SEAN WAHL

seanwahl19@gmail.com • (760) 703-2990 • linkedin.com/in/sean-wahl

EDUCATION

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

Relevant Coursework: Design for Strength and Stiffness, Machine Design, Statics and Dynamics, Mechatronics, Advanced Control Systems, Mechanical Control System Design, Heat Transfer, Thermal System Design, System Dynamics, Manufacturing Processes, Electronics, Fluid Mechanics, Thermodynamics, Mechanical Vibrations, Mechanics of Materials, Materials Engineering

INTERNSHIP 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 (bit.ly/3Ic03o0) **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 (bit.ly/49Iysqc) **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 (bit.ly/3wvgDg4) **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 (bit.ly/49qFmk3) **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 quarterly 2-hour tours of the College of Engineering to interested parties, such as prospective students, parents, and industry sponsors.