EKATERINA V. KOTLIAROVA

Data Scientist

Finland, Helsinki Metropolitan Area, Finnish residence permit valid till 06.02.2022

Women, 25 y.o., 4 years experience

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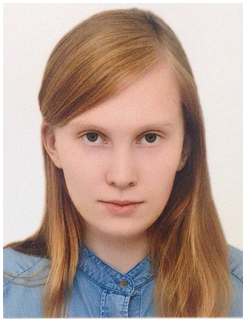
papers: scholar.google.com

Languages

- Russian / Native
- English / C1, IELTS Academic results: S 5.5, R 8.5, L 7.0, W 5.5, overall 6.5
- Finnish: at the very beginning



SKILLS

Computer Vision

- Semantic segmentation (academic experience, one paper in Russian)
- SLAM (academic experience)
- OpenCV, Keras, Tensorflow, PyTorch, Colmap

Machine Learning

- Pipeline construction (R&D experience)
- some experience in NLP
- mostly Python3, a little bit of C++ and matlab
- Tensorflow, PyTorch, Keras, scikit-learn, numpy, pandas

Applied Mathematics

- second year PhD-student
- modelling of transport flows (graph expertise)
- a little bit of convex optimization
- supervising by Dr. Gasnikov
- my papers can be seen here

Teaching and Supervising

- In Moscow Institute of Physics and Technology I worked as an associate lecturer and was a leader of a student group project
- Currently I am supervising a student in our searching equilibria project

Tools

- PyCharm
- Jupyter Notebook
- Git
- MySQL

WORK EXPERIENCE

Computer Vision Researcher at Tampere University, Computer Vision Group, headed by Esa Rahtu, Tampere, September 2020 — February 2021.

Research in this project was related to the computer vision, especially semantic SLAM development. In particular, I worked on a CNN-based local image detector and descriptor which is robust to different illumination conditions for indoor environments. My contribution in the project was to change an existing pipeline from one dataset to another, rewrite data handlers, parsers, add some necessary features and so on.

Part-time Researcher at Moscow Institute of Physics and Technology, supervising by Dr. Alexander Gasnikov, Dolgoprudny, September 2019 — present.

My current research is in the field of math optimization, especially transport flows modelling. Currently I have been working on the problem of traffic flows equilibrium in Beckmann and stable dynamic models.

- I have already taken part in writing two papers (here and here) on this topic
- Our team provided the first state-of-the-art code implementation of the problem

Machine Learning Engineer at Huawei Technologies, Mathematical Modelling Competence Center, Moscow, April 2019 — September 2020.

In Huawei Technologies I worked mostly as an ML-engineer in the field of map processing automation. In this project I applied my computer vision and data science skills in the pipeline-constructions practice.

- All parts of research in the project from the data mining to post-processing was done by myself
- My models and solutions were imported into a business platform

Computer Vision Researcher at State Research Institute of Aviation Systems (GosNIIAS), Laboratory of Photogrammetry, Moscow, November 2017 - April 2019

My work was devoted to the development of an effective semantic segmentation algorithm for automation of airport infrastructure labelling in RGB satellite images.

- Our laboratory created a new dataset for this particular task.
- To solve the problem I used algorithms based on deep convolutional artificial neural networks and a conditional random field model (CRF) for post-processing.
- The best accuracy I achieved for this semantic segmentation task was 95.22% (through all pixels)
- After the end of the project, our team wrote the paper

EDUCATION AND RESEARCH

Moscow Institute of Physics and Technology, September 2019 —present, PhD student
Moscow Institute of Physics and Technology, September 2017 —August 2019, master's degree
Voronezh State University, September 2013 — August 2017, bachelor's degree (diploma with honours)

- Paper related to the topic of semantic segmentation, «Semantic segmentation of satellite images of airports using convolutional neural networks»
- Two papers related to the topic of mathematical modelling of traffic flows: «The recovery model for the calculation of correspondence matrix for Moscow» and «Finding equilibrium in two-stage traffic assignment model»
- Participation in the conference «Dialogue», May 2018, paper can be seen here (in English)
- Participation in a great number of Russian conferences and research schools.