Raffaello Camoriano, Ph. D.

Address   *Politecnico di Torino*
Visual and Multimodal Applied Learning Laboratory
C.so Francesco Ferrucci, 112 - 10141 Turin, Italy

Contacts   *raffaello.camoriano@gmail.com   +39 333 2131715*

Scholar   *scholar.google.com/citations?user=vBBJ2wkAAAAJ*

RESEARCH EXPERIENCE

July 2022 (current)
Senior Postdoctoral Researcher
Visual and Multimodal Applied Learning Laboratory (VANDAL), Politecnico di Torino, Italy

August 2022 (current)
ELLIS Member, European Lab for Learning and Intelligent Systems

January 2019 – June 2022
Senior Postdoctoral Researcher
Laboratory for Computational and Statistical Learning (IIT@MIT), Istituto Italiano di Tecnologia (IIT)

July 2019 – June 2022
External Guest Researcher
MaLGa - Machine Learning Genoa Center, Università degli Studi di Genova

May 2017 – December 2018
Postdoctoral Researcher
Laboratory for Computational and Statistical Learning (IIT@MIT), Istituto Italiano di Tecnologia (IIT)

January 2014 – April 2017
Fellow Ph. D. Student - Research Collaborator
iCub Facility & Laboratory for Computational and Statistical Learning (IIT@MIT),
Istituto Italiano di Tecnologia (IIT)

PUBLICATIONS
* = Co-first authors

From Handheld to Unconstrained Object Detection: A Weakly-Supervised On-Line Learning Approach
IEEE RO-MAN 2022 (Accepted)
Maiettini E.*, Maracani A.*, C. R., Pasquale G., Tikhanoff V., Rosasco L., Natale L.

ADHERENT: Learning Human-like Trajectory Generators for Whole-body Control of Humanoid Robots
IEEE Robotics and Automation Letters (RA-L) 2022 & NeurIPS WS on Robot Learning 2021
Viceconte P., C. R., Romualdi G., Ferigo D., Dafarra S., Traversaro S., Oriolo G., Rosasco L. Pucci D.

Structured Prediction for CRiSP Inverse Kinematics Learning with Misspecified Robot Models
IEEE Robotics and Automation Letters (RA-L) & IEEE ICRA 2021
Marconi G. M.*, C. R.*, Rosasco L., Ciliberto C.

On the Emergence of Whole-body Strategies from Humanoid Robot Push-recovery Learning
IEEE Robotics and Automation Letters (RA-L) & IEEE Humanoids 2020
Ferigo D.*, C. R.*, Viceconte P. M., Calandriello D., Traversaro S., Rosasco L., Pucci D.

Learning to Avoid Obstacles with Minimal Intervention Control
***Frontiers in Robotics and AI**, Vol. 7, 2020*
Duan A., C. R., Ferigo D., Huang Y., Calandriello D., Rosasco L., Pucci D.

Learning to Sequence Multiple Tasks with Competing Constraints
*IEEE/RSJ International Conference on Intelligent Robots and Systems - **IEEE IROS 2019***
Duan A., C. R., Ferigo D., Huang Y., Calandriello D., Rosasco L., Pucci D.

Derivative-Free Online Learning of Inverse Dynamics Models
*IEEE Transactions on Control Systems Technology - **IEEE TCST**, Feb. 2019*
Romeres D., Zorzi M., C. R., Traversaro S., Chiuso A.

Dirichlet-based Gaussian Processes for Large-scale Calibrated Classification
*Advances in Neural Information Processing Systems - **NeurIPS 2018***
Milios D., C. R., Michiardi P., Rosasco L., Filippone M.

Constrained DMPs for Feasible Skill Learning on Humanoid Robots
IEEE International Conference on Humanoid Robots - **IEEE Humanoids 2018**
Duan A., C. R., Ferigo D., Calandriello D., Rosasco L., Pucci D.

Incremental Robot Learning of New Objects with Fixed Update Time
*IEEE International Conference on Robotics and Automation - **IEEE ICRA 2017***
C. R.*, Pasquale G.*, Ciliberto C., Natale L., Rosasco L., Metta G.

Generalization Properties of Learning with Random Features
NIPS Workshop on Adaptive and Scalable Nonparametric Methods in ML (oral) 2016
Rudi A., C. R., Rosasco L.

Online semi-parametric learning for inverse dynamics modeling
*IEEE Conference on Decision and Control - **IEEE CDC 2016***
Romeres D., Zorzi M., C. R., Chiuso A.

Generalization Properties and Implicit Regularization for Multiple Passes SGM
*International Conference on Machine Learning - **ICML 2016***
Lin, J., C. R., Rosasco L.

Incremental Semiparametric Inverse Dynamics Learning
*IEEE International Conference on Robotics and Automation - **IEEE ICRA 2016***
C. R., Traversaro S., Rosasco L., Metta G., Nori F.

