Riley Kenyon

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EDUCATION

M.S. Mechanical Engineering, University of Colorado Boulder   May 2020
     GPA: 3.97/4.0

B.S. Mechanical Engineering, University of Colorado Boulder   May 2019
     GPA: 3.85/4.0

Certificates: University of Toronto Self-Driving Cars Specialization
              NVIDIA Fundamentals of Accelerated Computing with CUDA C/C++

ENGINEERING EXPERIENCE

Trimble Inc., Control Systems Software Engineer - Autonomy+   Jan 2021 - Present
Steering Velocity Gateway
- Co-authored the division's Simulink framework, used to develop guidance systems for off-road heavy machinery
- Deeply familiar with Matlab Embedded Coder including configuring, generating, and building C/C++ code for various vehicle electronic control units (ECU)
- Experience configuring an RTOS, EEPROM, intercore communication, CAN interfaces for a safety rated ECU

ROS Multi Unmanned Ground Vehicle (UGV)
- Lead controls planning (JIRA) and development for navigating multiple UGV in a GNSS denied environment
- Deprecated the legacy ECU and established the replacement embedded linux device as the primary controller
- Introduced quality gates for core repository build pipeline (formatting, static analysis, documentation, unit tests)
- Selected GNSS components for a ground truth system and configured to use base station for RTK corrections
- Configured ROS implementation of Kalman filter (EKF) to fuse IMU, GNSS, and alternate forms of positioning

Outreach and Leadership
- Actively involved in student outreach, intern mentorship, sponsorship of local university senior capstone projects
- Promoted inner-source contributions for core autonomy component libraries (trajectory planner, GNSS driver)
- Managed release process for core team library (debian package, git tag, changelog, deployment environment)
- Established the process for Simulink code generation to C++ and distributing as a debian package (CPack)

Siemens Gamesa Renewable Energy, Systems Engineer - Service R&D   May 2019 - Jan 2021
Wind Turbine Blade Inspection Camera
- Aided in commercializing a tower mounted turbine blade inspection device by developing a functional prototype
- Enhanced the concept of operation and created business case to market viability of the remote inspection method
- Improved inspection image accuracy of wind turbine blades using OpenCV to detect and track blade location
- Created command line interface to initiate inspection, debug log, image archive, and create spatial metadata

RELEVANT PROJECTS

Police Academy Autonomous Vehicle, University of Colorado - Mechatronics and Robotics   Jan 2020 – May 2020
- Collaborated in a team to deploy an autonomous robot capable of firing Nerf projectiles at targets
- Configured Ubuntu environment on a Raspberry Pi including ROS, TensorFlow, and OpenVINO toolkit
- Implemented a feedback loop with IR proximity sensors to maneuver robot through obstacle course
- Trained neural network for target recognition and deployed model on Luxonis OAK-D camera for inference

SOFTWARE SKILLS

Languages: Bash, C, C++ (11/14/17), Dart, JSON, LaTex, Lua, Markdown, MATLAB, Python, Simulink, YAML
Development: clang-format, clang-tidy, CMake, cppcheck, doxygen, gcc, gdb, Github Copilot, Linux, vim, VS Code
Tools: Atlassian (Bamboo, Bitbucket, Confluence, JIRA), Foxglove, Google Suite, Github, Lucidchart, Plot Juggler, UML
Frameworks and Libraries: CUDA, Docker, Google Mock, Google Test, OpenCV, ROS 2