

Sam Leader

<http://samleader.com>

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Education

University of Alberta

Bachelor of Science in Electrical Engineering Co-op

Expected 2026

Edmonton, AB

Skills

Languages: MATLAB, C/C++, HTML/CSS, JavaScript, Python, VHDL, \LaTeX

Tools: Git, Node, KiCAD, STK, React, Gpredict, SDR#, Vivado

Equipment: DMM, Soldering Iron, Oscilloscope (AD2)

Fluent in English and French

Projects

2D Light Ray Simulator | *HackED 2023*

- Developed a program that accurately simulates the 2D behaviour of light rays in a scene using JavaScript
- Researched and implemented physical phenomena such as reflection, refraction and diffraction using a Node backend
- Utilized React and WebGPU to create an interactive frontend, allowing the user to place different objects in the scene

Software Defined Radio (SDR) | *Personal Project*

- Built an antenna to receive audio signals transmitted by 3 weather satellites
- Decoded audio into an image taken by the satellite using software such as Gpredict and SDR#
- Researched materials, techniques, and antenna types to improve signal reception and image quality

Geothermal Energy Project | *ENGG 160 - Introduction to Engineering Design*

- Led a team of 6 as Research Lead to design and implement a community geothermal energy system
- Considered community location, reproducibility, and cost to design an appropriate system
- Created a video presentation and a written report to present the final project proposal

Extracurriculars

AlbertaSat

Sept. 2022 – Present

Internal Team Member

Edmonton, AB

- Collaborated with a team of 100+ students and faculty to build, launch and operate 3 CubeSats
- Designed and implemented a new Google Drive structure, improving productivity and accessibility for new members
- Completed an onboarding project in STK mission design, building a scenario to simulate satellite access times

59th Greenfield Venture Company (Scouts Canada)

Sept. 2020 – Sept. 2021

President/Secretary

Edmonton, AB

- Elected President from 2020 to 2021 and Company Secretary from 2017 to 2020
- Directed weekly company meetings, recorded minutes, planned activities and volunteer opportunities for up to 20 scouts
- Attended the World Scout Jamboree in 2019 as a member of the Canadian Contingent

VEX Robotics Club

Sept. 2017 – Mar. 2020

Team Co-Lead

Edmonton, AB

- Researched, constructed, and programmed robots to compete in VEX robotics competitions, placing 9th in provincials
- Organized team meetings and work sessions for 10 group members

Awards & Certifications

Hardware Design Certification (EECERT) – Electrical Engineering Club, 2023

STK Level 1 Certification – Ansys, 2023

WHMIS Certification – University of Alberta, 2021

DELFI B2 French Language Diploma - French Ministry for National Education, 2021

Alexander Rutherford Scholarship

Interests

Amateur Radio, Scouting, Astronomy, Guitar, Physics