

Andrew Rooney

Edmonton, AB, Canada

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Education

University of Alberta
Edmonton, AB

Computer Engineering, Nanoscale System Design (Co-op), B.Sc.
Class of 2022 | GPA: 3.9/4.0

Key Skills and Experience

- Technical leadership and embedded system experience from leading the AlbertaSat software team
 - Hands-on experience designing, documenting, presenting and fabricating original designs from work on the “Ex-Alta 2” satellite
 - Extensive project and classroom based experience with C/C++, Java, JavaScript, Python, SQL, TCL, Bash, Angular, React, Socket.io, D3 and Real-Time Operating Systems. Quick and eager to learn new technologies
 - Proficient with CMOS design, optimization, and simulation using Cadence, and logic design with VHDL. Seeking to gain experience with hardware and logic design
 - Adept at working productively in a self-directed environment, and designing novel solutions to problems
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Work and Volunteer Experience

Intuit
Edmonton, AB

Software Developer, Co-op

Jan 2020 - Aug 2020

- Created an internal data visualization tool to collect and display historic data for different plugins on the Quickbooks platform by using React & D3 to provide thousands of developers insights about code usage and performance
- Key member of a small team which refactored the Quickbooks plugin hosting system (100k+ line of code repository) to adapt to the new company standard to increase long-term maintainability
- Improved development operations by migrating up to 5 regression testing suites from CircleCI to Jenkins and integrated the build system with Github to consolidate testing systems

Nokia
Ottawa, ON

Service Router Testing, Co-op

May 2019 - Aug 2019

- Developed a full stack tool to automatically calculate and store pass/fail criteria for all tests to improve maintainability of test vectors by using Angular, Flask, and MySQL to present a simple interface to test engineers. This required developing documentation to encourage testing Engineers to adopt the use of, and maintain this tool
- Designed a Redis and MySQL caching solution to support loading millions of test outputs in less than 5 seconds into the above-noted test interface, which was prohibitively slow beforehand
- Investigated, diagnosed, and fixed test failures that occurred during the extensive TCL-based regression testing suites running on the service routers

AlbertaSat
Edmonton, AB

Ex-Alta 2 Software Team Lead

Sep 2018 - Present

- Manage a team of about 6 peers to develop open source embedded software on an ARM Cortex microcontroller in C with FreeRTOS (github.com/AlbertaSat). This work is done in my free time on a volunteer basis

- Compile and present formal design documents and progress reports to faculty advisors, and the Canadian Space Agency twice every year to get feedback and convey flight-readiness of the designs
- Designed a service-oriented architecture for commanding the Ex-Altia 2 satellite using the TCP/IP-like 'Cubesat Space Protocol' network stack over various hardware protocols (CAN, I2C, UART)

MIIST Software Team Lead

Jan 2018 - Aug 2018

- Created data collection software for the Multispectral Imaging In-Situ Test High Altitude Balloon Mission to verify the Ex-Altia 2 optical structure in the stratosphere
- 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

Dept. of Electrical
and Computer
Engineering
Edmonton, AB

Undergraduate Student Researcher (NSERC USRA)

May 2018 - Aug 2018

- Conducted research to develop the I2C drivers for the Ex-Altia 2 satellite, and integrate them with the transport layer of the network stack
- Created ground station automation software for the Ex-Altia 1 satellite using Bash, and FORTH, scripts along with C code to make daily orbital operations more convenient

Awards and Certifications

- 1st Place, Intuit HackED Beta Hackathon (2019)
- 2nd place, UAlberta Team Programming Contest (2019)
- 2018 NSERC Undergraduate Student Research Award (ECE Department)
- 2018 University of Alberta Undergraduate Academic Scholarship
- 2017 Faculty of Engineering Academic Excellence Scholarship
- Level 1, Project Management Principles & Practices
- Level 3, HSK (汉语水平考试) Chinese proficiency
- Basic with Honours HAM radio license (callsign VA6-OOF)

Projects

- *Squabble.xyz multiplayer game* (github.com/arrooney/squabble.xyz)
- *Multispectral Imaging In-Situ Test High Altitude Balloon Mission*
- *Arduino A* Path Finding Robot* (github.com/arrooney/pathfindingRobot)
- *Laser Communication Protocol* (github.com/arrooney/laserComms)
- *AlbertaSat Embedded Software and Ground Station* (github.com/AlbertaSat)

References Available Upon Request