David Kurniawan

Mechanical Engineer @ UC Berkeley

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EXPERIENCES & PROJECTS

One Cycle Control Inc.

05/2020 - Ongoing

Engineering Intern

- Designed and manufactured test platforms, cable assemblies & testing equipment for power converters, PCBs, and electromechanical components
- Initiated and executed ECR/ECOs for design improvements/corrections to both production and R&D mechanical components & cable assemblies
- Designed and ran thermal tests on liquid-cooled inductors powered by a VariAC and Delta-Wye Transformer; these tests allowed us to reduce our component costs and lead times by assessing the thermal performance of inductors manufactured and potted in-house
- Created design snapshot for bidirectional power conversion cabinet along with executing design improvements and reworks to outdated components
- Prototyped an air-cooled Diode Rectifier & Resistive Load test unit used in testing of production LRUs and R&D prototype units
- Created PCB Small Signal Test SOP's to reduce testing times by a factor of 3
- Created an NCR matrix for statistical analysis of over 1000 non-conforming parts and their root causes which informed production managers on necessary changes to production processes and influenced changes to COTS component selection

FSAE Electric @ Berkeley (FEB)

01/2020 - Ongoing

Braking Engineer - Chassis Subteam (Founding Member)

- Designed and topology-optimized a pedal box to provide driver with mechanical advantage & consistent brake feel while withstanding an applied load of 2000N with a minimum FOS of 2
- Created a hydraulic pressure and braking force calculation matrix and simulator GUI in Excel and Matlab, respectively
- Designed a redundant, hydraulic feed system that implements the use of pressure transducers, flow meters, and thermistors to collect experimental data on brake fluid flow & properties in racing conditions
- Led the integration of braking, accumulator, and powertrain components onto the chassis spaceframe assembly
- Designing a dynamometer to test performance parameters for braking, dynamics, and powertrain (brake pad temperatures and wear, rotor temperatures, coefficient of friction, braking torque, motor efficiency curves)

Berkeley Hyperloop

09/2019 - 01/2020

Braking Engineer - Contact Braking Subteam

- Designed and modeled a fail-safe hydraulically-actuated friction braking mechanism for a high-speed levitating Hyperloop pod
- Created a fail-safe hydraulic circuit with built-in redundancy from derived fluid system logic, along with an industry-standard P&ID schematic

UC Berkeley FLOW Lab

09/2019 - 12/2019

Research Intern

- PI: Dr. Simo Makiharju - Mechanical Engineering Department
- Project: X-Ray Setup for Computed Topographic X-Rays of Multiphase Flow
- Worked with graduate student, Angel Rodriguez, on motion system programming of rotary stage bed & 8-axis linear stage system in LabView

One Cycle Control Inc.

07/2018 - 06/2019

Engineering Assistant Intern

- Used OnShape to make design changes to sheet metal brackets and panels
- Drafted and optimized production assembly SOP's for liquid-cooled LRU product line to reduce production times by a factor of 2 and adhere to JIT/Kanban through one-piece flow
- Performed mechanical reworks on non-conforming components

EDUCATION

University of California, Berkeley

College of Engineering

2019 - 2023 GPA 3.5 / 4.0

- B.S. Mechanical Engineering, EECS
- Level: Junior Standing
- Coursework: Designing Information Devices & Systems, Manufacturing & Tolerancing (GD&T), 3D Modeling & Design, Introduction to Computer Programming (MATLAB), Solid Mechanics, Thermodynamics, Dynamic Control Systems & Feedback
- Activities: Formula Electric, Cal Star, STAC, Hyperloop, Cal AIAA, Cal ASME, Cal Hacks

University High School

4771 Campus Dr, Irvine, CA 92612

2015 - 2019 GPA 4.4 / 4.0

- Activities: OS2/Robotics Club, Rocketry Club, FBLA, H2AC, Red Cross, UHS Peer Tutor, Symphony Orchestra, Varsity Golf, All-State Orchestra, District Honor Orchestra

SKILLS

Simulation and CAD Software

Autodesk Fusion 360 **Ansys** **COMSOL** **Solidworks** **OnShape** **AutoCAD**

Manufacturing and Fabrication

FDM **CNC Mill** **Lathe** **Waterjet** **Laser Cutter** **GD&T ASME Y14.5**

Programming Languages

Java **Python** **C++/Arduino** **MATLAB** **LabView** **Simulink**

EXPERIENCES (CONTINUED)

UCI BioMEMS Lab

06/2018 - 08/2018

Research Intern

- PI: Dr. Marc Madou - MAE Department
- Worked with PhD student, Alexander Hwu, on project for Amazon Catalyst
- Designed and manufactured a structural frame, an automated fiber syringe, and linear-motion system for a Near-Field Electrospinning 3D Printer
- Created and tested different polymer solutions for electrospinning machine