

To whom it may concern,

My name is Ivan Nazarov. I am 35 years old and have with 12 year working experience. I have been deeply immersed in Machine Learning for the last seven years, during which worked on various projects: applied, tackling industrial problems such as forecasting and signal processing, and theoretically inclined, including optimization, matrix decompositions, variational Bayes and sparsification methods for DL.

In 2016 I graduated from the MSc programme on computer science at the National Research University Higher School of Economics and in 2020 I successfully completed my PhD studies on applied mathematics, computer science and engineering at Skoltech. The thesis is on the topic of model sparsification: sparse-regularized matrix decompositions, variational dropout, and parameter pruning methods based on second-order loss approximation. I have a paper about variational Dropout for complex-valued deep networks at ICML2020¹ and co-authored several other publications in other venues.²

I write a lot of code in python³ and, when the problem demands, in C/C++. I know how to set up numerical experiments, plan and carry out ablation studies, and communicate the findings specialized and broader audiences. I have no problem with engaging with probability and mathematical statistics, optimization and numerical methods, functional analysis, and linear algebra. When doing research I have a broader, integral look at the methods, their interactions and relations to adjacent ML and RL subfields. I feel secure in distilling the key ideas from diverse research fields and combining them, and enjoy communicating them to others through papers, presentations and teaching materials.

In the last two years I have been consumed by the exciting and challenging field of Reinforcement Learning and Optimal Control, specifically hierarchical policies, planning, MCTS and adaptive computations. My team took first place in the recent NeurIPS Nethack Challenge for our hybrid algorithmic-neural solution (Team RAPH).

Recently I was intrigued by the prospect of marrying classic search algorithms with the latest advances in machine and deep learning and the problem of generalizing from small problems to large ones. In particular, improving the runtime speed by practical methods to learn heuristics for Branch and Bound solvers from a collection of small Mixed Integer Program instances with further fine-tuning on a handful of practically relevant problems within the same class.

¹<https://proceedings.mlr.press/v119/nazarov20a.html>

²<https://scholar.google.ru/citations?user=1F5HI3QAAAAJ>

³<https://github.com/ivannz>

I intend to continue pursuing research in RL and that my software engineering skills and diligent and broad approach to research, coupled with excitement with AI in general, would allow me to make meaningful contributions both the field itself and its applications.

Thank you for your consideration,

Ivan Nazarov