Roman Pogodin, CV

email: roman.pogodin@mila.quebec
web: http://roman-pogodin.com/
github: https://github.com/romanpogodin

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

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
Administrating 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. 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)

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