DANIEL BENJAMIN

contact@danielrbenjamin.com | 236-562-2566 | linkedin.com/in/danielrbenjamin | danielrbenjamin.com
available starting May 2026 for a 4-month or 8-month co-op position

EDUCATION

University of British Columbia Expected Graduation: May 2028
Bachelor of Applied Science – Mechanical Engineering

MECHANICAL DESIGN EXPERIENCE HIGHLIGHTS

- Used SOLIDWORKS to design an FSAE chassis frame and developed Python scripts to calculate forces under various braking and cornering load cases for torsional rigidity simulations in ANSYS Mechanical
- Designed a robotic hand driven by soft pneumatic actuators 25% better at grasping than previous iterations
- Produced HVAC, plumbing, and fire suppression layouts in AutoCAD for commercial and residential projects
- Designed and validated multiple waterproof 3D-printed enclosures for circuit boards against IPX5 standards

EXPERIENCE

Chassis Team Lead, UBC Formula Electric June 2025 – Present
- Led 7-person chassis subteam in design and manufacturing decisions for the 2026 competition vehicle
- Deployed SVN server on Oracle Cloud to track design changes alongside a custom SOLIDWORKS integration
- Coordinated with other subteams to ensure chassis design met packaging requirements

Mechanical Co-op, Avalon Mechanical May 2025 – Aug 2025
- Developed AutoLISP automation scripts to reducing CAD drafting time by over 30%, saving 7+ hours per week
- Assisted with drawing revisions, redlines, and documentation for tender and construction packages
- Performed hallway pressurization analysis and fan sizing using Excel and TRACE, calculating required airflow and pressure differentials to meet NFPA and provincial code requirements
- Validated fire sprinkler hydraulic systems using Elite Software FIRE for code-compliant designs

Chassis Team Member, UBC Formula Electric Sep 2023 – June 2025
- Resolved critical packaging constraints by proposing dual horizontal-vertical PCB configuration to electrical team, then designed multi-part enclosure to accommodate both components while meeting IPX5 standards
- 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
- Analyzed 15+ tendon-driven prosthetic hands to identify common successful design elements
- Developed custom shell and Python scripts to integrate Git-based version control with SOLIDWORKS for collaboration with other lab members and documentation purposes
- Rapidly prototyped design iterations 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 3D-printed low-cost prosthetic arms with voluntary open/close functionality
- 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 adoption
- Used JavaScript and CSS to provide real-time LaTeX formatted previews of plaintext math on the WeBWorK homework platform, show matching parentheses, recognize variable names, and add custom query integrations

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