

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

WeBWorKer Chrome Extension github.com/danielrbenjamin/WeBWorKer

- 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
Bachelor of Applied Science – Mechanical Engineering

Expected Graduation: May 2029