# Igor Timofeev

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**Enployement History:**

- Yandex, march 2021 - august 2021: Product analyst for Yandex Search. Improving offline Entity Search metrics, analyzing growth points and customer preferences.
- IE Shapiro Leonid Lvovich, august 2020 - february 2021: 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 distribution was modeled by tempered stable distribution.
- Special Technology Center (STC), October 2019 - July 2020: Video Object Detection and Online Tracking with YOLO from AlexeyAB/darknet open source repository (DarkNet extension), Kalman filter and Hungarian algorithm using C/C++. Python for parsing the VisDrone dataset and for testing. Also used by OpenCV, DVC, CUDA, Bash, Git.

**Knowledge and skills:**

- Python, C/C++. Machine Learning: PyTorch, scikit-learn.
- Calculus, Algebra, Numerical analysis, Probability theory and Mathematical Statistics.

**Projects and competitions:**

- 4th place in SignalNeuroHack hackathon with Huawei research project. We replicated the success of the paper "The Lottery Ticket Hypothesis: Finding Sparse, Trainable Neural Networks" and also researched the application of that paper in turns of CNN. That task required the implementation of freezing individual neural network weights in PyTorch.
- Bioinformatics Summer School project based on the paper "Widespread Proteome Remodeling and Aggregation in Aging C. elegans". We analyzed the proteomics of C. elegans of different ages and genetic modifications and constructed an aging clock from this data using PCA and approximation methods.

**Education:**

St. Petersburg State University,
Department of Mathematics and Mechanics,
Master of Astronomy,
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.

**Courses and additional education:**

- Data Analysis practice in R in the third year of the University.
- Completed the course "Deep Learning на пальцах (Put Simply)" by Computer Science Center and Novosibirsk State University. Practice with Numpy: Linear Classifier, KNN, FCN, CNN, and with PyTorch: Image Classification using ResNet, Segmentation using UNet, Part Of Speech Tagging using Word2Vec and RNN. Also Reinforcement Learning tasks using DQN algorithm and Policy Gradient. Theoretical knowledge about Transformer, DeepSpeech, Variational Autoencoder, GAN, AlphaGO Zero.
- Bioinformatics Summer School 2019 on the topic "Bioinformatics in Research of Aging and Biological Development".
- Specialization "Machine Learning and Data Analysis" by Yandex on Coursera. Practice with Scikit-learn and XGBoost: Linear Regression, Random Forests, Gradient Boosting, various methods of Clustering and Dimensionality Reduction, Anomaly Detection and Data Visualization.
- Stepik courses certificates: Statistics basics, Introduction to computer architecture, Introduction to Linux, Data Analisys in R, C++ Programming, Molecular biology and genetics, Introduction to molecular biology and biomedicine, Algorithms: Theory and Practice. Methods and Data structures.