

# DANIEL BENJAMIN

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## SKILLS

**Mechanical:** SOLIDWORKS, AutoCAD, ANSYS, Composites, Machining, 3D Printing, MIG Welding, FMEA  
**Software:** C, MATLAB, Python, AutoLISP, JS, Arduino, Git, SVN, Docker, AWS, Jira, Bluebeam, Adobe CC

## EXPERIENCE

### Mechanical Co-op, Avalon Mechanical

May 2025 – Aug 2025

- Produced HVAC, plumbing, and fire suppression layouts in AutoCAD for commercial and residential projects
- Performed hallway pressurization analysis and fan sizing using Excel and TRACE, calculating required airflow and pressure differentials to meet NFPA and provincial code requirements
- Designed and validated fire sprinkler hydraulic systems using Elite Software FIRE, ensuring safe and code-compliant pipe sizing, flow rates, and pressure drops
- Automated repetitive drafting tasks using AutoLISP, improving CAD efficiency by over 30%
- Assisted with drawing revisions, redlines, and documentation for tender and construction packages

### Chassis Team Lead, UBC Formula Electric

June 2025 – Present

- Led chassis subteam in design and manufacturing decisions for the 2026 competition vehicle
- Used SOLIDWORKS to [design an FSAE chassis frame](#) and used ANSYS and Python scripts to validate design
- Deployed SVN server on Oracle Cloud alongside a [custom SOLIDWORKS integration](#) to track design changes
- Coordinated with other subteams to ensure chassis design met packaging requirements

### Chassis Team Member, UBC Formula Electric

Sep 2023 – June 2025

- Designed, tested and validated waterproof [3D-printed enclosures](#) for circuit boards
- Planned and executed carbon fiber + glass fiber composite layups for car body panels and aero kit

### Undergraduate Research Assistant, UBC MEMS Lab

May 2024 – Feb 2025

- Researched tendon-driven prosthetic hands to identify common successful design elements
- Designed a [robotic hand](#) driven by soft pneumatic actuators 25% better at grasping than previous iterations
- Developed custom shell and Python scripts to integrate Git-based version control with SOLIDWORKS for collaboration with other lab members and documentation purposes
- 3D-printed prototypes using a custom-built multi-extrusion 3D printer running RepRapFirmware
- Helped develop a demonstration platform to allow the prosthetic hand to mimic human hand gestures using MATLAB and Arduino scripts along with a Leap Motion hand-tracking camera module

### Volunteer, Victoria Hand Project

July 2022 – Present

- Assembled and repaired low-cost prosthetic arms with voluntary open/close functionality and an adaptive grasp from a combination of 3D-printed components and metal components like gears and springs
- Contributed concrete ideas to improve assembly speeds, leading to creation of new documentation

## PROJECTS

### WeBWorK Chrome Extension

[github.com/danielrbenjamin/WeBWorK](https://github.com/danielrbenjamin/WeBWorK)

- Published an extension on the Chrome Web Store with over 900 users at peak popularity
- Used JavaScript and CSS to provide a real-time LaTeX formatted preview of plaintext math entered in text fields on the WeBWorK homework platform, and show whether entered parentheses are correctly matching
- Polled users for feedback, and developed other quality of life improvements including automatic variable detection, entry confirmation for questions with limited attempts, and custom query integrations

## EDUCATION

### University of British Columbia

Expected Graduation: May 2029

Bachelor of Applied Science – Mechanical Engineering