

### OBJECTIVE

To secure a position where I can improve my knowledge of electrical and robotics engineering, and attain hands on industry experience, using my knowledge of mechanical and hardware design.

### EDUCATION

Arizona State University – Polytechnic Campus  
Major: Engineering (Electrical Systems) BSE

**Aug 2015 – Present**  
**GPA: 3.98 (Dean's List)**

- Ira A. Fulton Schools of Engineering – Barrett, the Honors College
- New American University Scholar: Dean's Award - Ed McBrien Memorial Scholarship – Tau Alpha Pi Endowed Scholarship

### WORK EXPERIENCE

#### **Lab Technician in Peralta Undergraduate Student Shop**

**Aug 2015 – May 2016**

- Development of custom circuit boards using laser and electronics printed circuit board machine.
- Replace, repair, and maintain a variety of machinery and tools Perform tool care, tool reparation and replacement, and tracking 300+ inventory parts
- Take lab safety training courses for machinery use, fire and emergency situations, and hazardous chemical storage and disposal.

#### **Technical skills utilized**

- **Applications:** Cadence, Multisim, Solidworks, MS Office Suite, Google Drive, Dropbox
- **Programming:** C, Python, Matlab, Simulink, LabVIEW, PSOC (FPGA), Arduino
- **Manufacturing Tools:** LPKF PCB Circuit Pro, Soldering Station, ShopBot, Laser Cutter, Vinyl Cutter

### ENGINEERING PROJECTS

#### **Foldable Robotics Bio-Inspired Robot**

**Oct 2016 – Dec 2016**

Created a tortoise inspired laminate robot using Python design tools, laminate manufacturing methods, and used on board sensing to analyze cantilever beam foot.

- Designed paper laminate using Foldable Robotics Package in Python
- Weekly updated design concepts in Solidworks, and manufactured iterations presented to class
- Controlled with Adafruit Pro Trinket microcontroller, and used deflection sensing to determine optimal foot

#### **Analog Mixer Board**

**Aug 2016 – Dec 2016**

Developed an analog sound mixer board for an escape the room puzzle, as part of a four-person engineering team in electrical systems course.

- Researched and designed a multi operational amplifier circuit using Cadence and Allegro, and soldered all components onto a printed circuit board for use
- Extensively tested to assure correct signals throughout device, and reiterated circuit for improvement
- Created and integrated power regulation circuit to convert 12V to necessary voltages on the board

#### **Thermoelectric Fan**

**Aug 2015 – Dec 2015**

Researched and designed thermoelectric powered fan for Barrett Honors contract.

- Thermoelectric cooler electrical production through heating and cooling system
- Machined mount for heat sink, and attached motor and fan to it

#### **Elevator Arduino Prototype**

**Mar 2015 – May 2015**

Created mini elevator with four-person engineering team using Arduino for controller.

- Programming Arduino (C) microcontroller environment
- Soldered and connected sensors, switches, and H-Bridge to control elevator motion

#### **Guitar Fuzz Pedal**

**Jan 2015 – May 2015**

Constructed guitar fuzz pedal for engineering honors contract.

- Research different guitar pedal designs, and learned to read schematics
- Soldered fuzz pedal, and then updated schematic, and re-iterated to add improvements to pedal

#### **Handcrafted Cajon Box Drum**

**Aug 2014 – Dec 2015**

Designed and built Cajon box drum for engineering honors contract.

- Researched, and designed Cajon in Solidworks using DXFs
- Printed parts out using ShopBot CNC, and developed finished prototype

### **COMMUNITY INVOLVEMENT**

#### **Barrett Leadership and Service Team (President)**

**Mar 2015 – Present**

- Plans and executes both large and small social events designed to improve student life, and the lives of others. Events included the Poly Masquerade (150+ people) kayaking outings and pottery classes.
- Organizes volunteers for service events such as Relay for Life, and Feed My Starving Children.

#### **Human Event Writing Tutor**

**Aug 2015 - Present**

- Reads and edits student papers, while also helping with conceptual analysis and clarifying arguments, by using the Socratic method to ask the student questions, and fix grammatical errors.
- Takes honors colloquium course to learn and use the Socratic method, and improve paper analysis.

## REFERENCES

**Osama Jameel:** ASU Lab Manager

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Osama Jameel was the lab manager/instrument shop supervisor of Peralta labs at ASU Polytechnic when I worked there.

**Daniel Aukes:** ASU Engineering Professor

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Engineering professor for laminate robotics course.

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Engineering Professor for electrical systems project course.

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Honors Advisor for Barrett, the Honors College. Reference for academics, and organizational involvement in Barrett.