MARINA RING

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Education:

Harvey Mudd College, Engineering major, Cumulative GPA: 3.97/4.0 Expected Graduation: May 2025

- Tau Beta Pi Honors Society Member
  - Tutoring for Continuum Mechanics (ENGR083) and Engineering Mathematics (ENGR072)
- Relevant and Current Coursework:
  - Advanced Structural Dynamics (ENGR278, Spring), Dynamics of Elastic Systems (ENGR171), Advanced Systems Engineering I (ENGR101), Data Structures and Program Development (CSCI070), Digital Electronic & Computer Engineering (ENGR085), Intro to Engineering Design and Product Manufacturing (ENGR004)

Projects:

Engineering Clinic sponsored by Trilobio- *Zero Z-Force Multichannel Pipette*

- Prototyped a method for automatic eight-channel pipette tip pick up, aspiration, dispensing, and disposal using zero z-force
- Designed and fabricated mechanical fixtures for elastic resin sleeves; automated inflation of these sleeves; created test procedures to validate durability and sealing; coded in Python to successfully integrate prototype with Trilobio's robot

Experimental Engineering (ENGR080)- *Ocean Floor Depth Side-Scanning AUV*

- Won J.R. Phillips Award for outstanding experimental technique and engineering judgement while designing system to perform pulse generation and audio amplification on a speaker as well as pulse detection on a microphone for an AUV
- Designed and 3D-printed stepper motor arm to hold sensor package; programmed sensor controls and drivers in C++ to integrate these sensors and a stepper motor into a side-scan sonar system to map the ocean floor

Skills:

Programming: Proficient in C++ , MATLAB and Simulink, C , Python, Verilog, and R
Software Tools: CATIA, Solidworks, COMSOL, Ansys Fluent, Fusion 360, AutoCAD, LaTeX, Mathematica

Employment History:

Tesla- *Capability and Development Test Intern* May 2024-August-2024

- Established and improved automated test suites and fixtures for high static load and cyclic loading testing of various components; customized electro-mechanical, pneumatic, and static systems for vehicle engineering teams across Tesla
- Modeled novel solutions in CATIA to create efficient, easily machinable, and adaptable testing mechanisms; sourced parts, constructed mechanisms, and iterated on designs based on feedback

Sage Geosystems- *Engineering Intern* May 2023-August 2023

- Developed a model for heat transfer and fluid dynamics for a geothermal well using Python, Octave, and R to estimate values for geometric, formation, and fluid flow properties within the well; matched this model against well test data and validated against multiphysics simulations
- Implemented new PDE solving techniques using FreeFEM and R and matched against known analytical solutions to build a quicker, more efficient solver

Leadership:

Residential Proctor at Harvey Mudd College May 2023-present

- Serving as a primary resource for emergencies and a peer advisor for all students regarding personal and academic issues
- Facilitated the New Student Orientation program to welcome and integrate first-year students into the Mudd community

Machine Shop Proctor at Harvey Mudd College August 2022-present

- Teaching new users how to responsibly and safely use CNC mills, lathes, and more; serve as an advisor for machining projects and GD&T and drawings creation
- Machined and help current students machine a hammer from raw materials following strict tolerances for ENGR004

Hobbies & Interests:

Lead in Production of *Silent Sky* at Harvey Mudd College September 2022-December 2022

- Rehearsed weekly in entirely student-run production to create an engaging performance with 30 members of cast and crew
- Used experience in machine shop and makerspace to independently design and create props to be used in the production