

Roger Isied

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Education

University of California, Berkeley – B.S. Mechanical Engineering, May 2018 (Cumulative GPA: 3.93)
P.h.D. Mechanical Engineering, May, 2022

Skills

Simulia Abaqus, Siemens NX, Autodesk Fusion360, Ansys Mechanical, SolidWorks, 3D Printing, MATLAB, LabVIEW, Igor Pro, iOS App development, Soldering, Lathe, Mill, Band-saw, MIG and TIG welding

Technical Experience

The Boeing Company | Huntington Beach, CA

Mechanical and Structure Analysis Intern, MAY 2018 – AUGUST 2018

Conducted Dynamic and Structural simulations of dynamic mechanisms occurring in an XL unmanned underwater vehicle utilizing Simulia Abaqus and Siemens NX in support of Boeing's ORCA program

- Created 2 custom dynamic models of a passive mechanism within the confines of an underwater medium utilizing the coupled Eulerian Lagrangian method.
- Utilized dynamic model results to drive CAD design of said passive mechanism for direct implementation within the teams overall vehicle design

Design for Nanomanufacturing Group | Berkeley, CA

Research Assistant, SEPTEMBER 2017 – MAY 2018

Investigated the mechanical properties of specimens created using the following additive manufacturing methods: Fused Deposited Modeling (FDM), Stereolithography (SLA), and Continuous Liquid Interface Production (CLIP).

- Verified the publicized values of mechanical parameters for 5 different additively manufactured specimens including yield stress, ultimate tensile stress, modulus of elasticity, fracture strain energy, and ductility.
- Developed a MATLAB algorithm to calculate 9 mechanical properties of specimens subjected to a monotonic tensile test using only raw force and elongation data from a tensile test machine.

UC Berkeley Solar Vehicle Team | Berkeley, CA

Finite Element Analysis (FEA) Lead, DECEMBER 2016 – MAY 2018

Perform FEA for structural components of new generation solar car including 12 different crash tests at a force of 5 times the weight of the car to pass race regulations for the 2018 American Solar Vehicle Challenge.

- Increased average factor of safety from 0.52 to 1.30 using SolidWorks FEA beginning with models used on the previous solar car and iterating through 8 different simulation strategies to minimize error.
- Improved on the already increased average factor of safety from 1.30 to 1.61 and validated the SolidWorks method using Ansys Mechanical simulation software with refined meshing and 4 new iterations of simulation strategies.

Brookhaven National Laboratory (BNL) | Upton, NY

Science Undergraduate Laboratory Intern, JULY 2015 - SEPTEMBER 2015

Designed and installed an optical arrangement of mirrors to steer an infrared laser through a chemical sample into detectors to observe the rate of chemical reactions.

- Created the first optical setup within the Chemistry Division at BNL that allowed for millisecond scale reactions to be observed in the infrared through collaboration with chemists and biologists working at the lab.
- Increased measurement speed by 200% by automating the infrared detection process through reconfiguration of a previously written LabVIEW Virtual Instrument File.

Design Experience

TapSwitch | Berkeley, CA

Design/Prototype Lead, JUNE 2017 - PRESENT

Iterate on the design and fabrication of prototypes for a switch box that can be placed over an existing switch and be remotely controlled in collaboration with 4 colleagues.

- Designed and created 8 prototypes of the outer shell of the switch box using Type A, Carbon 3D, and Fortus printers.
- Printed a functioning rack and pinion model from the Type A printers by measuring the average size tolerance of printed parts to achieve a suitable fit between the rack and pinion.

Design of Microprocessors-Based Systems Term Project | Berkeley, CA

Software Lead, JANUARY 2017 - MAY 2017

Cooperated with team of 5 students in the design of real-time control software for a 2-axis Computer Numerical Control (CNC) used to autonomously scan text on a page and output speech of the read text

- Programmed end-of-line detection and user position tracking by creating a real-time stepper motor and vision control system using National Instruments myRIO as the microprocessor for the system.
- Increased speed of character detection by 167% by refining captured character images to create a larger contrast between the characters and the whitespace surrounding them.

Honors/Certifications

Tau Beta Pi Engineering Honor Society

NI Certified LabVIEW Associate Developer

Interests

Basketball, Volleyball, Piano, Hiking, Camping, Gaming, Cooking