

Roman Pogodin, CV

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Education

2017 – 2023 MPhil/PhD Theoretical Neuroscience
University College London, London (UK)
Gatsby Computational Neuroscience Unit

2013 – 2017 BSc Applied Mathematics and Physics (Honours)
Moscow Institute of Physics and Technology (State University), Moscow (Russia)
Department of Control and Applied Mathematics

Research

February 2023 – present McGill/Mila, with Blake Richards (McGill/Mila) and Guillaume Lajoie (UdeM/Mila)
PostDoc

April 2018 – January 2023 Gatsby Unit, UCL, research group of Prof. Latham
PhD student

November 2018 – February 2019 DeepMind, collaboration with Tor Lattimore
Breadth rotation (part of PhD)

September 2016 – August 2017 Skoltech, research group of Prof. Maximov
Research intern at Center for Energy Systems

July 2016 – August 2016 Summer Research Program, EPFL, Prof. Gerstner's lab
Summer intern in computational neuroscience

July 2015 – September 2015 Amgen Scholars Program, LMU Munich, Prof. Leibold's lab
Summer intern in Computational Neuroscience

Teaching

July 2020 Neuromatch Academy (online school in computational neuroscience)
Teaching assistant

September 2018 – March 2019 Gatsby Unit, UCL
Teaching assistant
Probabilistic and Unsupervised Learning (COMPGI18)
Approximate Inference and Learning in Probabilistic Models (COMPGI16)
Systems and Theoretical Neuroscience

Other

March 2024 – COSYNE 2024 workshop "The Geometry & Dynamics of Learning: Bridging Analytical and Experimental Insights into Neural Representations"
Co-organizer

February 2022 – September 2022 SCGB Undergraduate Research Fellowship (SURF Program)
Co-supervisor (with Grace Lindsay) of Andrada-Maria Marica
Work presented at Bernstein 2022 (poster) and Neuromatch Conference 2022 (short talk)

September 2016 – August 2017 MIPT office for international scientific internships
Helping undergraduate students at MIPT with internship applications

September 2016 – present Social media group for international scientific internships
Adminstrating a scientific internships group (>7.5k members) and a chat (>2.5k members), helping undergraduate students with internship applications

September 2016 – June 2017 Yandex School of Data Analysis, Moscow (Russia)
Master's-level courses in computer science and data analysis

- Paper reviewing: eLife, PLOS Computational Biology, NeurIPS 2021-2023, ICLR 2022-2024, ICML 2022-2024
- Programming: Python (including PyTorch, JAX), C, C++, Matlab
- Languages: English (C1/Advanced), Russian (C2/Native speaker)

Selected papers [Google Scholar link](#) *Equal contribution

- February 2024 Practical Kernel Tests of Conditional Independence
R. Pogodin, A. Schrab, Y. Li, D. J. Sutherland, A. Gretton
preprint arXiv:2402.13196
- June 2023 Synaptic Weight Distributions Depend on the Geometry of Plasticity
R. Pogodin*, J. Cornford*, A. Ghosh, G. Gidel, G. Lajoie, B. Richards
In Proceedings of the International Conference on Learning Representations (ICLR) 2024
Accepted as **spotlight**
- December 2022 Efficient Conditionally Invariant Representation Learning
R. Pogodin*, N. Deka*, Y. Li*, D. J. Sutherland, V. Veitch, A. Gretton
In Proceedings of the International Conference on Learning Representations (ICLR) 2023
Accepted as **notable-top-5%**
- June 2021 Towards Biologically Plausible Convolutional Networks
R. Pogodin, Y. Mehta, T. P. Lillicrap, P. E. Latham
In Proceedings of the Advances in Neural Information Processing Systems (NeurIPS) 2021
- June 2021 Self-Supervised Learning with Kernel Dependence Maximization
Y. Li*, **R. Pogodin***, D. J. Sutherland, A. Gretton
In Proceedings of the Advances in Neural Information Processing Systems (NeurIPS) 2021
- June 2020 Kernelized information bottleneck leads to biologically plausible
3-factor Hebbian learning in deep networks
R. Pogodin, P. E. Latham
In Proceedings of the Advances in Neural Information Processing Systems (NeurIPS) 2020
- December 2019 Working memory facilitates reward-modulated Hebbian learning in
recurrent neural networks
R. Pogodin, D. Corneil, A. Seholzer, J. Heng, W. Gerstner
NeurIPS 2019 workshop
Real Neurons & Hidden Units: future directions at the intersection of neuroscience and AI
- July 2019 On First-Order Bounds, Variance and Gap-Dependent Bounds for Adversarial Bandits
R. Pogodin, T. Lattimore
In Proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI) 2019
- October 2017 Efficient rank minimization to tighten semidefinite programming
for unconstrained binary quadratic optimization
R. Pogodin, M. Krechetov, Y. Maximov
In Proceedings of the 55th Annual Allerton Conference on Communication,
Control, and Computing (Allerton)

Talks

- October 2023 Allen Institute for Neural Dynamics seminar
- October 2023 UNIQUE scientific retreat
- October 2023 NeuroAI Montreal (short talk)
- October 2023 Canadian Computational Neuroscience Spotlight v4 (trainee talk, online)
- June 2021 Tricentre meeting (Gatsby Unit, Columbia University and Hebrew University, online)
- March 2020 Theoretical Neuroscience Journal Club at CNBC CMU, Pittsburgh
- November 2019 DeepMind/UCL PhD Workshop, London

Honors and awards

- 2022-2023 NeurIPS 2023 Top Reviewers
NeurIPS 2022 Top Reviewers
- September 2016 –
December 2016 Increased State Academic Scholarship for research achievements
- February 2014 –
June 2016 Abramov fund scholarship for best non-senior students