NYTRO: When Subsampling Meets Early Stopping
*International Conference on Artificial Intelligence and Statistics - **AISTATS 2016***
Angles T.*, C. R.*, Rudi A., Rosasco L.

Less is More: Nyström Computational Regularization
*Advances in Neural Information Processing Systems - **NIPS 2015 (oral)***
Rudi A., C. R., Rosasco L.

Development and Analysis of a New Specialized Gripper Mechanism for Garment Handling
ASME IDETC/CIE 2013
Le L., Zoppi M., Jilich M., C. R., Zlatanov D., Molfino R.

AWARDS & FELLOWSHIPS

- Runner-up Best Poster Award, NAVER Labs Robot Learning Workshop, 2021
- Nomination for Best Paper Award Finalist, IEEE Humanoids 2020
- DAAD PostDoc-Net-AI Fellowship 2020 (~10% acceptance rate), Germany
- ICML Top 33% Reviewer Award 2020
- NeurIPS 2018 Travel Award
- Best 2017 Ph. D. Thesis Award, IEEE Computational Intelligence Society, Italy
- 1st place, Microsoft Big Data Hackathon, EXPO 2015, Milan, Italy
- Google Travel Award @ NeurIPS 2015
- Distinguished Student Prize 2014, Government of Liguria, Italy
- Selected for the 14th Silicon Valley Study Tour Studentship (2012)
- Excellence Graduation Prize, Università degli Studi di Genova (2012)
- ISICT-ISSUGE 5-years Studentship, ~21000 EUR (2008 – 2013)

GRANTS & SPONSORSHIPS	• Raised corporate sponsorhips for MLCC 2019: 7 companies, ~13000 EUR
	• NVIDIA GPU Grant 2018 (proposal co-author): 2X Titan XP GPUs, ~4000 USD

EDUCATION

Jan 2014 – April 2017
Doctoral Degree in Bioengineering and Robotics - Curriculum in Humanoid Robotics
University of Genoa, Italy; joint with iCub Facility, **Istituto Italiano di Tecnologia** (IIT);
Laboratory for Computational and Statistical Learning (LCSL - IIT@MIT),
Thesis: Large-scale Kernel Methods and Applications to Lifelong Robot Learning
Supervisors: Giorgio Metta, IIT; Lorenzo Rosasco, IIT-MIT-UNIGE

Aug 2014
Brains, Minds and Machines Summer School 2014
MIT and Harvard University, CBMM, MBL, Woods Hole, MA, USA

Jul 2014
The iCub Summer School 2014
Istituto Italiano di Tecnologia, Genoa, Italy

Sep 2011 – Oct 2013
Master's Degree in Robotics Engineering
School of Engineering, **University of Genoa**, Italy.
Final grade: 110/110; GPA: 4.0/4.0; Research-oriented curriculum with internships in 3 labs
Thesis: Modeling and Control of a Compliant Hand for Garment Manipulation,
CloPeMa European FP7 Project.
Supervisors: Matteo Zoppi, UNIGE; Giorgio Cannata, UNIGE; Dimiter Zlatanov, UNIGE

Sep 2008 – Oct 2013
ISICT-ISSUGE Bachelor's and Master's Excellence Courses
Inst. of Advanced Studies in ICT & Upper Inst. of Studies of the University of Genoa

Sep 2012
Screw-Theory Based Methods in Robotics Summer School
Department of Mechanics and Machinery Construction, University of Genoa, Italy

Aug 2012
14th Silicon Valley Study Tour
SVIEC, NIAF, Italian Ministry of Foreign Affairs, La Storia Nel Futuro®, Aizoon®

Sep 2008 – Sep 2011
Bachelor's Degree in Computer Engineering
DIST, School of Engineering, **University of Genoa**, Italy
Final grade: 110/110 cum Laude; GPA: 3.8/4.0

TEACHING

Introduction to Data Science (Graduate-level Course) 2019
Microsoft AI Academy @ Digital Tree, Genoa, Italy
Course Instructor

Introduction to Convex Optimization (Ph. D. course) 2019
DIBRIS, University of Genoa, Italy
Teaching Assistant

Machine Learning Crash Course (Summer School) 2019, 2017, 2015
Italian Institute of Technology and DIBRIS, University of Genoa, Italy
Co-organizer, Sponsorship Manager, and Teaching Assistant

VVV17 - International Winter School on Humanoid Robot Programming 2017
Italian Institute of Technology, Italy
Teaching Assistant

Machine Learning (M. Sc. Course) 2016/2017
DIBRIS, University of Genoa, Italy
Teaching Assistant

Intelligent Systems and Machine Learning (M. Sc. Course) 2016, 2015
DIBRIS, University of Genoa, Italy
Teaching Assistant

Regularization Methods for Machine Learning (Summer School) 2021, 2016
Italian Institute of Technology and University of Genoa, Italy
Co-organizer and Teaching Assistant

Brains, Minds and Machines Summer School 2015
CBMM – Center for Brains, Minds and Machines, MIT and Harvard University, Woods Hole, USA
Teaching Assistant

