




Polina Kirichenko

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Education

Ph.D. student in Data Science, New York University New York, USA
Center for Data Science; supervisor: Professor [Andrew Gordon Wilson](#) 2019 – current
Current research interests: Bayesian deep learning, uncertainty estimation

Ph.D. student in Operations Research, Cornell University Ithaca, USA
Operations Research and Information Engineering department; transferred to NYU 2018 – 2019

B.Sc. in Computer Science, Higher School of Economics Moscow, Russia
Computer Science department; supervisor: Professor [Dmitry Vetrov](#) 2014 – 2018
Cumulative GPA: 9.1 (10.0 scale), class rank: top 3%

Work Experience

EPFL, Machine Learning and Optimization Lab mlo.epfl.ch, Lausanne, Switzerland
Research Intern; supervisors: Prof. [Martin Jaggi](#), Prof. [Dan Alistarh](#) June 2018 – Aug 2018

Bayesian Methods Research Group bayesgroup.ru, Moscow, Russia
Research Assistant; supervisor: Prof. Dmitry Vetrov Sep 2016 – Aug 2018

Google Seattle, USA
Software Engineering Intern, Google Cloud Platform Team July 2017 – Sep 2017

Google Munich, Germany
STEP Software Engineering Intern, Piper Team July 2016 – Sep 2016

Publications

Subspace Inference for Bayesian Deep Learning [arXiv](#), [ICML talk](#), [poster](#), [slides](#)
Pavel Izmailov*, Wesley Maddox*, **Polina Kirichenko***, Timur Garipov*, Dmitry Vetrov, Andrew G. Wilson
Workshop on Uncertainty in Deep Learning at ICML 2019 (contributed talk)
Uncertainty in Artificial Intelligence (UAI) 2019

SWALP: Stochastic Weight Averaging in Low Precision Training PMLR
Guandao Yang, Tianyi Zhang, **Polina Kirichenko**, Junwen Bai, Andrew G. Wilson, Christopher De Sa
International Conference on Machine Learning (ICML) 2019

Semi-Supervised Learning with Normalizing Flows [pdf](#), [poster](#)
Pavel Izmailov*, **Polina Kirichenko***, Marc Finzi*, Andrew G. Wilson
Workshop on Invertible Neural Nets and Normalizing Flows at ICML 2019

Invertible Convolutional Networks [pdf](#), [poster](#)
Marc Finzi*, Pavel Izmailov*, Wesley Maddox*, **Polina Kirichenko***, Andrew G. Wilson
Workshop on Invertible Neural Nets and Normalizing Flows at ICML 2019

* Equal Contribution

Research Projects

Evolution strategies for training low precision neural networks 2018
Polina Kirichenko, Sebastian Stich, Martin Jaggi, Dan Alistarh
Leveraged lower memory consumption of low-precision networks to increase population sizes in evolution strategies which leads to more efficient gradient-free training.

Bayesian regularization of deep neural networks with weight normalization 2018
Polina Kirichenko, Alexander Fritsler, Ekaterina Lobacheva, Dmitry Vetrov [report](#)
Studied the effect of applying noise to direction and magnitude of weight vectors of neurons in deep networks to achieve regularization and structural sparsity.

Dealing with gradient problems in recurrent neural networks 2017
Polina Kirichenko, Ekaterina Lobacheva, Dmitry Vetrov [report](#)
Studied constraints on weight matrices of recurrent layers that improve training stability and alleviate vanishing and exploding gradients in RNNs.

Large-scale stochastic EM-algorithm 2016
Polina Kirichenko, Dmitry Vetrov [code](#), [report](#)
Applied stochastic optimization techniques to Expectation-Maximization algorithm to make it converge faster than the full EM on large datasets with a negligible drop in quality.

T-Cell epitopes prediction with Hidden Markov Models 2015
Polina Kirichenko, Vita Stepanova, Ignat Kolesnichenko (Moscow Bioinformatics School)
Presented at the 23rd Computational and Structural Biology conference at Hebrew university in 2016.

Programming in natural languages: E-English 2014
Polina Kirichenko, Yuriy Syrovetskiy (Yandex) [code](#)
The 1st award at [Yandex Student Conference](#) 2014 (Moscow); presented at the International Student Science Fair 2013 (Camborne, UK). Programming language resembling natural English, designed to simplify learning to code and to make code understandable to non-programmers.

Awards

DeepMind Fellowship 2019
New York University Center for Data Science Graduate Fellowship 2019
ICML Travel Award 2019
Cornell Operations Research and Information Engineering Graduate Fellowship 2018
Travel Grant for Women in Data Science [Conference](#) 2018, 2019
Ilya Segalovich [Scholarship](#) (Yandex) 2016, 2017
Google Anita Borg Memorial Scholarship (Women Techmakers [Scholarship](#)) 2015
Google Travel Grant for the Grace Hopper Celebration of Women in Computing 2015

Reviewing

Conferences: NeurIPS 2019 (top 400 highest-scoring reviewers)
Workshops: NeurIPS 2019 WiML workshop

Technical Skills

Languages: Python, C++
Neural network libraries: PyTorch, TensorFlow, Theano, Lasagne, Keras

Teaching

Cornell University Ithaca, USA
Teaching Assistant for “Data Science for All” course Jan 2019 – May 2019
Bayesian Methods for Machine Learning on [Cousera](#) Moscow, Russia
Teaching Assistant; helped prepare assignments and quizzes Sep 2017 – Aug 2018
The specialization of the course received Coursera [Outstanding Educator Award](#)
National Research University Higher School of Economics Moscow, Russia
Teaching Assistant for “Probability Theory and Statistics” (Sep 2016 – June 2017),
“Introduction to Data Analysis” (Jan 2016 – June 2016), “Introduction to Programming” (Sep 2015 – Dec 2015)

Summer Schools

Machine Learning Summer School (London, UK) 2019
Deep Learning & Reinforcement Learning Summer School (Edmonton, Canada) 2019