Roman Kulikovskiy

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Personal Statement

I am a software engineer who enjoys working with embedded systems. My experience includes board bringup using baremetal, RTOS, and embedded Linux. In addition, I enjoy working in robotics, where I have developed VR-based teleoperation systems for humanoid robots and conducted research in human-machine interaction. I am excited about opportunities where I can apply my skills and continue growing my knowledge in embedded systems, Linux, and robotics.

Technical Skills

- Programming Languages: C++, Python, C, Bash, CMake
- Operating System: Linux (Ubuntu, Arch)
- Robotics: ROS, Robot Kinematics
- Project Management: Git, Agile, Jira, Confluence
- GPU Programming: OpenGL, CUDA C
- Data Science: Pandas, Keras, Numpy, Scikit-Learn
- Machine Vision: OpenCV
- Virtual Reality: OpenVR
- Embedded Systems: Yocto Project, Petalinux
- Languages: English, Ukrainian

Work Experience

Specialist, Software Robotics Engineer – General Dynamics Land Systems — November 2021 – now
Sterling Heights, MI

- Embedded board bring up with embedded Linux and RTOS
- Development of bare metal applications for embedded systems
- Developing Linux applications to interface the embedded system for testing and maintenance
- Aiding in development of safety critical infrastructure for future Drive-by-Wire system
- Contributed to development and maintenance of custom embedded Linux images with Yocto project and Petalinux
- Performed software porting to the embedded Linux systems
- Developed image stitching application
- Trained and guided interns and junior developers

Social Robotics Research Assistant – Oakland University — May 2018 – May 2021
Rochester, MI

- Developed Virtual Reality-based teleoperation system for a humanoid robot with C++, OpenGL, OpenVR, and ROS
- Conducted experiment for evaluation of a Virtual Reality-based interface for humanoids to teach individuals with ASD
- Developed a vision-based activity recognition system using Python and machine learning algorithms for robotic systems
- Performed research of the current state of the art technologies for non-verbal behavior generation on humanoid robots, telepresence, human-robot interactions

ADAS Hardware Engineering Co-op – ZF — Jan 2018 – May 2019
Farmington Hills, MI

- Contributed to 3 different ADAS projects
- Tested and debugged circuits implemented on PCBs
- Managed inventory of components

Engineering Intern – WABCO — May 2017 – Dec 2017
Troy, MI

- Implemented Vehicle Air Brake System simulation based on existing tractor model on the laboratory test bench
- Performed Hydraulic system parts (clutch pedal, clutch master cylinder) testing and tear-down based on warranty claims

Publications

[1] R. Kulikovskiy *et al.*, "Can Therapists Design Robot-Mediated Interventions and Teleoperate Robots Using VR to Deliver Interventions for ASD?," in *IEEE International Conference on Robotics and Automation*, 2021

Education

Oakland University • Rochester, MI — Sep 2019 – May 2021
Masters of Science • *Electrical & Computer Engineering* • GPA: 4.0/4.0

Oakland University • Rochester, MI — Sep 2016 – Aug 2019
Bachelor of Science • *Electrical Engineering & Computer Engineering* • GPA: 3.71/4.0

Projects

Virtual Reality-based Controller for Humanoid Robot Pepper

- Telepresence system that allows user to be embodied into the robot, and in future teach robot non-verbal social behaviors
- The system has it's own rendering engine to process camera image to VR headset developed using C++, OpenGL, and OpenVR
- The system computes robot's kinematics based on VR controllers/trackers
- System is implemented to run on Linux, more specifically in ROS
- Role: Lead