ALESSANDRO RONCONE, Ph.D.

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PERSONAL SUMMARY

The central motivating theme of my research is endowing robots with enough communication, perception and control capabilities in order for them to proficiently interact with humans in practical, near future applications. I develop technologies that equip robots with the skills to partner with humans in their daily activities, with the aim of eventually replacing them in dangerous, repetitive or burdensome tasks. Importantly, my goal is not to advance the state of the art in a specific area. Rather, I explicitly focus on capitalizing the state of the art in perception, control and human-robot interaction and to shape the research landscape toward the development of technologies that enable close, natural, extended cooperation with humans.

My research has spanned multiple fields, bridging the gap between robotics, human robot interaction, and artificial intelligence. Over the years, I have worked on i) exploring the breadths of how tactile systems can improve perception in the nearby space, ii) implementing state of the art control systems for humanoid robots, and iii) investigating how communication can steer and improve human-robot collaborative tasks.

EDUCATION

PH.D. IN ROBOTICS (2012-2015) - ISTITUTO ITALIANO DI TECNOLOGIA, GENOVA, IT
- Thesis title: *"Expanding sensorimotor capabilities of humanoid robots through multisensory integration. A study on the implementation of peripersonal space on the iCub."*

MSc (110/110 SUMMA CUM LAUDE) IN NEUROENGINEERING (2008-2011) - UNIVERSITY OF GENOA, IT
- Thesis title: *"Visuo-Haptic Integration for Object Characterization in an Unstructured Environment."*

BSc (110/110 SUMMA CUM LAUDE) BIOMEDICAL ENGINEERING (2005-2008) - UNIVERSITY OF GENOA, IT
- Thesis title: *"Support Vector Machine Analysis applied to a Manipulator in a Non-Structured Environment."*

Student (WITH SCHOLARSHIP) (2005-2008) - ISICT - Institute for Advanced Studies in ICT

RELEVANT EXPERIENCE

2015-present - POSTDOCTORAL ASSOCIATE - SOCIAL ROBOTICS LAB, COMPUTER SCIENCE DEPARTMENT, YALE UNIVERSITY, NEW HAVEN, CT, USA
I am focusing on the development of bidirectional, natural communication between the robot and the human in the context of human-robot collaborative tasks. I am working toward the implementation of a more natural and intuitive interaction, in order for it to be more efficient and effective, as well as less demanding for the human partner.

2010-2015 - ICUB FACILITY - ISTITUTO ITALIANO DI TECNOLOGIA, GENOVA, IT
I was interested in the exploitation of the peripersonal space model I implemented during my Ph.D., by focusing toward two types of applications: i) *better, richer body representations* ii) *distributed motor control via whole-body awareness.* Furthermore, I extended the *gaze stabilization* framework I developed during my Ph.D. by integrating it with an existing gaze controller. I was also contributing to a human-robot interaction project aimed at developing *natural interaction(s)* between the iCub humanoid robot and humans.

SELECTED PUBLICATIONS

- **A. Roncone**, O. Mangin, B. Scassellati. *Transparent Role Assignment and Task Allocation in Human-Robot Collaboration.* In 2017 IEEE Int. Conf. Robotics and Automation - ICRA '17.

- H. Lehmann, **A. Roncone**, U. Pattacini, G. Metta. P*hysiologically Inspired Blinking Behavior for a Humanoid Robot.* In 2016 Int. Conf. On Social Robotics - ICSR '16.

- **A. Roncone**, U. Pattacini, G. Metta, L. Natale. *A Cartesian 6-DoF Gaze Controller for Humanoid Robots.* In 2016 Robotics: Science and Systems Conference - RSS '16.

- **A. Roncone**, M. Hoffmann, U. Pattacini, L. Fadiga, G. Metta. *Peripersonal space and margin of safety around the body: learning tactile-visual associations in a humanoid robot with artificial skin.* PLOS ONE, 2016.