Ryan Sutherland

Sutherry@oregonstate.edu | 863-377-1825 | Robotics | LinkedIn

Skills

Programming Python, C++, Java, MATLAB, C, Machine Learning Certificate, JavaScript

Electrical PCB Development, Soldering, Multimeter, Oscilliscope, Waveform Generator

Mechanical SolidWorks, Fusion360, Rapid Prototyping, Lathe, Milling Machine

Technical Experience

Fuel Cell Defect Detection - Capstone   September 2022 - April 2023
- Responsible for creating an automated, AI powered system capable of classifying various defects found on fuel cells
- Developed a structure to introduce controlled lighting and surface conditions
- Utilized and implemented existing YOLO framework to classify and identify regions of defects

UBC Biomedical Engineering Student Team (Co-Captain Projects)   September 2022 - August 2023
- Responsible for helping teams develop timelines and aid in project management.
- Communicating with faculty about reserving proper meeting and prototyping space.
- Developed various pipelines to streamline processes including: on-boarding, training and project proposals.

UBC Biomedical Engineering Student Team (SportsMed)   September 2021 - August 2023
- Founded SportsMed team to reimagine ways of treating and preventing common sports injuries
- Developing a core-activation device that informs users of ways to improve their posture and strength abdominal muscles
- Delegated research topics to team members and ensured constant communication between individuals

Can Collection Robot   Summer 2021
- Designed robot using CAD, ensuring all components could effectively be integrated using assemblies
- Created custom PCBs for effective power distribution and signal management
- Created a state-machine that allowed all components of the robot to work together synchronously with precise timing for specific tasks
- Placed 3rd in competition

Plate Recognition Robot   Fall 2021
- Developed code for a robot in gazebo to drive a course and recognize car plates while avoiding obstacles
- Used a PID loop to effectively control sharp turns with minimal shaking afterwards
- Created a pedestrian/car avoidance system using image subtraction to identify movement
- Trained two neural networks using TensorFlow to identify letters and numbers

UBC Biomedical Engineering Student Team (MINT)   2019-2021
- Developed an electrode headset to read brain waves to enable individuals to perform day to day tasks through thought
- Designed a mechanical headset that was adaptable to all head sizes and integrable with headset electronics
- Prototyped headset using SolidWorks and rapid prototyping techniques
- Tested parts by ensuring that they fit on various head sizes and parts functioned cohesively with electrical aspects

Autonomous Soccer Playing Robots   2016-2018
- Designed and prototyped all aspects of the robot using Arduino coding and CAD
- Determined proper motherboard and motor shield need to function with components
- Fully soldered a breadboard ensuring proper power distribution to several components simultaneously
- Ensured effective integration of numerous components into a functioning and coherent system while limiting brownouts
- Represented Canada in WorldCup Junior, placing within the top 30% of all teams

Employment Experience

Sparkmate, Paris, France   May 2023 - Present
- Joined a team of engineers to develop a wine fridge that could individually cool wine bottles to various temperatures
- Designed a custom PCB that could integrate 8 different compartments with various sensors and features
- Wrote C++ code to control the hardware of the system ensuring each compartment was held at the appropriate temperature
- Developed a python GUI to analyze, store, and plan testing of the device

TRAIN Fitness, Toronto, ON   **May - December 2022**
- Created an automated labeling system using computer vision techniques to increase data available for model training.
- Developed AI that could identify wrong form exercises with 98% accuracy.
- Interacted and parsed through large data files to extract vital information and pinpoint potential flaws in our database.
- Developed position estimation algorithm to identify users movement through space given sensors available on the watch.

ConeTec, Burnaby, BC   **January - April 2021**
- Created precise SolidWorks drawings for use by machinists
- Designed custom PCB for accurately controlling motor outputs

Education

Ph.D, Robotics, Oregon State University   **2024-Present**

Bachelor of Applied Science, Engineering Physics, The University of British Columbia   **2019-2024**
Cumalative Average 82.9%, Graduated with Distinction in the Co-Operative Education Program, Dean's Honour's List

Interests

Lifesaving Certified to perform and teach lifesaving and swimming skills   **2016 - Present**

Marksmanship Precision shooting of air rifles on the provincial stage   **2017 - 2019**

Pitcher/Second Baseman Newmarket Hawks A/AA Baseball (Provincial Champions)   **2017 - 2019**