

A young man with dark hair and sunglasses on his head, wearing a blue jacket over a dark t-shirt, stands in the foreground. Behind him is a vast mountain range with jagged peaks and patches of snow, under a blue sky with white clouds.

Sean Cummins

Design Engineer with experience in consumer product development specializing in high volume manufacturing and computational design

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About Me

I am a **Mechanical Design Engineer** with a proven track record of transforming conceptual ideas into high-performing, market-ready products. With a strong foundation in **consumer product development, design engineering, and manufacturing optimization**, I excel at creating solutions that balance technical precision with aesthetic appeal.

My experience spans the entire product development lifecycle, from conceptual design and prototyping to high-volume manufacturing and market launch. I have collaborated with global cross-functional teams and manufacturing partners to deliver products that prioritize quality, usability, and sustainability. By leveraging advanced tools like **SolidWorks, Rhino, and Grasshopper**, alongside engineering methodologies such as **DFM** and **FEA**, I consistently drive efficiency and innovation in my designs.



Product Development Experience

tms - a HAVI Co. (Current)

As a Design Engineer at tms, I develop innovative, high-volume drinkware products that align with the brand's commitment to **quality, performance, and sustainability**. I combine advanced engineering techniques with a consumer-focused approach to deliver products that enhance the customer experience by collaborating with cross-functional teams and global manufacturing partners. My work emphasizes streamlined product development, manufacturing optimization, and impactful design solutions.

Key Highlights:

- Design and manufacture drinkware products with sales exceeding hundreds of thousands of units globally.
- Implement computational design solutions to time-intensive CAD processes, enhancing design efficiency and accelerating project timelines.
- Travel to manufacturing sites in Asia to oversee tooling, resolve production challenges, and reduce manufacturing lead times.

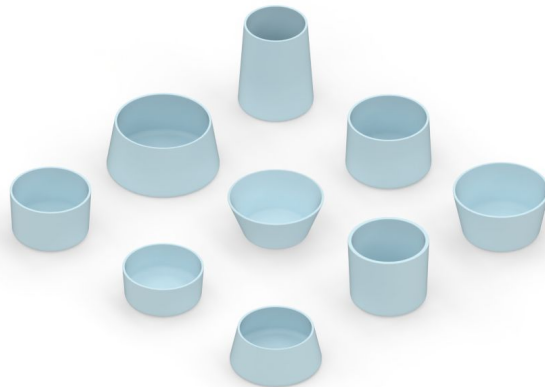
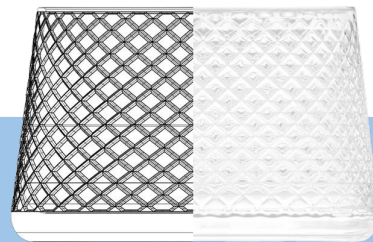
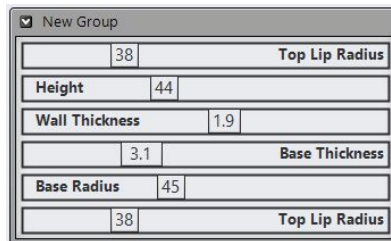


