Yulia Yakovleva

Software engineer

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Main skills

C++ (Eigen), Python (PyTorch, Jupyter, NumPy, Keras, TensorFlow, Sklearn), Git, ROS, Linux, Machine Learning, Deep Learning, HPC, Computer Vision, NLP, LLMs

Experience

November 2022 – Now
Machine learning engineer, *Stability.ai*, Amsterdam
I worked on the following projects:
- Stable-Finetuning (Python, PyTorch, CUDA, diffusion models, HPC): I was mostly focused on whole preprocessing and training algorithm optimization. With my effort, the fine-tuning prosess became multiple times faster while the size of model increased. I managed to "accelerate" SAM to process big batches of images in less than 1 second. To comply with regulation, I managed to build a facial fine-tuning without facial keypoints detection. During the developed process, I was migrating the service between multiple generations of fine-tuned models and backends.
- Stability models API (Python, PyTorch, CUDA, diffusion models, AWS, HPC): Similar effort but without direct involvement into algorithms development.
- LLM-related project (Python, PyTorch, CUDA, LLMs, axolotl, HPC).

March 2022 – September 2022
Machine learning engineer, *Rainbow.ai*, Warsaw
- I worked on applying deep learning models for weather forecasting (Python, PyTorch, Weather RADAR data).

November 2021 – February 2022
Machine learning engineer, *Descriptor.ai*, Remote/Moscow
- I created a few good-performing voice sentiment analysis models (Python, NumPy, TensorFlow, Keras, Audio data).

July 2021 – October 2021
Machine learning engineer, *MediaZona*, Remote/Moscow
- AI Text Generation (NLP, Python, NumPy, TensorFlow, Keras, Transformers, GPT): I worked on conditional text generation with neural networks. My responsibilities included both engineering/coding and interaction with non-tech employees of MediaZona on translating their non-tech requirements into "tech language", finding the data and getting a feedback on text generators' work.

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

(C++, Python, ROS, Eigen, Computer Vision, Kalman filters) I worked on self-driving car prototype positioning and control software including: system launch tool to replace ROSLaunch, positioning and control systems (C++, Python, ROS, Eigen, Computer Vision, Kalman filters).

- 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.

Patents

2020 **Method of and system for determining traffic signal state**
Artamonov, Kalyuzhny, Yakovleva
- US Patent US20210201058A1, application at 2020.09.28, granted.
- European Patent EP3842996A1, application at 2020.10.14, pending.

Talks

2019 **Myths about Self-Driving Cars**, *Presented at WTM Moscow*
An interactive talk in Russian about self-driving cars architecture, sensors and testing.

2019 **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.

2020 **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.

2023 **What's going on in AI world**, *Presented in Warsaw*

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.

Volunteering

May 2020 – now **Web developer/data analyst**, *OVD-Info*, Remote
OVD-Info is an independent human rights media project. I'm participating in development and support of information collection and analysis systems for OVD-Info using SQL, Python and Django.

Jan 2021 – now **Technical volunteer**, *Memorial*, Remote

Languages

Russian	Native speaker
English	Fluent
Dutch	Beginner
German	Beginner
Tatar	Beginner

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/hobbies

wildife photography, alpine skiing, cross-country skiing, books, jogging