

Polina Kirichenko

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Google Scholar, Semantic Scholar 📖

Education

Ph.D. student in Data Science, New York University

Center for Data Science; supervisor: Professor [Andrew Gordon Wilson](#)

Research interests: out-of-distribution generalization, robustness, uncertainty estimation

New York, USA

2019 – current

Ph.D. student in Operations Research, Cornell University

Operations Research and Information Engineering department; transferred to NYU

Ithaca, USA

2018 – 2019

B.Sc. in Computer Science, Higher School of Economics

Computer Science department; supervisor: Professor [Dmitry Vetrov](#)

Cumulative GPA: 9.1 (10.0 scale), class rank: top 3%

Moscow, Russia

2014 – 2018

Work Experience

Meta AI, FAIR Labs

Visiting Researcher (FAIR-NYU AI Mentorship program); mentor: [Mark Ibrahim](#)

Research topic: out-of-distribution generalization

New York, USA

Oct 2022 – Oct 2023

Meta AI

Research Intern at AI Integrity team; collaborators: [Hamed Firooz](#), [Randall Balestriero](#), [David Lopez-Paz](#), [Rama Vedantam](#)

Research topic: biases of data augmentation and regularization in deep networks

Menlo Park, USA

June 2022 – Sep 2022

Cold Spring Harbor Laboratory

Research Intern; supervisor: Prof. [Anthony Zador](#)

Research topics: meta-learning with compressed neural networks

Cold Spring Harbor, USA

June 2021 – Aug 2021

DeepMind

Research Scientist Intern; supervisors: [Mehrdad Farajtabar](#), [Razvan Pascanu](#), [Balaji Lakshminarayanan](#)

Research topic: continual learning with deep generative models

(remotely) Mountain View, USA

June 2020 – Oct 2020

École Polytechnique Fédérale de Lausanne (EPFL)

Machine Learning and Optimization Lab

Research Intern; supervisors: Prof. [Martin Jaggi](#), Prof. [Dan Alistarh](#)

Research topic: evolution strategies for low precision training of neural networks

mlo.epfl.ch, Lausanne, Switzerland

June 2018 – Aug 2018

Bayesian Methods Research Group

Research Assistant; supervisor: Prof. Dmitry Vetrov

Research topic: structured sparsification of Bayesian neural networks

bayesgroup.ru, Moscow, Russia

Sep 2016 – Aug 2018

Google

Software Engineering Intern, Google Cloud Platform Team

Seattle, USA

July 2017 – Sep 2017

Google

STEP Software Engineering Intern, Piper Team (Google's version control system)

Munich, Germany

July 2016 – Sep 2016

Publications

* Equal Contribution

Last Layer Re-Training is Sufficient for Robustness to Spurious Correlations

[\[arXiv, code\]](#)

Polina Kirichenko*, Pavel Izmailov*, Andrew Gordon Wilson

ICML Workshop on Spurious Correlations, Invariance, and Stability 2022; oral presentation

International Conference on Learning Representations (ICLR) 2023; spotlight (notable-top-25%)

On Feature Learning in the Presence of Spurious Correlations [\[arXiv, code\]](#)

Pavel Izmailov*, **Polina Kirichenko***, Nate Gruver*, Andrew Gordon Wilson

First presented at *ICML Workshop on Principles of Distribution Shift 2022*

Neural Information Processing Systems (NeurIPS) 2022

Chroma-VAE: Mitigating Shortcut Learning with Generative Classifiers [\[arXiv\]](#)

Wanqian Yang, **Polina Kirichenko**, Micah Goldblum, Andrew Gordon Wilson

Neural Information Processing Systems (NeurIPS) 2022

Does Knowledge Distillation Really Work? [\[arXiv, code\]](#)

Samuel Stanton, Pavel Izmailov, **Polina Kirichenko**, Alexander A. Alemi, Andrew G. Wilson

Neural Information Processing Systems (NeurIPS) 2021

Task-agnostic Continual Learning with Hybrid Probabilistic Models [\[arXiv, poster\]](#)

Polina Kirichenko, Mehrdad Farajtabar, Dushyant Rao, Balaji Lakshminarayanan, Nir Levine, Ang Li, Huiyi Hu, Andrew Gordon Wilson, Razvan Pascanu

*ICML Workshop on Invertible Neural Networks and Normalizing Flows 2021; **spotlight talk***

Why Normalizing Flows Fail to Detect Out-of-Distribution Data [\[arXiv, code\]](#)

Polina Kirichenko*, Pavel Izmailov*, Andrew G. Wilson

First presented at *Workshop on Invertible Neural Networks and Normalizing Flows at ICML 2020*

