

# Max Huggins

max.huggins98@gmail.com | (501) 581-8886 | github.com/maxmhuggins

## EXPERIENCE

### **SNAP-ON EQUIPMENT** | SOFTWARE QUALITY ASSURANCE INTERN

October 2020 – Present

- Design and perform accuracy experiments to test algorithms
- Ensure software quality standards are met
- Developed a program in Python to automatically generate a previously manual report regarding team progress

### **RUSTY'S MACHINE & TOOL** | MACHINIST INTERN

May 2020 – October 2020

- Maintained and operated industrial machining equipment, such as a CNC mill and CNC lathe
- Aided in quality assurance of completed parts

### **THE UCA MAKERSPACE** | AMBASSADOR

May 2019 – June 2020

- Facilitated entrepreneurial and personal projects for members of the community
- Operated and repaired technical equipment including two 80W CO<sub>2</sub> lasers, nine 3D printers, a CNC wood router, and associated software

## PROJECTS

### **REACTION CONTROL SYSTEM FOR HIGH ALTITUDE BALLOONS (RCS FOR HABS)** | SENIOR CAPSTONE PROJECT

Fall 2019 – Spring 2020 | UCA

- Developed and constructed an apparatus for optimizing a RCS utilizing cold gas thrusters for HABS
- Collected pressure transducer, load cell, and thermocouple data using a Raspberry Pi for data acquisition
- Wrote calibration and interfacing scripts for the pressure transducer and load cell
- Developed an analysis scheme in Python to optimize resin 3D printed nozzles for the cold gas thruster to be used in the RCS
- Project housed at: [https://github.com/maxmhuggins/RCS\\_HAB](https://github.com/maxmhuggins/RCS_HAB)

### **CHARACTERIZING APCP** | PERSONAL PROJECT

January 2018 – June 2018 | UCA

- Worked to characterize an ammonium perchlorate composite propellant
- Designed a ballistic evaluation motor to determine the burn rate w.r.t. various chamber pressures

### **H-BRIDGE DC-AC INVERTER** | MICROELECTRONICS PROJECT

November 2019 – December 2019 | UCA

- Designed a 2kW capable half H-bridge inverter utilizing a gate drive transformer for high side isolation of the MOSFETs
- Driver used as an induction heater and high voltage transformer driver

### **ARBITRARY ELECTRON ACCELERATOR DEFLECTION** |

MICROCONTROLLERS PROJECT

April 2019 – May 2019 | UCA

- Raspberry Pi was used as an arbitrary digital signal generator to be converted to analog signals for cathode ray tube deflection control

## EDUCATION

### **UNIVERSITY OF CENTRAL ARKANSAS (UCA)**

B.S. IN PHYSICS WITH MINORS  
IN MATHEMATICS AND  
CHEMISTRY  
May 2020 | Conway, AR  
GPA: 3.538

## SKILLS

### **PROGRAMMING**

4+ YEARS OF EXPERIENCE

Python  
Git&Github  
L<sup>A</sup>T<sub>E</sub>X

### **TECHNOLOGY AND SOFTWARE**

4+ YEARS OF EXPERIENCE

Linux  
Windows  
macOS  
Microsoft Office

2+ YEARS OF EXPERIENCE:

Adobe Premiere Pro  
Fusion 360  
LTSpice  
EasyEDA

### **OTHER SKILLS**

Oscilloscope  
Multimeter  
Function Generator  
ADCs&DACs  
Power tools  
Pneumatics  
FDM & Resin 3D Printers  
CO<sub>2</sub> laser cutters  
FARO Laser Tracker  
Technical Writing  
Computational Analysis  
Experiment Design  
Error Analysis

## ACCOMPLISHMENTS

Outstanding Undergraduate  
Thesis Award  
Society of Physics Students  
(SPS) President  
SPS Design and Build Leader

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## REFERENCES

**WILLIAM SLATON, PH.D.** | PROFESSOR AND COORDINATOR OF ENGINEERING PHYSICS

Department of Physics and Astronomy at the University of Central Arkansas

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**JASON HUSELTON** | MASTER MAKER

The UCA Makerspace

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**DEBRA BURRIS, PH.D.** | PROFESSOR

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**RUSTY SAMPSON** | MACHINIST

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