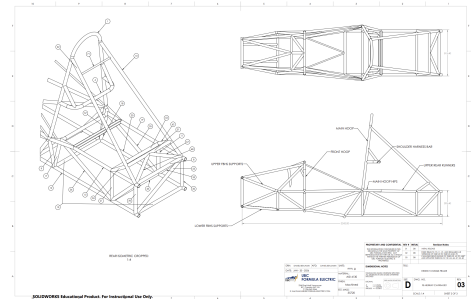
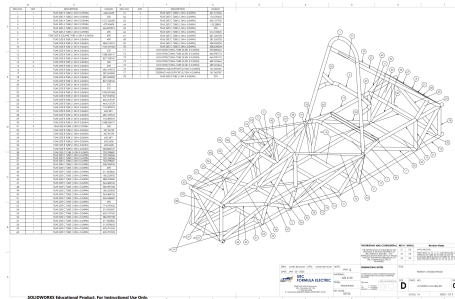
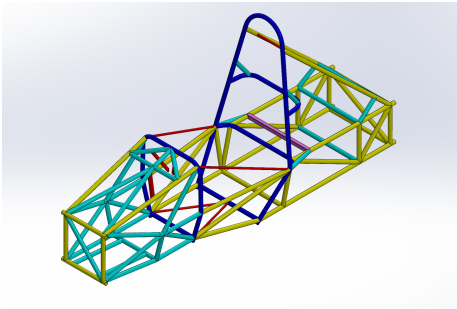


# DANIEL BENJAMIN

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## UBC FORMULA ELECTRIC — CHASSIS FRAME DESIGN

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### What?

- Led end-to-end design of a FSAE electric vehicle chassis
- Owned safety, packaging, and manufacturability decisions
- Delegated team tasks and managed project timeline

### How?

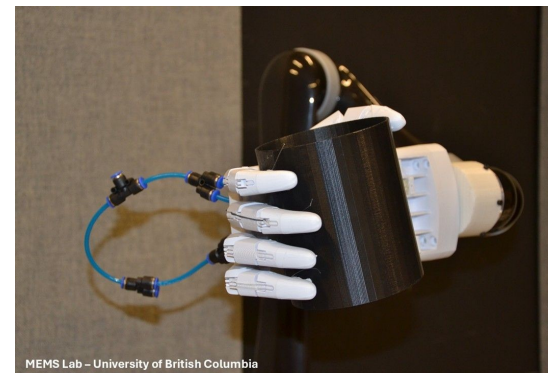
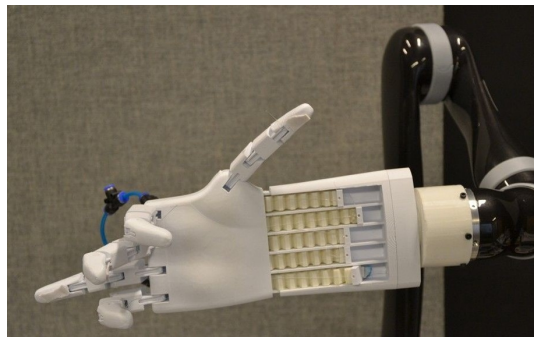
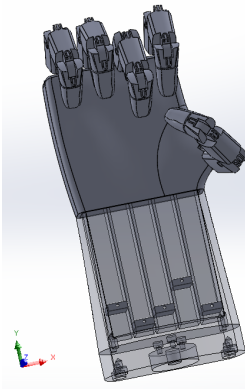
- Designed space frame in SOLIDWORKS, iterating tube geometry for stiffness-to-weight
- Coordinated interfaces with suspension, powertrain, and battery teams

### Results?

- Achieved FSAE-compliant chassis with improved packaging
- Enabled downstream manufacturing and on-schedule vehicle integration

## MEMS PROSTHETIC HAND

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### What?

- Developed a tendon-driven prosthetic hand for research applications
- Explored bio-inspired actuation and grasping strategies

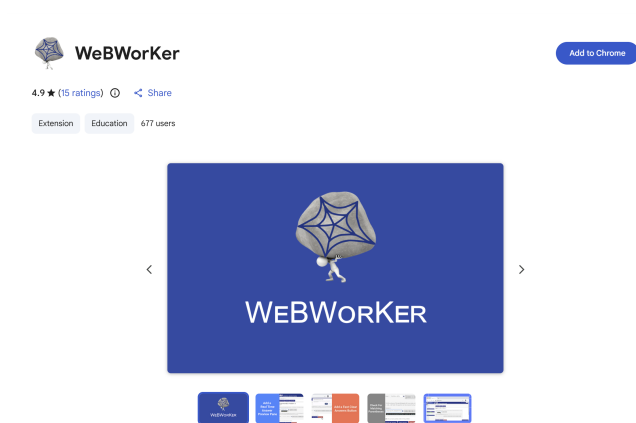
### How?

- Designed and 3D printed iterative mechanical prototypes
- Integrated it with a Kinova Jaco2 robotic manipulator
- Evaluated grasp performance and refined linkage geometry

### Results?

- Produced a fully functional prototype demonstrating reliable tendon actuation
- Achieved measurable grasp performance improvements over prior designs

## WEBWORKER CHROME EXTENSION



### 221-ProblemSet5: Problem 14

(1 point)

The maximum acceptable frequency of the following weighing platform in the unloaded condition is  $10 \text{ Hz}$ . If each spring is identical, what is the spring constant the platform when loaded with a  $78 \text{ Mg}$  (metric tonnes) truck?