SERVICE   ***Associate Editor:*** IEEE Robotics and Automation Letters (RA-L), IEEE IROS 2022

Reviewer: JMLR, NeurIPS, ICML, ICLR, CoRL, IEEE RA-L, IEEE TNNLS, IEEE ICRA, IEEE IROS, IEEE Humanoids, IEEE CDC, Springer "Modelling Human Motion" book, Frontiers in AI

On-site Volunteer: DALI 2016, ICML 2016

Ph. D. Evaluation Committee Member
Carlo Rizzardo, *Ph. D. Student,* Università di Genova & Istituto Italiano di Tecnologia, 2021

SUPERVISION   ***Assistant Supervisor***
- Gabriele Tiboni, *Ph. D. Student (2022 – current)*
- Paolo Maria Viceconte, *Ph. D. Student (2020 – current)*
- Anqing Duan, *Ph. D. Candidate (2018 – 2021)*
- Elena Rampone, *Graduate Research Fellow (2020)*
- Diego Ferigo, *Ph. D. Student (2019 – 2020)*
- Tomàs Miguel Angles Larico, *M. Sc. Research Intern (2016)*
- Prabhu Kumar, *M. Sc. Thesis Student (2014)*

INVITED TALKS   Scaling Up Robot Learning from Structured Data and Interaction
CAIRO Invited Speakers Series, FHW-S, Würzburg, Germamy, October 2022

Efficient Robot Learning from Structured Data and Interaction
German Aerospace Center (DLR), Oberpfaffenhofen, Germany, December 2021

Efficient Robot Learning from Structured Data and Interaction
Rheinische Friedrich-Wilhelms-Universität Bonn, Germany, December 2021

Efficient Robot Learning from Structured Data and Interaction
Institute for Data Science in Mechanical Engineering (DSME), Rheinisch-Westfalische Technische Hochschule (RTWH) Aachen, Germany, December 2021

Efficient Robot Learning from Structured Data and Interaction
Johann Wolfgang Goethe Universität Frankfurt am Main, Germany, December 2021

Efficient Robot Learning from Structured Data and Interaction
Max Planck Institute for Intelligent Systems, Tübingen, Germany, December 2021

Efficient Robot Learning from Structured Data and Interaction
Karlsruhe Institute of Technology, Karlsruhe, Germany, December 2021

Efficient Robot Learning from Structured Data and Interaction
LAAS-CNRS, Centre National de la Recherche Scientifique, Toulouse, Germany, November 2021

Efficient Robot Learning from Structured Data and Interaction
Inria Nancy-Grand Est Research Centre, Nancy, France, October 2021

Efficient Large-scale Learning from Interaction in Time
Politecnico di Torino - VANDAL Research Group, Turin, Italy, July 2021

Large-scale Incremental Machine Learning for Robotics
Massachusetts Institute of Technology & Harvard University, Center for Brains, Minds and Machines (CBMM), MA, USA, August 2015

LANGUAGE SKILLS		LISTENING	READING	SPEAKING	WRITING
	ITALIAN	*NATIVE*	*NATIVE*	*NATIVE*	*NATIVE*
	ENGLISH	*PROFICIENT*	*PROFICIENT*	*PROFICIENT*	*PROFICIENT*
	FRENCH	*BASIC*	*INDEPENDENT*	*BASIC*	*BASIC*

*Certifications: **University of Cambridge CPE** (2011), CAE (2007), FCE (2006)*

TECHNICAL SKILLS		LANGUAGES	SOFTWARE TOOLS	ROBOTS
	8+ YEARS	*Python, MATLAB, LaTeX, HTML/CSS*	*YARP, Gazebo, PyBullet, GIT, RAY, Docker*	*iCub humanoid robot, Comau SMART 5 NS 16, Franka Emika Panda, Cristoforo Robosub AUV*
	4+ YEARS	*C, C++, R, SQL, PHP, JS, Assembly*	*ROS, PyTorch, Cuda, MPI, SVN, Pro/Engineer*	

REFEREES

Prof.ssa Barbara Caputo   *barbara.caputo@polito.it*
Full Professor, Rector's Advisor for Artificial Intelligence, DAUIN, Politecnico di Torino
Head of VANDAL Laboratory & AI-Hub, Politecnico di Torino
Co-founder, ELLIS Society

Prof. Giorgio Metta   *giorgio.metta@iit.it*
Scientific Director, Istituto Italiano di Tecnologia
Visiting Professor, University of Plymouth
Faculty Member, ELLIS Society

Prof. Lorenzo Rosasco   *lrosasco@mit.edu*
Full Professor, Università di Genova
Visiting Researcher, Istituto Italiano di Tecnologia & Massachusetts Institute of Technology
Faculty Member, ELLIS Society

Prof. Daniele Pucci   *daniele.pucci@iit.it*
Tenure Track Researcher, Istituto Italiano di Tecnologia
Visiting Lecturer, The University of Manchester