

# Caleb Waldman

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## TECHNICAL SKILLS

### Manufacturing

- Mechanical and electrical assembly and fabrication
- Hand tool, power tool waterjet and manual mill experience
- Design for 3D printing and prototyping

### Software

- Solidworks, OnShape and Fusion 360
- C+ / Arduino, Python, and Matlab experience
- KiCAD PCB design experience
- Microsoft office proficient

### Communication

- Drawing and sketching
- Effective written communication
- Strong interpersonal and teamwork skills

## EDUCATION

University of British Columbia

*Bachelor of Applied Science - Integrated Engineering*

*Current 83.7% Cumulative average with Dean's Honour List all 4 years.*

**Expected Graduation May, 2025**

*Focus in Mechanical and Electrical - Minor in Commerce*

## WORK EXPERIENCE

Carv, London, England

Hardware Intern

**October, 2023 – May, 2024**

- Lead the development of a custom USB-C adaptor including full CAD design for injection moulded parts, PCB design, parts sourcing, and liaison with manufacturers to gather and implement DFM feedback
- Lead the development of a modular jig with integrated electronics for uploading hardware to prototype PCBs to streamline prototype assembly
- Assembly and field testing of several generations of device prototypes including ski testing devices
- Developed a DFMEA and control plan in advance of manufacturing
- Developed diagnostic tools and procedures to assist the customer support team. These tools increased the teams diagnostic accuracy to near 100% while also improving efficiency
- Developed teaching material for PCB design software to assist other members of the engineering team

CRW Designs, Vancouver, British Columbia

Entrepreneurial

**January, 2023 - Ongoing**

- Design folding knives licensed to international manufacturers
- Pitch design to manufacturers, negotiate contracts and work with manufacturer R&D teams during product development
- Four designs currently on the market with over 1000 units sold and 6 more designs under development with four different companies

Offshore Designs Ltd, Vancouver, British Columbia

Instrumentation and Systems Co-op

**June, 2021 – August, 2023**

- Designed instrumentation package for a prototype underwater robot
- Built custom GUI in python for live instrumentation monitoring
- Electrical assemble, software development, integration, and testing of instrumentation system
- Mechanical design and fabrication for test fixtures and components for the prototype robot
- Extensive hands on assembly and field testing of robots mechanical and electrical systems
- Rapid design and prototyping of inspection hardware for an underwater ROV
- Pilot for biofouling inspection ROV
- Worked on a small team with constantly changing tasks requiring new skills to be learned quickly and efficiently

Brixton Metals, Thorn Remote Camp, British Columbia

Junior Geologist / Soil Sampler

**June, 2020 – August, 2020**

- Collected rock and soil samples for the Geological team at Brixton
- Prepare samples for shipment to off-site labs for ASSAY testing
- Safely managing daily helicopter trips into steep terrain for sample collection

- Continuous risk assessment while in the field to ensure safety of myself and co-workers
- Worked 12 hour days for 28 consecutive days in variable weather and harsh environments

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## TECHNICAL PROJECTS

### Ice Tools, Personal Project

December, 2024

- Researched loading conditions and developed requirements based on industry standards and use intended use cases
- Used FEA analysis to iterate CAD design to maximise performance while maintaining weight, cost, and manufacturability
- Employed waterjet manufacturing processes to keep cost to a minimum
- Heat treated steel components to achieve desired material properties through quenching and annealing cycles

### Climbing Cams, Personal Project

October, 2024 – November, 2024

- Calculated loading conditions and stresses to ensure safe operation of the final design
- Sourced components and performed DFM to ensure manufacturability and keep cost down
- Used waterjet cutting, basic machining, wire rope work, brazing, and 3D printing during manufacturing
- Iterated on design to produce a functional and professional looking final product

### Climbing Sensors, Personal Project

March, 2024 – Ongoing

- Developed a set of wireless wrist and ankle IMU based sensors to record motion during rock climbing
- Wrote firmware and software to facilitate BLE communication between the sensors and a phone to log motion data in real time
- Used python to filter data and perform feature extraction to analyse and visualize motion data

### Prosthetic Alignment Jig, UBC Integrated Engineering/Barber Prosthetics

September, 2020 – June, 2021

#### Team Lead

- Designed and fabricated a novel system to remove a manufacturing pinch point from the prosthetic manufacturing process by recording the state of a jig used in manufacturing
- Consulted with Prosthetics Clinic and other stakeholders to develop requirements and validate design.
- Designed and fabricated multiple prototypes using rapid prototyping methods such as CAD and 3D printing eventually reaching a working prototype
- Managed a team to ensure work was completed on time and to a high standard

### Remotely Controlled Baseboard Thermostat, Personal Project

January, 2021 – June, 2021

- Created a microcontroller based system to control baseboard heaters remotely at a low cost
- Used micro controllers, breadboards, prototype boards and other electrical components to create cheap and fast prototypes and proof of concepts
- Sourced parts and designed a custom printed circuit board for a fully functional prototype for less than 20\$ / unit
- Used CAD and 3D printing to create concept housings for the electronics
- Managed working alone and devised time and task management systems to ensure an efficient development process

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## CERTIFICATIONS

- CSIA (Canadian Ski Instructors Association) Level 2
- Class 5 BC Drivers License
- PADI Open Water SCUBA certification,
- UBC Integrated Engineer Student Shop Supervisor - 2021

## INTERESTS & ACTIVITIES

- Passionate about outdoor activities such as rock climbing and skiing
- Digital art and Photography
- Designed and fabricated an adaptive fork to eat spaghetti which got 16 million views on Instagram

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## REFERENCES

- *Richard Thomas*, Hardware Lead at Carv - Reference Letter available at request
  - *Voytek Klaptocz*, CEO at Offshore Designs Ltd. - Contact info available at request
  - *Leonard Pianałto P.Eng*, Building Science and Restoration Team Lead at RJC Engineering - Reference Letter available at request
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