Computational Design

Parametric Drinkware Development

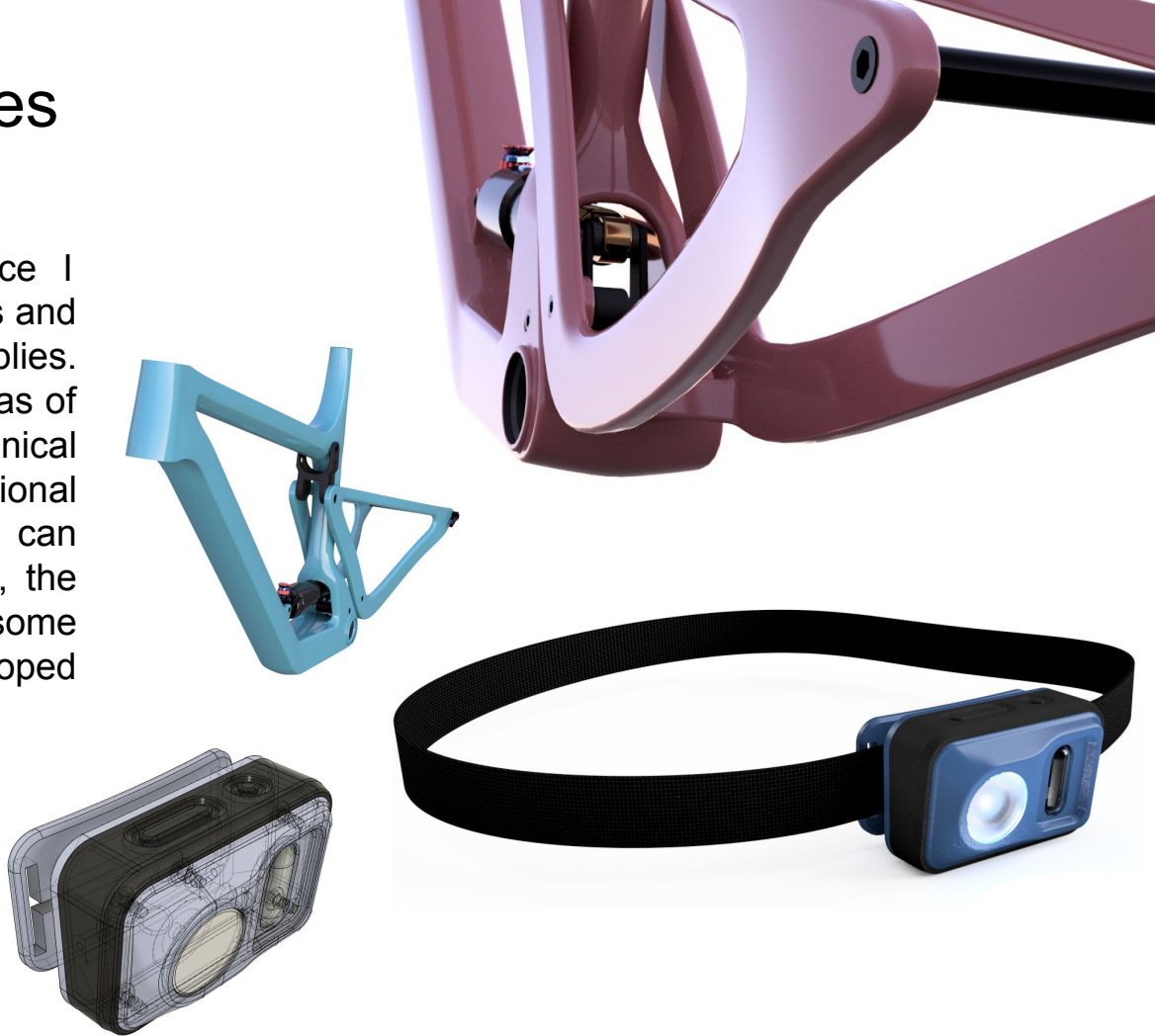
Over the past two years, I have focused on enhancing efficiency within the New Product Development (NPD) design process by leveraging computational design techniques. I have developed custom design interfaces through **Grasshopper** that allow rapid adjustments to design variables affecting body dimensions and texture appearance. These implementations have successfully reduced certain manual processes from hours to minutes, enabling rapid design iterations and improved productivity. These interfaces also include rendering solutions to produce photorealistic visuals, streamlining decision making and ensuring alignment with project goals.

- Streamlined textured drinkware design process through custom **Grasshopper** design interfaces, enhancing efficiency and accelerating project timelines.
- Implemented design solutions to incorporate multiple siloed design process, enhancing collaboration between cross-functional teams and reducing number of design hand-offs.
- Completed professional training in **Rhino**, **Grasshopper**, and **Keyshot** to enhance scope of design solutions to aid cross-functional team members.



CAD Modelling Samples

To complement my existing experience I have taken the time to create 3D models and renderings of some complex assemblies. These models show off some of my areas of expertise in both modeling and mechanical design. Because much of my professional experience is protected by NDAs, and can therefore not be shared in great detail, the following few slides serve to highlight some of the skill sets that I have developed through my professional experiences.



