Daniel Fedorov

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Education

Gymnasium 63 **Sep. 2012 – May 2023**

In-depth languages, Computer Science, Mathematics and Physics *St Petersburg, Russia*

- Graduating with Honors, GPA 5.0 (max 5.0)
- Main project thesis: Handwritten Text Recognition.

Projects

Teeth Illness Detection | *Python, YOLOv4, OpenCV, Django Rest Framework, VueJS* **June 2022**

- Developed a detection model using Python, YOLOv4 and OpenCV to quickly assess oral health.
- Researched object detection techniques to enhance prediction speed and improve Mean Average Precision (over 84%).
- Fixed data anomalies and parsed annotations into YOLO format.

License Plate Recognition | *Python, PyTorch, YOLOv5, OpenCV, Roboflow* **July 2022**

- Created a real-time license plate recognition system using Python, PyTorch and YOLO to be used on a self-driving car.
- Developed an accurate plate text recognition model, reaching CER 0.01 by using CRNN architecture.
- Optimized the pipeline for the rover to perform 1.4 predictions per second on a single CPU.
- Implemented data augmentation using Roboflow to achieve over 95% Mean Average Precision.

Handwritten Text Recognition | *Python, PyTorch, Detectron2, OpenCV* **October 2020**

- Developed text recognition pipeline consisting of Mask-RCNN from Detectron2 model zoo for text segmentation and CRNN model for word recognition.
- Improved CER metric by 0.44 (from 0.8 to 0.36) by enhancing text segmentation and OCR model.
- Applied augmentation techniques to increase the dataset for the OCR model.

Skills

Programming Languages: Python, C++, SQL

Frameworks: PyTorch, TensorFlow, Keras, OpenCV, NumPy, Pandas, scikit-learn, CatBoost, Matplotlib

Technologies: Git, LaTeX, Docker, W&B

Languages: English (C1), Russian (Native), French (B1), Czech (A2)

Extracurricular

Yandex Academy Lyceum++ **February 2022 – May 2022**

Machine Learning *Online*

- Learned linear algebra basics behind machine learning and deep learning algorithms.
- Studied deep learning by creating CNN and RNN architectures from scratch using Keras.
- Main project thesis: Car Trajectory Prediction.

Deep Learning School **September 2022 – December 2022**

Machine Learning *Online*

- Enhanced understanding of PyTorch and deep learning by participating in competitions and attending lectures.
- Applied computer vision algorithms (image classification, object detection, semantic segmentation), to real-world tasks.

Awards

Leaders of Digital Hackathon - I place among 37 teams, $1000 **June 2022**

Machine Learning Engineer *Online*

- Preprocessed the data and trained a cavity detection model based on YOLOv4, reaching 84% mAP.

Laduma Analytics Football Hackathon - IV place among 251 teams **June 2022**

Data Scientist *Online*

- Trained an ensemble of gradient boosting models, using feature engineering and feature selection.

National Technological Olympiad, Autonomous Transport Systems - finalist **March 2022**

Computer Vision Engineer *Online*

- Collected, annotated and augmented data, trained models for traffic light and pedestrian detection.