

Margaret Lee

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EDUCATION

<i>University of British Columbia Vancouver, Canada</i>	<i>09/2020 – 04/2026</i>
Engineering Physics, Bachelor of Applied Science	
Awards: Roy Nodwell Memorial Prize (2025), Dean's Honour List (2020-2025), Trek Excellence Scholarship (2022), GPA: 4.00/4.33	
<i>ETH Zürich Zürich, Switzerland</i>	<i>09/2023 – 02/2024</i>
Mechanical Engineering, International Exchange	
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>
Swarm Robotics Research Intern	
<ul style="list-style-type: none">Deploying autonomous sailboats to implement swarm control and contribute to limnological researchImplementing multimodal sensor fusion with an mmWave radar sensor, fisheye camera, and thermal camera with a Raspberry Pi for real-time obstacle avoidance while sailing on Lake ConstanceDeveloping classical computer vision Python algorithms for object segmentation and avoidance logic	
<i>Microchip Technology Inc. Burnaby, Canada</i>	<i>05/2023 – 08/2023</i>
Product Engineer	
<ul style="list-style-type: none">Created test flows with Python scripts, thermal forcers, and Excel to characterize performance of temperature sensors on ethernet PHY chipsIdentified and documented issues with sensor calibration at production, validated new calibration flow, and implemented workaround to make previous products fulfill requirementsCollaborated with product testing, marketing, and software teams to troubleshoot devices, meet client needs on time, and write internal and client-facing firmware allowing for product launch	
<i>Adele Diamond Lab Vancouver, Canada</i>	<i>11/2021 – 04/2022, 09/2022 – 04/2023</i>
Interactive Media Developer	
<ul style="list-style-type: none">Programmed games in TypeScript for psychiatric studies to test memory and cognitive abilities in childrenAdapted to new programming language in 2 weeks to optimize a game, increase testing case size by 40%, and improve correctness for nationwide deploymentDeveloped and debugged Java and JavaScript programs for numerical sequence generation, data formatting, and file filtering to improve the lab's organization system	

PROJECTS

<i>UBC Engineering Physics Project Lab Vancouver, Canada</i>	<i>09/2024 – 04/2025</i>
LoRa Pet Tracker	
<ul style="list-style-type: none">Designed a PCB integrating LoRa, GPS, and IMU modules to create a compact, low-power pet tracker with 48+ hours of battery life for real-time location monitoring via mobile app within a communication networkDeveloped custom C and C++ libraries for drivers and data processing, optimizing low-power and long-range performance, utilizing I2C and UART protocols for seamless sensor integrationAwarded the Roy Nodwell Memorial Prize for a high professional standard, original contribution, and industry relevance	
<i>UBC Sailbot Design Team Vancouver, Canada</i>	<i>11/2021 – Present</i>
Polaris	
<ul style="list-style-type: none">Managed a 10-member team tasked with designing and building the hull and keel of a fully autonomous sailboat to collect oceanic data during weeks-long missions in the Pacific OceanDesigned hull, bulkheads, and keel using structural and hydrodynamic analysis with Maxsurf, Ansys, Excel, and SolidWorks ensuring optimal performance and durability for our ocean missionsManufactured hull from CFRP sandwich panels using hand layup and vacuum bagging techniques	
<i>UBC Department of Psychiatry NINET Lab Vancouver, Canada</i>	<i>09/2023 – 04/2024</i>
Transcranial Magnetic Stimulation (TMS) Cobot System	
<ul style="list-style-type: none">Developed a robotic system to increase the efficacy of TMS in treating depression using a UR3e cobot arm, IR camera, and physiological signals to target and stimulate specific points in the brainProgrammed a cobot arm in Python with ROS Noetic to implement smooth motion tracking using IR camera and force feedback with tf2 library for transformations between image space and robot space	

SKILLS

Mechanical	SolidWorks, Ansys (FEA), Maxsurf, 3D printing, Milling machine, Lathe, CNC, Composites (CFRP)
Electrical	Oscilloscope, Signal generator, Soldering, Circuit board debugging, Altium, PCB design and testing
Software	Python, C++, C, MATLAB, TypeScript, Git, OpenCV, TensorFlow, ROS, Linux