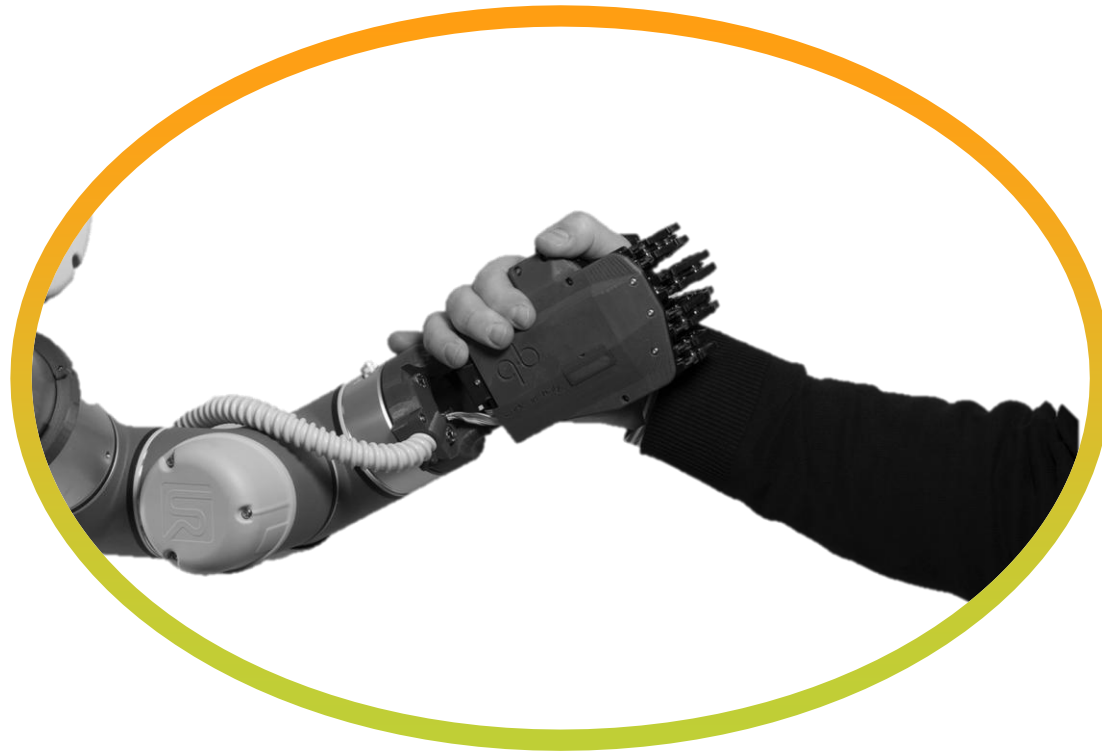


My job

Bridging Research & Prototyping

Humans



Machines

Our Principal Research Areas

Robotics & Automation

The robotics division focuses on advanced human-robot interaction, the creation of **innovative prosthetic hands** for both human and robotic bodies, and the programming of **quadruped robots** like ANYmal to monitor natural habitats.

Our star is the **humanoid robot AlterEGO**, which is designed for **human interaction**. It is named AlterEGO because a human operator can **control it remotely**, making the robot like their robotic alter ego.

An appreciated version of AlterEGO works as a guide at the Temple of Adriano in Rome



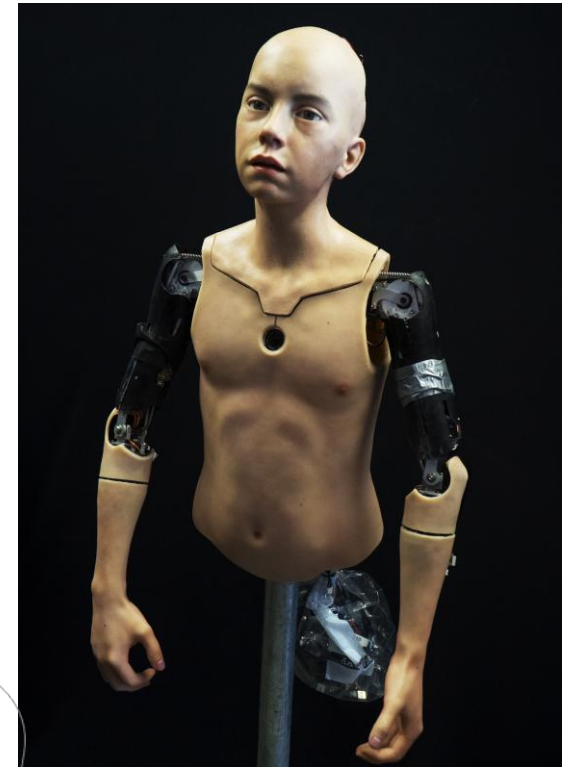
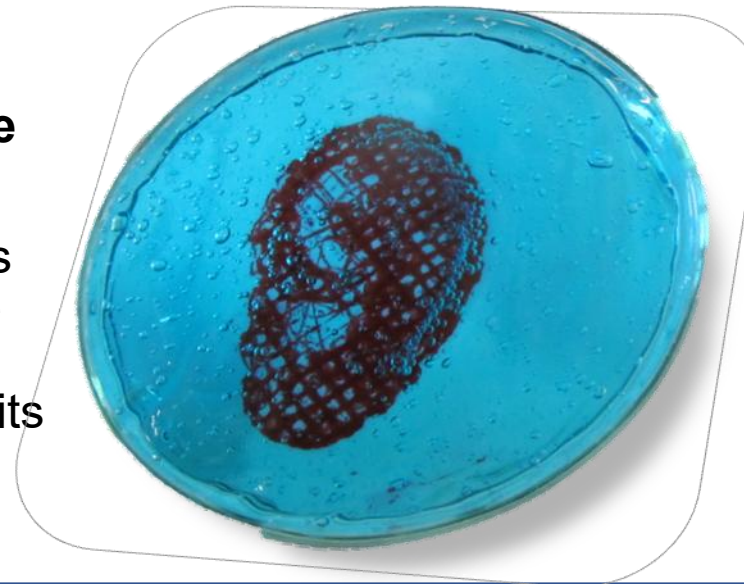
Our Principal Research Areas