$k =$    $\text{ kN/m}$

$f_n =$    $\text{ Hz}$

Note: You can earn partial credit on this problem.

Show: ☐ Correct Answers

[Preview My Answers](#) [Check Answers](#) [Open Piazza](#) [Custom Query](#)

You have attempted this problem 7 times.  
Your overall recorded score is 100%.  
This homework set is closed.

### What?

- Created and published a browser extension to improve WeBWork usability for students

### How?

- Developed front-end logic in JavaScript and HTML/CSS
- Implemented real-time math rendering and input validation
- Added new features based on direct user feedback

### Results?

- Reached 900+ active users at peak adoption
- Reduced input errors and improved workflow efficiency

## SVNWORKS

File Name	File Type	Size
2025-09-07 4:57 PM	SLDASM File	66 KB
2025-09-10 1:52 AM	SLDPRT File	143 KB
2025-09-10 1:52 AM	SLDPRT File	91 KB
2025-09-07 4:57 PM	AutoCADDrawingInte...	27 KB
2025-09-10 1:52 AM	SLDPRT File	199 KB

File Name	File Type	Size
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2025-09-07 4:57 PM	AutoCADDrawingInte...	28 KB
2025-09-07 4:57 PM	SLDASM File	66 KB
2025-09-10 1:52 AM	SLDPRT File	143 KB
2025-09-10 1:52 AM	SLDPRT File	91 KB

### What?

- Built a Windows desktop tool to streamline CAD version control
- Published on the Microsoft Store

### How?

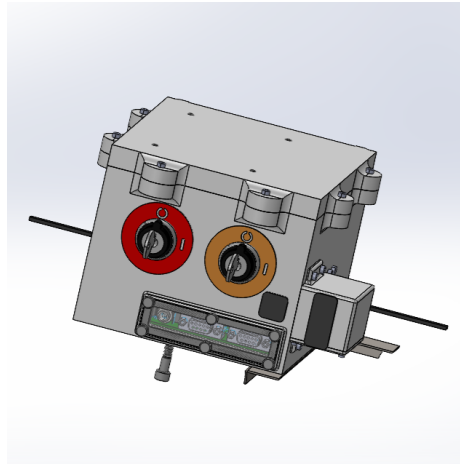
- Developed an MSIX application using C#/.NET
- Integrated Apache Subversion with the SOLIDWORKS API
- Exposed file-lock and repository state directly in the CAD workflow

### Results?

- Reduced file conflicts in collaborative CAD environments
- Improved design accountability and version awareness for teams

## UBC FORMULA ELECTRIC — DESIGN PROJECTS (YEAR 1-2)

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### What?

- Manufactured structural and composite vehicle components
- Designed electrical enclosures and mounting systems

### How?

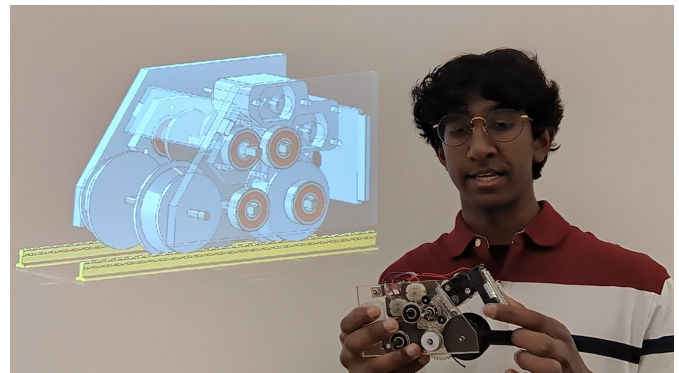
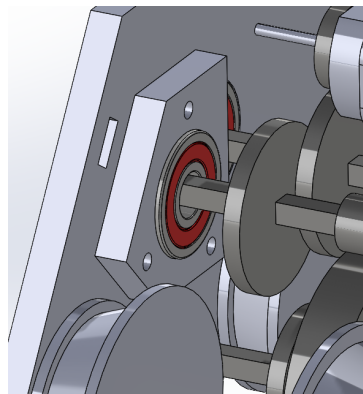
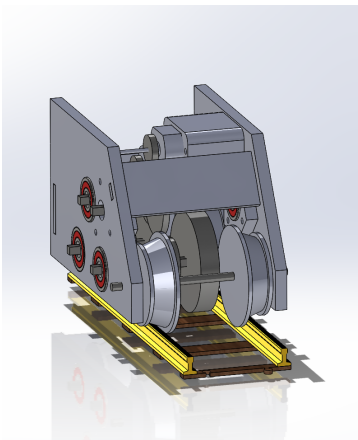
- Modeled mounts, enclosures, and tabs in SOLIDWORKS
- Executed carbon and glass fiber composite layups
- Collaborated using SVN and structured design reviews

### Results?

- Delivered reliable body, aero, and enclosure components
- Gained hands-on experience in composite manufacturing workflows

## MECH 223 RAIL HAULER

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### What?

- Designed a load-carrying rail vehicle from concept to fabrication
- Worked in a team to meet course requirements and deadlines

### How?

- Modeled full mechanical system and produced fabrication drawings
- Manufactured parts using machining, laser cutting, and 3D printing

### Results?

- Delivered a fully functional vehicle meeting load and performance targets
- Demonstrated complete design-build-test cycle execution

For more details and media, please go to my portfolio website [danielrbenjamin.com](http://danielrbenjamin.com)