

## Education

University of Illinois  
at Urbana-Champaign  
B.S Mechanical Eng '15  
GPA: 3.96/4.00

### Relevant Coursework:

- Mechatronics
- Intro to Robotics
- Human-centered Design
- Computer-aided Product Realization

## Skills

**CAD**  
SolidWorks, Creo,  
Autodesk Fusion

**FE/CFD**  
SW Simulation, SW Flow  
Simulation, Creo Simulate,  
Mold Flow, ANSYS Icepak

**Fabrication**  
3D printing, CNC laser, drill  
press, sheet metal brake/  
shear/roller, band saw

**Programming**  
C/C++, MATLAB, Python,  
ROS

**Electronics**  
MSP430, Arduino  
I2C & SPI protocols

**Languages**  
English (Fluent)  
Mandarin (Proficient)  
Japanese (Basic)

## Awards

2014 Chancellor's Public  
Engagement Fellow  
Awarded \$1,500 for public  
engagement projects

2013 YMCA Bailey Scholar  
Recognition for exceptional  
service leadership

## Summary

A design-minded engineer with experience in the mechanical design of electronics enclosures to meet thermal and environmental requirements. A self-directed maker who can rapidly prototype electromechanical concepts using digital and analog fabrication techniques. A proven leader who can manage complex project timelines efficiently to deliver value.

## Professional Experience

### Yaskawa America

#### *Product Engineer*

Jun 2015—Present

Design of power electronics enclosures to meet thermal and mechanical requirements through use of CFD and FE analysis. Design of add-on kits for UL/NEMA Type 4 and 12 qualification.

- Designed next generation electronic filter enclosure, adding forced air cooling with minimal increase in footprint and part count
- Designed thermal modeling spreadsheet to aid engineering department in heat sink and fan selection

#### *Mechanical Engineering Intern*

Jan 2014—Aug 2014

- Designed turn-key 10hp portable dyne for variable frequency drive R&D
- Assisted in cost reduction exercise to convert NEMA Type 12 drives to IP00
- Assisted in UL type 12 drive qualification testing for oil & gas applications

### University of Illinois Human Control and Dynamics Lab

#### *Undergraduate Research Assistant*

Aug 2014— May 2015

Designed devices to improve and analyze human gait mechanics. Assisted in the development of a pneumatic ankle orthoses and an improved loftstrand crutch. Used MATLAB to process kinematic data from VICON mo-cap systems. Designed and fabricated electromechanical hardware.

- Designed, prototyped and tested an experimental multi-plane, low-cost angle sensor to support kinematic data acquisition outside of a lab environment
- Developed custom MATLAB GUI for the automated analysis of kinematic features of gait freezing in Parkinson's patients

### Lightcraft

#### *Mechanical Design Intern*

May 2013— Aug 2013

Translated lighting fixture design specifications into 3D CAD and engineering drawings. Liaised with China manufacturers for production.

- Designed and prototyped a remote controlled LED down light
- Created CAD models and engineering drawings of 7 architectural lighting fixtures

## Leadership Experience

### Design for America

#### *Studio Lead*

Aug 2013—May 2015

Managed a design studio comprised of a diverse group of 40 students from 13 different majors. Studio aimed to create products/services through human-centered design with a focus on community impact. Responsibilities included member training, partnership management, mentorship and fund raising.

- Increased number of project community partners from 1 to 3
- Introduced Design Boot Camp, where new members worked with a community partner on a 2 day project
- Mentored team that designed a therapeutic robot for dementia patients
- Organized inaugural community make-a-thon aimed at designing solutions for senior accessibility. Event had 80 participants comprised of families, students, makers, professionals and retirement home residents
- Conducted design-thinking workshops. Clients included Rotary International and an undergraduate business class

### Haiti Clean Stove Project

#### *President*

Jan 2012— May 2013

Managed a multi-disciplinary team of students seeking to design clean burning biomass stoves for the Haitian market. The group focused on processing agricultural waste as fuel and using affordable, locally sourced material to construct gasifier stoves.

- Organized and led a 2 week research trip to Haiti for 5 undergraduates
- Wrote a successful application for a \$15,000 EPA P3 grant
- Presented results at the 2013 National Sustainable Design Expo in Washington D.C.

## Projects

#### *Robotic Manufacturing (Senior Design)*

Jan 2015— May 2015

Mechatronics lead on a project to optimize a manufacturing process for a Fortune 100 company. Designed a custom vacuum gripper for the Baxter robot. Gripper could pick and place 3 conical objects simultaneously.

#### *Autonomous Robot (Mechatronics)*

Jan 2015— May 2015

Worked in a team of 4 engineers to program a robot to autonomously navigate a randomized obstacle course. Utilized Kalman filtering to fuse internal and external sensor data for positioning. Used computer vision with PI control for object classification and tracking. Interfaced with Labview to track robot's path and update parameters in real time. Designed an automated grasper to collect objects based on color.

#### *HearClear (Computer-aided Product Realization)*

Aug 2014— Dec 2014

Lead mechanism designer on project to combine hearing protection with vision protection. Designed a mechanical sound toggle to allow wearer to communicate without removal of device. Utilized 3D printing, scanning and Autodesk Fusion 360 to realize fully functional prototypes.

#### *Improving Elderly Driver Safety (Design for America)*

Aug 2013— Dec 2013

Led a team of 5 engineers and industrial designers to prototype 2 concepts for Fiat Chrysler: An ambient color changing LED system for proximity warnings and a corner illumination headlight system.

#### *TLUD Gasifier Stoves For Haiti (Haiti Clean Stove Project)*

Aug 2011— May 2013

Led a team of engineers to design an efficient and clean biomass cook stove as part of the EPA P3 Competition. Team achieved 8% gain in efficiency and 81% reduction in CO compared to charcoal stoves.