

PERSONAL INFORMATION

Valerio Modugno

CURRENT POSITION

From Sep 2017

Postdoctoral Research Fellow

Sapienza University of Rome

Fields of Research : Robotics, Control Theory, Machine Learning

EDUCATION

Nov 2013 – Sep 2017

Ph.D in ABRO (Automatica, Bioingegneria e Ricerca Operativa)

Sapienza University of Rome

Thesis : Learning Safe controller for Motion Generation in Redundant Robot

Principal Subjects : Robotics, Control Theory, Machine Learning, Stochastic Black Box Optimization, Whole Body Control for Humanoids

Apr 2015 – Dec 2016

Visiting Researcher at Larsen, INRIA Grand-Est Nancy

Local Supervisor: Researcher Serena Ivaldi

Sep 2014 – Mar 2015

Visiting Researcher at Intelligent Autonomous System group, TU Darmstadt

Local Supervisor: Researcher Serena Ivaldi

Mar 2009 – Oct 2013

Master Degree in Control Engineering

110/110 cum
laude

Sapienza University of Rome

Thesis : A Stochastic Learning Approach for Vision Based Grasping

Principal Subjects : non Linear System, Control Theory for Linear and non Linear System , Optimal Control, Adaptive and Robust Control, Robotics , Computer Vision, Machine Learning.

Projects : implementation of a visual egomotion system for monocular camera
implementation of a visual based tracking system of mobile robots
implementation of a system for Structure from Motion
implementation of automatic trading system through Granular Computing technique

Set 2011 – Mar 2012

LED (Luiss Entrepreneurship for Development)

Luiss Business School

Principal Subjects : General management, Business Planning, Business Modelling, Business Financing

Set 2005 – Mar 2009

Bachelor Degree in Control Engineering

110/110 cum
laude

Sapienza University of Rome

Thesis : Motion Planning for Redundant Robot with Assigned End-Effector Path

Principal Subjects : Linear System, Base Control Theory, Operating System, Robotics,

ACADEMIA INFORMATION

Publications

IROS 2020

- *Model Predictive Control for a Tendon-Driven Surgical Robot with Safety Constraints in Kinematics and Dynamics*, F. Cursi, V. Modugno, P. Kormushev

IFAC 2020

- *Enforcing Constraints over Learned Policies via Nonlinear MPC: Application to the Pendubot*, G. Turrisi, B. Barros Carlos, M. Cefalo, V. Modugno, L. Lanari, G. Oriolo

RAL 2020

- *Learning Robust Task Priorities and Gains for Control of Redundant Robots*, L. Penco, E. Mingo Hoffman, V. Modugno, W. Gomes, J.B. Mouret, S. Ivaldi

ICRA 2020

- *ZMP constraint restriction for robust gait generation in humanoids*, F.M. Smaldone, N. Scianca, V. Modugno, L. Lanari, G Oriolo

RAM 2019

- *A Multimode Teleoperation Framework for Humanoid Loco-Manipulation: A Demonstration Using the iCub Robot*, L. Penco, N. Scianca, V. Modugno, L. Lanari, G. Oriolo, S. Ivaldi

CORL 2019

- *An Online Learning Procedure for Feedback Linearization Control without Torque Measurements*, M. Capotondi, G. Turrisi, C. Gaz, V. Modugno, G. Oriolo, A. De Luca

HUMANOIDS 2019

- *Humanoid Whole-Body Movement Optimization from Retargeted Human Motions*, W. Gomes, V. Radhakrishnan, L. Penco, V. Modugno, J.B. Mouret, S. Ivaldi
- *Gait Generation using Intrinsically Stable MPC in the Presence of Persistent Disturbances*, F. M. Smaldone, N. Scianca, V. Modugno, L. Lanari, G. Oriolo

HUMANOIDS 2018

- *Robust Real-time Whole-Body Motion Retargeting from Human to Humanoid*, L. Penco, B. Clement, V. Modugno, E. Mingo Hoffman, G. Nava, D. Pucci, Nikos G. Tsagarakis, J.-B. Mouret, S. Ivaldi
- *Learning robust task priorities of QP-based whole-body torque-controllers*, Marie Charbonneau, Valerio Modugno, Francesco Nori, Giuseppe Oriolo, Daniele Pucci, Serena Ivaldi

HUMANOIDS 2017

- *Safe trajectory optimization for whole-body motion of humanoids*, V. Modugno, G. Nava, D. Pucci, F. Nori, G. Oriolo, S. Ivaldi
- *Gait generation via intrinsically stable MPC for a multi-mass humanoid model*, N. Scianca, V. Modugno, L. Lanari, G. Oriolo

HUMANOIDS 2016

- *Learning Soft Task Priorities for Safe Control of Humanoid Robots with Constrained Stochastic Optimization*, V. Modugno, U. Chervet, G. Oriolo, S. Ivaldi

ICRA 2016

- *Learning soft task priorities for control of redundant robots*, V. Modugno, G. Neumann, E. Rueckert, G. Oriolo, J. Peters, S. Ivaldi

IJCI 2014

- *Combining Piecewise Linear Regression and a Granular Computing Framework for Financial Time Series Classification*, V. Modugno, F. Possemato, A. Rizzi
- *Information Granules Filtering for Inexact Sequential Pattern Mining by Evolutionary Computation*, E. Maiorino, F. Possemato, V. Modugno, A. Rizzi

Book chapter**Social Robotics 2016**

- *One-Shot Evaluation of the Control Interface of a Robotic Arm by Non-experts In book Social Robotics*, S. Marichal , A. Malaisé , V. Modugno , O. Dermý , F. Charpillat , S. Ivaldi

Computational Intelligence 2016

- *Noise Sensitivity of an Information Granules Filtering Procedure by Genetic Optimization for Inexact Sequential Pattern Mining*, E. Maiorino, F. Possemato, V. Modugno, A. Rizzi

Summer School

Regularization Method for Machine Learning by IIT, Genova 30 Jun - 4 Jul 2014

Online Learning Summer School by Copenhagen University, Copenhagen 28 Jun 2015 - 2 Jul 2015

WORK EXPERIENCE

Jul 2011 – Mar 2012

Cofounder of no Profit Organization “Giovani Roma 2020”

Mar 2009 – Aug 2009

Website developer for UTRI (now Finmeccanica Group)

PERSONAL SKILLS**Mother tongue**

Italian

Other language

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1

Computer skills / Technical skill

Deep knowledge of Kinova Jaco arm
 Good knowledge of Kuka IIWA arm
 Programming Language: C, C++, python, java, Matlab scripting, R scripting, PHP
 Simulator: OpenRAVE, Gazebo
 Library: OpenCV, GSL, CVD, R library, OpenGL, Intel SSD, Intel TBB, PCL.
 good knowledge of markup languages and stylesheet
 good knowledge of Office Framework and Latex
 good knowledge of CMS (Drupal, Joomla)
 good knowledge of Net Protocols
 good knowledge of Microcontroller Programming
 Operating System: Linux (different distribution), Windows and iOS

Communication skills

Good communication and group interaction skills. Good teaching skill.

Organisational / managerial skills

Good flexibility and adaptability. Good ability to manage project, acquired by supervising master student projects.

Driving licence

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