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Silvio Traversaro

Robotics and Software Engineer

Background

I am a **robotics and software engineer**, with experience in **estimation**, **control** and **motion planning** of robots, in particular **force-controlled humanoids**. My aspiration is to tackle the **scientific** and **technological challenges** that prevent robots to physically interact naturally with the surrounding environment and with humans. In the past five years I was deeply involved with the development and maintenance of the **iCub** humanoid robot, gaining a multidisciplinary experience by interacting with fields such as **mechanical engineering**, **embedded programming** and **machine learning**.

Education

2014-2017 **Ph.D. in Bioengineering and Robotics**, *from University of Genoa, Italy*, working at Istituto Italiano di Tecnologia, Italy, under the supervision of Francesco Nori .

2011-2013 **Master in Robotics Engineering**, *with a grade of 110/110 cum laude* , from University of Genoa, Genoa.

2007-2011 **Bachelor of Science, Computer Science Engineering**, *with a grade of 110/110 cum laude* , from University of Genoa, Genoa.

Assignments

Since May 2017 **PostDoc Researcher**, *Italian Institute of Technology*, Genoa, Italy.
Research and software on dynamics modelling, estimation algorithms and torque-control technology for humanoid robots. *An example of my PostDoc work on Aerial Humanoid Robotics: goo.gl/Wi41rh*

January 2014 to April 2017 **Ph.D. student**, *Italian Institute of Technology*, Genoa, Italy.
I did my Ph.D. under the supervision of Dr. Francesco Nori, performing research on multibody dynamics based techniques applied to control, identification and estimation for floating-base robots. During my Ph.D. I was also heavily involved in the software integration in the CoDyCo European Project. *An example of my PhD work on the iCub robot: www.youtube.com/watch?v=9XRI4BeXN78*

September to December 2015 **Guest Ph.D. Student**, *Eindhoven University of Technology*, Eindhoven, Netherlands.
I worked with Prof. Alessandro Saccon on the geometric linearization of mechanical systems evolving on Lie Groups.

September to December 2013 **Guest Student**, *Tokyo University of Agriculture and Technology*, Tokyo, Japan.
I worked with Prof. Gentiane Venture on system identification for humanoid robots.

March to July 2011 **Master Student**, *Graal Lab*, Genoa, Italy.
I worked with Prof. Giuseppe Casalino on embedded software and control of a custom underwater autonomous vehicle.

Technical skills

- Five years of experience in programming using procedural and object-oriented programming languages (C, C++, Python, Lua, Matlab/Octave) in robotics context.
- Contributor to open source robotics software like the **YARP** middleware and the **Gazebo** simulator.
- Experience in real world robot **development**, **system identification**, **testing** and **deployment**.
- Experience in robotic software integration, both in simulation and on real hardware, using the **ROS** and **YARP** middlewares.
- Autonomous abilities in analysis and solution of **robotics**, **control** and **multibody dynamics** problems.

Social skills

- Experience in working in a team. I a co-founder of the **Dynamic Interaction Control research lab** at the Italian Institute of Technology.
- Experience in working in multicultural environments. I am involved in several international research experiences and collaborations.
- Experience in working in a multidisciplinary environment. I am actively involved in the development of the **iCub** robot platform, interacting with mechanical designers, electronics engineers and machine learning researchers.

Languages

English	Full Professional Proficiency	*Day-to-day practice.*
Italian	Native Proficiency	

Selected Publications

S. Traversaro. "Modelling, Estimation and Identification of Humanoid Robots Dynamics". goo.gl/DaTnBK. PhD thesis. University of Genoa, Apr. 2017.

R. Camoriano, **S. Traversaro**, L. Rosasco, G. Metta, and F. Nori. "Incremental semiparametric inverse dynamics learning". In: *2016 IEEE International Conference on Robotics and Automation (ICRA)*. IEEE. 2016, pp. 544–550. DOI: 10.1109/ICRA.2016.7487177.

S. Traversaro, S. Brossette, A. Escande, and F. Nori. "Identification of Fully Physical Consistent Inertial Parameters using Optimization on Manifolds". In: *2016 IEEE International Conference on Intelligent Robotics (IROS)*. IEEE. 2016. DOI: 10.1109/IROS.2016.7759801.

A. Paikan, **S. Traversaro**, F. Nori, and L. Natale. "A Generic Testing Framework for Test Driven Development of Robotic Systems". In: *MESAS 2015 : Modeling and Simulation for Autonomous Systems Workshop*. 2015. DOI: 10.1007/978-3-319-22383-4_17.

F. Nori, **S. Traversaro**, J. Eljaik, F. Romano, A. Del Prete, and D. Pucci. "iCub Whole-body Control through Force Regulation on Rigid Noncoplanar Contacts". In: *Frontiers in Robotics and AI*. 2015. DOI: 10.3389/frobt.2015.00006.