Bradley Seamons

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Education

University of California, Berkeley August 2017 - May 2021 | Berkeley, CA

B.S. Mechanical Engineering Major - 3.4 GPA

Relevant Courses: Thermodynamics, Solid Mechanics, Manufacturing and Tolerancing, Orthopedic Biomechanics, Fluid Mechanics, Dynamics, Dynamic Systems and Feedback, Data Structures and Algorithms, Electronics for the Internet of Things, Controls

Clubs: Hispanic Engineers and Scientists, EnableTech, Space Enterprises at Berkeley

Skills and Abilities

Java, JavaScript, HTML, CSS, Python, C++, Arduino, C, PLC, Node.js, Matplotlib, Bootstrap, Solidworks, Fusion 360, MATLAB, AutoCAD

Work Experience

Hardware Engineering Intern | General Motors (GM) May 2020 - August 2020 | Warren, MI

- Worked on vision systems used in lane-keep assist technology.
  - Standardized camera software used in testing to allow for easy access to camera data.
  - Developed algorithm to determine where lane edge is based off road reflectors.
  - Implemented ladder logic for car response to road lane markers disappearing.
  - Troubleshot cameras that were causing inconsistent results in testing.
- Led a gear study to help the company improve quality of pinions used in 2 transmissions being produced.
  - Wrote PLC programs to automate measurement of key dimensions on parts allowing operators to run multiple parts.
  - Wrote a Python script to extract data from system logs and produce part summary produced each shift.
  - Developed internal Java Agent framework utilized across the company testing machines.
- Volunteered to assist at an assembly plant for a week.
  - Helped assemble over 750 vehicles by operating the station where the car chassis and frame are bolted together.

Mechanical Engineering Intern | Phoenix Deventures May 2019 - August 2019 | Morgan Hill, CA

- Machined a metal fixture needed to run a bending test on surgical needles.
  - Used a manual mill and CNC lathe to produce the fixture.
  - Designed a Solidworks model of fixture to generate G-code for the CNC lathe.
  - Saved the company 10 hours because of how quickly needles could be swapped out.
- Used Solidworks to design an attachment for the end of a catheter.
  - Used finite element analysis in Solidworks to test attachment under anticipated loads.
- Wrote and modified Engineering Change Order reports for various company parts.

Tutor | UC Berkeley Engineering Center March 2019 - Present | Berkeley, CA

- Tutored students one on one in Calculus, Physics, and Mechanical Engineering classes.
- Adapted to working remotely during COVID-19 pandemic by moving tutoring online to Zoom.

Projects

JARL- Just Another Robotic Limb September 2018 - Present

- Used Fusion 360 to design the 3 axis prosthetic arm that can be operated by a quadriplegic patient.
- Utilized MATLAB optimization tools to optimize reinforcements needed in parts.
- Wrote Arduino code that can move fingers to close around differently shaped objects.
- Developed the Android app that runs on takes user input and sends commands to Arduino on arm.

Item-Eyes January 2020 - Present

- Developed user interface for Item-Eyes app, an app that allows users to keep track of receipts.
- Used Ionic and Cordova with the Node.js platform to develop a web based app using JavaScript, HTML, and CSS.

UAV (Unmanned Aerial Vehicle) September 2020 - December 2020

- Built a 4 motor quadcopter capable of carrying loads of up to 1 kg.
  - Developed vertical and horizontal state estimators to track location for full autonomous operation.
- Used C++ to develop controls for stable flight and calculate needed motor commands.
  - Implemented a double integrator control to closely track desired angles.

Tablut October 2019 - November 2019

- Used Java to implement the Tablut game, a chess-like board game.
- Developed an AI that found moves using the mini-max algorithm, and was able to quickly force a win in 4 moves if possible due to effective alpha-beta pruning.

Leadership

Enable Tech Club Board Member January 2019 - Present

- Mentored new members in Arduino software and hardware for applications in assistive technology.
- Met with a quadripleic patient once a month for feedback on the progressing design of JARL.