



# Manuela Uliano

## ABOUT ME

---

Motivated engineer with experience in **integration of robotic devices in ROS**. Working on **control of collaborative manipulators and anthropomorphic grippers** to automatize industrial manipulation of deformable objects. Experience in the **definition and development of teleoperation systems**. Strong supporter of communication and interpersonal relationships. Reliable in autonomous work but believing that innovative ideas come from teamworking. Always thrilled to learn new things and think critically.

## EDUCATION AND TRAINING

---

### [ 10/2022 – Current ] **PhD in BioRobotics**

*The BioRobotics Institute, SSSA - Human-Robot-Interaction Laboratory*

**City:** Pisa

**Country:** Italy

**Main activities and responsibilities:**

**Research topic:** Enabling Seamless Teleoperation by means of Shared Autonomy (THE project, PNRR)

- Study on the role of the human gaze in teleoperation.
- Human intention predictor development.
- Designing of rules for properly arbitrate the autonomy level.

### [ 03/2018 – 03/2021 ] **MSc Biomedical Engineering**

*Politecnico di Torino*

**Address:** Turin, Italy

**Final grade:** 110/110 cum laude

**Thesis:** Development of a teleoperated hand-arm robotic platform for the evaluation of shared autonomy algorithms.

**Main subject/occupational skills covered:**

- Definition of components and requirements of the single-arm teleoperated platform.
- Integration of robotic devices in ROS and software development of different teleoperation strategies for the hand and the arm.
- Experimental protocol definition and execution for the evaluation of performances of the system in terms of precision, accuracy, delay and drift.

[ 09/2014 – 03/2018 ] **BSc Biomedical Engineering**

*Politecnico di Torino*

**Address:** Turin, Italy

**Final grade:** 103/110

**Thesis:** Development, characterization and testing of a programmable impedance meter.

## **HSD**

*Scientific high school “A. Romita”*

**Address:** 86100, Campobasso, Italy

## **WORK EXPERIENCE**

---

[ 10/2022 – 09/2023 ] **Research collaborator**

*The BioRobotics Institute, SSSA - Human-Robot-Interaction Laboratory*

**City:** Pisa

**Country:** Italy

### **Main activities and responsibilities:**

*Research topic:* Multipurpose robotics for manipulation of deformable materials in manufacturing processes (APRIL 2020 EU project).

[ 04/2021 – 09/2022 ] **Research Fellowship**

*The BioRobotics Institute, SSSA - Human-Robot-Interaction Laboratory*

**City:** Pisa

**Country:** Italy

### **Main activities and responsibilities:**

*Research topic:* Multipurpose robotics for manipulation of deformable materials in manufacturing processes (APRIL 2020 EU project).

- Development of a high-level Grasp Library for the grasp choice of flexible and delicate objects in industrial contexts.
- Development of the Grasp Library dictionary, that allows the translation of the high-level information coming from the Grasp Library into the low-level information for the motion planning purpose.
- Development of a dual-arm teleoperated platform, that includes a self-collision avoidance algorithm (tutoring of a MSc student).

*Collaboration:* Shared research activities with national and international partners, both in industry and academia (DFKI, Prensilia s.r.l.).

[ 11/2017 – 02/2018 ] **Traineeship**

*Politecnico di Torino - Laboratory for Engineering of the Neuromuscular System (LISiN)*

**City:** Turin

**Country:** Italy

### **Main activities and responsibilities:**

Development, characterization and testing of a programmable impedance meter used in conjunction with a generator of lesions at the level of the afferent nerves for the treatment of chronic pain.

## DIGITAL SKILLS

---

### Programming

C/C++ | MATLAB | Python | LabVIEW

### OS & frameworks

Linux | ROS | Microsoft Windows | Microsoft Visual Studio

### Software & Tools

Mimics | SimVascular | Rhinoceros 3D | LaTeX | Inkscape | Microsoft Office | Git Hub | MSC Nastran | VMTK | Patran

## LANGUAGE SKILLS

---

**Mother tongue(s):** Italian

**Other language(s):** English

**LISTENING** B2 **READING** B2 **WRITING** B2

**SPOKEN PRODUCTION** B2 **SPOKEN INTERACTION** B2

## CONFERENCES AND SEMINARS

---

[ 07/03/2022 – 10/03/2022 ] **ACM/IEEE International Conference on Human-Robot Interaction** Online  
(Originally Sapporo, Hokkaido, Japan)

**Uliano, M.**, Mazzeo, A., Penzotti, M., Cini, F., Controzzi, M.; Modelling human behaviour in a Grasp Library for robotic applications: ongoing activities, Workshop on Modeling Human Behavior in Human-Robot Interactions at ACM/IEEE HRI 2022 (oral presentation)

[ 28/11/2022 – 30/11/2022 ] **IEEE-RAS International Conference on Humanoid Robots**  
(Ginowan, Okinawa, Japan)

Angelini, L., **Uliano, M.**, Mazzeo, A., Penzotti, M., & Controzzi, M. (2022, November). Self-collision avoidance in bimanual teleoperation using CollisionIK: algorithm revision and usability experiment. In 2022 IEEE-RAS 21st International Conference on Humanoid Robots (Humanoids) (pp. 112-118). IEEE.

## OTHER SCIENTIFIC CONTRIBUTIONS

---

Fabisch, A., **Uliano, M.**, Marschner, D., Laux, M., Brust, J., & Controzzi, M. (2022, November). A Modular Approach to the Embodiment of Hand Motions from Human Demonstrations. In 2022 IEEE-RAS 21st International Conference on Humanoid Robots (Humanoids) (pp. 801-808). IEEE.