Alessandro Roncone, Ph.D.

ROBOTICS ENGINEER · COMPUTER SCIENTIST · INTERACTION DESIGNER

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PERSONAL SUMMARY

Energetic and resourceful Robotics Engineer with **7+ years'** research experience and a proven publication track record. Motivated by intellectually challenging projects that push the limits of current technologies, I pride myself on possessing a broad range of skills, matured from my unique career trajectory. I am capable of pursuing individual research aimed at the development of innovative applications, but I particularly love to be part of a team of bright people working toward ambitious ideas. I **make robots work**, and I hold a deep commitment to doing so while implementing **scalable**, **robust**, and **elegant** code.

RELEVANT EXPERIENCE

Post-Doc SOCIAL ROBOTICS LAB, COMPUTER SCIENCE DEPT, YALE UNIVERSITY   NEW HAVEN, CT, USA 2015 – PRESENT
- 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 generally working on the implementation of intuitive interactions, in order for them to be more efficient and effective, as well as less demanding for the human partner [**2017**].

Post-Doc ICUB FACILITY, ITALIAN INSTITUTE OF TECHNOLOGY [IIT]   GENOA, IT 2015
- I continued the work started during my Ph.D. fellowship at the iCub Facility. Specifically, 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* [**2014**, **2015**]; ii) *distributed motor control via whole-body awareness* [**2016**].
- Furthermore, I extended the *gaze stabilization* framework developed during my Ph.D. [**2014**] by integrating it with the existing iCub gaze controller [**2016**]. I was also contributing to an HRI project aimed at developing *natural interactions* between the iCub humanoid robot and humans during verbal communication [**2016**].

Robotics Engineer ICUB FACILITY, ITALIAN INSTITUTE OF TECHNOLOGY [IIT]   GENOA, IT 2010 – 2015
- Multiple positions: *Research Fellow* (2010-2011), *Ph.D. Student* (2012-2014).
- Involved in the **XPERIENCE FP7-ICT-270273** and **WYSIWYD FP7-ICT-61239** projects, funded by the European Union Seventh Framework Program with a funding of € 7.634.000 and € 4.583.016 respectively.

EDUCATION

Ph.D. in Robotics ITALIAN INSTITUTE OF TECHNOLOGY [IIT]   GENOA, IT 2012 – 2015
- Thesis title: *"Expanding sensorimotor capabilities of humanoid robots through multisensory integration. A study on the implementation of peripersonal space on the iCub"* [**2015**].

M.sc. in NeuroEngineering (110/110 *Summa cum Laude*) UNIVERSITY OF GENOA   GENOA, IT 2008 – 2011
- Thesis title: *"Visuo-Haptic Integration for Object Characterization in an Unstructured Environment"*.

B.sc. in Biomedical Engineering (110/110 *Summa cum Laude*) UNIVERSITY OF GENOA   GENOA, IT 2005 – 2008
- Thesis title: *"Support Vector Machine Analysis applied to a Manipulator in a Non-Structured Environment"*.

Student (with scholarship) INSTITUTE FOR ADVANCED STUDIES IN ICT [ISICT]   GENOA, IT 2005 – 2008
- Successfully selected for scholarship, after thorough examination (only three positions available out of hundreds of candidates). Attended a number of supplementary courses (e.g. *Marketing*, *Management*, *Effective Communication*, and more).

SKILLS

TECHNICAL SKILLS

- **5+ YEARS'** research experience in the development of one of the most advanced robotic platforms out there, i.e. the **ICUB**, a state-of-the-art, 53-DoF humanoid robot with a variety of sensors on board (camera, force sensors, tactile sensors). **2+ YEARS'** experience with the **BAXTER RESEARCH ROBOT**. My open-source code is available HERE, HERE and HERE.
- Main focus on machine perception and intelligent systems. Interested in **KINEMATICS, MULTISENSORY INTEGRATION, CALIBRATION, TACTILE SENSING, MACHINE LEARNING, 2D AND 3D COMPUTER VISION, IMU PROCESSING AND HUMAN-ROBOT INTERACTION**. Considerable background in employing **OPTIMIZATION** techniques and **CONTROL THEORY** in real-world robotic applications.
- Mastery of **C++**. Extensive competence in **YARP, ROS, MATLAB/R, IPOPT, OPENCV, BASH, HTML5, CSS, JAVA/ANDROID**.
- Familiar with the implementation and maintenance of **CROSS-PLATFORM SOFTWARE** for Linux, Windows, macOS via **CMAKE**. Comfortable with various versioning systems (**CVS, SVN, GIT**).

COMMUNICATION SKILLS

- *Strong presentation and communication skills* thanks to experience in giving both technical and non-technical talks to both small and big groups, tailoring to the audience. Presented to major international robotics conferences, as well as several outreach events, ranging from exhibitions and fairs, to live TV shows and various interviews.
- Confident in *writing technical reports as well as scientific papers*. Authored and co-authored numerous international peer-reviewed scientific articles and journals. Some experience with research grant writing.
- Experienced in carrying out well *balanced reports and presentations* thanks to significant background in graphic design.

