KAELAN MOFFETT-STEINKE

Mechatronics Engineering
University of Waterloo

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Skills

LANGUAGES
• C++ • Python • Java
• Arduino • RobotC

FRAMEWORKS
• ROS • QT • Tensorflow • Django

LIBRARIES
• OpenCV • Boost • Matplotlib
• Google Test • Pandas • PyQT

OS
• Linux • Windows • MacOS

COURSEWORK
• Algorithms and data structures
• Mechatronics projects involving control software

Education

BASc in Mechatronics Eng
University of Waterloo
Expected May 2023 | Waterloo, ON

Achievements

• UTRAHacks 2018 - **2nd Place**
• UW Pres. Scholarship of Distinction
• Youth Climbing Nationals - **7th Place**
• Ontario Open Bouldering - **15th Place**

Interests

• Competitive rock climbing for ten years
• Canadian National Youth Circus alumni
• Machining, woodworking
• Ping pong

Employment

JAN - APR 2019
North (formerly Thalmic Labs) **Imaging/Video Systems Software Developer**
• Streamlined dev workflow by leading the development of a **C++** tool that simulates sub-pixel artifacts for an optical design
• Automated a laser test fixture by developing control software in **python** which implemented a variety of testing modes
• Improved simulation accuracy by developing a performance critical DLL for OpticStudio that performs raytraces through custom materials
OpenCV, C++, Python, Matplotlib, Pandas

2016-2018
Boulderz Climbing Center **Coach, Front Desk**
• Coached youth and adult climbers, employing success strategies gained from ten years of competitive rock climbing
• Demonstrated professionalism managing customer support desk

Projects

2018 - PRESENT
UW REACT (Robotics Team) **Controls Programmer**
• Lead the design and development of a **QT** application which provides a human interface for the gazebo robot simulator
• Implemented driver station backend in **python** , handling joystick input, high-level state control, diagnostic info
ROS, QT, Python, Linux

2018
Smart Headlamp **Hackathon Project**
• Created gesture controlled headlamp with **facial recognition**
• Implemented **machine learning** using **Haar Cascades** and **OpenCV**
• Implemented Leap Motion Control using **C++**
• Set up onboard **Raspberry Pi** running **Linux**
• Used **Arduino** and protoboard to control servos and lights
• Achieved **second place** and Leap Motion award
C++, Python, Machine Learning, OpenCV, Linux, Arduino

2016-2018
FIRST Robotics Team 865 WARP7 **Senior Programmer**
• Implemented motion profiling in **Java**
• Wrote **closed-loop control** algorithms for **autonomous** actions
• Used **SolidWorks** to design robot components
• Alliance captain and **division winner** at 2018 World Championships
Java, Controls, Motion Profiling

2017
VEX Robotics School Challenge **Programmer, Mechanical Designer**
• Independently designed and built a robot to complete challenges
• Programmed joystick controls and autonomous actions in RobotC
• Achieved **first place** in competition
RobotC, Autonomous