

# Margaret Lee

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 margaretmichelle.github.io

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## EDUCATION

*University of British Columbia | Vancouver, Canada*

*09/2020 – 05/2026*

### **Engineering Physics, BSc**

CGPA: 4.00/4.33, Awards: Roy Nodwell Memorial Prize (2025), Dean's Honour List (2020-2025), Trek Excellence Scholarship (2022)

*ETH Zürich | Zürich, Switzerland*

*09/2023 – 02/2024*

### **Mechanical Engineering, International Exchange**

Courses: Robot Dynamics, Microrobotics, Space Research and Exploration, Virtual Reality, Distinguished Seminar in Robotics

## WORK EXPERIENCE

*Formlabs | Somerville, MA, USA*

*09/2025 – 12/2025*

### **Hardware R&D Print Process Intern**

- Characterized and validated next-generation SLA printer hardware through mechanical analysis and iterative testing, confirming improvements in print quality, reliability, and consistency
- Reduced per-layer print time by 10% by studying resin-air flow interactions and analyzing data from 1000+ trials in Python to converge on time-optimized printer motion profiles while maintaining part quality
- Investigated relationships between debris flow within resin, tank film damage, and squish moves using OpenCV for particle tracking and Pandas for data analysis

*Cyber-Physical Systems Group, University of Konstanz | Konstanz, Germany*

*05/2025 – 08/2025*

### **Swarm Robotics Researcher | DAAD RISE Scholar**

- Developed autonomous sailboats to contribute to swarm control and limnological research on Lake Constance
- Implemented real-time obstacle avoidance using multimodal sensor fusion (mmWave radar, RGB camera, thermal camera) and classical computer vision in Python on Raspberry Pi

*Microchip Technology Inc. | Burnaby, Canada*

*05/2023 – 08/2023*

### **Product Engineer**

- Designed automated test flows with Python, thermal forcers, and Excel to characterize on-chip temp sensors
- Diagnosed calibration hardware resolution limits causing temperature sensor error; developed a software workaround that recovered full sensor accuracy and prevented multi-month shipment delays for 1,000+ chips
- Collaborated cross-functionally with test engineering, firmware, and marketing teams to debug hardware, deliver client-specific features, and support production readiness

## TECHNICAL PROJECTS

*UBC Sailbot Design Team*

*11/2021 – Present*

### **Polaris, Mechanical Team**

- Directed 10-member hull and keel team of a fully autonomous sailboat to collect oceanic data
- Optimized hydrostatic, hydrodynamic, and structural properties using Ansys FEA and Maxsurf simulations
- Established a standardized system to streamline collaboration on a team-wide 700+ part SolidWorks assembly
- Manufactured hull from CFRP sandwich panels using hand layup and vacuum bagging techniques

*UBC Engineering Physics Project Lab*

*09/2024 – 04/2025*

### **LoRa Pet Tracker**

- Designed a PCB integrating LoRa, GPS, and IMU modules for real-time pet location monitoring via a mobile app
- Built custom C/C++ libraries for drivers and data processing for efficient sensor integration over I2C, SPI, and UART, optimizing for power and range
- Recipient of the Roy Nodwell Memorial Prize for high professional standard and industry relevance

*UBC Psychiatry NINET Lab*

*09/2023 – 04/2024*

### **TMS Cobot System**

- Developed a 6-DOF motion compensation system using a UR3e cobot, ROS Noetic on Linux, and OptiTrack IR tracking to maintain precise TMS coil alignment with patient head during treatment of depression
- Implemented spatial transformations (tf2) and inverse kinematics for real-time pose correction
- Integrated force/torque sensing for compliant control and patient safety

## TECHNICAL SKILLS

<b>Mechanical</b>	SolidWorks, Ansys, Maxsurf, CFRP composites, 3D printing, CNC, Milling machine, Lathe
<b>Electrical</b>	Oscilloscope, Signal generator, Soldering, Altium, PCB design/testing
<b>Embedded</b>	C/C++, Firmware development, I2C, SPI, UART, Hardware debugging, Sensor integration
<b>Software</b>	Python, MATLAB, ROS, Linux, Git, OpenCV, TensorFlow, Pandas