Grayson King

graysonk546@gmail.com (604) 500-2485

Education

UNIVERSITY OF BRITISH COLUMBIA September 2019 - May 2024

- Specialization: Engineering Physics, Current Session Average: 88.8/100, GPA: 3.925/4.0
- Relevant Coursework: Machine Design, Mechanics of Materials, Autonomous Robot Design and Fab, Modular Programming in C, OOP in Java and Python, ML (in simulation with Gazebo, ROS and Python), Signals and Systems

Technical Skills

Software: Onshape, Solidworks, Jupyter Notebook, MATLAB, Excel, PlatformIO, C, Python, Java, C++, Arduino
Hardware: Laser cutting (30+ hrs), 3D printing (FDM/SLA) (30+ hrs), Soldering/PCB design, Sheet metal design and fab

Project Experience

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

FULLY AUTONOMOUS CAN-COLLECTING ROBOT May - August 2021

Robot navigates 8x8ft comp. surface, collects horizontal cans, and stacks them vertically in a grid

- Created detailed CAD model accommodating 12+ sensors/actuators, 6 PCBs, and wire routing between sub-modules.
- Built an intake system with custom encoded rollers that detects/reorients misaligned cans, achieved 85% collection rate.
- Designed a rotating hopper that houses 6 cans in a 3x2 (WxH) grid and deposits them, in pattern, to a precision of +/- 3mm.
- Architected firmware and wrote a custom CLI/PID tuning visualizer, halving the time required for tuning PID parameters.

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

UBC THUNDERBOTS DESIGN TEAM September 2019 - Present

Building fleet of fully autonomous soccer-playing robots that compete internationally

- Used MATLAB to generate a multi-variable plot to optimize wheel gearing ratio, increased robot acceleration by 30%.
- Led investigation into linear vs rotational dribbler damping systems, tested performance with 3D printed prototypes, and found a 25% higher damping efficacy with the rotational scheme.
- Led extended investigation into rotational damping, optimized pivot location against force components on received balls.

Tools: MATLAB, Onshape, Solid Works, 3D Printing

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.

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

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.