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Sergey Kim

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Summary

I am a fourth year Computer Science student with both research and development experience. My interests include, but are not limited to Computer Vision. Profound knowledge of Pure and Applied Mathematics allows me to study and work efficiently in different fields. I want to make the world a better place.

Experience

WayRay **Moscow, Russia**
Junior Research Engineer *01/2021 – Present*

Python | PyTorch | OpenCV

- Working on auto camera calibration
- Working on lane detection

Samsung AI Center **Moscow, Russia**
Research Engineer Intern *07/2020 – 03/2021*

Python | PyTorch3D | Open3D

- Working on automatic labeling tool for indoor scene images
- Implemented methods to recover missing modalities: 3D semantics, 3D bounding boxes
- Compared some SLAM methods for the Scene Reconstruction on real data

Yandex Research **Moscow, Russia**
Research Scientist Intern *06/2020 – 07/2020*

Python | PyTorch

- Observed walks in the GAN latent space
- Implemented a classifier for better variety of directions in the latent space

Yandex Technologies **Moscow, Russia**
Software Engineer Intern *07/2019 – 11/2019*

C++ | Halide | Python | PyTorch

- Improved the main pipeline of camera app by adding learnable demosaicing layers
- Designed demosaicing layers as handcrafted PyTorch layers within Halide

Education

HSE University **Moscow, Russia**
BSc in Computer Science, Specialization in Machine Learning *09/2017 – 06/2021*

- **Advanced Group** in Mathematics and Machine Learning
- **Teaching Assistant** in Machine Learning and Introduction to Machine Learning courses
- **Relevant Coursework:** Machine Learning, Deep Learning, Reinforcement Learning, Deep Learning in Audio Processing, Generative Models, Bayesian Methods, Convex Optimization, Discrete Optimization, Computer Systems Architecture, DevOps

Projects

Audio Processing Solutions *2020*

Python | PyTorch

- Implemented main sections of Audio Processing:
- Automatic Speech Recognition - QuartzNet
- Text-to-Speech Synthesis - Tacotron2 and WaveNet Vocoder
- Audio Enhancement - CGAN and WaveNet

Single Image Reflection Separation *2019 – 2020*

Python | PyTorch | OpenCV

- Created an algorithm that detects and separates reflection from a single image
- Reproduced a physics-based way to synthesize data
- Final neural network architecture is U-Net with modifications

Urban Scene Images Semantic Segmentation *2019*

Python | TensorFlow | Keras | OpenCV

- Implemented methods of semantic segmentation of urban scene images
- Reproduced and compared classical models: U-Net, Mask R-CNN, DeepLab

Reinforcement Learning in Renju Game *2019*

Python | TensorFlow | Keras

- Created an algorithm that predicts the next move in renju
- Implemented two architectures: simple CNN classifier and Q-learning algorithm

Skills

Programming

- **Proficient in:** Python, C++, C
- **Familiar with:** Bash, SQL, MATLAB, **Halide**

Machine Learning

- **Proficient in:** PyTorch, TensorFlow, Keras, OpenCV, Open3D
- **Familiar with:** PyTorch3D, CatBoost, LightGBM, JAX

Technologies

- **Tools:** Git, Docker, DVC, Spark, Hadoop, Terraform, CMake
- **Other:** Linux, Vim, LaTeX, Blender

Other

Summer Schools

- HSE University and Yandex Autumn School on Generative Models *2020*
- Tsinghua University Deep Learning Summer School *2020*
- Sirius University and Yandex Research School, Machine Learning *2019*
- Sirius University and Tinkoff Project School, Analytics *2019*
- Sirius University and Yandex Project School, Machine Learning *2019*

Competitions

- Yandex Hackathon "HackTheRealty", top 4 of more than 50 teams *2020*
- University Olympiad in Applied Mathematics and Informatics, second degree diploma *2020*
- Moscow Olympiad in Informatics, second degree diploma *2017*
- Moscow Olympiad in Mathematics, second degree diploma *2016, 2017*

Publications

Gasnikov AV, Dvurechensky PE, Zhukovskii ME, Kim SV, Plaunov SS, Smirnov DA, Noskov FA. About the Power Law of the PageRank Vector Component Distribution. Part 2. The Buckley–Osthus Model, Verification of the Power Law for This Model, and Setup of Real Search Engines. Numerical Analysis and Applications. 2018 Jan 1;11(1):16-32.