Yulia Yakovleva

Software engineer

Moscow
Russian Federation
✉ *robolamp@ya.ru*
robolamp
`kotobank.ch/~robolamp/`

Experience

March 2018 – May 2021 **Software engineer**, *Yandex Self-Driving Cars*, Moscow.

- Sensor diagnostics software (ROS, C++, Python, NumPy): I created 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 on hundreds of self-driving cars made by Yandex.

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 frontend with MongoDB database;

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

- Turboshaft engine control system development:
  - I performed Turboshaft math modelling using MATLAB/Simulink,
  - participated in control system design, test stands assembling and commissioning;
- 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.

Talks

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

Pet projects

rTerm, *github.com/robolamp/rTerm*.
Fake JS-based UNIX term for my personal page.

Random three body problem bot, *github.com/robolamp/3_body_problem_bot*.
A program which is simulating the behavior of random three body system multiple times and publishing animation of the most interesting one every 12 hours at Telegram channel.

Interests

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