Igor Timofeev

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Enployement History:

- may 2022 - january 2024, Gero: Development of denoising and batch removal techniques in RNA-seq bulk and single-cell data. Obtaining embeddings of cellular perturbations to evaluate the functional similarities among them. Multi-VAE, SemiVAE, FactorVAE, iVAE, ScVI, DVAE, FC1000, etc. Enrichment analysis, differential expression, leverage score and cell-cycle classification from Perturb-seq, noise estimation from this paper and A Random Matrix Approach to Cross-Correlations.

- march 2021 - august 2021, Yandex: Product analyst for Yandex Search. Improving offline Entity Search metrics, analyzing growth points and customer preferences.

- august 2020 - february 2021, IE Shapiro Leonid Lvovich: Option pricing model development using machine learning and Python. Fitting asset prices with options data. FFT and Lewis method was used for option prices calculation and asset price was modeled by tempered stable distribution.

Education:

St. Petersburg State University,
Department of Mathematics and Mechanics,
Specialist degree in Astronomy (equivalent of Bachelor + Master),
Sep, 2014 - June, 2019.

Degree Thesis:

Topic: "The Effect of Close Approach to a Planet on the Rotation of an Asteroid".
In this work I have developed a program in C++ using Boost library and numerical methods for calculating an asteroid trajectory in the Solar system.

Second Education (interrupted):

National Research University Higher School of Economics,
Master of Computational Biology and Bioinformatics,
Sep, 2021 - Apr, 2022

I started a scientific work about aging clocks and finished one semester of Molecular Biology, Machine learning, Algorithms, Clifford Algebras, and Numerical Calculus, I partially took an Algorithms in Bioinformatics course as well. Unfortunately, the education was not finished due to the war in Ukraine.

Additional education and competitions:

- Bioinformatics Summer School 2019 on the topic "Bioinformatics in Research of Aging and Biological Development" and the project.
- 4th place in SignalNeuroHack hackathon with Huawei research project.
- Completed the course "Deep Learning на пальцах (Put Simply)" by Computer Science Center and Novosibirsk State University. Also Reinforcement Learning tasks using DQN algorithm and Policy Gradient.
- Specialization "Machine Learning and Analysis" by Yandex on Coursera.
- Stepik courses certificates.
- Some lectures and books in addition to university literature: Blastim courses, STAT115 Harvard, Molecular Biophysics(Eric Lindahl), Deep Generative Modeling, Watanabe, David Tong lectures, etc.
- Reading Group Key Phenomena in AI Risk, reading group in Belgrade about AI Safety Fundamentals, EA Serbia Introductory Course.

Knowledge and skills:

- Machine Learning: PyTorch, TensorFlow, scikit-learn, etc.
- Python, C/C++.
- Calculus, Algebra, Numerical analysis, Probability theory and Mathematical Statistics, Algorithms and Data Structures.
- Physics: Statistical Physics, Quantum Mechanics, etc.
- Basics of Molecular Biology, partially Bioinformatics: BLAST, differential expression,enrichment, batch effect removal, RNA-seq, partially Biophysics.
- Data Analysis: SQL, Statistical Hypothesis Testing.