Grayson King

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Education

UNIVERSITY OF BRITISH COLUMBIA   September 2019 - May 2024
- Specialization: Engineering Physics, Current Session Average: 88.8/100, GPA: 3.925/4.0

Technical Skills

Languages & Frameworks: C, Python, Java, C++, Arduino, Bash, HTML, PyTest, Ceedling (Unity, CMock), JUnit, Gradle
Platforms & Utilities: Linux, ROS, Git, Jupyter Notebook, OpenCV, Gazebo, TensorFlow, FreeRTOS, MATLAB, Excel

Work Experience

GENERAC CES EMBEDDED SOFTWARE INTERN   January - May 2021
Firmware and CI test infrastructure development for automated, priority-based breaker toggling device
- Built-up drivers for temperature sensor peripheral that detects overheating conditions and triggers a recovery subroutine.
- Implemented new CI testing paradigm for suite of $1M+ clean energy monitoring/management smart device projects.
- Headed development of a hardware/firmware integration testing stand, autonomously dispatched 100hrs+ of on-target tests.
- Created Jupyter Notebook with interactive widgets to control CI test execution, reduced manual dispatching time by 50%.

Tools: C, Python, STM32 Microcontrollers, Jupyter Notebook, Ceedling, Unity, CMock, PyTest, Linux

Project Experience

Project Website Link: *http://grayson-king-profile.com*

ML AUTONOMOUS DRIVING AND PLATE RECOGNITION   September - December 2021
Agent navigates simulated world, avoids pedestrians and vehicles, and locates and predicts on license plates
- Designed and trained 5 NNs on custom dataset (2 for imitation learning driving), achieved 95% acc. on plate predictions.
- Implemented control logic across 4 ROS nodes with topics/services for data passing, scored 100% on competition runs.
- Wrote data collection script to pull images from on-board camera, constructed 2 NN training and data processing pipelines.

Tools: Python, ROS, TensorFlow, Jupyter Notebook, Git, OpenCV, Gazebo, Linux

FULLY AUTONOMOUS CAN-COLLECTING ROBOT   May - August 2021
Robot navigates 8x8ft comp. surface, collects horizontal cans, and stacks them vertically in a grid
- Designed robot firmware architecture, implemented multi-threaded, interrupt-driven control for 12+ sensors/actuators.
- Wrote custom CLI/PID tuning visualizer, reduced PID parameter tuning time by ½, improved integration troubleshooting.
- Built an intake system with custom encoded rollers that detects/reorients misaligned cans, achieved 85% collection rate.

Tools: Laser cutting, 3D printing, Onshape, C, Python, Jupyter Notebook, PlatformIO, STM32 Microcontrollers

AI VIRTUAL WORLD SIMULATION   November 2020
Simulation displaying the evolving interactions of 4+ animated items with competing survival interests
- Leveraged interfaces and subtyping to promote code reuse for evolving, connected items in the world, like Pokemon.
- Implemented kill commands and an evolution chain for a charmander character (charmander - charmeleon - charizard).

Tools: Java, JUnit, Gradle, Git

Leadership Experience

PRESIDENT OF UBC ENGINEERING FIRST YEAR COUNCIL   September 2019 - April 2020
Elected by peers as President of First Year Engineers
- Led bi-weekly meetings for the 10-person council and represented first years at bi-monthly, cross-faculty EUS conferences.
- Organized multiple events drawing 150+ attendees, coordinated event promotion in the UBC Eng. monthly newsletter.