Francesco Riccio

Ph.D. in Engineering in Computer Science in
Artificial Intelligence and Robotics

▬▬▬ Work Experiences

2019–ongoing	**AI Researcher and Developer at RADiCAL**, *RADiCAL Motion* , New York, USA.
2018–ongoing	**Postdoc Researcher**, *Sapienza, University of Rome*, Rome.

▬▬▬ Education and Qualifications

2014–2018	**Ph.D. student in Engineering in Computer Science**, *Sapienza, University of Rome*, Rome.
Aug, 2015	**LAMoR15 - Long-term Autonomy for Mobile Robots**, *Summer School*, Lincoln, UK.
Dec, 2014	**Second Lucia Winter School 2014**, *Örebro, Sweden*.
2012–2014	**Master Degree in Artificial Intelligence and Robotics (110 summa cum Laude)**, student excellence path achievement, Sapienza, University of Rome, Rome.
2009–2012	**Bachelor Degree in Computer Engineering (102/110)**, *University of Siena*, Siena.
2004–2009	**High School Diploma (80/100)**, *Liceo Scientifico "P.S. Mancini"*, Avellino.

▬▬▬ Skills and Experiences

Computing and Robotics

- Solid experience with programming languages such as Python, C++, Bash

- Experience with programming languages such as Matlab, Perl, Java

- Experience with deep learning frameworks such as TensorFlow, Keras, mxnet and Caffe2

- Experience with logic programming languages such as Prolog and ASP

- Experience with LaTeX and Microsoft Office

- Good Knowledge of OpenGL and Assembly

- Daily use of version control software such as Git

- Daily use of Unix/Linux and Robotics Operating Systems

- Strong experience of robotic systems such as NAOqi, ROS and a Soccer-dedicated framework for RoboCup competitions. Daily use of real robots such as the humanoid NAO, Turtlebot and the Erratic robot.

Communications & Teamwork

- Presented research results and projects at international events

- Teaching experience as assistant and tutor for courses in Artificial Intelligence & Robotics

- Team leader of the SPQR Team during RoboCup competitions (2014-2015)

- Member of the Ro.Co.Co research Lab at Sapienza University of Rome (2013 – today)

Languages

Italian	**Mother tongue**	
English	**B1**	*Certified by the Univ. of Siena*
German	**C1**	*Deutsche Sprachdiplome und Sprachzertifikate achieved in 2009*

Grants, Awards and Fellowship

2016	**RoboCup Best Paper Award**, *International Conference on Robot Systems (IROS) 2016*, Daejeon, South Korea.
2016	**Research Starting Grant**, *Sapienza, University of Rome*, Italy.
2014	**Three Years Ph.D. Fellowship**, *Sapienza, University of Rome*, Italy.
2011-2014	**Excellence Program**, *Sapienza, University of Rome*, Italy.

International Experiences

2016-2017	**Visiting period at the Department of Computer Science and Engineering, at University of Washington**, *Seattle, WA (USA)*, October 21st, 2016 - April 24th, 2017, Host by Andrzej Pronobis.
2016	**Oberseminar 2016**, *Sassari, Italy*, May 25th-29th, organized by Sapienza University of Rome.
2015	**RoCKIn 2015**, *Lisbon, Portugal*, November 21st-23rd, participation as organizer.
2015	**RoboCup 2015**, *Standard Platform League*, Hefei, China, July 17th-23rd. Team Leader
2015	**Oberseminar 2015**, *Istanbul, Turkey*, April 16th-17th, at Sabanci University.
2014	**RoboCup 2014**, *Standard Platform League*, João Pessoa, Brazil, July 21st-25th. Team Leader
2013	**RoboCup 2013**, *Standard Platform League*, Eindhoven, The Netherlands, July 27th - June 1st.
2013	**RoboCup German Open 2013**, *Standard Platform League*, Magdeburg, Germany, April 26th-28th.

Research Interests

During my years as research scientist, I had the opportunity to develop my expertise in different research areas related to robotics and machine learning. During a first period, I focused on the field of multi-robot Systems in cooperative-adversarial scenarios, where my objective was to develop a reliable coordination protocol to enable a team of robots to cooperate in limited and noisy conditions. Lately, I growth a strong interest in robot reinforcement learning and deep learning. Research on reinforcement learning has demonstrated promising results in manifold applications and domains. Still, learning effective robot behaviors is very difficult, due to unstructured scenarios, high uncertainties, and large state dimensionality. Hence, my aim as research scientist, is to enable practical solutions for robot learning, and to make an intelligent agent that is able to interpret the environment, and act in it by understanding the effect of its own actions.

Scientific Publications

[1] **LoOP: Iterative Learning for Optimistic Planning on Robots**, *F. Riccio, R. Capobianco, D. Nardi*, journal paper submitted 2019.

[2] **Who is Willing to Help Robots? A User Study on Collaboration Attitude**, *A. Vanzo, F. Riccio, M. Sharf, V. Mirabella, T. Catarci, D. Nardi*, International Journal of Social Robotics, 2019.

