MARINA RING

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A highly motivated and creative engineer with a strong desire to apply mechatronics background to challenging integration and testing problems.

Education:

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

- Tau Beta Pi Honors Society Member
  - Tutoring for Data Structures and Program Development and Advanced Systems Engineering I
- Relevant and Current Coursework:
  - Microprocessor Systems, Data Structures and Program Development, Advanced Structural Dynamics, Dynamics of Elastic Systems, Advanced Systems Engineering I & II, Intro to Engineering Design and Product Manufacturing

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

- Validated well geometry by developing 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 multiphysics simulations; developed a GUI using React/Redux to visualize results.

Projects:

Engineering Clinic sponsored by Trilobio

Precision Analytical Balance, Team Lead (Fall) — August 2024-Present

- Prototype and research sensing for a small, automatic method to precisely validate aspirated multi-channel pipette volumes
- Program STM microcontrollers and manage development of sensing mechanisms to integrate into existing robotic system
- Circuit development and coding for signal conditioning and digital signal processing, implementing designs in KiCAD (Altium/Cadence equivalent) to build and test custom PCBs

Zero Z-Force Multichannel Pipette — January 2024-May 2024

- Coded controls in Python to automate inflation of elastic sleeves to prototype a method of automatic eight-channel pipette tip pick up, aspiration, dispensing, and tip disposal; Designed custom hydraulic system using peristaltic pump
- Successfully integrated prototype with Trilobio's existing robot by quickly learning how to use Trilobio's codebase; designed automatic test procedures and validated durability and sealing of elastic sleeves using G Code and MATLAB

Experimental Engineering- *Ocean Floor Depth Side-Scanning AUV* — January 2023-May 2023

- Designed and 3D-printed stepper motor arm to hold sensor package; programmed sensor controls and drivers in C++ to integrate sensors and a stepper motor into a side-scan sonar system implementing pulse generation, amplification, and detection; this project won the J.R. Phillips Award for outstanding experimental technique and engineering judgement

Skills:

Programming: Proficient in C++ , MATLAB and Simulink, C , Python, Verilog, and R
Software Tools: CATIA, Solidworks, COMSOL, ModelSim, Github, KiCAD Ansys Fluent, Fusion 360, AutoCAD, LaTeX, Mathematica
Lab Skills: Analyzing signals using oscilloscopes, logic analyzers, and function generators; building circuits using breadboarding

Leadership:

Company Events Coordinator for Society of Women Engineers at Harvey Mudd College — May 2024-Present

- Organize events for students in collaboration with various companies offering networking opportunities, technical talks, resume workshops, and other resources

Experimental Engineering Lab Proctor — January 2024-Present

- Teach students in lab sessions on the basics of electrical measurements, sensor integration, and data collection and analysis
- Help students build underwater autonomous vehicles using IMUs, GPS, and other physical sensors and debug their systems both in lab and during deployment