Alexander Shevchenko

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Google Scholar
LinkedIn

▬▬▬ Education

PhD Student in Mathematics & Computer Science　　　　　　　　Sept. 2019 - Sept. 2024
Institute of Science and Technology Austria　　　　　　　　　　　Klosterneuburg, Austria
Supervisors: Marco Mondelli, Dan Alistarh

Master Student in Statistical Learning Theory　　　　　　　　Sept. 2018 - Sept. 2019
Higher School of Economics / Skoltech　　　　　　　　　　　　　Moscow, Russia
Cumulative GPA: 9.25 (10.0 scale)

B.Sc. in Computer Science with Distinction　　　　　　　　　Sept. 2014 - Aug. 2018
Higher School of Economics, Applied Mathematics and Informatics, ML specialization　　　　Moscow, Russia
Cumulative GPA: 9.16 (10.0 scale); class rank: top 2%

▬▬▬ Work Experience

Research Assistant at Bayesian Methods Research Group　　　Sept. 2017 - Sept. 2019
supervised by Anton Osokin and Dmitry Vetrov　　　　　　　　　Moscow, Russia

Research Assistant at Samsung-HSE laboratory　　　　　　　Nov. 2018 - Sept. 2019
Big Data and Information Retrieval School, Higher School of Economics　　　　Moscow, Russia

Research Assistant at Center of Deep Learning and Bayesian Methods　　Apr. 2018 - Nov. 2018
Big Data and Information Retrieval School, Higher School of Economics　　　　Moscow, Russia

Junior Analyst at IPONWEB　　　　　　　　　　　　　　　July 2017 - Nov. 2017
R&D Team; project: word2vec user embeddings for advertisement scoring system　　Moscow, Russia

▬▬▬ Publications and Preprints

Compression of Structured Data with Autoencoders: Provable Benefit of Nonlinearities and Depth　[paper]
Kevin Kögler*, Alexander Shevchenko*, Hamed Hassani, Marco Mondelli
Preprint, 2024

Fundamental Limits of Two-layer Autoencoders, and Achieving Them with Gradient Methods　[paper]
Alexander Shevchenko*, Kevin Kögler*, Hamed Hassani, Marco Mondelli
International Conference on Machine Learning (Oral), 2023

Mean-field Analysis of Piecewise Linear Solutions for Wide ReLU Networks　[paper]
Alexander Shevchenko, Vyacheslav Kungurtsev, Marco Mondelli
Journal of Machine Learning Research, 2022

Landscape Connectivity and Dropout Stability of SGD Solutions for Over-parameterized NNs　[paper]
Alexander Shevchenko, Marco Mondelli
International Conference on Machine Learning, 2020

▬▬▬ Research Projects

Scaling Matters in Deep Structured Prediction Models　　　　　　　　2018
supervised by Anton Osokin　　　　　　　　　　　　　　　　　　　[report]

Analyzed end-to-end training of deep structured models (combinations of DNNs and CRFs) and proposed an algorithm superior in terms of speed and stability to the conventional stage training approach.

Calibration Theory for Structured Prediction Tasks　　　　　　　　2019
supervised by Anton Osokin

Provided a tighter upper-bound on excess between surrogate risk (cross-entropy) and actual risk (Hamming distance) using Fenchel-Young losses framework.

▬▬▬ Teaching Experience

Teaching Assistant for Information Theory　　　　　　　　　Oct. 2021 - Dec. 2021
Institute of Science and Technology Austria　　　　　　　　　Klosterneuburg, Austria

Teaching Assistant for Data Science Track Course March 2021 - May 2021
Institute of Science and Technology Austria Klosterneuburg, Austria

Teaching Assistant for Machine Learning Sept. 2017 - June 2018
National Research University Higher School of Economics Moscow, Russia

Teaching Assistant for Mathematical Analysis Feb. 2017 - June 2017
National Research University Higher School of Economics Moscow, Russia

Technical Skills

Programming Languages: Python, C++
Technologies and Tools: Pytorch, JAX (novice), LaTeX