Bioengineering

The bioengineering group researches methods for **printing biological tissue biomaterials**, devices for **in-vitro cell experiments**, and **wearable devices** for medical research.

Another study by the bioengineering group involves helping patients with **neurodevelopmental and neurodegenerative disorders** using the empathetic robot **Abel**.

Abel is a **hyper-realistic humanoid robot**. It is designed to **show empathy, speak**, and move its **face**. Abel can recreate human **facial expressions** thanks to 48 small motors under its realistic skin.



My Dual Workplaces

1. The Laboratory

- I discuss new ideas and **prototype development** with researchers and students.
- I support students by **reviewing their drawings** and providing feedback on **manufacturability**.
- I **manage a 3D printer** in the lab to create plastic components very quickly, which is extremely helpful for **testing designs** before starting production.
- Additionally, I help **assemble the prototypes** and troubleshoot any mechanical issues.



My Dual Workplaces

2. The Workshop

- I **manufacture** mechanical parts using **CNC machine tools** (Computer Numerical Control)
- To simplify the programming process, I use **CAM** (Computer-Aided Manufacturing) software to import 3D drawings and generate the necessary toolpaths.
- I prepare the raw material that needs to be machined and **set up** the necessary tools
- Finally, I **export the program** to the machine and **start the operations**.



My Dual Workplaces

The Workshop



Formula Student Collaboration

Every year I collaborate with the E-Team, the student racing team of the University of Pisa.

They usually need various upgrades for their car, so we hold meetings to

- review the designs,
- evaluate the manufacturability of the components
- production scheduling: we coordinate active manufacturing tasks so critical racing parts are completed ahead of competition deadlines.



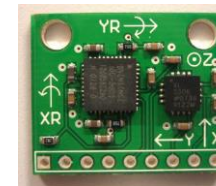
Support for technical purchase

Usually, we need to buy specific technical supplies, and we often face tight deadlines.

I help students **purchase technical equipment** by guiding them to find the **best and fastest suppliers**.

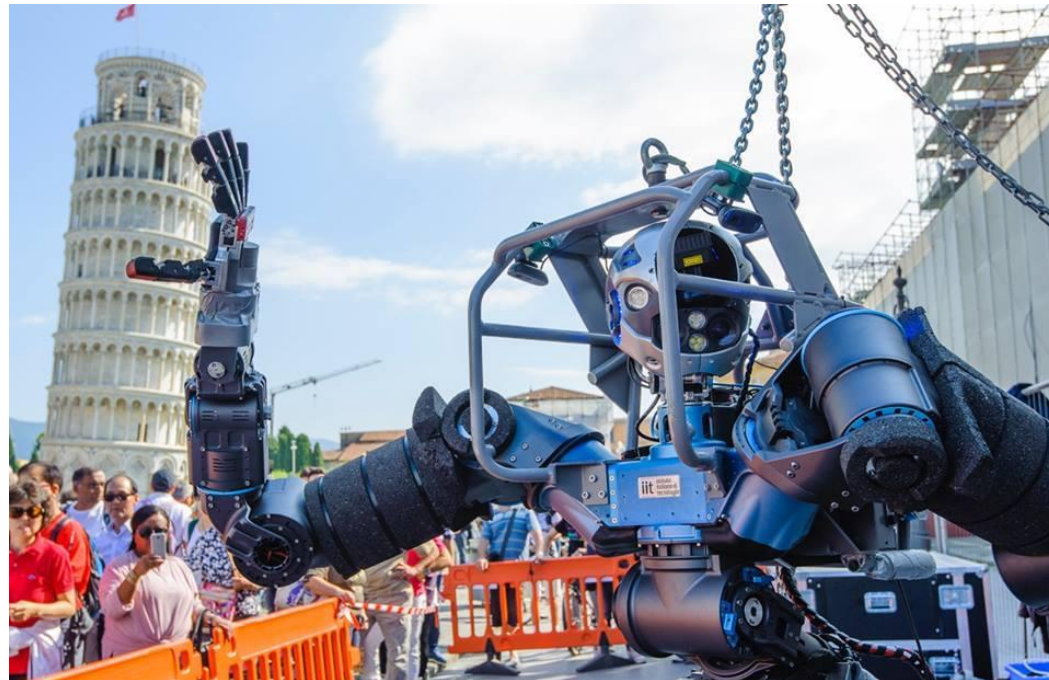
Together, we follow the **necessary steps** to successfully **complete the order**.

This support is essential because university bureaucracy often slows things down and students have no experience with these problems.





Thank you for your attention!



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