# Benjamin Lee

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## Summary

Self-motivated and dedicated mechanical engineering student with a passion for mechanical design and effective problem solving.

**Currently pursuing Summer 2025 internships in mechanical design/testing.**

## Education

**University of British Columbia** **Expected May 2026**
Bachelor of Applied Science - Mechanical Engineering GPA: 3.70
Relevant Courses: Dynamics, Vibrations, Heat Transfer, Mechanics of Materials, Material Science, Machine Design, Manufacturing Processes, Statics, Thermodynamics, Electric Circuits, Computational Methods

## Experience

**Manufacturing Engineering Intern,** Tesla – Sparks, NV Jan 2025 – May 2025
- Coordinated the **installation of 75 pieces** of new equipment and enabled **PLC** updates to **increase hourly production output by 7%.**
- Developed **3D CAD models/assemblies**, detailed drawings, and mechanical BOMs for custom jigs and fixtures, **reducing station cycle times by up to 22%.**
- Developed a **Python** application to retrieve data across the entire production line, providing insights to the launch/ramp-up progress of highly automated battery manufacturing lines.

**Manufacturing Engineering Intern,** Kardium Inc. – Burnaby, BC May 2024 – Sept 2024
- Designed, prototyped, and implemented an ethanol-based sterilization assembly, using **SolidWorks** and in-house machining to **reduce previous process time by 75%.**
- Assembled mechanical, electrical, and pneumatic assemblies to **increase production capacity by 30%**

**Manufacturing Engineering Intern,** Escape Trailer – Chilliwack, BC May 2023 – Dec 2023
- Designed from scratch the interior of the newest flagship product (Escape 23) using **OnShape**, generating **1.2M in pre-release sales**.
- Improved chassis and roof structural strength with FEA simulations supported by hand calculations and strain gauge tests to **increase deformation resistance by 15%.**
- Deployed jigs and fixtures to support existing production lines, **reducing nonconformance by 40%**.

## Projects

**UBC UAS Design Team Payload Lead: UAV Passenger Airbus**
- Led a team of **10+ members** to design and manufacture two autonomous flight drones: care-package delivery and firefighting drone.
- Conducted **FEA** simulations in SolidWorks to redesign parts and **increase structural rigidity by 15% and reduce internal weight by 20%.**
- Executed **CFD** simulations in SolidWorks, validated by physical wind tunnel experiments to streamline aircraft features and **reduce drag forces by 10%**

**Motorized Drift Tricycle**
- Designed and assembled a functional 3HP motorized drift tricycle, integrating mechanical components (shafts, sprockets, and bearings).
- Programmed scripts to conduct force analyses in **MATLAB** to ensure structural safety while optimizing for a responsive and engaging riding experience.
- Machined custom steel components and performed welding to assemble and test the final prototype.

## Skills

**Software:** SolidWorks, OnShape, Python, MATLAB, SQL, C++, C#
**Manufacturing:** 3D Printing (FDM/SLA), CNC, Manual Lathe/Mill, Welding (Laser/TIG), Water Jet Cutter, Laser Cutter
**Knowledge:** ASME Y14.5 (GD&T), FEA, CFD, DFM/DFA, FANUC, FMEA, PLC, Lean Manufacturing