

# Luc Goldstein

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## TECHNICAL SKILLS

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### Software

- MATLAB
- Windows / Linux
- Python / C / JS
- Git

### Electrical

- SMD soldering
- Signal analysis
- Power electronics
- Arduino / Raspberry Pi
- Lithium batteries

### Mechanical

- Water jet
- CNC/Manual machining
- 3D printing / laser cutter
- Woodworking
- SolidWorks / Catia V5&6
- FEA

## EDUCATION & CO-OP STATUS

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### University of British Columbia

**Bachelor of Applied Science - Integrated Engineering (4<sup>th</sup> Year)**  
(Electrical & mechanical specialization)

September 2016 – May 2021

## TECHNICAL WORK EXPERIENCE

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### Tesla Motors (Palo Alto, California)

January 2020 – September 2020

#### Battery Pack Engineering Intern

- Designed and prototyped specialized fluid connectors for low pressure drop and easy installation in tightly constrained positions
- Developed test fixtures and performed environmental testing to verify sealing and assembly of fluid interfaces under wide assembly tolerances and operating conditions
- Designed several injection molded wire carriers to support signal wires inside the battery pack in un-serviceable locations requiring minimal installation time
- Supported factory by designing and installing new assembly line fixtures to incorporate new parts on to the line while maintaining backwards compatibility with existing parts.
- Supported prototype builds for new high energy battery pack designs and made recommendations for various improvements

### Zaber Technologies (Vancouver, BC, Canada)

May 2019 – December 2019

#### Mechatronics Engineering Co-op Student

- Worked with the testing team to test devices allowing for customers and product developers to get the information they needed and launch products on schedule
- Overhauled existing tests to improve reliability, automation, and ease of use resulting in faster turnaround for tests
- Developed new accuracy and thrust tests to expand the range of devices and parameters that could be tested
- Helped develop and deploy an IoT testing framework with Raspberry Pis and a backend server to deploy, manage, and monitor lifetime tests of devices resulting in faster deployment and more stable operation
- Used computer vision to automate device alignment to a laser measurement system decreasing total setup time

### Evo Carshare (Vancouver, BC, Canada)

October 2018 – September 2019

#### Engineering Contractor / Startup member

- Designed and built a system to detect impending damage from a bike on the roof of a car with 95% accuracy
- Consulted with stakeholders at Evo to ensure all needs were met and our design minimized integration costs, required no parkade installation, and ensured vehicle safety standards
- Presented a solution and proof of concept to Evo Car share and was awarded a contract for 4 production ready prototypes
- Delivered and installed prototypes in 2 fleet cars for internal testing and final evaluation
- Negotiated terms of contract for prototypes and future work on the project

### Wellons Canada (Surrey, BC, Canada)

May 2018 – August 2018

#### Engineering Co-op Student

- Built an Autodesk Inventor CAD library of 10k+ commonly used parts, drastically increasing the productivity of draftsmen
- Helped build infrastructure for SQL data management systems resulting in reliable part tracking and faster drafting
- Drafted standard installation drawings in AutoCAD for pipe instrumentation that decreased errors in field installations

## University of Missouri (Columbia, Missouri, USA)

June 2016 – August 2017

### Technical Research Assistant and Drone Pilot

- Traveled around the state to meet with agricultural specialists and operate drones to map crop fields using geospatial analyses
- Used OpenCV and built in clustering algorithms like k-means to count the number of plants in a designated area with MATLAB
- Refined and automated soil and plant separation processes and nitrogen stress analysis with MATLAB and ArcGIS
- Scripted a MATLAB program to geo-reference drone images in GIS, reducing post-processing time by 80%
- Assisted in data capture methods, logistics, and organization using DJI drones to optimize flight time and site visits

## STUDENT DESIGN TEAMS

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### Unmanned Aircraft Systems (UBC UAS)

September 2016 – Present

#### *Captain (Director) / Aircraft and Systems lead / Pilot*

- Led aircraft development efforts for two competition ready unmanned aircraft to place 3<sup>rd</sup> at the 2018 Unmanned Systems Canada student team competition
- Designed and built a 10kg multi rotor frame optimizing for weight, stiffness, and strength resulting in an extremely capable aircraft that performed and placed in two competitions without any faults during competition
- Applied electrical design principles to design power systems optimizing weight and efficiency while minimizing electrical losses ultimately creating aircraft with cruise speeds of > 100km/h and performing well in competition
- Configured and calibrated dozens of flight sensors to ensure reliability and precision of autonomous flight
- Managed a team of 38 students to design and build all aspects of a mission ready system while obtaining and administering funds in excess of \$30,000
- Promoted to chief pilot which requires careful logging of every flight and ensuring drones meet Transport Canada airworthiness requirements, as well as training new pilots for both rotary and fixed-wing drones

## TECHNICAL PROJECTS

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### Vertical Take-Off and Landing aircraft (Personal)

June 2018 – August 2018

- Designed and built a 1200mm VTOL aircraft capable of vertical take-off with subsequent transition to forward fast flight and then vertical landing
- Implemented custom motor mounts to stay under 1kg MTOW while minimizing space and cost

### Heated Phone Case (UBC)

January 2018 – April 2018

- Designed and Prototyped an electronic heated phone case to preserve internal battery life during freezing conditions
- Personally, developed an Android App in Java to log and transmit internal phone battery temperature to a Bluetooth Arduino in the case, which controls heating
- Successfully proved concept in working order under freezer test conditions (Battery maintained 9°C in -15°C ambient condition)

For a comprehensive list of projects, please see my portfolio at: [lucgoldstein.com/portfolio](http://lucgoldstein.com/portfolio)

## AWARDS

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AUVSI student Team Competition Placed 20 <sup>th</sup> out of 75 teams	2019
Unmanned Systems Canada Student Team Competition Placed 3rd	2018
International Major Entrance Scholarship - UBC	2016

## ACTIVITIES AND INTERESTS

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- **Columbia Gadget Works** – Past member of a community hacker space that promotes projects from all realms and fosters creativity to help people complete their own projects and participate in group builds. This group formed the foundation many of the DIY and shop skills I obtained.
- **Building and flying remote control aircrafts of all kinds** – Mini-quads, Flying-wings, Conventional airplanes, FPV racing, and helicopters
- **Biking** – I've done several long-distance rides across Europe (London to Paris) and the United States
- **UBC Aviation Club** – A group of like-minded people who have a passion for flight and aerospace. Organized tours of control towers and aviation facilities as well as fly-ins.
- **Photography** – I've enjoyed photography as a way to capture all corners of the earth in ways not normally seen.
- **Hiking/Camping** – Avid outdoor explorer trying to find the best views around.