

Nathan Lui

Mechanical Engineering | Vancouver, BC | nathanlui06@gmail.com | [linkedin.com/in/nathan--lui/](https://www.linkedin.com/in/nathan--lui/)

EDUCATION

University of British Columbia

Bachelor of Applied Science, Mechanical Engineering

Vancouver, BC

Expected Graduation: May 2029

TECHNICAL SKILLS

- CAD and Simulation:** SOLIDWORKS (modeling, assemblies, drawings, FEA), Altair Inspire (topology optimization), MATLAB Simulink
- Analysis and Testing:** Hand calculations, material and bearing selection, bench testing, telemetry analysis, Excel
- Manufacturing:** Lathe, milling machine, rotary table, waterjet, 3D printing, jig and fixture design
- Electronics and Programming:** Soldering, oscilloscope, Arduino, Python, C

FORMULA UBC RACING TEAM

Race Director

May 2026 — Present

- Lead all on-car testing, planning and running test days to date and coordinating all 6 subteams.
- Perform trackside telemetry analysis to give drivers real-time feedback; collect suspension data during testing.

Suspension Subteam Member

Sep 2024 — Present

- Front and Rear Anti-Roll Bars**
 - Designed adjustable aluminum blade-style anti-roll bars allowing roll stiffness changes in under 20 seconds trackside.
 - Optimized bar geometry with a multi-body vehicle model in MATLAB Simulink, improving predicted handling balance.
 - Bench-tested the manufactured bars to validate the design.
 - Sized blade and torsion bar using strain-energy calculations; verified a minimum factor of safety of 2 with FEA.
 - Machined blades, bar ends, sleeves, and droplinks on the lathe, mill, and rotary table to tolerances of 0.0005 in.
- Front and Rear Shock Packaging**
 - Repackaged front shocks within tight space constraints, lowering suspension center of gravity by 15 mm.
 - Repackaged rear shocks to allow engine removal without suspension teardown, saving 30 min per engine removal.
 - Worked with the chassis subteam to move the bellcrank pivot to a chassis node; set a 1:1 motion ratio.
- Front and Rear Bellcranks**
 - Cut aluminum bellcrank plate weight by 30% with topology optimization and FEA; waterjet-cut front and rear sets.
 - Selected bearings to minimize mass and maximize factor of safety, enabling reuse across multiple seasons.
- Suspension Assembly Jigs**
 - Built waterjet-cut aluminum and steel jigs to locate hardpoints, with 3D-printed locators to avoid precision milling.

WORK EXPERIENCE

Research Assistant

Blueinno Technology

Jun 2024 — Jul 2024

Hong Kong SAR

- Developed STEM education courses covering Arduino, MIT App Inventor, and generative AI.
- Teaching assistant for a “Train the Trainer” program on teaching MIT App Inventor in primary schools.

PROJECTS

Electrical Engineer, High School Underwater Robotics Team

Jun 2022 — May 2023

- Designed and built a portable control box for piloting the team’s remotely operated vehicle (ROV).
- Piloted the ROV at the 2023 MATE ROV Hong Kong Regional Competition.

INTERESTS

Cars, autocross, hiking, skiing