

# Aaron Evans

MECHANICAL ENGINEERING STUDENT

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CATIA V6 & SOLIDWORKS

Prototype Build & Testing

MATLAB & FEA

Drawings & Fixtures

## ENGINEERING PROJECTS

### QDD Planetary Gearbox

2026 -- present

- Designed and assembled a **5:1** planetary gearbox around a D6374 BLDC motor.
- Measured **0 deg** backlash against a **0.5 deg max** requirement.
- Built the gearbox in CATIA V6 with a skeleton-driven assembly.
- Used calibration coupons to tune printed fits before reprinting full parts.
- Designed bench and dyno fixturing; ran **5 diagnostic tests** that drove revisions.

### Trailer Hitch Structural Analysis & Redesign

2025 -- 2026

- Built a MATLAB torsion model; crossbar torsion accounted for **94%** of tip deflection.
- Matched V1 hand calcs to FEA within **8.9%**, then cut deflection by **31%**.
- Redesigned the crossbar and gusset package to keep average safety factor at **2.7** under 4G.

### Design of Mechanical Elements Shaft Fatigue Solver

2026

- Built a Python iterative solver for shaft fatigue sizing with interdependent factors and a convergence check.

### UVic Formula Racing EV Team | Mech Controls Lead

Aug 2023 -- Jun 2024

- Managed pedal box sourcing, assembly, hydraulic pressure sensors, and brake plumbing.
- Performed chassis and pedal box rail welding during the final build sprint.

## EXPERIENCE

### Mechanical Design Co-op | Urban Solar Corp.

Sept -- Dec 2024

Victoria, BC

- Developed auto-updating SOLIDWORKS templates for standardized mechanical drawings.
- Designed custom PEM installation tooling at **90% lower cost** than comparable commercial options.
- Supported an IP65 lighting control cabinet into production readiness for **2000+** units.
- Created manufacturing drawings, labor time standards, and first-article QC.

### Mechanical Design Co-op | Professional Components

Jan -- Apr 2024

Sidney, BC

- Designed production parts and welding jigs for waterjet, welding, and 3D printing.
- Managed multi-level SOLIDWORKS assemblies and produced part, assembly, and weld drawings.

## SKILLS

### CAD & Modeling

CATIA V6 | SOLIDWORKS

### Analysis

MATLAB | FEA | Engineering Drawings | DFM

### Manufacturing

3D Printing | Welding | Assembly

### Testing

Component Testing | Dyno Setup | Test Fixtures

## EDUCATION

### BEng, Mechanical

University of Victoria

Expected Spring 2028

*Coursework:* Control Theory, Vibrations, Fluid Mechanics, Machine Elements, Mechanisms

## HANDS-ON

### Automotive

Diff rebuild | Trans swap | Suspension mods | Axle swaps | Timing belts | Valve job

### Fabrication

MTB bash guard (machined + 3D printed) | Waterjet skid plates | Transformable camping platform