Lisa (Ruobing) Shi

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Education

University of British Columbia (UBC) Vancouver, BC
Bachelor of Applied Science in Engineering Physics *Anticipated Graduation: May 2026*
Cumulative GPA: 3.7/4.0
Awards: Trek Excellence Scholarship, Dean's Honour List
Interests: Robotics, Control Systems, Mechatronics, Aerospace

Work Experience

PAC - Phase Technology Richmond, BC
R&D Engineering Co-op May 2024 – Dec 2024

- Performed mechanical design of **CNC** machined mounting brackets and assembly jigs using **SOLIDWORKS** to enhance ease of assembly.
- Developed assembly instructions and test procedures using **SOLIDWORKS Composer** for production teams to streamline assembly processes.
- Researched and tested thermal insulation materials below $-120°C$; learned **ASTM's petroleum standards**.
- Assisted in quality checking and non-conformance reporting.

Primex Manufacturing Langley, BC
Product Designer Co-op Jan 2023 – May 2023

- Designed **telecommunication** enclosures for **thermal injection**
- Created 2D engineering drawings in SOLIDWORKS.
- Managed engineering models and drawings with **SOLIDWORKS PDM** to enhance version control efficiency.
- Tested **fibre optics** test equipments, documenting performance metrics.

Technical Projects

Piano-Playing Robot (In Progress)

- Designing a robotic finger to mimic human pianist dynamics (articulation, note length, and dynamics).
- Prototyped a voice coil actuator with fast directional switching and low noise using **3D printing**, **laser cutting**, and **waterjet cutting**.

UBC Orbit - ALEASAT 1U Nano-Satellite
Mechanical Simulation Co-Lead

- Contributed to nano-satellite design for diaster monitoring, supported by UBC and **ESA Fly Your Satellite**.
- Developed structural models in **OnShape** and performed simulations in **ANSYS Mechanical**.
- Contributed to subsystem integration and onboard camera mounting design.

Machine Learning ROS Robot

- Developed a virtual robot in **Gazebo** simulator capable of line-following, barrier detection, and character recognition using **ROS**, **OpenCV**, and **PID** control.
- Focused on image processing (feature detection with SIFT) and character recognition by training **CNNs** via Google Colab.

Autonomous Line-Following Robot

- Designed and manufactured the chassis using laser and waterjet cutting, achieveing optimal weight distribution.
- Implemented IR sensor-based line following, **hand-soldered PCB** boards, tuned PID controller, and developed item collection/rejection mechanisms with hall-effect sensor controlled through **STM32** microprocessor.

Technical Skills

Mechanical: SOLIDWORKS, OnShape, ANSYS, AutoCAD, 3D Printing, Laser/Waterjet Cutting, Drill/Lathe, CNC
Hardware/Tools: Raspberry-Pi, Arduino, FPGA, PCB Soldering, Oscilloscope, Function Generator, Lock-in Amplifier
Software: ROS, OpenCV, MATLAB, Python, C/C++, Java, VHDL