[3] **Cooperative Multi-Agent Deep Reinforcement Learning in Soccer Domains**, *J. M. Catacora Ocana, F. Riccio, R. Capobianco and D. Nardi*, in proceedings of the 2019 International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2019.

[4] **Cooperative Multi-Agent Deep Reinforcement Learning in a 2 Versus 2 Free-Kick Task**, *J. M. Catacora Ocana, F. Riccio, R. Capobianco and D. Nardi*, in proceedings of the 24th International RoboCup Symposium, 2019.

[5] **Hi-Val: Iterative Learning of Hierarchical Value Functions for Policy Generation**, *R. Capobianco, F. Riccio, and D. Nardi*, in proceedings of the 2018 fifteenth International Conference on Intelligent Autonomous Systems (IAS-15), 2018.

[6] **Q-CP: Learning Action Values for Cooperative Planning**, *F. Riccio, R. Capobianco, D. Nardi*, In proceedings of 2018 IEEE International Conference on Robotics and Automation (ICRA) 2018.

[7] **DOP: Deep Optimistic Planning with Approximate Value Function Evaluation**, *F. Riccio,R. Capobianco, D. Nardi*, In Proceedings of the 2018 International Conference on Autonomous Agents and Multiagent Systems (AAMAS) 2018.

[8] **Deep Spatial Affordance Hierarchy: Spatial Knowledge Representation for Planning in Large-scale Environments**, *A. Pronobis, F. Riccio, R.P.N. Rao*, PlanRob - Planning and Robotics workshop (@ICAPS2017).

[9] **Learning Human-Robot Handovers Through π-STAM: Policy Improvement With Spatio-Temporal Affordance Maps**, *F. Riccio, R. Capobianco, D. Nardi*, International Conference on Humanoid Robots 2016.

[10] **Enabling Symbiotic Autonomy in Short-Term Interactions: a User Study**, *F. Riccio, A. Vanzo, V. Mirabella, T. Catarci, D. Nardi*, International Conference on Social Robotics (ICSR2016).

[11] **Multi-Robot Search for a Moving Target: Integrating World Modeling, Task Assignment and Context**, *F. Riccio, E. Borzi, G. Gemignani, and D. Nardi*, International Conference on Intelligent Robots and Systems (IROS2016).

[12] **Using Spatio-Temporal Affordances to Represent Robot Action Semantics**, *F. Riccio, R. Capobianco, D. Nardi*, F. Riccio, R. Capobianco, D. Nardi Machine Learning Methods for High-Level Cognitive Capabilities in Robotics Workshop (@IROS2016).

[13] **STAM: A Framework for Spatio-Temporal Affordance Maps**, *F. Riccio, R. Capobianco, M. Hanheide, D. Nardi*, In Proceedings of the 2016 Modelling and Simulation for Autonomous Systems (MESAS2016) Workshop 2016.

[14] **Using Monte Carlo Search With Data Aggregation to Improve Robot Soccer Policies**, *F. Riccio, R. Capobianco, D. Nardi*, In Proceedings of the 20th International RoboCup Symposium 2016.

[15] **Contexts for Symbiotic Autonomy: Semantic Mapping, Task Teaching and Social Robotics**, *R. Capobianco, G. Gemignani, L. Iocchi, D. Nardi, F. Riccio, and A. Vanzo*AI-Workshop 2016.

[16] **Context in Robotics and Information Fusion**, *D. Bloisi, D. Nardi, F. Riccio, F. Trapani*, in Boosting Real World Performance with Domain Knowledge in Advances in Computer Vision and Pattern Recognition, Springer International Publishing AG, 2015.

[17] **Multi-Robot Perception and Action: World Modeling and Task Allocation**, *F. Riccio, M. T. Lázaro, G. Gemignani, D. Nardi*, RSS-Workshop 2015.

[18] **Context-based coordination for a multi-robot soccer team**, *F. Riccio, E. Borzi, G. Gemignani, and D. Nardi*, 19th RoboCup Symposium 2015.

Teaching Activities

2019 **Artificial Intelligence**, *teaching assistant*, Prof. Daniele Nardi, 2019-2020.

2018 **Artificial Intelligence**, *teaching assistant*, Prof. Daniele Nardi, 2018-2019.

2018 **Programming Nao Robots**, *teaching assistant*, Prof. Daniele Nardi, 2018-2019.

2016 **Seminars in Artificial Intelligence**, *teaching assistant*, Prof. Marc Hanheide and Prof. Daniele Nardi, February 26th - May 13rd.

2016 **Artificial Intelligence**, *teaching assistant*, Prof. Daniele Nardi, 2016-2017.

References

Prof. Daniele Nardi

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and Management Engineering
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Hobbies

Basketball, programming, drawing, 🎮, 🔧 : rfran90

Rome, July 15, 2020   Francesco Riccio