Polina Kirichenko

New York, USA
pol.kirichenko@gmail.com
polkirichenko.github.io
google scholar

Education

Ph.D. student in Data Science, New York University — New York, USA
Center for Data Science; supervisor: Professor Andrew Gordon Wilson — 2019 – current
Research interests: Bayesian deep learning, uncertainty estimation, semi-supervised learning

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, code
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, code
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
14th Women in Machine Learning workshop (co-located with NeurIPS 2019)
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 (spotlight talk)

* 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)
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 Fellowhship 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, NeurIPS 2019 Bayesian Deep Learning 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