Maxim Kodryan

Moscow, Russia

maxkordn54@gmail.com

SUMMARY

I am a PhD in computer science who does research and teaching in the field of machine learning. I am most interested in the foundations of deep learning, in particular the optimization and generalization of neural networks, their relationship to the training process and the properties of the loss landscape.

In my research, I have developed model compression methods, investigated power laws in the loss of deep ensembles, studied the properties of training dynamics and loss landscape of neural networks with scale-invariant parameters, etc.

WORK HISTORY

HSE University | Moscow Russia

Research Fellow   Jan.2021 - Present

Conducting research into the training dynamics and loss landscape of deep neural networks.

HSE University | Moscow Russia

Intern Researcher   Aug.2019 - Dec.2020

Started working under the guidance of [Dmitry Vetrov](#) in the [Bayesian Methods Research Group](#). Developed a Bayesian method for automatic rank selection in tensor decompositions ([MARS](#)) and began work on deep learning foundations.

Samsung R&D Institute | Moscow Russia

Assistant Engineer   Jun.2017 - Mar.2019

Devised RL-based algorithms for automatic software testing, deployed deep neural networks on mobile devices, and developed a Bayesian model compression technique for language modeling ([DSVI-ARD](#)).

EDUCATION

FRC CSC RAS & HSE University | Moscow Russia

Computer science, Ph.D.   Sep.2020 - Mar.2024

Moscow State University | Moscow Russia

Applied Mathematics and Computer Science, Master of Science   Sep.2018 - Jun.2020

Graduated with honours

Moscow State University | Moscow Russia

Applied Mathematics and Computer Science, Bachelor of Science   Sep.2014 - Jun.2018

Graduated with honours

QUALIFICATIONS

- Ph.D. in Computer Science
- Yandex Scientific Award 2022 (young researcher): https://yandex.com/scholarships/
- Diploma with honours (Master's programme) in Applied Mathematics and Computer Science
- Diploma with honours (Bachelor's programme) in Applied Mathematics and Computer Science
- IELTS Certificate 7.5 (Upper intermediate)

OTHER

Since 2020, I have been teaching various courses related to ML, including "Bayesian Methods for Machine Learning" at Moscow State University and Yandex School of data analysis and "Optimization in Machine Learning" at HSE University. I also have experience supervising bachelor and master students.

I give open talks on my research and general machine learning topics. A few examples in English can be found here and here.

TOP PUBLICATIONS

- [Training dynamics and loss landscape of neural networks with scale-invariant parameters](). **Ph.D. Thesis, 2024**. *Maxim Kodryan*, adv. by Dmitry Vetrov.

- [MARS: Masked Automatic Ranks Selection in Tensor Decompositions](). **AISTATS 2023**. *Maxim Kodryan*, Dmitry Kropotov, Dmitry Vetrov.

- [Training Scale-Invariant Neural Networks on the Sphere Can Happen in Three Regimes](). **NeurIPS 2022**. *Maxim Kodryan**, Ekaterina Lobacheva*, Maksim Nakhodnov*, Dmitry Vetrov.

- [On the Periodic Behavior of Neural Network Training with Batch Normalization and Weight Decay](). **NeurIPS 2021**. Ekaterina Lobacheva*, *Maxim Kodryan**, Nadezhda Chirkova, Andrey Malinin, Dmitry Vetrov.

- [On Power Laws in Deep Ensembles](). **NeurIPS 2020 spotlight**. Ekaterina Lobacheva, Nadezhda Chirkova, *Maxim Kodryan*, Dmitry Vetrov.

- [Efficient Language Modeling with Automatic Relevance Determination in Recurrent Neural Networks](). **RepL4NLP workshop at ACL-2019**. *Maxim Kodryan**, Artem Grachev*, Dmitry Ignatov, Dmitry Vetrov.

REFERENCES

Google Scholar ID: [BGVWciMAAAAJ]()

ORCID: [0000-0002-6554-5672]()

Scopus AuthorID: [57737526000]()

ResearcherID: [AAF-9707-2021]()

GitHub: [https://github.com/MaxBourdon]()

Corporate webpage: [https://www.hse.ru/en/staff/mkodryan]()

Corporate email: [mkodryan@hse.ru]()

BayesGroup webpage: [https://bayesgroup.ru/people/maxim-kodryan]()