Robotics and AI for Socio-economic Empowerment): aims to support the **development** of an innovation ecosystem based on the scientific and technological domains of **AI** and **Robotics**.

...AND MUCH MORE!

CONTACT US

Via Enrico Melen 83, Building B
16152 Genova, Italy

contact_ _unit

RBCS & CONTACT IIT

https://whisperproject.eu

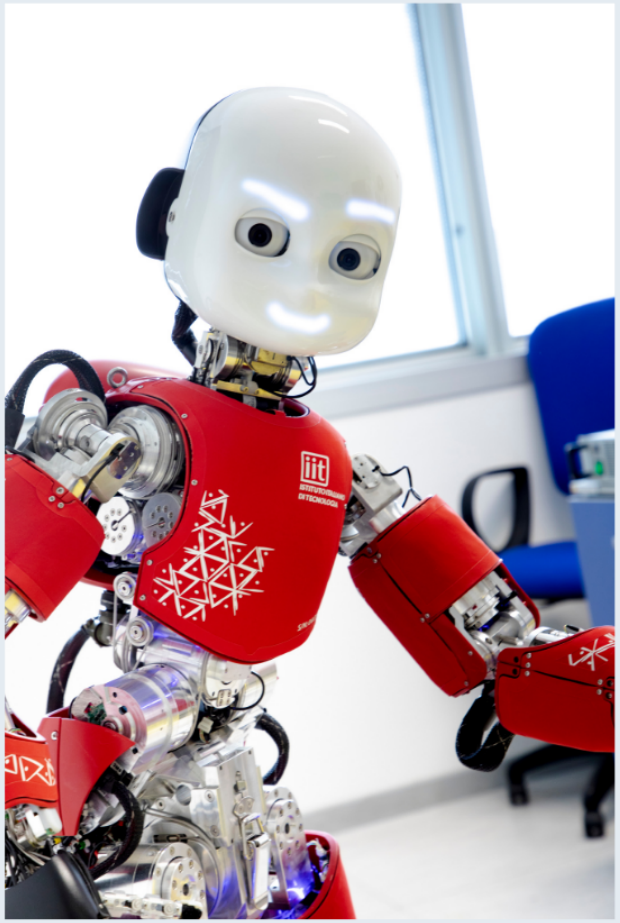
https://contact.iit.it/

COgNiTive Architecture for Collaborative Technologies Unit

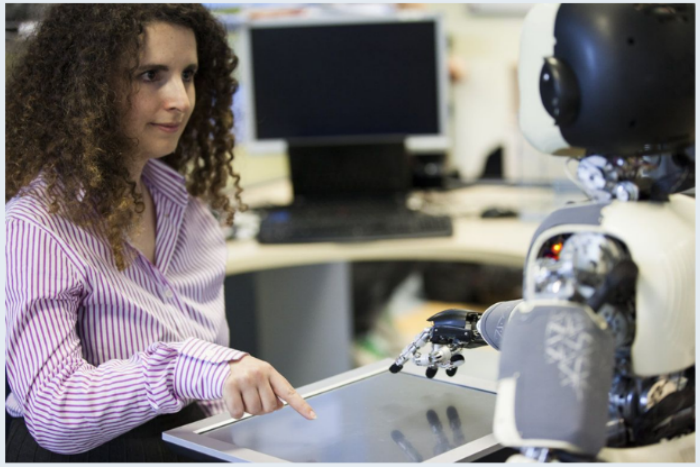
ISTITUTO ITALIANO DI TECNOLOGIA

Robotics Brain and Cognitive Sciences Unit

ISTITUTO ITALIANO DI TECNOLOGIA



OUR RESEARCH



Our goal is to understand the sensory, motor, and cognitive basis of the **human ability to interact with others and the world**. In this sense, the robot becomes an ideal and controllable probe to understand and model humans and to investigate the mechanisms that drive human interaction. We contribute to a deeper understanding of social cognition through a **constructive, embodied, and model-based approach**.

Humans, as **social beings**, are naturally inclined to adapt to others, modifying their actions, tones, and behavior in relation to the needs of the partners with whom they interact. This ability requires the integration of **perceptual and behavioral skills** into cognitive architectures that support social awareness and adaptation. One of the main goals of our research is to capture the essence of such cognitive architectures and bring them to robots, to support **forms of social adaptability and autonomous learning.**

Humans base most of their collaborative behaviour on **nonverbal and subtle information**. Reading the implicit social signals embedded in human actions enables partners to interpret each other's intentions and emotions which plays a crucial role in our **social decisions.**

We work to provide robots with the ability to:

- grasp the essence of what the other person really **means** or wants (such as passing a bottle of water to someone who is reaching for a glass);
- **predict** the consequences of their actions and behavior (such as being able to catch a ball thrown by a partner);
- **adapt** its response accordingly, following a set of social rules (such as holding a door open when someone leaves a room).

The key to achieving this is to start **making robots more humane.** The ultimate robot may not be anthropomorphic, but it should have an **anthropomorphic mind** in order to understand humans and relate to them on the same level.