

# Margaret Lee

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## EDUCATION

*University of British Columbia | Vancouver, Canada* 09/2020 – 05/2026

### Engineering Physics, BASc

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 II, Distinguished Seminar in Robotics, Systems, and Control

## WORK EXPERIENCE

*Formlabs | Somerville, MA, USA* 09/2025 – Present

### Hardware R&D Print Process Intern

- Designing and evaluating next-generation SLA 3D printers by conducting mechanical analyses and developing advanced printing algorithms to root-cause failures, increase print speed, and improve success rates
- Optimizing motion profiles and resin-air flow interactions, reducing per-layer print time by 8%

*Cyber-Physical Systems Group, University of Konstanz | Konstanz, Germany* 05/2025 – 08/2025

### Swarm Robotics Research Intern

- 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 using Python, thermal forcers, and Excel to characterize on-chip temperature sensors across thermal and voltage corners
- Identified and resolved a key sensor calibration issue at production, improving accuracy and consistency of sensors
- Collaborated cross-functionally with test engineering, firmware, and marketing teams to debug hardware, deliver client-specific features, and support production readiness

*Adele Diamond Lab | Vancouver, Canada* 11/2021 – 04/2022, 09/2022 – 04/2023

### Interactive Media Developer

- Programmed browser-based games to support psychiatric studies on memory and cognitive abilities in children
- Learned a new programming language in 2 weeks to refactor a game, expanding test case size by 40%, and improving correctness for nationwide deployment
- Developed tools to automate numerical sequence generation, data formatting, and file filtering to improve lab organization

## TECHNICAL PROJECTS

*UBC Sailbot Design Team* 11/2021 – Present

### Polaris, Mechanical Lead

- Directed 10-member hull and keel team of a fully autonomous sailboat to collect oceanic data during weeks-long missions
- Optimized hydrostatic, hydrodynamic, and structural properties using Ansys FEA and Maxsurf simulations
- Established a standardized file naming and version control system to streamline collaboration on a team-wide 700+ part SolidWorks assembly, and oversaw development of hull and keel CAD subassemblies
- 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 pet tracker PCB integrating LoRa, GPS, and IMU modules for real-time location monitoring via 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, original contribution, 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 using fiducial markers
- 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