

Popov Nicolai

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Education


2017-2021 **BSc in Applied Mathematics and Physics**, GPA 4.86/5.00.

Moscow Institute of Physics and Technology,
Phystech School of Applied Mathematics and Informatics


Key subjects Calculus, Linear Algebra, Optimization, Computational Mathematics, Physics,
Computer Science, Deep Learning, Machine Learning, Parallel Programming

Work experience & research

Computed Tomography Acceleration of FBP algorithm for CT | [Smart Engines](#)
09.2020-Present Goal: acceleration of the convolution of two discrete functions as the first step
of Filtered Back Projection algorithm with the help of IIR filters.

Image Processing [Accuracy of neural network denoising of images depending on training set size](#) 
07.2020-09.2020 In co-authorship with Researcher Anton Grigoryev. IITP RAS (*the lab*).
Reported on the ITaS'20 [conference](#) and [published](#) in "Sensory Systems" [Journal](#).

Class projects

Computer Vision [Segmentation of people](#)  | A part of MIPT Computer Networks course | [demo](#)
A web demo for people segmentation from portraits using encoder-decoder
neural network: ResNext50 encoder and U-net decoder.





Computer Vision [Image Captioning with Attention](#)  | A part of MIPT Deep Learning course
Pretrained VGG19 for building feature vectors for each image and LSTM
with attention stacked on top of that for generating captions.

Image Processing [Weighted Neural Style Transfer](#)  | A part of MIPT Deep Learning course
A modification of classic style transfer (Gatys et al., 2016). Segmentation of
people and skin for stylizing people less than background but more than their skin.

Optimization [SPAG](#)  | A part of MIPT Optimization course | [poster](#)
Statistically Preconditioned Accelerated Gradient Method for Distributed Optimization
(according to Back, Bubeck) was implemented and analyzed on the RCV dataset.

Data Science [SMOTE](#)  | Supervisor Junior Researcher Artem Borzov at [IITP](#)
Synthetic minority oversampling technique for imbalanced classification problem
compared with other techniques on Phoneme and Mammography datasets.

C/C++ [Tic-tac-toe](#)  | A part of MIPT CS course
Client-server console game with TCP sockets.

Scholarships and Awards

2020-2021 Increased State Academic Scholarship Award for achievements in educational activity

2018-2020 Phystech Foundation Scholarship Award for top-ranked (10%) students of MIPT

2017 Awarded with Presidential Diploma for the most excellent (top-100) students of Moldova

2015-2017 1st and 2nd places in national Olympiads in Maths, Chemistry, Physics in Moldova

Computer Skills

Programming Tools Python (pytorch, tensorflow, numpy, scipy, pandas, matplotlib, sklearn), C, SQL
Jupyter Notebook, Linux, git, ssh, L^AT_EX

Languages

English (Fluent), Romanian (Fluent), Russian and Gagauz (Native)