Arsenii Ashukha

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I am a Senior Research Scientist at Isomorphic Labs, Alphabet subsidiary led by Demis Hassabis, where I develop and train deep learning models for drug descovery. Before joining Iso, I did a PhD in machine learning, focusing on generative models, uncertainty, and sparsification. You may be familiar with some of my projects: LaMa Inpainting (⭐8.4k), PyTorch Ensembles, and Variational Dropout Sparsifies DNN.

Publications scholar.google.com/citations?user=IU-kuP8AAAA

PROFESSIONAL EXPERIENCE

2022 - now **Isomorphic Labs**
Senior Research Scientist (Feb 2024). Research Scientist (Oct 2022).
Stealth models for drug design.

2018 - 2022 **Samsung AI**
Lead Research Scientist (2020). Research Scientist (2018). Uncertainty, generative models. Published a range of ICLR/NeurIPS papers. Develop models that are used in the real world (e.g. LaMa inpainting). Since 2020, co-led a team, focused on applications of generative models and reinforcement learning.

2016 - 2018 **National Research University Higher School of Economics**
Research Scientist (PhD student equivalent). Created sparse variational dropout, over 250x compression ratio (ICML'17). This position was done in collaboration with Yandex and University of Amsterdam.

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

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

MISCELLANEOUS

- **Technical stack:** deep learning, deep neural networks, machine learning, python, numpy, matplotlib, scikit-learn, pandas, bash, git, linux, jax, pytorch, distributed training, dataflow, beam.
- **Code:** Research-ready implementations: LaMa Image Inpainting, Multi-GPU SimCLRv1, Ensembles. Simple MVP implementations of ML algorithms: Real NVP normalizing flows, Quantile Regression DQN (Distributional RL), Equivariant GNN
- **Programm committee:** NeurIPS 2021: outstanding reviewer award, ICML 2020 top-33% highest-scored reviewers
- **Teaching:** Co-author of machine learning textbook in Russian https://education.yandex.ru/handbook/ml, teached machine learning at top-3 Russian universities and yandex scool 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).