

## EDUCATION

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- MSc student in Applied Mathematics and Computer Science  
**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

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- **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

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- **[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

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- **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,  $\LaTeX$