

EDUCATION

- MSc student in Applied Mathematics and Informatics, GPA 9.23 / 10.0
Higher School of Economics : Faculty of Computer Science Sep 2019 – Jun 2021
Joint programme with **Yandex School of Data Science**
- BSc in Applied Mathematics and Computer Science, GPA 4.89 / 5.0
Lomonosov Moscow State University Sep 2015 – Jun 2019
Faculty of Computational Mathematics and Cybernetics

EXPERIENCE

- **Research Intern at Yandex** Sep 2020 – now
- **Software Engineering Intern at Yandex**
Machine Translation department (TensorFlow, MapReduce, NumPy, SciPy) Jun 2019 – Sep 2019
 - Conducted experiments to improve quality and diversity of translations
 - Analyzed and found some basic mistakes that baseline approaches make
 - Implemented several successful models and inference techniques in the Yandex's machine learning library with an ability to control diversity level
 - **Achieved statistically significant improvement in quality and diversity simultaneously** on Yandex's metrics, human evaluation compared to the baselines and commonly used in scientific field metrics: **about 1.1 growth of max-BLEU** (maximum BLEU of generated translations) and **about 1.6 times n-gram diversity (1 - self-BLEU) growth**
- **Software Engineering Intern at Yandex**
Voice Technology department (C++ STL, MapReduce, Protobuf) Jun 2018 – Oct 2018
 - Implemented several methods of probability smoothing and their modification in language models for Automatic Speech Recognition
 - Conducted experiments on quality measurement to find the best model among all
 - Implemented an optimal algorithm for constructing n-gram language models in C++ using MapReduce, **which decreased wall time by at least 3 times and slightly increased quality measure** compared to baseline
 - Wrote a complete framework with a set of operations available from CLI

PROJECTS

- **Actual AI Designer (PyTorch) – Mentorship in a school project** Aug 2020 – now
A tool for automatic generating logos based on the description
 - **Teaching** students the necessary topics in **machine learning, computer vision** and other technical skills sufficient to complete the project
- **BigARTM (C++ Boost/STL, Protobuf, Travis, AppVeyor)** Jan 2017 – May 2019
Open Source library for topic modelling with support of multiple regularization
 - Developed and supported a tool for parallel calculation of pairwise word statistics such as frequency of mutual occurrence, PMI in large text corpora in conditions of low RAM
Wikipedia full-text processing takes 6 hours on octa-core intel core i5 8th gen, taking less than 8 Gb of RAM compared to at least 20 Gb needed before
- **Implementation of various ML algorithms (PyTorch, NumPy, SciPy)**
 - **kNN**, works about 3 times faster than Scikit-learn implementation
 - **EM algorithm** for noisy pictures refinement
 - **Convolutional Neural Net** from scratch in NumPy
 - **Sparse Variational Dropout**, which allows to reduce the memory consumption for matrix storage by 30 times without loss of quality on the **mnist** dataset (**original paper**)

TECHNICAL SKILLS

- **Languages used at work:** C++, Python, C, Bash
- **Basic knowledge:** SQL, Assembly language
- **Technologies:** MapReduce, Protobuf, C++ Boost, CMake, Make, SciPy, CVXPY, Scikit-learn, NumPy, Pandas, Docker
- **Deep Learning frameworks used at work:** PyTorch, TensorFlow, Keras
- **Tools:** Git, Subversion, UNIX/Linux, Travis, AppVeyor, L^AT_EX