Neural Information Processing Systems (NeurIPS) 2020

Semi-Supervised Learning with Normalizing Flows [\[arXiv, poster, code\]](#)

Pavel Izmailov*, **Polina Kirichenko***, Marc Finzi*, Andrew G. Wilson

First presented at *Workshop on Invertible Neural Networks and Normalizing Flows at ICML 2019*

International Conference on Machine Learning (ICML) 2020

Subspace Inference for Bayesian Deep Learning [\[arXiv, poster, slides, code\]](#)

Pavel Izmailov*, Wesley Maddox*, **Polina Kirichenko***, Timur Garipov*, Dmitry Vetrov, Andrew G. Wilson

First presented at *Workshop on Uncertainty & Robustness 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

Workshop Papers

Effective Surrogate Models for Protein Design with Bayesian Optimization [\[pdf\]](#)

Nate Gruver, Samuel Stanton, **Polina Kirichenko**, Marc Finzi, Phillip Maffettone, Vivek Myers, Emily Delaney, Peyton Greenside, Andrew Gordon Wilson

ICML Workshop on Computational Biology 2021

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***

Awards

DeepMind Fellowship 2019

New York University Center for Data Science Graduate Fellowship 2019

Golden HSE Award (Alumni Success category) [\[link\]](#), 2019

HSE Alumni Academic Fellowship [\[link\]](#), 2019

NeurIPS Travel Award 2019

ICML Travel Award 2019

Cornell Operations Research and Information Engineering Graduate Fellowship 2018

Travel Grant for Women in Data Science Conference [\[link\]](#), 2018, 2019

Ilya Segalovich Scholarship (Yandex) [\[link\]](#), 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), ICLR 2020, ICML 2020 (top 33% reviewer), UAI 2020, NeurIPS 2020, AISTATS 2021, AISTATS 2022, NeurIPS 2022

Workshops: NeurIPS 2019 WiML, NeurIPS 2019 BDL, ICML 2020 UDL, NeurIPS 2020 HAMLETS, ICML 2021 INN+_F, ICML 2021 UDL, NeurIPS 2021 BDL, NeurIPS 2022 DistShift

Talks

“Last Layer Re-Training is Sufficient for Robustness to Spurious Correlations”

- Oral Presentation at the ICML Workshop on Spurious Correlations, Invariance, and Stability [\[link\]](#), 2022
- Genentech, AI seminar 2022

“Robustness of Deep Learning Models to Distribution Shift”, WiML Un-Workshop at ICML 2022

“Why Normalizing Flows Fail to Detect Out-of-Distribution Data”

- ML Collective, Deep Learning: Classics and Trends (with Robin T. Schirrmeister) [\[slides\]](#), 2021
- Facebook AI Research, Uncertainty team 2021
- CogSys Talks, Technical University of Denmark [\[video\]](#), 2020
- Capital One, Machine Learning seminar 2020
- NeurIPS 2020 [\[video\]](#), 2020
- INN+_F: Invertible Neural Networks and Normalizing Flows workshop at ICML [\[video\]](#), 2020

“Applications of normalizing flows: semi-supervised learning, anomaly detection, and continual learning”

- **Keynote talk at ICML Workshop on Representation Learning for Finance Applications** [\[video\]](#), 2021

“Does your model know what it doesn’t know?”, WiML Un-Workshop at ICML 2021

“Task-agnostic Continual Learning with Hybrid Probabilistic Models”, ICML INN+_F 2021 [\[video\]](#), 2021

“Continual Learning in Neural Networks” [in Russian], Bayesian Methods Research Group seminar [\[video\]](#), 2021

“Anomaly detection via Generative Models”

- ODS DafaFest 2020, Uncertainty Estimation in ML Workshop [\[video\]](#), 2020

“Uncertainty Estimation in Bayesian Deep Learning”, WiML Un-Workshop at ICML 2020

“Subspace Inference for Bayesian Deep Learning”

- University of Paris-Saclay, UQSay seminar [\[link\]](#), 2021
- Uncertainty and Robustness in Deep Learning workshop at ICML [\[video\]](#), 2019
- Higher School of Economics (with Pavel Izmailov) [\[video\]](#), 2019

“How do we build neural networks we can trust?”, Broad Institute of MIT and Harvard [\[video\]](#), 2019

Technical Skills

Programming languages: Python, C++

Deep learning frameworks: PyTorch, TensorFlow, Keras

Teaching

Cornell University Ithaca, USA
Teaching Assistant for “Data Science for All” course Jan 2019 – May 2019

Bayesian Methods for Machine Learning on Coursera [\[course link\]](#), 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)