# Roman Pogodin, CV

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github: https://github.com/romanpogodin

## Education

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|---|---|
| 2017 – present | 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<br>Average Grade: 8.8/10 |

## Research experience

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

## Teaching

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

## Other

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

## Skills

- Programming
  Python (including PyTorch), 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

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|---|---|
| June 2020 | Kernelized information bottleneck leads to biologically plausible<br>3-factor Hebbian learning in deep networks<br>**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<br>**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<br>for unconstrained binary quadratic optimization<br>**R. Pogodin**, M. Krechetov, Y. Maximov |
| | In Proceedings of the 55th Annual Allerton Conference on Communication,<br>Control, and Computing (Allerton) |
| September 2016 | Quadratic Programming Approach to Fit Protein Complexes into Electron Density Maps<br>**R. Pogodin**, A. Katrutsa, S. Grudinin |
| | In Proceedings of Information Technologies and Systems 2016 |

## Workshop papers

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|---|---|
| December 2019 | Working memory facilitates reward-modulated Hebbian learning in<br>recurrent neural networks<br>**R. Pogodin**, D. Corneil, A. Seeholzer, J. Heng, W. Gerstner |
| | NeurIPS 2019 workshop<br>Real Neurons & Hidden Units: future directions at the intersection of neuroscience and AI |

## Talks

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|---|---|
| March 2020 | Theoretical Neuroscience Journal Club at CNBC CMU, Pittsburgh<br>Title: 3-factor Hebbian learning rules in deep networks: an information bottleneck approach |
| November 2019 | DeepMind/UCL PhD Workshop, London<br>Title: Associative memory in winner-take-all networks: from binary units to spikes |

## Posters

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| March 2020 | COSYNE 2020<br>Title: 3-factor Hebbian learning rules in deep networks:<br>    an information bottleneck approach (with Peter Latham) |
| September 2019 | NCCD 2019<br>Title: Associative memory in winner-take-all networks:<br>    from binary units to spikes (with Peter Latham) |
| March 2019 | COSYNE 2019<br>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

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