

Albina Klepach

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📺 cinemere **in** /in/albinakl

Machine Learning / Deep Learning / Reinforcement Learning

EXPERIENCE

- **AIRI, Adaptive Agents Laboratory (dunnolab)** Moscow
Research Scientist October 2024 - Present
 - **Object-centric latent action learning:** Explored application of object-centric pretraining for to latent action models for enabling learning agents solely from distracted video data. The paper based on this research was accepted to ICLR 2025 workshop.
- **Huawei, Hisilicon CPU Kirin** Moscow & Shanghai
Machine Learning Research Engineer July 2022 - July 2024
 - **Reinforcement Learning for Compilers:** Explored the use of RL to optimize compiler phase ordering, reviewing existing state-of-the-art methods, preparing infrastructure, and achieving positive results on public benchmarks.
 - **Graph Machine Learning for Compilers:** Developed and implemented Graph Machine Learning techniques for compilers, focusing on optimizing basic block ordering through unsupervised graph representation learning.
 - **Representation Learning for CPU:** Applied advanced representation learning methods for CPU optimization, including unsupervised learning on sequential data, classical machine learning, topological data analysis, autoencoders, text and speech processing techniques, contrastive pretraining (MoCo), and Graph ML.
 - **Reinforcement Learning for CPU:** Innovated and deployed reinforcement learning algorithms to enhance central processor performance through neural network-based solutions.
- **Skoltech CDISE, Advanced Multiscale Modeling Laboratory** Moscow
Research assistant June 2021 - June 2022
 - **📺 Leader-Guided Evacuation:** Combination of the active matter with the RL for the development of the model for optimisation of the trajectories of robots-rescuers for optimal evacuation of people from public places.
 - **Leaders in Active Matter:** Multiscale C++ simulations of extended Viscek model for active matter particles with an addition of a leader for plotting a phase diagram.
- **Nanosemantics Lab** Moscow
Industrial immersion trainee Summer 2021
 - **Speaker verification and speech emotion, gender and age recognition:** Service based on models with features from speech melspectrogram and from audio using *wav2vec* embeddings tested on multilingual datasets.
- **Space Research Institute, High Energy Astrophysics Department** Moscow
Research assistant July 2019 - July 2020
 - **X-ray pulsars analysis:** Spectral and timing analysis of the outbursts in Be/X-ray pulsars with the use of NuStar observations. Created full pipeline of the analysis for astrophysics software for several pulsars.
- **MPI-CBG, Laboratory of network complexity and systems biophysics** Dresden
Internship student Summer 2018
 - **Topological clustering:** Using cycle-coalescence algorithm to analyze 2000 protein structures and determine the groups of alpha-helix and beta-pleated-sheet. Implemented a parallel python script of algorithm and performed analysis for 3D structures based on former results for 2D.

EDUCATION

- **Skolkovo Institute of Science and Technology** Moscow
Master of Data Science; GPA: 4.4 out of 5 Aug. 2020 - July. 2022
- **Moscow Institute of Physics and Technology** Moscow
Bachelor of Applied Mathematics and Physics; GPA: 4.8 out of 5 Aug. 2016 - July. 2020

PET PROJECTS

- **📺 AD 4 in-context RL:** Implementation of paper "In-context RL with Algorithm Distillation"
- **📺 Dreamer + MAX:** Enhancing model-based RL (Dreamer-V2) with model-based exploration.
- **📺 Rust code classification:** Classifying `rust-lang/rust` unit-tests to appropriate folders.
- **📺 RL 4 TSP:** A2C with Pointer Network architecture for solving Travelling Salesman Problem.
- **BoundaryLoss:** Extension of boundary loss on medical segmentation task for several datasets.

PROGRAMMING SKILLS

- **Languages:** Python, C/C++ **Technologies/Software:** Linux, Git, Docker, Kubernetes, Airflow
- **Frameworks:** pytorch, lightning, huggingface, scipy, scikit, pandas, numpy, numba, dash, gym, arrow, jax

PERSONAL INFORMATION

- **Languages:** English (C1, IELTS 7.0), Italian (A1), Russian (native) **Age:** 25 years
- **Activities:** Theatre (former head of MIPT student theatre), Teaching (summer camp RL course for schoolchildren)