# Roman Pogodin, CV

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## Education

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|---|---|
| 2017 – 2023 | MPhil/PhD Theoretical Neuroscience<br>University College London, London (UK)<br>Gatsby Computational Neuroscience Unit |
| 2013 – 2017 | BSc Applied Mathematics and Physics (Honours)<br>Moscow Institute of Physics and Technology (State University), Moscow (Russia)<br>Department of Control and Applied Mathematics |

## Research

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|---|---|
| February 2023 – present | McGill/Mila, Blake Richards' lab<br>PostDoc |
| April 2018 – January 2023 | Gatsby Unit, UCL, research group of Prof. Latham<br>PhD student |
| November 2018 – February 2019 | DeepMind, collaboration with Tor Lattimore<br>Breadth rotation (part of PhD) |
| September 2016 – August 2017 | Skoltech, research group of Prof. Maximov<br>Research intern at Center for Energy Systems |
| July 2016 – August 2016 | Summer Research Program, EPFL, Prof. Gerstner's lab<br>Summer intern in computational neuroscience |
| January 2016 – July 2016 | MIPT, under the guidance of Dr. Grudinin<br>Course project |
| July 2015 – September 2015 | Amgen Scholars Program, LMU Munich, Prof. Leibold's lab<br>Summer intern in Computational Neuroscience |

## Teaching

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| July 2020 | Neuromatch Academy (online school in computational neuroscience)<br>Teaching assistant |
| September 2018 – March 2019 | Gatsby Unit, UCL<br>Teaching assistant<br>Probabilistic and Unsupervised Learning (COMPGI18)<br>Approximate Inference and Learning in Probabilistic Models (COMPGI16)<br>Systems and Theoretical Neuroscience |

## Other

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| February 2022 – September 2022 | SCGB Undergraduate Research Fellowship (SURF Program)<br>Co-supervisor (with Grace Lindsay) of Andrada-Maria Marica<br>Work presented at Bernstein 2022 (poster) and Neuromatch Conference 2022 (short talk) |
| September 2016 – present | MIPT office for international internships<br>Helping undergraduate students at MIPT with internship applications;<br>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)<br>Master's-level courses in computer science and data analysis |
| February 2014 – June 2015 | MIPT volunteering team<br>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