CAD Modelling Samples

Full Suspension Mountain Bike

This model is designed to the specifications of current mountain bike industry standards including suspension travel, bearing sizes, wheel clearance, etc. The following areas of product design were pertinent in driving design decisions for this assembly:

- Surface Modeling
- Solid Modeling
- Mechanism Kinematics
- Composites Manufacturing
- Human Body Kinematics
- Photorealistic Rendering

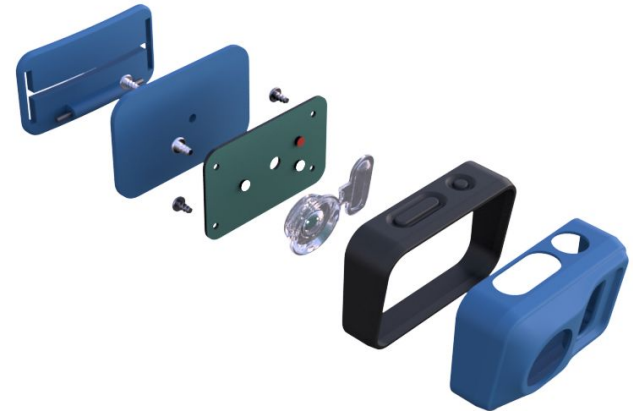
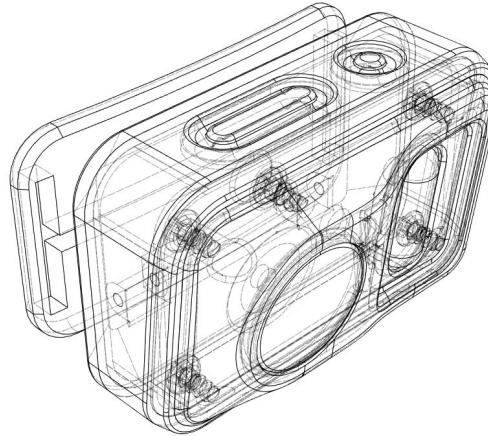


CAD Modelling Samples

Outdoor Headlamp

Though inspired by existing products on the market, I designed this product with a unique combination of aesthetics and functionality in mind. I heavily focused on the user-facing features of this product by including features such as multiple buttons for fine tuning light adjustments, soft-touch overmolding layers, and variable color LEDs. Some key design areas include:

- Injection Molding
- Design-For-Manufacturing
- Surface Modeling
- Electronics Manufacturing
- Wearable Electronics



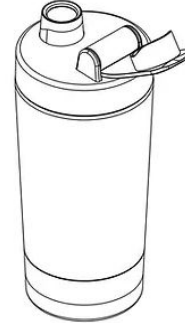
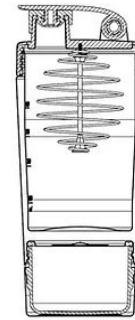
Product Development Experience



Powers Innovation (2021-2022)

While working for Powers Innovation I contributed to the success of numerous consumer and commercial product development projects. These projects exposed me to a wide array of markets from wearable electronics to household kitchen equipment. These projects encompassed all stages of the product development lifecycle from small scale prototyping to design improvements for large scale manufacturing (10,000+ units). Here are some of the skills I developed:

- Product Development: Industrial Design, Market Research, Prototyping, Testing, Intellectual Property Protection and Patent Navigation, Marketing, Product Improvement
- Manufacturing Processes: Injection Molding, Machining, Casting, Compression Molding, Metal Forming, Additive Manufacturing
- Electronics Development: Circuit Design, PCB Fabrication and Assembly, Electronics Testing
- Collaboration between multi-disciplinary teams



Production ready consumer products

Mechanical Engineering Internships



L3Harris Technologies (Summer 2019)

During this summer I spent the majority of my time working on contracted projects for the Department of Defense developing underwater acoustic sensor arrays. My primary role was resolving issues identified in the initial installation phase of the project that was conducted prior to my internship. These issues encompassed a wide range of stages in the engineering lifecycle including issues with drawing errors, manufacturing procedures, system transport, component functionality, and installation procedures. Some of these issues took minimal time to resolve while others encompassed multiple weeks of designs, calculations, and collaboration amongst multidisciplinary teams. Through this work I developed useful real-world experience with problem investigations and resolution, developing and updating manufacturing processes, and working on long-term multi-phase operations.



