

Soma Inokuchi

Mechanical Engineering Student

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EDUCATION

University of British Columbia

Vancouver, Canada

Bachelor of Applied Science – Mechanical Engineering, Mechatronics (Year 3)

2022 – 2027

Relevant Courses: Machine Design, Modelling of Mechatronic Systems, Manufacturing Processes, Mechanical Vibrations

SKILLS

Mechanical Design: DFA, DFM, CAD (SolidWorks, Onshape, Fusion 360), FEA, Drafting, GD&T, Hands on prototyping

Manufacturing: FDM 3D Printing, Machining (Milling, Lathe, Band Saw, Hand Tools), Waterjet cutting

Analysis & Testing: MATLAB/Simulink, Python, C/C++, MCUs, Industrial sensors, PLCs, OpenCV, ROS, Control Theory, Motor control

WORK EXPERIENCE

Mechanical Design Intern

Tokyo, Japan

Connected Robotics

May 2025 – Aug 2025

- Researched and designed 4 novel weight-optimized, precision gearboxes (1:30) in SolidWorks and Fusion 360, advancing team knowledge base of gears in robotics.
- Built and tested 10+ prototypes via FDM 3D printing, performing backlash tests, hand calculations and FEA simulations to determine root cause failure and design for structural optimization.
- Evaluated quantitative design trade-offs (cost, weight, efficiency, manufacturability and concept adaptability) and presented comparisons between prototypes and industry standard products to 10+ engineers, driving future gear design development.

Control Systems Engineering Intern

Vancouver, Canada

Brock Solutions

Sept 2024 – April 2025

- Developed a test emulation UI in Ignition with 200+ industrial devices (motors, sensors, lights, VFDs, emergency stop buttons) for an airport baggage handling system, verifying addressing of PLC I/O signals.
- Debugged 450+ lines of PLC ladder logic code in Logix Designer, minimizing system faults by 10%.
- Verified mapping of 1400+ I/O signals between devices in PLC code, HMI and UI, validating system integration.
- Cleaned data across 20+ Excel spreadsheets of devices to verify proper naming conventions for I/O signals.
- Performed a Factory Acceptance Test to external clients for the baggage handling system, justifying design decisions and demonstrating system reliability.

Automation Device Setup Assistant

Vancouver, Canada

Pacific Sherpa Trading

July 2023 – September 2023

- Decreased seafood processing cycle time by 40% by analyzing and optimizing conveyor belt speeds, tensioning, and roller and bevel gear tolerances, ensuring uniform and efficient product flow rate.

PROJECTS

6-DOF Robot Arm

Vancouver, Canada

Mechanical/Electrical Arm Lead @ UBC Open Robotics

Oct 2024 – May 2025

- Led a 7-member team from concept to prototype of a 6-DOF robotic arm for **RoboCup@Home**, designing parts, assemblies and fixtures, sizing motors, setting timelines, and managing project budgets.
- Facilitated multiple design reviews (FEA, DFA, DFM), reducing stress concentrations and project lead time by 1 week.
- Selected optimal motors, motor drivers, microcontrollers and sensors such as encoders and IMUs.
- Analyzed stress and deformation with FEA in structural frames, reducing weight by 20% and minimizing deflection by 65%.
- Tested 3D printing tolerances for print overhang angles and hole shrinkages, ensuring DFM compliance.

SCARA Robot Arm

Vancouver, Canada

Mechanical Robot Arm Lead @ UBC Open Robotics

April 2024 – October 2024

- Led mechanical design through a complete project lifecycle, overseeing design of planetary gearboxes, pulleys, and bearings, minimizing stress concentrations and using DFM and DFA to improve manufacturability and assembly.