

Eric Petersen

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🌐 Eric-Ptn

Education

B.A.Sc., Engineering Physics, University of British Columbia

09/2021 – 04/2026

Trek Excellence Scholarship 2021 - top 5% of undergraduates in their year, faculty, and school

UTP Early Entrance Scholarship - for early entrance to UBC, admitted at age 15

Skills

Mechanical Design

CAD modelling, DFM/A, CFD analysis, Machining, 3D Printing, Laser Cutting, Waterjet Cutting, Composite Materials, Sheet Metal Design, (FEA analysis)

Software Tools

SolidWorks (CSWA cert.), AutoCAD, Onshape, Fusion 360, SolidWorks PDM, COMSOL Multiphysics, SolidWorks Flow, Python, MATLAB, XFLR5

Experience

Advanced Airfoils Lead, UBC AeroDesign

09/2021 – present

Designing RC aircraft for the international SAE AeroDesign competition, Advanced Category

- Leading the design of a 120" wingspan aircraft's wing and tail, made of carbon fiber, 3D prints, and various woods
- Created and revised SolidWorks models of the wing/tail according to DFM/A principles, developed build plans and BOMs for each part, then used AutoCAD to organize parts for manufacture through laser cutting
- Analyzed plane stability, control, and wing efficiency in VLM software, spreadsheets and Python, then verified results through CFD simulation in COMSOL Multiphysics and SolidWorks Flow
- Advanced Class Team awarded 1st place in technical presentation 2023, 5th place overall in 2022

Engineering R&D/Operations Intern, Accelovant Technologies

01/2023 – 04/2023

Developing test equipment for precision fiber-optic temperature sensors used in semiconductor manufacturing

- Designed a test jig to find the variability between different temperature sensors overnight by simulating phosphor fluorescence, saving time and effort needed to otherwise supervise and operate in a thermally controlled space
 - used Fusion 360 to design many mounts and enclosures for 3D printing, also designed an LED housing to be manufactured out of brass on a CNC machine
 - featured closed-loop thermal control and fan cooling, optical feedback, Python PID control of stepper motor, VISA communication with waveform generator and sensor logging
- Created several 3D printed jigs for manufacturing, including fiber bundle sliders, a "flange clamp" to help assembly, power bar mounts and others - all designed in Fusion 360
- Programmed semi-automated manufacturing logs in Python, cutting the time needed for updates in more than half

Projects

Remote-Controlled Canard Aircraft, Personal Project

06/2022 – present

Creating a canard config. RC aircraft from scratch, designing all mechanical and electrical components.

- Dedicated considerable time to researching canard aerodynamics, specifically trying to solve the configuration's unstable tendency in the air - using VLM and CFD to continually improve/validate my current solution
- Designing mechanical components in SolidWorks to be manufacturable with accessible materials, easy to assemble/disassemble, and cost-effective, while still retaining some aerodynamic efficiency
- Learned to size electronics such as the motor and propeller, speed controller, and battery to fulfill flight power requirements and sustain current draw appropriately
- Recently starting a 2nd major iteration as I learn from my previous mistakes and simplify the design for construction

Autonomous Racing Robot, UBC Engineering Physics

07/2023 – 08/2023

Designing an autonomous robot for a "Mario Kart" competition with peers, building everything from scratch

- Modelled the first iteration of a steel sheet metal robot chassis with suspension, later manufactured on the waterjet
- Designed all the sensor systems and power distribution, also wrote majority of the microcontroller firmware
- Lathed and milled steering knuckles for prototyping, helped debug electronics and solder up boards
- Final robot was one of two able to jump off a ramp as a racing shortcut in competition