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 09.2020-Present	Acceleration of FBP algorithm for CT	Smart Engines 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 07.2020-09.2020	Accuracy of neural network denoising of images depending on training set size ⊙ 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	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.
Web Dev	Segmentation of people ⊙	A part of MIPT Computer Networks course	DEMO A web demo with Django in backend for people segmentation from portraits using pretrained neural network with ResNext50 encoder and U-net decoder.
NLP	NER ⊙	A part of MIPT Natural Language Processing course Named Entity Recognition with Bi-LSTM for Twitter data.
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
2018-2019	Phystech Foundation Scholarship Award for top-ranked 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	Python (pytorch, numpy, scipy, pandas, matplotlib, sklearn), C, SQL
Tools	Jupyter Notebook, Linux, git, ssh, LaTeX

Languages

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