DANIEL BENJAMIN

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SKILLS

Mechanical: SOLIDWORKS CAD, Waterjet, Composite Layup Manufacture and Post-Processing, 3D Printing
Software: Git+GitHub, Subversion (SVN), Arduino, C, MATLAB, Docker, Atlassian Suite, Adobe CC Suite

EDUCATION

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

EXPERIENCE

Undergraduate Research Assistant, UBC MEMS Lab May 2024 – Present

- Research tendon-driven prosthetic hands to identify common successful design elements
- Iteratively design a prosthetic hand driven by soft pneumatic actuators while creating and using a custom shell script for Git version control integration with SOLIDWORKS
- 3D-print prototypes using a custom-built multi-extrusion 3D printer running RepRapFirmware
- 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

Chassis Team Member, UBC Formula Electric Sep 2023 – Present

- Research and design 3D-printed enclosures in SOLIDWORKS using SVN for collaboration, such as the Vehicle Controller (VC) in accordance with FSAE rules including waterproofing and electrical insulation
- Planned and executed carbon fiber + glass fiber composite layups for car body panels and aero kit
- Cut and ran brake lines through car, in addition to bench bleeding the master cylinder
- Designed and water-jetted metal closeouts for sides and bottom of chassis

Volunteer, Victoria Hand Project July 2022 – Present

- Assembled 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
- Troubleshooted and repaired broken hands
- Developed design ideas to prevent issues in newly constructed hands

Student Intern, AES Engineering Oct 2021 – June 2023

- Performed load calculations for multi-bedroom apartment units using guidelines from the Canadian Electrical Code (CEC) and the BC Building Code (BCBC)
- Read and created electrical wiring diagrams and block diagrams
- Created power outlet layouts following the CEC and best practices for convenient placement around rooms
- Gained experience using industry tools including Bluebeam Revu and DIALux evo

PROJECTS

WebWorKer Chrome Extension github.com/danielrbenjamin/WeBWorKer

- Published an extension on the Chrome Web Store with over 450 current users
- Used JavaScript and CSS to provide a real-time formatted preview of 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 a built-in search function for the Piazza class forum site along with entry confirmation for questions with limited attempts