

# Margaret Lee

**Portfolio:** margaretmichelle.github.io | **LinkedIn:** linkedin.com/in/lee-margaret | **E-mail:** margaretmichelle6@gmail.com

## EDUCATION

<i>University of British Columbia   Vancouver, Canada</i>	<i>09/2020 – 04/2026</i>
<b>Engineering Physics, Bachelor of Applied Science</b>	
GPA: 4.00/4.33, Awards: Roy Nodwell Memorial Prize (2025), Dean’s Honour List (2020-2025), Trek Excellence Scholarship (2022)	
<i>ETH Zürich   Zürich, Switzerland</i>	<i>09/2023 – 02/2024</i>
<b>Mechanical Engineering, International Exchange</b>	
Courses: Space Research and Exploration, Robot Dynamics, Microrobotics, Virtual Reality II, Distinguished Seminar in Robotics	

## WORK EXPERIENCE

<i>Cyber-Physical Systems Group, University of Konstanz   Konstanz, Germany</i>	<i>05/2025 – Present</i>
<b>Swarm Robotics Research Intern</b>	
<ul style="list-style-type: none"><li>Deploying autonomous sailboats to contribute to swarm control and limnological research on Lake Constance</li><li>Implementing real-time obstacle avoidance using multimodal sensor fusion (mmWave radar, RGB camera, thermal camera) and classical computer vision Python algorithms on Raspberry Pi</li></ul>	
<i>Microchip Technology Inc.   Burnaby, Canada</i>	<i>05/2023 – 08/2023</i>
<b>Product Engineer</b>	
<ul style="list-style-type: none"><li>Designed automated test flows using Python, thermal forcers, and Excel to characterize on-chip temperature sensors across thermal and voltage corners</li><li>Identified and resolved a key sensor calibration issue at production, improving accuracy and stability of sensor output</li><li>Collaborated cross-functionally with test engineering, firmware, and marketing teams to debug hardware, deliver client-specific features, and support production readiness</li></ul>	
<i>Adele Diamond Lab   Vancouver, Canada</i>	<i>11/2021 – 04/2022, 09/2022 – 04/2023</i>
<b>Interactive Media Developer</b>	
<ul style="list-style-type: none"><li>Programmed browser-based games to support psychiatric studies on memory and cognitive abilities in children</li><li>Learned a new programming language in 2 weeks to refactor a game, expanding test case size by 40%, and improving correctness for nationwide deployment</li><li>Developed tools to automate numerical sequence generation, data formatting, and file filtering to improve lab organization</li></ul>	

## TECHNICAL PROJECTS

<i>UBC Sailbot Design Team   Vancouver, Canada</i>	<i>11/2021 – Present</i>
<b>Polaris, Team Lead</b>	
<ul style="list-style-type: none"><li>Directed a 10-member hull and keel team of a fully autonomous sailboat to collect oceanic data during weeks-long missions</li><li>Optimized hydrostatic, hydrodynamic, and structural properties using Ansys FEA and Maxsurf simulations</li><li>Established a standardized file naming and version control system to streamline collaboration on a 700+ part SolidWorks assembly, and oversaw development of hull and keel CAD subassemblies</li><li>Manufactured hull from CFRP sandwich panels using hand layup and vacuum bagging techniques</li></ul>	
<i>UBC Engineering Physics Project Lab   Vancouver, Canada</i>	<i>09/2024 – 04/2025</i>
<b>LoRa Pet Tracker</b>	
<ul style="list-style-type: none"><li>Designed a PCB integrating LoRa, GPS, and IMU modules to create a pet tracker with 48+ hours of battery life for real-time location monitoring via mobile app</li><li>Wrote custom C/C++ libraries for drivers and data processing for efficient sensor integration over I2C, SPI, and UART, optimizing for power and range</li><li>Recipient of the Roy Nodwell Memorial Prize for high professional standard, original contribution, and industry relevance</li></ul>	
<i>UBC Department of Psychiatry NINET Lab   Vancouver, Canada</i>	<i>09/2023 – 04/2024</i>
<b>Transcranial Magnetic Stimulation (TMS) Cobot System</b>	
<ul style="list-style-type: none"><li>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</li><li>Implemented spatial transformations (tf2) and inverse kinematics for real-time pose correction using fiducial markers</li><li>Integrated force/torque sensing for compliant control and safety, applying principles of robot dynamics, sensor fusion, and multi-sensor feedback</li></ul>	

## SKILLS

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