Michele Garibbo

Email: michele.garibbo@gmail.com Website: link Languages: Ita, Eng, Spanish (intermediate)

Education

- **PhD in Neuroscience and Machine Learning**, Wellcome Trust funded, Faculty of Engineering Mathematics, **University of Bristol**, Sep 2019 - Jan 2024, UK.

  - Application of deep reinforcement learning methods to understanding human motor learning, especially in relation to policy gradient methods (60% of PhD).
  - Purely machine learning projects on improving value-based estimation methods in deep reinforcement learning (40% of PhD).

  - Oct 2023 - Jan 2024, **Visiting PhD** experience at the **University of Oxford.**

  - 2020-2022**,** Co-organised the Neural Dynamics forum (link).

- **Contract education in Data Science and Knowledge Engineering** (average grade achieved: 8.4/10), **Maastricht University**, Oct 2017 - Jan 2019, Netherlands.

- **MRes Cognitive Neuroscience** (Distinction, **Dean's list award** - top 5% of the Brain faculty), **University College London (UCL)**, Sep 2016 – Sep 2017, UK.

- **BSc (Hons) Psychology** (First-class, **British Psychology Association award** - top psychology graduating student), **Bath Spa University**, Sep 2013 – June 2016, UK.

Relevant experience

- **Apri- Now, University of Oxford, UK, Postdoctoral Research Associate (visiting),** Neuroscience and Machine Learning, under Rui Ponte Costa (link).

- **2021-2022, University of Bristol, UK, Paid Teaching assistant positions**, Engineering Mathematics 1, Computational neuroscience.

- **Feb - April 2019, Maastricht University, Maastricht, Netherlands, paid student assistantship,** Deep Reinforcement Learning and human vision**.**

- **Feb - April 2016, Annex Clinical, New York, USA, Assistant Data Analyst.** Analysis of a large clinical dataset to investigate the relation between anhedonia and depression in relation to clinical trial drop-out *(*link*).*

Publications

- (Submitted) **Garibbo, M.**, Aitchison, L. & Costa, R. P. (2024). Integrating Reward- and Error- Based Learning via Action Gradients: A Systems Theory of Cerebellar and Basal Ganglia Interactions. *Advances in Neural Information Processing Systems (***NeurIPS***)*, *38*.
- **Garibbo, M.**, Robeyns, M., & Aitchison, L. (2024). Taylor TD-learning. *Advances in Neural Information Processing Systems (*NeurIPS*)*, *37*.

- (Accepted) **Garibbo, M**., Ludwig, C., Lepora, N., & Aitchison, L. (2024). Relating human error-based learning to modern deep RL algorithms. *Neural Computations.* Preprint available at: https://arxiv.org/abs/2208.10892 .
- **Garibbo, M**., Aylward, J., & Robinson, O. J. (2019). The impact of threat of shock-induced anxiety on the neural substrates of memory encoding and retrieval. *Social cognitive and affective neuroscience,* 14(10), 1087-1096.

Contributed Talks

- **Garibbo, M.**, Ludwig, C., Lepora, N., & Aitchison, L. (2021). *What can deep reinforcement learning tell us about human motor learning and vice-versa ?*. 15 min presentation on the main Neuromatch Conference, December, 2021, Online.
- **Garibbo M.** and Wierdak E. (2014) *The effect of local environmental context changes on intentional and unintentional memory retrieval*. In: British Psychology Association South West Undergraduate Conference, March 2016, University of the West of England, Bristol.

Selected Posters

- **Garibbo, M.**, Robeyns, M., & Aitchison, L. (2023). *Taylor TD-learning*. NeurIPS, New Orleans.
- Zanzi, M., **Garibbo, M.**, Tavano, A., & Saponati, M. (2022). *RNN reconstruction of mouse latent neural dynamics*. Neuromatch Conference, Online.
- **Garibbo, M**., Ludwig, C., Lepora, N., & Aitchison, L. (2022). *What deep reinforcement learning tells us about human motor learning and vice-versa*. *CSHL From Neuroscience to Artificially Intelligent conference*, New York.
- **Garibbo, M**., Aylward, J., & Robinson, O. J. (2019). *The impact of threat of shock-induced anxiety on the neural substrates of memory encoding and retrieval*. UCL Neuroscience Symposium, London.

Summer Schools

Machine Learning x Health, University of Oxford, August 2022, Oxford, UK.
Deep Learning. Neuromatch Academy, 3 weeks, July 2022, online.
Robotic, Perception and Learning, KTH, 1 week, June 2022, Stockholm, Sweden.
Computational Neuroscience. Neuromatch Academy, 3 weeks, July 2021, online.
2nd International Summer School on Deep Learning, 1 week, July 2018, Genova.

Programming and Technical Skills

Deep Learning frameworks: PyTorch (extensive), TensorFlow.
Programming Language: Python (extensive), Java and Matlab.
Operating Systems: Linux, OS.
Extra: Vim, Git, Latex, high performance computing (basic, University of Bristol HPC facilities).

Awarded Fundings

Wellcome Trust 8-month Transition Fund.
Wellcome Trust 4-year PhD Scholarship.