DENIS TARASOV

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EDUCATION

Jacobs University Bremen, Bremen, Germany
Bachelor in Computer Science **September 2022 – June 2023**

Higher School of Economics, Saint Petersburg, Russia
Bachelor in Applied Mathematics and Computer Science, GPA 8.73/10 **September 2019 – November 2022**

PUBLICATIONS AND PREPRINTS

Revisiting Behavior Regularized Actor-Critic. **ICLR 2023 Reincarnating RL Workshop**
Denis Tarasov, *Vladislav Kurenkov, Alexander Nikulin, Sergey Kolesnikov*
Achieving state-of-the-art performance in Offline RL without ensembles by applying different Deep Learning techniques.

Anti-Exploration by Random Network Distillation. **Under review, 2023**
Alexander Nikulin, Vladislav Kurenkov, ***Denis Tarasov****, Sergey Kolesnikov*
Research on application of RND for uncertainty estimation in Offline RL. Replacing ensembles with RND.

Q-Ensemble for Offline RL: Don't Scale the Ensemble, Scale the Batch Size. **NeurIPS 2022 Offline RL Workshop**
Alexander Nikulin, Vladislav Kurenkov, ***Denis Tarasov****, Dmitriy Akimov, Sergey Kolesnikov*
Research on large-batch optimization in Offline RL for Q-ensemble methods.

CORL: Research-oriented Deep Offline RL Library. **NeurIPS 2022 Offline RL Workshop**
Denis Tarasov*, Alexander Nikulin, Dmitriy Akimov, Vladislav Kurenkov, Sergey Kolesnikov*
Research-oriented single-file implementations of SOTA Offline RL algorithms and benchmarking.

Let Offline RL Flow: Training Conservative Agents in the Latent Space of Normalizing Flows. **NeurIPS 2022 Offline RL Workshop**
Dmitriy Akimov, Vladislav Kurenkov, Alexander Nikulin, ***Denis Tarasov****, Sergey Kolesnikov*
Adapting normalizing flows for Offline RL.

Prompts and Pre-Trained Language Models for Offline Reinforcement Learning. **ICLR 2022 Workshop GPL**
Denis Tarasov*, Vladislav Kurenkov, Sergey Kolesnikov*
Using pre-trained Language Models for boosting performance of Offline RL algorithms where environments does not contain text.

Fixing 1-bit Adam and 1-bit LAMB algorithms.. **SEIM 2022**
Denis Tarasov*, Vasily Ershov*
Paper about fixing 1-bit optimizers and proposing new aspects that should be considered when new SGD algorithms are developed.

Predicting ethnicity with data on personal names in Russia. **Preprint 2021**
Alexey Bessudnov, ***Denis Tarasov****, Viacheslav Panasovets, Veronica Kostenko, Ivan Smirnov, Vladimir Uspenskiy*
Prediction of person's perceived ethnicity based on name for major ethnic groups populating Russia.

EXPERIENCE

Researcher at Tinkoff AI, Remote **October 2021 – Present**
Researched application of pre-trained Language Model for solving text-free Offline Reinforcement Learning problems and published short paper at ICLR 2022 and ACL 2022 workshops. Developed research-oriented Offline RL library and published report at NeurIPS 2022 workshop. *Skills*: Python, PyTorch, NLP, Reinforcement Learning.

Machine Learning Engineering intern at Meta, London, UK **July 2022 – September 2022**
Working as a part of the AI Applied Research Relevance team. Experimenting with applying knowledge distillation to entity linking model in order to improve performance using additional signals from unlabeled data. Collected and processed data with signals, added support of newest model version in the debug tool, improved model performance by 4%. *Skills*: Python, PyTorch, Presto.

Machine Learning Engineering intern at Yandex, Saint Petersburg, Russia **July 2021 – October 2021**
Researched neural networks distributed learning with slow network. Discovered weakness and purposed solution for existing implementations of 1-bit Adam and 1-bit LAMB to prevent divergence. Adapted 1-bit optimizers for production needs. Published results at SEIM 2022 conference. *Skills*: Python, PyTorch.

Research intern at JetBrains Research, Saint Petersburg, Russia **July 2020 – August 2020**
Research work on predicting of antibodies CDR-H3 loops 3D structures from amino acid sequences with end-to-end Deep Learning approach. Recollected and reprocessed data because original data was incorrect. Modified baseline to make predicted structures physically valid. Applied transfer learning to protein folding network and beaten baseline by 20%. Afterwards results of the project were published at Machine Learning in Structural Biology Workshop, NeurIPS 2021 (my data collection with preprocessing, visualization and model modification present in the paper repository). *Skills*: Python, PyTorch, TensorFlow 1.

SIDE PROJECTS

Multi-agent hide and seek **March 2021 – June 2021**

Project at JetBrains Research. The goal of project was to use Unity Engine to reproduce results from "Emergent Tool Use From Multi-Agent Autocurricula" paper by OpenAI where reinforcement learning agents learned to use different tools to maximize their reward while playing competitive game. One of the environments was fully replicated but desired behavior was obtained only in simplified setting because more complicated setups require vast computations. *Skills*: C#, Unity, Unity ML agents.

IntelliJ IDEA team statistics plugin **April 2021 – June 2021**

The goal of the project was to create IntelliJ IDEA plugin and web-application which allow to track user statistics in working groups via different (including defined by users) metrics. My part of the project was to implement server and web-application. *Skills*: Python, Django.

Ethnic classification of names and surnames **October 2020 – April 2021**

Research project at Yandex School of Data Analysis on Russian names ethnic classification problem. The goal was to create machine learning algorithm which predicts person's ethnicity by name. My job was to find the best fitting algorithm for the this problem. *Skills*: Python, PyTorch, scikit-learn, pandas, XGBoost, CatBoost, FastText.

Mithril Project **February 2020 – June 2020**

Project on creating smart T-shirt which allows to track whether the posture of the wearer is correct. I did the following things in the project: programmed sensors, created Android application to interact with T-shirt by Bluetooth, used machine learning algorithms to track posture correctness. *Skills*: C, C++, STM32, Kotlin, Python, scikit-learn, pandas.

REVIEW EXPERIENCE

Workshop on Reincarnating Reinforcement Learning at ICLR 2023 **February 2023**

HONORS AND AWARDS

5th All-Russian Student Olympiad "Ya – professional" **2022**

Winner in the AI track among undergraduate students, 17th place out of 2000+ participants

"Metric Learning for Facial Descriptors" hackathon by HUAWEI Russian Research Institute at 5th RAAI Summer School **July 2019**

2nd place out of 29 participants