



Engineering Co-op Program  
University of Alberta

## Andrew Rooney

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### University of Alberta Academic and Co-op Status

- |                             |               |
|-----------------------------|---------------|
| • Computer Engineering:     | Class of 2021 |
| • Cumulative GPA:           | 3.8/4.0       |
| • Completed Academic Terms: | 4 of 8        |
| • Completed Co-op Terms:    | 1 of 5        |
| • Length of Next Work Term: | 8 months      |

### Computer Skills and Achievements

- Intermediate skills in C and C++ from programming for embedded systems from work on the Ex-alta 2 satellite, and my path finding robot project
- Considerable programming experience with Python, JavaScript, Bash, TCL, HTML/CSS, FORTH and MATLAB and some experience with VHDL and MySQL
- Researched, modified and implemented a network protocol and assisted in integrating an Inter-Integrated Circuit (I2C) driver on EFM32GG (cortex M3) microcontroller for use on the Ex-alta 2 satellite
- Systems development using the FreeRTOS real time operating system
- Capable user of both Linux and Windows systems
- Second place at the 2019 University of Alberta Team Programming Contest
- Developed a data visualization web tool for University of Alberta course prerequisites at the HackED 2019 hackathon

### Experience

#### Nokia - Ottawa

*Service Router Testing Co-op*

April 2019 - August 2019

- Worked with experienced testers to develop a web tool using AngularJS, Flask, and MySQL to calculate, and store pass/fail criteria for all tests with a pleasing web user interface, and integrated this tool to be used with the existing test suites
- Developed a caching solution using Redis to store computed results in order to load pages with millions of data-points across hundreds of plots.
- Investigated, diagnosed, and fixed test failures that occurred during regression testing

#### AlbertaSat - Edmonton

*AlbertaSat Deputy Software Team Lead*

September 2017 - present

- Created ground station automation software for the Ex-alta 1 satellite using bash, and FORTH, scripts along with C code to make daily orbital operations more convenient

- Consistently define and delegate tasks for software team members and supervise progress to maintain interest and involvement among members
- Work closely with a highly interdisciplinary team to ensure that software supports all satellite mission requirements necessary to meet our launch date in 2021
- Frequently delve into other exciting tasks, such as designing interface plates in Solidworks, or maintaining the UHF antenna used to communicate with the satellite

#### *MIIST Software Team Lead*

January 2017 - August 2017

- Developed and refined the software and electrical systems on board the Multispectral Imaging In-Situ Test (MIIST) high altitude balloon to qualify the Ex-alta 2 imaging structure at high altitudes
- Used bash, C, and python code to run a state machine with spacial measurement mode, and image collection mode that runs when the Raspberry Pi is powered on
- Spent 3 weeks in Timmins, ON at the Canadian Space Agency's Stratospheric Balloon Base integrating our imaging payload onto the gondola which took the experiment into the stratosphere

### **Awards**

- 2018 NSERC Undergraduate Student Research Award in the Department of Electrical Engineering
- Faculty of Engineering Academic Excellence Scholarship
- China - Alberta Award for Excellence in Chinese
- HSK Scholarship Award

### **Other**

- Achieved HSK (汉语水平考试) level III proficiency at the Xi'an International Studies University in Xi'an, China
- Holder of a "Basic with Honours" HAM radio license (callsign VA6-OOF)

### **References Available Upon Request**