Roman Pogodin, CV

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Education

2017 – present	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 Average Grade: 8.8/10

Research experience

April 2018 – present	Gatsby Unit, UCL, research group of Prof. Latham PhD student Topics: associative memory models, biologically plausible deep learning, self-supervised learning
November 2018 – February 2019	DeepMind, collaboration with Tor Lattimore Breadth rotation (part of PhD) Topic: adaptivity in adversarial bandits
September 2016 – August 2017	Skoltech, research group of Prof. Maximov Research intern at Center for Energy Systems Topic: non-convex optimization
July 2016 – August 2016	Summer Research Program, EPFL, Prof. Gerstner's lab Summer intern in computational neuroscience Topic: generating long-time sequences with structured neural networks
January 2016 – July 2016	MIPT, under the guidance of Dr. Grudinin Course project Topic: optimization in application to structural biology
July 2015 – September 2015	Amgen Scholars Program, LMU Munich, Prof. Leibold's lab Summer intern in Computational Neuroscience Topic: models of path planning in a hippocampal-cortical network

Teaching

July 2020	Neuromatch Academy (online school in computational neuroscience) *Teaching assistant* *Responsibilities:* tutorials and project advice for a group of 10 students, Q&A sessions in a larger group
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 *Responsibilities:* Tutorials, marking, coordination of the Gatsby TAs, creating assignments for the theoretical neuroscience course

Other

2021 – present	Paper reviewing eLife, PLOS Computational Biology, NeurIPS 2021
September 2016 – June 2017	Yandex School of Data Analysis, Moscow (Russia) Department of Computer Science Master's-level courses in computer science and data analysis
September 2016 – March 2017	MIPT office for international internships Team member Data collection and work with students
February 2014 – June 2015	MIPT volunteering team Group leader Work with an orphanage

Skills

- Programming
  Python (including PyTorch, JAX), C, C++, Matlab
- Other
  Linux-based OS, LaTeX, Mathematica
- Languages
English	C1 (Advanced, TOEFL iBT score 103)
Russian	C2 (Native speaker)

Papers   Google Scholar link

June 2021	Towards Biologically Plausible Convolutional Networks **R. Pogodin**, Y. Mehta, T. P. Lillicrap, P. E. Latham Accepted to NeurIPS 2021; preprint arXiv:2106.13031
June 2021	Self-Supervised Learning with Kernel Dependence Maximization Y. Li*, **R. Pogodin***, D. J. Sutherland, A. Gretton Accepted to NeurIPS 2021; preprint arXiv:2106.08320; *These authors contributed equally
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
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

Workshop papers

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

Talks

June 2021	Tricentre meeting (Gatsby Unit, Columbia University and Hebrew University, online)
	Title: Towards Biologically Plausible Convolutional Networks
March 2020	Theoretical Neuroscience Journal Club at CNBC CMU, Pittsburgh
	Title: 3-factor Hebbian learning rules in deep networks: an information bottleneck approach
November 2019	DeepMind/UCL PhD Workshop, London
	Title: Associative memory in winner-take-all networks: from binary units to spikes

Posters

March 2020	COSYNE 2020
	Title: 3-factor Hebbian learning rules in deep networks: an information bottleneck approach (with Peter Latham)
September 2019	NCCD 2019
	Title: Associative memory in winner-take-all networks: from binary units to spikes (with Peter Latham)
March 2019	COSYNE 2019
	Title: Memories in coupled winner-take-all networks (with Peter Latham)
June 2017	Ninth Traditional school "Control, Information, Optimization"
September 2016	Information Technologies and Systems 2016
August 2016	Summer Research Program, EPFL
June 2016	Eighth Traditional school "Control, Information, Optimization"
November 2015	58th MIPT Scientific Conference
September 2015	Amgen Program Cambridge symposium
August 2015	Amgen Program LMU symposium

Honors and awards

| September 2016 – December 2016 | Increased State Academic Scholarship for research achievements |
| February 2014 – June 2016 | Abramov fund scholarship for best non-senior students |