SEAN WAHL, EIT

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EDUCATION

California Polytechnic State University - San Luis Obispo (Cal Poly) **Honors:** Summa Cum Laude
Bachelor of Science in **Mechanical Engineering,** December 2023 **Concentration:** Mechatronics
Passed Fundamentals of Engineering Exam (EIT), June 2024

PROFESSIONAL EXPERIENCE

Thermal Engineering Intern, SpaceX - Hawthorne, CA 6/23 – 9/23

- Built basis of Starshield's program-wide demise analysis (working off of a similar Starlink analysis) to ensure that the vehicles met contractual requirements to avoid harm to people on Earth from reentry debris; gave a full-program presentation informing of demise and urging engineers to consider demisability in their designs
- Simplified Thermal Desktop model of a space laser for integration into full-satellite model to ensure thermal constraints are met; consulted with partners (internal and external) to instruct them on use of model
- Researched micrometeoroid and orbital debris (MMOD) requirements for Starshield missions in comparison to Starlink to help justify alteration of MMOD shield
- Designated thermal vacuum test procedures to qualify sticker usage constraints and analyzed testing results

Mechanical Engineering Intern, Reliable Robotics - Mountain View, CA 9/22 – 12/22

- Designed and installed reinforcements to aircraft empennage for integration of Avionics hardware necessary for autoflight redundancy requirement
- Adapted load-sensing design to perform within space and accuracy constraints and verified its mechanical ability to meet the required margins of safety in a flight-critical system
- Constructed thermal model of electronics enclosure to inform design revisions to adhere to hardware limits and maximum operating temperatures; planned and conducted testing to observe model's accuracy

Mechatronics Student Researcher, Cal Poly - San Luis Obispo, CA 6/22 – 8/22

- Collaborated with two peers to model and simulate single-legged robotic hopping to lay groundwork for experimentation on test-stand, providing a learning aid to Cal Poly's Mechatronics program
- Retrofitted existing test hardware to be compliant with CAN communication and establish required electronics harnessing, enhancing setup functionality
- Presented research during engineering symposium to peers and faculty, communicating project findings and results to encourage further discussion and promote future development

CAD Intern, In2Bones/Conmed - Remote 6/22 – 8/22

- Re-modeled parts from Creo to SolidWorks, maintaining an emphasis on feature clarity for future readability during the company's CAD conversion process
- Implemented necessary laser etching updates to accelerate company's conformance to identification standard

Design Engineer Intern, Cor Medical Ventures - Del Mar, CA 6/21 – 9/21

- Designed novel medical instrumentation for surgeons and other professionals in sports medicine that would result in more efficient surgical procedures
- Modeled, built, and 3D-printed demonstrational prototypes to assess proposed solutions' proof of concept

Intern, Prompt Prototypes - Vista, CA 6/18 – 8/18, 6/19 – 8/19

- Laser-marked medical parts with important labels, identification numbers, and designations; passivated parts to ensure no rust would form after marking
- Filled out quality control documents to verify batches of parts were up to standard

MECHANICAL ENGINEERING AND RELEVANT PROJECTS

Path of Lights and Sounds **2023**

- Led a team of five over a year-long project to design, prototype, and manufacture 25 step-activated, light-up, musical tiles for a Girl Scouts' Christmas event to have a path playing "Jingle Bells"
- Iterated through several structural tile designs to make the tiles weather resistant, capable of supporting 300 pounds, and as cost effective as possible
- Designed and assembled 30 PCBs (along with 2 test versions) capable of communicating with one another, playing sound, and lighting up; tried to make them water-resistant and removable in case of rainy days; ran off of a Raspberry Pi Pico in each tile running a CircuitPython finite state machine
- Wrote and conducted test plan to validate product's adherence to designated needs
- Manufactured 28 full final tiles within 3 weeks, cumulatively contributing around 300 hours of labor
- Experienced working within the requests of a non-technical customer and designing for a diverse user group

Hungry-Hungry Hippo Robot **Spring 2023**

- Designed and assembled a circuit board with specific goals to control and interface with several actuators and sensors in order to locate and retrieve ping pong balls
- Wrote code and classes in C to be able to use each actuator and sensor effectively; ran on STM32F411CEU6
- Collaborated with a partner to construct basic mechanical design to suit projects needs, though left unfinished due to time constraints

Heat-seeking Nerf Turret **Winter 2023**

- Developed MicroPython code to work with a motor, encoder, electric nerf blaster, and infrared camera to locate and shoot at thermal signatures; ran on a Nucleo-L476RG
- Built a rudimentary mechanical structure to orient the nerf blaster using the two motors and encoders; analyzed mechanical system and ran simulations to ensure prompt turn-around time in a duel setting

Ball-Balancing Platform **Winter 2022**

- Developed code in MicroPython to work with an IMU, touch panel, and motors to run on an MCU to actively balance a ball; ran on a Nucleo-L476RG
- Focused on object-oriented programming and non-blocking, task-based code to seamlessly run our program

Offset Link Design for 3D-Printing Team Project **Fall 2021**

- Concurrently engineered in a team of four in order to design, analyze, and create an offset link to hold a load
- Outperformed desired load by 300% and stayed within all other size, weight, and stiffness constraints

Product Design Team Project **Fall 2020**

- Collaborated in a team of four to research, design, and present a product for removing stripped screws
- Gained valuable experience with the engineering design process and human factors
- Wrote detailed, thorough and professional 18-page final report on the device

Disability Need Design Project **Fall 2019**

- Worked with team of four to brainstorm, plan, and create a functional prototype of a device to aid computer use for non-dexterous persons
- Made iterations using the engineering design process and presented on the prototype's development

SKILLS

Computer: SolidWorks/Creo/NX/Fusion 360, MatLab/Simulink, Finite Element Analysis, Python, C/C++, Engineering Equation Solver (EES), Thermal Desktop, Maple, DAS, Jira, Confluence
Equipment: Mill, Lathe, Welding, Laser etching, 3D Printing, Various MCUs, Soldering, Cal Poly Yellow Tag
Technical Interests: Robotics, Artificial Intelligence, Renewable Energy, Environmental Health
Personal Interests: Golf, Hiking, Camping, Music, Games, Fitness

ORGANIZATIONS/GROUPS

Cal Poly Engineering Ambassadors **Fall 2021 - Fall 2023**

- Led 2-hour tours of the College of Engineering to interested parties, such as prospective students, parents, and industry sponsors