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| Name | Massimiliano |
| Surname | Patacchiola |
| Address | Edinburgh, Scotland, United Kingdom |
| Scholar | https://scholar.google.com/citations?user=L4GcSrsAAAAJ |
| Blog | http://mpatacchiola.github.io/blog |
| GitHub | https://github.com/mpatacchiola |
| Nationality | Italian |
| Sex | Male |

## Profile

Researcher working on efficient deep learning, where "efficient" means: less data, less supervision, less computation. *Research interests:* deep learning (few-shot, self-supervised, and continual learning), 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 and self-supervised learning (in collaboration with Huawei). (www.anc.ed.ac.uk/machine-learning)
Supervisor: Amos Storkey

2018    Internship, Snapchat inc. London. United Kingdom. Research project on the disentanglement of latent representations in deep autoencoders for applications such as style transfer and face-attributes generation (www.snapchat.com)
Supervisors: Patrick-Fox Roberts, Edward Rosten

2012-2015    Robotics Engineer. Eurolink Systems group. Rome. Italy. Development of models for the control of UGV (Unmanned  Ground Vehicle) and UAV (Unmanned Aerial Vehicle) in critical applications such as search-and-rescue and bomb disposal (www.eurolinksystems.com)

2011-2012    Internship, LARAL (Laboratory of Artificial Life and Robotics). Institute of Cognitive Sciences and Technologies. Rome, Italy. Development of computational models for various experiments 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. Research project on effective machine learning methods for human-robot interaction. This work has been cited [>100 times](#), the [repository](#) has 1400 stars and 400 forks on GitHub.<br>Supervisors: [Angelo Cangelosi](#), Torbjorn Dahl, [Giorgio Metta](#) |
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| 2009-2011 | MSc in "Cognitive Neuroscience". La Sapienza University. Rome, Italy.<br>Supervisors: Stefano Puglisi Allegra, [Gianluca Baldassarre](#), [Domenico Parisi](#) |
| 2006-2009 | BSc in "Experimental Cognitive Psychology". La Sapienza University. Rome, Italy.<br>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. |

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**Technical Skills**

| Machine Learning | -Programming experience (~2 years) with PyTorch and TensorFlow for deep learning applications and scientific publications.<br>-Experience with Artificial Neural Networks and the most recent Deep Learning architectures (e.g ResNet, ResNeXt, WideResNet, DenseNet, GAN, VAE, etc).<br>-Experience with supervised, unsupervised learning algorithms, reinforcement learning (DQN, Double DQN, MC, SARSA, etc), and Bayesian methods (Gaussian Processes, Bayesian networks). |
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| Robotics | -Developement of libraries for the control of humanoid robots, drones, and autonomous ground rover.<br>-Experience with the most important software tools for Robotics and Computer Vision (e.g. ROS, YARP, NAOqi, OpenAI Gym, OpenCV). |
| IT | -Proficiency in Python (~5 years, primary language).<br>-Past exposure to several programming languages such as C/C++, C#, Visual Basic, HTML, PHP, JavaScript.<br>-Daily usage of Unix OS (Shell, Bash scripting, SSH) and related tools. |

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**Languages**

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

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**Awards, Fellowships and Scholarships**

| 06-2020 | Distinguished Service Award as an Outstanding Reviewer for the IEEE Robotics and Automation Letters (RA-L). Announced at ICRA 2020 award ceremony. |
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| 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. Received a Tesla K40 GPU in support  of a project on head pose estimation via convolutional neural networks.

2012-present   Member, Mensa International. Society for people with high intelligence quotient.

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**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 for different conferences and journals: AISTATS (International Conference on Artificial Intelligence and Statistics), ICRA (International Conference on Robotics and Automation), IROS (International Conference on Intelligent Robots and Systems).

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**Selected Publications** [scholar]

**Patacchiola, M.**, Storkey, A. (2020). "Self-Supervised Relational Reasoning for Representation Learning". (under review). [arxiv] [GitHub]

**Patacchiola, M.**, Turner, J., Crowley, E. J., Storkey, A. (2019). "Deep Kernel Transfer in Gaussian Processes for Few-shot Learning". (under review). [arxiv] [GitHub]

**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.**, Hanheide, M., & Neumann, G. (2020). Sim-to-Real Quadrotor Landing via Sequential Deep Q-Networks and Domain Randomization. Robotics, 9(1), 8. *Co-first authors. [paper]

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]