Arsenii Ashukha

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I am a Senior Research Scientist at Isomorphic Labs, an Alphabet subsidiary led by Demis Hassabis, where I work on deep learning models for interaction of drug and protein molecules. Previously I was a Research Scientist at Samsung and PhD student at the Bayesian Methods Research Group under the supervision of Dmitry Vetrov.

Selected open projects: LaMa Inpainting (⭐9.1k), PyTorch Ensembles, and Variational Dropout Sparsifies DNN.

EMPLOYMENT HISTORY

2022 - now — **Senior Research Scientist, Isomorphic Labs**
A core member of the binding affinity prediction team. Led the scaling of a model and data. Demonstrated a significant company-wide impact, and strong wet lab results.

2018 - 2022 — **Leading Engineer, Samsung AI Center**
Developed LaMa, an image inpainting model achieving up to 50% improvement for large masks, and uncertainty estimation models. I co-led a team focused on applications of generative models.

2016 - 2018 — **Student Researcher, National Research University Higher School of Economics**
Created sparse variational dropout, a compression method for deep learning models, that led to a 250x compression ratio, 40% improvement.

Internships & Research visits

2017 University of Amsterdam Priors for Bayesian deep learning with Max Welling
2016 Yandex Deep learning based recommendation system for online audio streaming service
2015 Rambler Recommendation system for online news aggregator

EDUCATION

2017 - 2022 — **PhD in Computer Science**, 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

2011 - 2015 — **BSc in Computer Science**, Bauman Moscow State Technical University

MISCELLANEOUS

- **Program committee:** NeurIPS'21 Outstanding Reviewer Award, ICML'20 top-33% Highest-Scored Reviewers
- **Open source implementations:** LaMa Image Inpainting, Multi-GPU SimCLRv1, PyTorch Ensembles, Real NVP normalizing flows, Quantile Regression DQN (Distributional RL), Equivariant GNN
- **Technical stack:** deep learning, deep neural networks, machine learning, python, numpy, matplotlib, scikit-learn, pandas, bash, git, linux, jax, pytorch, distributed training, dataflow, beam.
- **Teaching:** Co-author of machine learning textbook in Russian education.yandex.ru/handbook/ml, taught machine learning at top-3 Russian universities and Yandex School of Data Analysis.
- **Thesis co-supervision:** Alexander Lyzhov (moved to NYU, Deep 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).
- **Immigration status:** I hold a Global Talent UK Visa (under the Exceptional track).