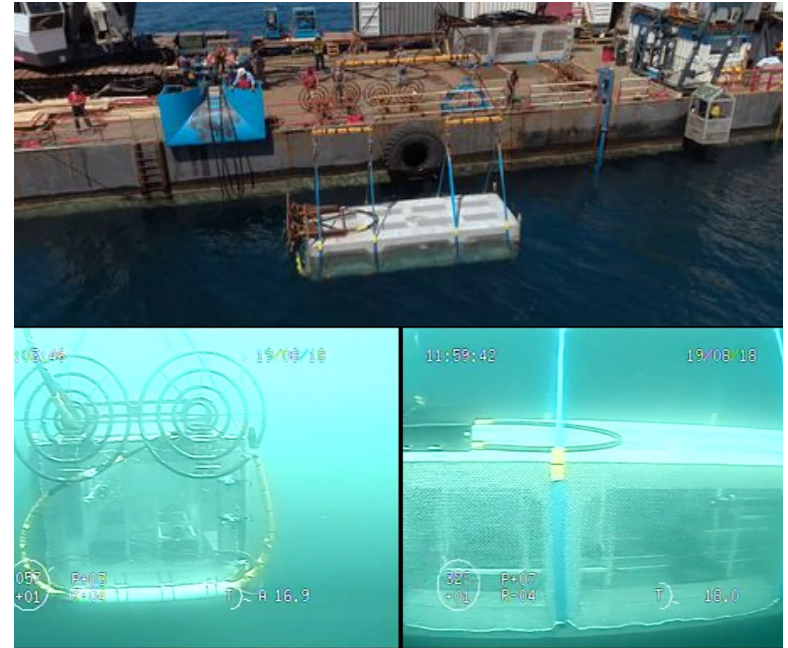
Rendering of underwater acoustic sensor array

Mechanical Engineering Internships



L3 Technologies (Summer 2018)

As a Mechanical Engineer Intern at L3 Technologies I spent most of my time working on components used in the [Sylmar Ground Return System](#) for the Los Angeles Department of Water and Power. Tasks included designing components ranging from small electrical housing parts to large structural support for transporting multi-ton cable spools on the ocean. Additional tasks involved writing tests procedures, conducting tests to validate component functionality, and converting existing company systems to 3D models in SolidWorks. I also gained valuable insight into the real-world operations of engineering such as design-for-manufacturing, conducting business meetings with various teams to facilitate progress of a project, and working under the restrictions of complex customer requirements and budgets.



Installation of Sylmar Ground Return System

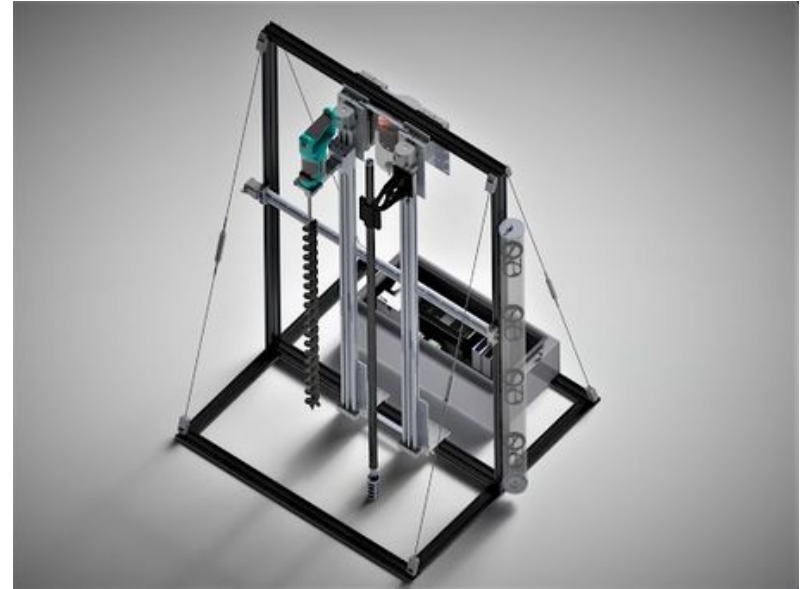
Academic Projects



NASA RASC-AL: Moon to Mars Ice Prospecting Challenge (2019-2020)

This event gives ten university teams in the United States the opportunity to participate in a competition focused on designing a system capable of extracting water on the Moon and Mars. The multi-day competition focused heavily on autonomously reaching a layer of ice beneath multiple layers of terrain and melting, extracting, and filtering any resultant water. Unfortunately the competition scheduled for June 2020 was ultimately cancelled due to the Covid-19 Pandemic, however, the team made the following accomplishments prior to graduation in May:

- Second Place overall at Mines Virtual Design Showcase
- Innovative melting system that extracted water, heated it, and pumped it back into the melting well to more efficiently melt ice
- Autonomous control system capable of enacting all operations without user-intervention



Rendering of final system assembly

Thank you for your time and consideration. Please feel free to contact me with any further questions you may have.