

Arsenii Ashukha

[Home page](#) / [Google Scholar](#) / [GitHub](#) / [Twitter](#) /  London (UK, Global Talent visa)

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I am a Senior Research Scientist at [Isomorphic Labs](#), Alphabet company led by Demis Hassabis, where I work on AI-first drug design. Before joining Isomorphic, I worked at Samsung AI and did my PhD with Dmitry Vetrov, in collaboration with Max Welling. The results of my PhD contributed to sparsification, uncertainty, and generative models.

PROFESSIONAL EXPERIENCE

- 2022 - now* **Isomorphic Labs**
2024 Senior Research Scientist AI. Stealth AI models for drug design.
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2022 Research Scientist AI. Stealth AI models for drug design.
- 2018 - 2022* **Samsung AI**
2021 Deputy Lead of ML Lab. Advised AI projects on applications of generative models and RL.
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2018 Research Scientist. Uncertainty, generative models (e.g. [LaMa inpainting](#) 7.3k github stars).
- 2016 - 2018* **Yandex :: University of Amsterdam, PhD Candidate**
Created *sparse variational dropout*, a method for sparsification of deep neural networks that, for the first time achieved over 250x compression ratio (ICML'17), with the neuron-level sparsity allowed to accelerate inference by 2-5 times (NeurIPS'18). The method was used for a production image retrieval.
- Internships*
2016 Yandex Deep learning based recommendation system for spotify-like music service.
2015 Rambler Language models based recommendation systems for news aggregators.

EDUCATION

- 2017 - 2022* PhD in Machine Learning, National Research University Higher School of Economics
Title: Prior Knowledge for Deep Learning ([link](#)).
Advisor: Dmitry Vetrov.
Committee: Durk Kingma, Karen Ullrich, Jasper Snoek, Yingzhen Li, Sergey Nikolenko.
- 2015 - 2017* MSc in Computer Science, Moscow Institute of Physics and Technology
with Distinction (GPA 4.87/5.0)
- 2011 - 2015* BSc in Computer Science, Bauman Moscow State Technical University

PUBLICATIONS

Google Scholar: scholar.google.com/citations?user=IU-kuP8AAAAJ

* denotes joint first co-authorship

- Resolution-robust Large Mask Inpainting with Fourier Convolutions, WACV 2022 [arXiv](#) / [code](#)
Roman Suvorov, Elizaveta Logacheva, Anton Mashikhin, Anastasia Remizova, Arsenii Ashukha, Aleksei Silvestrov, Naejin Kong, Harshith Goka, Kiwoong Park, Victor Lempitsky
- Pitfalls of In-Domain Uncertainty Estimation and Ensembling in Deep Learning, ICLR 2020 [arXiv](#) / [code](#)
Arsenii Ashukha*, Alexander Lyzhov*, Dmitry Molchanov*, Dmitry Vetrov
- Greedy Policy Search: A Simple Baseline for Learnable Test-Time Augmentation, UAI 2020 [arXiv](#) / [code](#)

Arsenii Ashukha*, Dmitry Molchanov*, Alexander Lyzhov*, Yuliya Molchanova*, Dmitry Vetrov

The Deep Weight Prior, ICLR 2019

[arXiv](#) / [code](#)

Arsenii Ashukha*, Andrei Atanov*, Kirill Struminsky, Dmitry Vetrov, Max Welling

Variance Networks: When Expectation Does Not Meet Your Expectations, ICLR 2019

[arXiv](#) / [code](#)

Arsenii Ashukha*, Kirill Neklyudov*, Dmitry Molchanov*, Dmitry Vetrov

Structured Bayesian Pruning via Log-Normal Multiplicative Noise, NeurIPS 2017

[arXiv](#) / [code](#)

Kirill Neklyudov, Dmitry Molchanov, Arsenii Ashukha, Dmitry Vetrov

Variational Dropout Sparsifies Deep Neural Networks, ICML 2017

[arXiv](#) / [code](#)

Arsenii Ashukha*, Dmitry Molchanov*, Dmitry Vetrov

TECHNICAL SKILLS

- Deep Learning, Deep Neural Networks, Machine Learning, Modeling;
- I'm fluent in Python and I used to code in C/C++, Go, language is not a problem after all.
- I'm also fluent with common data science tools such as NumPy, matplotlib, scikit-learn, and pandas.
- I'm comfortable with the common data science environment e.g., bash, git, Linux.
- Deep learning frameworks: Jax, PyTorch, Theano, and TensorFlow.
- Comfortable with GPU clusters and distributed training.
- I have experience with MapReduce, Hadoop, Hive, and Spark, Beam.

CODE

- Research-ready implementations:
 - [LaMa Image Inpainting](#) (★7.3k)
 - [Multi-GPU SimCLRv1](#) closely reproduced results on both CIFAR-10 and ImageNet
 - [Ensembles \(Deep ensembles, Snapshot ensembles, cSGLD, FGE, etc.\)](#)
- Simple MVP implementations of ML algorithms:
 - [Real NVP normalizing flows](#)
 - [Quantile Regression DQN \(Distributional RL\)](#)
 - [Equivariant GNN](#)

THESIS CO-SUPERVISION

- [Alexander Lyzhov](#) (moved to NYU)
 - Deep Neural Network Ensembles: Analysis and Approaches to Diversification (MSc, 2020)
- [Andrei Atanov](#) (moved to EPFL)
 - Effective Learning of Deep Neural Networks Ensembles (BSc, 2018)
 - Learning Deep Models with Small Data (MSc, 2020)
- [Evgenii Nikishin](#) (moved to Mila)
 - Stability Improvement and Knowledge Transfer in Deep Reinforcement Learning (MSc, 2019)

PROGRAM COMMITTEE

- Neural Information Processing Systems, NeurIPS:
 - 2019: top-50% highest-scored reviewers
 - 2021: outstanding reviewer award (top-8%)
- International Conference on Machine Learning, ICML (2019, 2020)
 - 2020: top-33% highest-scored reviewers
- International Conference on Learning Representations, ICLR (2020, 2021)
- ICML Workshop on Invertible Neural Networks (2019, 2021, invertibleworkshop.github.io)

- Bayesian Deep Learning Workshop (since 2017, bayesiandeeplearning.org)

TEACHING

- Supervisor of reading clubs on machine learning at HSE and Yandex school of data analysis (since 2017)
- A lecture with a practical session on Normalizing Flows at DeepBayes Summer School (2019, links: [1](#), [2](#))
- Lecturer, Moscow Institute of Physics and Technology:
 - A lecturer and a manager of a deep learning part of ML course (ml-mipt.github.io).
 - A lecturer of DL part and an instructor of practical sessions of the *Data Mining in Action* course ([link](#)).