ALEXEY KASHAPOV

Robotic Software Developer

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○ alexey-kashapov

Technical Skills ——

Python ●●●●●

C/C++ ●●●●●

SQL ●●●●○

Java ●●●○○

OpenCV | U-Net | Scikit-Image

Numpy | Boost | ROS | Pandas

Matplotlib | Django | ROOT

Unix OS | Git | SQLAlchemy

VHDL

Education

Sep 2018-Present — **MSc., Information Systems and Technologies** — Skoltech, 📍 Moscow, Russia
- Specialization: Space and Engineering Systems
- GPA: 4.9 out of 5
- Main courses: Robotics, Systems Engineering, Control Systems Engineering, Information and Coding Theory

Sep 2014 - July 2018 — **BSc., Physical Department** — Novosibirsk State University, 📍 Novosibirsk, Russia
- Specialization: Physical and Technical Informatics
- GPA: 4.68 out of 5
- Main courses: Mathematical analysis, Functional analysis, Differential equations, Probability theory and statistics, Mechanics, Electrodynamics and Magnetism, OOP, OOAD, Operation Systems, Network technologies

Experience

Sep 2019 - Present — **Visiting Student** — MIT Mechantronics Research Lab
- Working on MS thesis "The novel semantic segmentation method for highly-accurate RGBD scans"

Oct 2018 - Present — **Master Student Researcher** — Skoltech Intelligent Space Robotics Lab
- Focused on developing computer vision algorithms, behavior tree, navigation and other software tasks for autonomous mobile robots
- Main Project: Eurobot 2019 Competition
- Tools: ROS, OpenCV, Scikit-Image, Numpy, Git

Sep 2016 - May 2018 — **Research Assistant** — Budker Institute of Nuclear Physics
- Worked with system on chip Zynq-7000, Altera Cyclone IV FPGA. Configured and created Linux-based systems, also made FPGA-design
- Main Project: Bachelor Thesis - "Network interface of the scintillation crystals research board"
- Tools: Vivado Design Suite, Petalinux tools, Yocto, Quartus, Modelsim

Research

Sep 2019 - present — **MS. Candidate** — Skoltech-MIT
Thesis: The novel semantic segmentation method for highly-accurate RGBD scans
- Work in progress
- **Tools**: pytorch, zivid camera

Sep 2017 - Jun 2018 — **BSc. Candidate** — Novosibirsk State University
Thesis: Network interface of the scintillation crystals research board
- Created FPGA-design for SoC Zynq-7000, which was the main board control device
- Configured and created Linux-based system for Zynq-7000
- Developed website, which was worked on the ARM Cortex™-A9 of Zynq-7000, to control the board
- **Tools**: Vivado Design Suite, Petalinux tools, Yocto, cross compiling by gcc, Django, Bootstrap

Other

Hobbies:
Sport: Basketball, Volleyball, Soccer
Game development in Unity3D, Travelling

Projects

Oct 2018 - June 2019

Eurobot 2019 Competition   Skoltech Intelligent Space Robotics Lab

Role: High-Level Software Developer
- Developed real-time computer vision algorithm for object recognition using U-Net, OpenCV, Scikit-Image, python
- Made protocol interaction between high-level Odroid XU4 and low-level STM32f4 on the Odroid XU4 side
- Made behavior tree for Autonomous Mobile Robot

Results: Champion of Russia and Vice-Champion at the World final competition at La-Roche-sur-Yon, France

June 2019 - Present

WareVision(Mobile Platform with a Drone)   Skoltech Intelligent Space Robotics Lab

Role: High-Level Software Developer
- Made behavior tree for Mobile Platform and Drone
- Made motion planner node for Mobile Platform
- Made odometry control node
- Made diagnostics node for Mobile Platform
- Made protocol interaction between high-level Intel NUC and low-level STM32f4

Additional Projects

Feb 2018

"CompTech" computer science school   Novosibirsk State University

- Blockchain as a mechanism for implementing the management of a decentralized autonomous organization
- **Tools**: Java, Spring, Solidity, Mist

Conferences

2018

International Scientific Student Conference   Novosibirsk State University

- Network interface of the scintillation crystals research board