Margaret Lee

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EDUCATION

The University of British Columbia | *Vancouver, Canada* *09/2020 – 04/2026*
Engineering Physics, BASc
Awards: Trek Excellence Scholarship (2022), Dean's Honour List (2020-2023), Cumulative GPA: 4.00/4.33

ETH Zürich | *Zürich, Switzerland* *09/2023 – 02/2024*
Mechanical Engineering, International Exchange
Courses: Robot Dynamics, Microrobotics, Virtual Reality II, Distinguished Seminar in Robotics, Systems, and Control

WORK EXPERIENCE

Microchip Technology Inc. | *Burnaby, Canada* *05/2023 – 08/2023*
Product Engineer
- Developed test flows with Python scripts, thermal forcers, and Excel to characterize performance of temperature sensors on ethernet PHY chips
- Identified and documented issues with sensor calibration at production, validated new calibration flow, and implemented workaround to make previous products fulfill requirements
- Collaborated 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

Adele Diamond Lab | *Vancouver, Canada* *11/2021 – 04/2022, 09/2022 – 04/2023*
Interactive Media Developer
- Programmed games in TypeScript for psychiatric studies to test memory and cognitive abilities in children
- Adapted to new programming language in 2 weeks to optimize a game, increase testing case size by 40%, and improve correctness for nationwide deployment
- Developed and debugged Java and JavaScript programs for numerical sequence generation, data formatting, and file filtering to improve the lab's organization system

TECHNICAL PROJECTS

UBC Engineering Physics Project Lab | *Vancouver, Canada* *09/2024 – Present*
LoRa Pet Tracker
- Designing PCBs 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 network
- Developing custom C++ libraries for drivers and data processing, optimizing low-power and long-range performance, while utilizing I2C and UART protocols for seamless sensor integration

UBC Sailbot Design Team | *Vancouver, Canada* *11/2021 – Present*
Polaris
- Leading a 9-member team to design and build the hull and keel of a fully autonomous sailboat to collect oceanic data during weeks-long missions in the Pacific Ocean
- Designed hull, bulkheads, and keel using structural and hydrodynamic analysis with Maxsurf, Ansys, Excel, and SolidWorks ensuring optimal performance and durability for our ocean missions
- Manufactured hull from CFRP sandwich panels using hand layup and vacuum bagging techniques, meeting a tight 2-month timeline to allow generous integration time for sail, rudder, and electrical teams

UBC Department of Psychiatry NINET Lab | *Vancouver, Canada* *09/2023 – 04/2024*
Transcranial Magnetic Stimulation (TMS) Cobot System
- Developed parts of 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 brain
- Programmed the cobot arm in Python with ROS Noetic to implement smooth motion tracking using IR camera and force feedback with TF library for transformations between image space and robot space

UBC Engineering Physics | *Vancouver, Canada* *09/2022 – 12/2022*
Machine Learning Driving Competition
- Programmed a robot in Python to navigate an environment in Gazebo Simulator and analyze image data with OpenCV and classical computer vision using the ROS Noetic framework in Linux
- Created PID control algorithms and RL models trained in OpenAI Gym for autonomous driving

TECHNICAL SKILLS

Mechanical |	SolidWorks, Ansys, Maxsurf, FDM 3D printing, Milling machine, Lathe, Composites (CFRP)
Electrical |	Oscilloscope, Signal generator, Soldering, Circuit board debugging, KiCad
Software |	Python, C++, C, MATLAB, TypeScript, Git, OpenCV, TensorFlow, ROS, Linux