

Tristan Yan-Klassen

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TECHNICAL SKILLS

Applications: SolidWorks (CSWP), AutoCAD, KiCAD, LTspice, MATLAB, Simulink, VBA, Git
Manufacturing: 3D Printing, CNC, Mill, Lathe, Sheet Metal, DFMA, GD&T, PCB Assembly, Soldering
Hardware: Oscilloscope, Signal Generator, Multimeter | Arduino, ESP32, STM32
Embedded: C/C++, Python | I2C, SPI, UART, PWM

WORK EXPERIENCE

Jr. Hacksmith - Hacksmith Industries Incoming Sept. 2025

- Joining the Hacksmith team this fall to bring sci-fi technology to life.

Engineering Intern - Oxygen8 Solutions Inc. Jan. 2025 – Apr. 2025

- Designed and implemented HVAC unit wire harnesses to cut material cost 30% and assembly time 75%.
- Created global electrical standard for unit wiring and standard templates for SolidWorks Electrical.
- Conducted DFMA analysis of Terra 2.0 to reduce part count by 56% and assembly time by 20%.
- Developed prototype electrical boxes for Terra V and Terra 2.0 unit lines.
- Designed custom wire tester PCB around ESP32 with SPI LCD screen for data tracking and feedback.

DESIGN TEAMS

Aerodynamic Controls Development - Waterloo Rocketry Sep. 2024 – Present

- Built 6DoF rocket simulation in Simulink to test canard control algorithms for sounding rocket.
- Independently conducted aerodynamic analysis and FMEA to determine the viability of unlinked canards.
- Designed, modeled, tested, and calibrated a robust mechanical linkage for the canard system.

Team Lead - Team Canada CanSat Sep. 2023 – Jun. 2024

- Led team of 6 to the European Space Agency with a prototype space lander to core and test soil samples.
- Spearheaded design and integration of payload, electronics, and recovery systems into can sized lander.

PROJECTS

Smart Tool Rack

- Designed a smart tool rack to follow an operator around the workshop to keep tools close at hand.
- Implemented PID control and collision avoidance to ensure tool rack is always safely at desired position.
- Turned shafts, milled axles, and laser cut shelving to manufacture frame capable of supporting 100lbs.

HMI and Motor Control PCB

- Designed and brought up custom PCB powered off USB C 2.0 to control a multi-scent diffuser.
- Utilized an ESP32 chip for wireless interfacing, motor control, sensor feedback, and SPI LCD display.

TVC "Rocket"

- Designing a hovering "rocket" powered by gimbal-mounted drone motor for pitch control.
- Developing PID control and sensor fusion in MATLAB and implementing control loops on onboard STM32.

VOLUNTEERING

Physics Olympiad Coach and Volunteer Lead - UBC Physics and Astronomy Jan. 2025 – Present

- Lectured and created selection tests for Canada's International Physics Olympiad team.
- Led team of 10 to found the Canadian Junior Physics Olympiad to prepare students for IPhO team selection.

EDUCATION

BASc. Mechatronics Engineering - University of Waterloo, GPA: 4.0 Sep. 2024 – Present