PERSONAL AND SELF-MANAGEMENT SKILLS

- Strongly *self motivated*, i.e. able to be not only motivated by external rewards, but by an inner drive to accomplish and perform (at any level). This competence has been useful also in other fields, e.g. sport.
- Fast and avid *learner*, enthusiastic about technologically challenging projects in the **ROBOTICS** and **AI** fields.
- Able to look at problems and solve them in the most logical way possible. Capable of carrying out well-executed engineering projects with an eye to clean, scalable code and making things—really—work.

INTERPERSONAL AND TEAMWORK SKILLS

- Demonstrated ability to *manage multiple projects* and *supervise multiple people* while meeting challenging deadlines.
- Mentored and trained technicians, Ph.D. students, and post-docs, adapting to various scientific levels and backgrounds.
- Able to *delegate*, and to *value input from others* even if it comes from people who are reporting to me. Able to understand what motivates the people I am working with, and to leverage on their strengths and weaknesses in order to optimally distribute the amount of work a complex project is composed of.

ADDITIONAL SKILLS

- Long-time **LINUX** user with deep knowledge of the Linux/UNIX OS, and active contributor of the Linux FOSS community.
- Experienced **GRAPHIC ARTIST** and freelancer. Design is problem solving, no different from engineering: design skills are advantageous for many engineering-related situations. Developer of two well known iconsets (**AWOKEN** and **FLATWO-KEN**), and a number of **WEBSITES**. Commissioned with various design projects from a number of companies.
- Semi-professional *runner*: strengthened self-reliance and self-motivation, as well as ability to push until a project is done. Captain of a local water polo team during high school: developed teamwork and communication skills.
- Languages: **ITALIAN** (native proficiency), **ENGLISH** (full professional proficiency), **FRENCH** (elementary proficiency).

SELECTED PUBLICATIONS

[**2017**] A. Roncone, O. Mangin, and B. Scassellati. TRANSPARENT ROLE ASSIGNMENT AND TASK ALLOCATION IN HUMAN–ROBOT COLLABORATION. In: *2017 IEEE Int. Conf. on Robotics and Automation [ICRA]*.

[**2016**] H. Lehmann, A. Roncone, U. Pattacini, and G. Metta. PHYSIOLOGICALLY INSPIRED BLINKING BEHAVIOR FOR A HUMANOID ROBOT. In: *8th Int. Conf. on Social Robotics [ICSR]*, pp. 83–93.

[**2016**] A. Roncone, U. Pattacini, G. Metta, and L. Natale. A CARTESIAN 6-DOF GAZE CONTROLLER FOR HUMANOID ROBOTS. In: *Proceedings of Robotics: Science and Systems [RSS]*.

[**2016**] A. Roncone, M. Hoffmann, U. Pattacini, L. Fadiga, and G. Metta. PERIPERSONAL SPACE AND MARGIN OF SAFETY AROUND THE BODY: LEARNING VISUO-TACTILE ASSOCIATIONS IN A HUMANOID ROBOT WITH ARTIFICIAL SKIN. In: *PLOS ONE*.

[**2015**] A. Roncone. EXPANDING SENSORIMOTOR CAPABILITIES OF HUMANOID ROBOTS THROUGH MULTISENSORY INTEGRATION – A STUDY ON THE IMPLEMENTATION OF PERIPERSONAL SPACE ON THE ICUB. PhD Dissertation. University of Genoa and Italian Institute of Technology.

[**2015**] A. Roncone, M. Hoffmann, U. Pattacini, and G. Metta. LEARNING PERIPERSONAL SPACE REPRESENTATION THROUGH ARTIFICIAL SKIN FOR AVOIDANCE AND REACHING WITH WHOLE BODY SURFACE. In: *2015 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems [IROS]*, pp. 3366–3373.

[**2014**] S. R. Fanello, U. Pattacini, I. Gori, V. Tikhanoff, M. Randazzo, A. Roncone, F. Odone, and G. Metta. 3D STEREO ESTIMATION AND FULLY AUTOMATED LEARNING OF EYE-HAND COORDINATION IN HUMANOID ROBOTS. In: *2014 IEEE-RAS Int. Conf. on Humanoid Robots*, pp. 1028–1035.

[**2014**] A. Roncone, M. Hoffmann, U. Pattacini, and G. Metta. AUTOMATIC KINEMATIC CHAIN CALIBRATION USING ARTIFICIAL SKIN: SELF-TOUCH IN THE ICUB HUMANOID ROBOT. In: *2014 IEEE Int. Conf. on Robotics and Automation [ICRA]*.

[**2014**] A. Roncone, U. Pattacini, G. Metta, and L. Natale. GAZE STABILIZATION FOR HUMANOID ROBOTS: A COMPREHENSIVE FRAMEWORK. In: *2014 IEEE-RAS Int. Conf. on Humanoid Robots*, pp. 259–264.