Yulia Yakovleva

Software engineer

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Experience

March 2018 – Now
Software engineer, *Yandex Self-Driving Cars*, Moscow.
- Sensor diagnostics software (ROS, C++, Python, NumPy): I created simple data quality checking software modules for cameras and LiDARs.
- Traffic lights recognition software (ROS, C++, Python, NumPy, TensorFlow, Keras).
  - I worked on improvement of traffic lights recognition and tracking pipeline,
  - learning data mining, pre-processing and datasets preparation,
  - created, learned and deployed multiple iterations of deep neural networks, which are working now at hundreds of self-driving cars made by Yandex.

August 2017 – March 2018
Software engineer, *Unemployed/Self-employed*, Moscow.

October 2015 – August 2017
Robotics researcher/developer, *Institute for Information Transmission Problems RAS (Kharkevich Institute)*, Moscow.
- Self-driving car prototype positioning and control software. I created or worked on the following modules:
  - System launch tool to replace ROSLaunch (Python, ROS, Paramiko);
  - Local positioning system (C++, Eigen, Kalman filters);
  - Trajectory control system (C++, ROS);
  - Developers' web-interface (Python, JS (Leaflet.JS, Bootstrap), ROS);
  - Road markup-relied localization system (C++, ROS).
- Initiative works in deep learning for robotics control (just for fun).

June 2015 – October 2015
Junior web-developer, *WETA Group*, Remote.
Full-stack web-development
- Information security system web-interface:
  I developed two web-applications using Django non-rel backend and JS + some outdated frameworks frontend with MongoDB database;

July 2013 – June 2015 **Control systems developer**, *Modern Signal Processing and Control Technologies R&D Laboratory*, Chelyabinsk.

Control systems development.

- Turboshaft engine control system development:
  - I performed Turboshaft math modelling using MATLAB/Simulink,
  - participated in design, test stands assembling and commissioning of the control system;
- Self-driving car prototype trajectory control system:
  - I proposed control algorithms and performed math modelling using MATLAB/Simulink,
  - implemented these Algorithms (C++, control unit with STM32 and NuttX RTOS),
  - performed HIL testing using Python and NumPy and participated in field tests.
- I developed UAV test stand software: Scilab, interaction with National Instruments data acquisition system.

January 2012 – June 2015 **Laboratory assistant**, *South Ural State University*, Chelyabinsk.

Control systems research.

Talks

Traffic Lights in Yandex Self-Driving Cars, *Presented at Yandex Self-Driving Meetup 2019, PyLadies Moscow, PyLadies Kazan.*

A short talk in Russian about the difficulties of traffic lights recognition and about Yandex Self-Driving Cars traffic lights recognition pipeline.

Myths about Self-Driving Cars, *Presented at WTM Moscow.*

An interactive talk in Russian about self-driving cars architecture, sensors and testing.

Data mining in Yandex Self-Driving Cars, *Presented at Pytup Moscow.*

A short talk in Russian about data processing pipeline in Yandex Self-Driving Cars project.

Education

2010–2015 **National Research South Ural State University**;
Computer Technologies, Control and Radio Electronics Faculty;
Automation and Control Department;
MEng with honours.

2015–2017 **Moscow Institute of Physics and Technology (State University)**;
Deparment of Innovation and High Technologies;
Cognitive technologies sub-faculty;
MSc in Computer Science.

Languages

Russian	Native speaker
English	Intermediate
German	Beginner
Tatar	Beginner

Skills

Main:

C++ (Eigen), Python (Jupyter, NumPy, Keras, Sklearn), Git, ROS, Linux, Machine Learning, Computer Vision.

Experience with:

Bash, C, OpenCV, JS (some outdated frameworks), Django, Docker, LaTeX, Dynamic systems math modelling, Matlab/Simulink.

Interests

Space, alpine skiing, cross-country skiing, bicycling.