Taiga Momose

+1 250-858-1691 | *taigasery78@gmail.com* | LinkedIn | My Portfolio

EDUCATION

University of British Columbia Vancouver, BC
Bachelor's of Applied Science, Engineering Physics *2023 — 2027*

- **Academic achievements:** Dean's List
- **Extracirriculars:** UBC Thunderbikes — Cooling Team Lead

WORK EXPERIENCE

AME Group (Co-op) Vancouver, BC
Mechanical Designer *Jan. 2025 — May 2025*

- Designed **fire sprinkler**, **hydronic**, and **HVAC systems** using **Revit** and **AutoCAD**
- Developed fire protection designs in compliance with **NFPA 13**, including system zoning and layout
- Performed sprinkler **hydraulic calculations** using **HydraCALC** to determine required flow rates and pressures
- Conducted **site visits** to survey and document existing sprinkler systems for renovation projects
- Performed **building thermal load analysis** using **Carrier HAP v6** to support **AHU sizing** in accordance with **ASHRAE**

PROJECTS

ENPH 253 Autonomous Robot (More here!) *Jul. 2025 — Aug. 2025*

Fully autonomous robot built to traverse an obstacle course, pick up stuffed animals, and return them to safety.

- **Designed for manufacturing (DFM)** and integrated the robot chassis, arm turret, claw, and shoulder assembly from scratch using **Onshape**
- **Sized motors** and arm components using **torque and load calculations**
- Manufactured an **aluminum chassis** using C-channel construction, including **water-jetted** plates and **lathed/milled** shafts, collars, and adapters
- **Rapid prototyping** using **laser-cut** hardboard and **3D-printed** test components to validate mechanical integration
- Designed a modular claw for manufacturing using 3D printing and laser-cut Delrin to **localize failures** during testing
- **Eliminated turret axial backlash** by designing a greased **TPU spacer** integrated into a lazy-susan bearing

Thunderbikes Battery Coldplate (More here!) *Oct. 2025 — Ongoing*

Water-cooled coldplate built to keep bike battery pack at operational temperature.

- Built an **electro-thermal MATLAB model** using OCV–SOC data to simulate cell heat generation under **cyclic power loads**
- Performed **FEA** in **MATLAB** using **PDE Toolbox** to predict single cell temperature rise
- Designed and simulated thermal loads on a preliminary serpentine cold plate using **ANSYS**
- Conducted **ANSYS Fluent thermofluid simulations** to find flow rate required to maintain cell temperature **below 60°C**

EXTRACIRRICULARS

Mechanical Subteam Member Vancouver, BC
UBC Thunderbikes *Oct. 2024 — May 2025*

- Designed radiator mounting brackets in **SolidWorks** to integrate the radiator and cooling fan with the rear subchassis
- Designed and **manufactured aluminum hose adapters** for the cooling system

Cooling Team Lead Vancouver, BC
UBC Thunderbikes *Sep. 2025 — Ongoing*

- Leading team of 4 to design and manufacture coldplate

SKILLS

Mechanical: Modal Analysis, FEA, SolidWorks, OnShape, ANSYS, Machining (Mills, Lathes, Drills), Fabrication (Waterjet cutting, Laser cutting, 3D Printing)

Software/Electrical: MATLAB, Python, Java, Git, C/C++, Linux, Oscilloscopes, Soldering