Kyle Tam

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4th Year Mechatronics Engineering student with considerable interdisciplinary engineering experience in mechanical design, manufacturing, and controls gained through experience working in aerospace optics, particle accelerator design, and additive manufacturing. Looking for full-time opportunities starting in summer or fall 2023.

SUMMARY OF QUALIFICATIONS

Design: SolidWorks, Solid Edge, Ansys Mechanical, GD&T, Mathcad, Fusion 360, AutoCAD
Manufacturing: DFM/DFA, Machining, 3D Printing (plastics & metals), MasterCAM, CNC, Composites
Electronics: Data Acquisition, Controls, LabVIEW, MATLAB, Arduino, Git, C, C++

EXPERIENCE

Aerospace Engineering Intern
May – August 2022
Canadensys Aerospace – Optics Team | *Space systems, advanced vehicles, rovers, cameras*
- Manufactured and tested flight camera builds for use in launch vibration and lunar thermal conditions
- Conducted vibration and thermal tests on cameras to protoflight levels and temperatures of -40 to 50°C
- Designed an optical test jig to determine camera lens focus degradation under low vacuum environments

Mechanical Design Engineering Intern
January – April 2022
TRIUMF – SRF Cryomodule Team | "*Canada's particle accelerator centre*"
- Designed a co-axial cavity test bed using SolidWorks for operating conditions of 2°K and 10^{-6} Pa vacuum
- Consulted with machinists to design for manufacturing and lower machining costs by over $5000
- Analyzed pressure vessel designs using ASME BPVC calculations and ANSYS for a safety factor over 3.5
- Developed an assembly frame for the production of a 2200 kg cryomodule for the 2026 CERN LHC upgrade

Mechanical Engineering Intern
January – April 2020
Hatch - Engineered Equipment Group | *Engineering consulting firm specializing in mining and energy*
- Collaborated on the designs of a hydraulic unloader and large experimental high-speed bearing system
- Created 3D models and drawings in Solid Edge to communicate designs in client deliverables
- Produced stress analysis calculations to minimize the unloader weight and select optimal bearing types

Manufacturing Design Engineering Intern
September – December 2020
Flash Forest | *Automated drone reforestation company*
- Established a semi-automated manufacturing line to produce seed pods for rapid reforestation
- Developed a drone-mounted pneumatic distribution system that increased germination by over 30%

Additive Manufacturing Research Assistant
May – August 2021
Multi-Scale Additive Manufacturing Lab (MSAM) – University of Waterloo
- Developed a machine vision-based data acquisition and controls system using LabVIEW for 5-axis laser metal deposition (LMD) 3D printing that tracks layer height during production and minimizes wasted material
- Contributed to 5-axis CNC process planning algorithms to prevent collisions between the robot and print

Payload Subteam Lead
October 2018 – June 2022
Waterloo Rocketry | *High-powered rocketry student design team*
- Directed 15 students in the research and design of a radiation-shielding materials experiment payload that was awarded the title of Top 10 Payload in the SDL Payload Challenge at Spaceport America Cup 2021
- Designed a 3U CubeSat validated using Ansys structural and vibrational FEA to simulate behaviour during the launch of the team's 17 ft hybrid rocket flight up to an altitude of 30,000 ft
- Designed and fabricated enclosures and satellite parts using SolidWorks, GD&T, and a manual mill
- Manufactured carbon fiber and fiberglass composite airframe hardware using a wet layup process

EDUCATION

University of Waterloo
September 2018 – April 2023
Candidate for BASc in Mechatronics Engineering with Physical Sciences Option in Physics