Jack Dibachi

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Portfolio: github.com/dibachi/portfolio

Education

Stanford University M.S. Mechanical Engineering; Emphasis in Robotics and Controls **2021—2023**
University of California, Santa Barbara B.S. Mechanical Engineering; 3.8/4.0 GPA **2016—2020**

Skills

Programming: Python, C/C++, Bash, MATLAB, JSON, Julia, Jupyter, Windows, Ubuntu, FreeRTOS, Raspberry Pi OS
Software Tools: ROS, Gazebo, Rviz, SolidWorks, Ansys, CUDA, Github/Gitlab, Simulink, LabVIEW, OrCAD, LaTeX
Manufacturing: GD&T, injection molding, die casting, CNC machining, 3D printing, PCB manufacturing, soldering, test rigs

Work Experience

Product Development Engineer — *Simpl Global* **September 2020—August 2021**

- Designed heat sinks, end caps, busbars, enclosures, and circuit board mounts for numerous developing products.
- Wrote drivers and code libraries for embedded systems to invert DC power and adjust for load changes in real time.
- Conducted experiments and simulations of circuit behavior to improve DC/AC inverter performance and response time.
- Engineered mechanical and electrical systems for an automatic transfer switch to enable backup power during blackouts.

NPI Component Manufacturing Engineering Intern — *Intuitive Surgical* **June 2020—August 2020**

- Revised engineering drawings and implemented GD&T to ensure proper inspection and function of components.
- Reduced material, cost, and environmental impact by redesigning components for injection molding and die casting.

Mechanical Engineering Intern — *Bruker Nano Surfaces* **June 2019—September 2019**

- Prototyped methods of atomic force microscope probe exchange to broaden ease of use and increase replacement times.
- Modified assembly instructions and performed validation tests for a temperature-controlled biological sample module.

Research Assistant — *UC Santa Barbara Department of Physics* **June 2018—June 2019**

- Worked as part of a multidisciplinary team building a neutron veto system for the underground LZ dark matter detector.
- Developed a feed system to transfer liquid scintillator from 55-gallon drums to the veto tanks without exposure to air.
- Designed, built, tested, and wrote operating procedures for a scale prototype system to ensure large-scale functionality.
- Fabricated custom gas bubblers, gaskets, reservoirs, and a nitrogen diffuser used to prevent scintillator oxidation.

Projects

UCSB Rocket Propulsion Laboratory — *Co-founder and Chief Engineer* **October 2018—June 2020**

- Established a rocketry team to foster academic and career opportunities for students interested in aerospace engineering.
- Directed research and development of a rocket propulsion system to be used in an intercollegiate rocket competition.
- Contributed to engine research, feed system design, electrical systems integration, test operations, and outreach.
- Conducted design reviews, hosted recruiting events, and organized the final design packet for the static fire test rig.

ME 153: Product Design — *Team Member* **April 2019—June 2019**

- Contributed towards development of a Thermos lid capable of passive temperature control and active spill prevention.
- Implemented hardware changes to increase device battery life from under three hours to eight hours of continued use.

UCSB Hyperloop — *Maglev Team Member* **October 2017—July 2018**

- Assisted assembly and testing of the maglev system used on the UCSB pod for the SpaceX Hyperloop Competition.
- Developed operating procedures, engineering controls, and data acquisition techniques for maglev characterization tests.
- Oversaw transportation and material handling procedures at SpaceX, where the team won the Levitation Competition.

Affiliations and Awards

Tau Beta Pi CA Σ Chapter (Vice President, 2019-20) | UCSB Engineering Writing Excellence Award | Graduation with Honors
Third-year Design Competition: Most Marketable Product | 2018 Hyperloop Levitation Competition Winner | Dean's Honors
Ken Morton Sr. Scholarship | Serrano Country Club Scholarship | First Tee of Greater Sacramento Community Service Award

Interests and Hobbies

Robotics, mechatronics, embedded systems, programming, bicycle maintenance, golfing, backpacking, ocean kayaking