Eliot Wachtel

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Education

University of California, Santa Cruz **Dec. 2024**
Bachelor of Science (B.S.) in Robotics Engineering with Honors *Santa Cruz, CA*
Minor: Electrical Engineering - Honors: Dean's list W/ 2020, S/ 2023, W/ 2024 *GPA: 3.7*

University of California, Santa Cruz **Expected: Dec. 2025**
Masters of Science (M.S.) in Robotics, Control, and Cyber-Physical Systems *Santa Cruz, CA*

Experience

Undergraduate/Graduate Student Researcher **Feb. 2023 – Present**
Braingeneers Lab under Dr. Mircea Teodorescu *Santa Cruz, CA*

- Developed code and designed power circuit to enable per-servo control of a modular, 50+ servo system
- Ensured proper board production through two versions via direct communication with board house
- Created an abstracted library, simplifying the ability to control the device over the internet via MQTT messages
- Integrated circuits into the overarching incubator-bound system with conformal coating and custom connector seals

PMU Validation Infrastructure Intern **Jul. 2024 – Sep. 2024**
Apple *Cupertino, CA*

- Designed, simulated, and validated space constrained active heat sink solution using Siemens NX and Ansys Discovery
- Verified heat-sink met power dissipation and max temp. specifications by assembling a test rig to run sustained loads
- Visualized and reported heatsink test data in slide format via graphs and Ansys flow visualization
- Detected and visualized PCB population faults by writing python algorithm to map netlist and BoM files

Electrical Systems Lead **Jun. 2023 – Jun. 2024**
Formula Slug, UC Santa Cruz FSAE team *Santa Cruz, CA*

- Mentoring and guiding new members in electrical theory and circuit design, growing electrical team from two to 20
- Managed the design and fabrication of the high and low voltage electrical systems for an electric rally car
- Ensured individual systems could be integrated with cross-subteam coordination
- Led design review meetings and provided progress updates to team leadership

Mechatronics Engineering Intern **Jun. 2022 – Aug. 2022, Jun. 2023 – Aug. 2023**
Gener8 *Sunnyvale, CA*

- Wrote Python scripts to control STM32 microcontroller for sub-micron flexure actuation and heating element tests
- Performed data analysis and graphing for customer facing presentation on prototype test data
- Sourced components for prototyping, including outlining requirements, quoting, and purchasing a customized product
- Designed PCBA layouts, mounting brackets, fixtures and prototype geometry for subsystem validation and assembly
- Modeled parts to be manufactured via FDM & resin 3D printing, milling, and sheet metal fabrication

Publications

Fostering Inclusivity and Engagement while Learning by Doing ... **Published by ASEE 2024**

- Primary author on paper demonstrating the effectiveness of student designed and taught classes in providing foundational technical instruction for first year students
- Paper published as part of the 2024 ASEE conference and presented in the student division poster presentations
- Digitally available via the following: [clickable hyperlink]

Technical Skills

EDA, CAD, and 2D design: SolidWorks & PDM, Siemens NX, Fusion 360, Onshape, FreeCAD, Ansys Discovery, EAGLE, Altium, KiCAD, SketchUp, Gimp, Adobe Illustrator, Inkscape
Business: Microsoft Office, Google Suite, Adobe Acrobat, Slack, Kanban software, Windows, macOS
Programming Languages/Tools: Python, Java, Embedded C/C++, HTML/CSS & JavaScript, Git, Bash, MIPS Assembly, Vivado TCL,LaTeX, Linux (Redhat & Ubuntu)
Mechanical: Additive, subtractive, and joining methods with metals, plastics, wood, and composites (Including CNC, 3D printing, Laser cutting, and Turning)
Electronics: Experience soldering (through hole and SMD), crimping, and using common bench top test equipment
Misc: sewing (hand, machine, and CNC), digital and mechanical metrology, and most standard hand and power tools