

MASSIMILIANO PATACCHIOLA

Name Massimiliano
Surname Patacchiola
Address Edinburgh, Scotland, United Kingdom
Blog <http://mpatacchiola.github.io/blog>
GitHub <https://github.com/mpatacchiola>
Nationality Italian
Sex Male

Profile

Researcher specialised in computational modelling through machine learning and deep learning techniques. Interdisciplinary skills in machine learning, robotics, and neuroscience.

Research interests: deep learning (few-shot learning, generative models), Bayesian inference (Gaussian Processes), reinforcement learning and robotics.

Work/Research Experience

- 2018-Present Postdoctoral Researcher. University of Edinburgh. United Kingdom.
Member of the Machine Learning group. Research project on efficient few-shot learning via Bayesian methods (in collaboration with Huawei).
(www.anc.ed.ac.uk/machine-learning)
Supervisor: [Amos Storkey](#)
- 2018 Summer Internship, Snapchat inc. Research project on the disentanglement of latent representations in deep autoencoders (www.snapchat.com)
Supervisors: Patrick-Fox Roberts, [Edward Rosten](#)
- 2012-2015 Robotics Engineer. Eurolink Systems group. Rome. Italy. My duties involved creating algorithms and models for the control of UGV (Unmanned Ground Vehicle) and UAV (Unmanned Aerial Vehicle) (www.eurolinksystems.com)
- 2011-2012 Internship, LARAL (Laboratory of Artificial Life and Robotics). Institute of Cognitive Sciences and Technologies. Rome, Italy. My duties involved creating cognitive models for simulations in Evolutionary Robotics (<http://laral.istc.cnr.it>)
- 2008-2009 Placement, ECONA (Research Centre for Cognitive Elaboration on Natural and Artificial Systems). La Sapienza University. Rome, Italy. Research project on visual perception and memory (<https://web.uniroma1.it/econa>)
-

Education

- 2015-2018 PhD in “Cognitive Robotics and Machine Learning”. Plymouth University, School of Computing, Electronics and Mathematics. United Kingdom.

Supervisors: [Angelo Cangelosi](#), Torbjorn Dahl, [Giorgio Metta](#)

- 2009-2011 MSc in “Cognitive Neuroscience”. La Sapienza University. Rome, Italy.
Supervisors: Stefano Puglisi Allegra, [Gianluca Baldassarre](#), [Domenico Parisi](#)
- 2006-2009 BSc in “Experimental Cognitive Psychology”. La Sapienza University. Rome, Italy.
Supervisor: Marta Olivetti Belardinelli
- 1999-2004 Secondary School. Scientific Course: National Plan of Computer Science. Rieti, Italy.
It gives entry to university. Main subjects: computer science, mathematics (linear algebra, pre-calculus, calculus), physics, biology, English, French.

Technical Skills

- Machine Learning -Programming experience with pyTorch, TensorFlow and Google Cloud ML for Deep Learning applications.
-Experience with Artificial Neural Networks and the most recent Deep Learning architectures (e.g ResNet, ResNeXt, WideResNet, DenseNet, GAN, VAE, etc).
-Experience with supervised, unsupervised learning algorithms, reinforcement learning (DQN, Double DQN, MC, SARSA, etc), and Bayesian methods (Gaussian Processes, Bayesian networks).
- Robotics -I developed libraries for the control of humanoid robots, drones and autonomous ground rover.
-Experience with the most important software tools for Robotics and Computer Vision (e.g. ROS, YARP, NAOqi, OpenAI Gym, OpenCV).
- Computer Science -Advanced knowledge of Unix OS (Shell, Bash scripting, SSH).
-Proficiency in Python and familiarity with several programming languages (C/C++, C#, Visual Basic, HTML, PHP, JavaScript).

Languages

Italian (native speaker), English (advanced), French (intermediate)

Awards, Fellowships and Scholarships

- 2018-present Associate Fellowship, Higher Education Academy (HEA). Programme that supports early career researchers who have responsibility for teaching and learning.
- 03-2016 Academic Hardware Grant, NVIDIA corporation. I received a Tesla K40 GPU in support of a project on head pose estimation through convolutional neural networks.
- 2012-present Member, Mensa International. Society for people with high intelligence quotient.

Talks, Conferences, Workshops, Media

- 27-07-2017 (Extra) BBC documentary. Hyper Evolution: Rise of the Robots. Episode 1 and 2, the iCub humanoid robot at CRNS lab.
- 2015-present (Reviewer) I have been the reviewer for different conferences and journals: ICRA (International Conference on Robotics and Automation), IROS (International Conference on Intelligent Robots and Systems), IEEE Transactions on Cognitive and Developmental Systems.

Selected Publications [\[scholar\]](#)

Patacchiola, M., Cangelosi, A. (2017). “Head Pose Estimation in the Wild using Convolutional Neural Networks and Adaptive Gradient Methods”. *Pattern Recognition*, vol. 71, pp. 132-143. [\[pdf\]](#) [\[GitHub\]](#)

Polvara* R., **Patacchiola* M.**, Sharma, S., Wan J., Manning, A., Sutton R., Cangelosi, A. (under review). “Autonomous Quadrotor Landing using Deep Reinforcement Learning”. *Co-first authors, [\[arxiv\]](#)

Thabet, M., **Patacchiola, M.**, & Cangelosi, A. (2019). “Sample-efficient Deep Reinforcement Learning with Imaginary Rollouts for Human-Robot Interaction”. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. [\[arxiv\]](#)