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, Blake Richards' lab 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
January 2016 – July 2016	MIPT, under the guidance of Dr. Grudinin Course project
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

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 – present	MIPT office for international internships Helping undergraduate students at MIPT with internship applications; administrating a scientific internships group (>7.5k members) and a chat (>2.5k members)
September 2016 – June 2017	Yandex School of Data Analysis, Moscow (Russia) Master's-level courses in computer science and data analysis
February 2014 – June 2015	MIPT volunteering team Leader of a group working with an orphanage in Moscow

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

Papers

Google Scholar link *Equal contribution

June 2023
Synaptic Weight Distributions Depend on the Geometry of Plasticity
R. Pogodin*, J. Cornford*, A. Ghosh, G. Gidel, G. Lajoie, B. Richards
preprint arXiv:2305.19394

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%**

March 2022
Locally connected networks as ventral stream models
R. Pogodin, P. E. Latham
1st Brain-Score Workshop (BSW 2022)

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. Seeholzer, 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)

September 2016
Quadratic Programming Approach to Fit Protein Complexes into Electron Density Maps
R. Pogodin, A. Katrutsa, S. Grudinin
In Proceedings of Information Technologies and Systems 2016

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

October 2022 — 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