**Jacob Knaup**

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**Summary**

Engineering junior with an emphasis in robotics and experience designing, prototyping, testing, and programming electrical systems, seeking an internship for the summer of 2018 in embedded systems.

**Education**

Bachelor of Science in Engineering, Engineering (Robotics) *Expected: May 2019*

Arizona State University, Mesa, AZ *GPA: 4.0*

Barrett, The Honors College

**Technical Experience**

ASU Integrated Design, Engineering, & Analysis Lab *December 2016-Present*

* Modeled and simulated motor electrical characteristics using fundamental electrical laws
* Designed custom force sensor and utilized to implement position and force control software
* Devised test setups, performed experiments, and analyzed results using Python and MATLAB
* Documented and presented simulation and software validation results orally, visually, and in writing

**Academic Projects**

Embedded Systems Design Projects *Fall 2017-Present*

* Defined product requirements and devised solution concepts to benchmark with competitors
* Designed circuit schematic using Allegro Design Entry and PCB layout with OrCAD PCB Designer
* Architected embedded system firmware using a state chart and programmed microcontroller in C
* Manufactured and soldered custom printed circuit board using PCB mill and Cadence ECAD software
* Tested and debugged electrical hardware using oscilloscope, multimeter, and power supply
* Integrated electrical, mechanical, and software systems for an IoT device on an engineering team
* Communicated project requirements, features, and technical details during design review

VEXU Robotics Competition *Fall 2015-Present*

* Coded autonomous robots with object oriented and multithreaded programming using C++ and Git
* Sourced sensors and interfaced with ARM 32-bit microcontroller using I2C and UART communication

Robotic Systems Pick and Place Manipulator *Fall 2017-Present*

* Programmed Cypress PSoC in C to control actuators based on instructions received over UART

Laser Tag Robots Project *Spring 2017*

* Sourced electrical components such as IR sensors to meet performance and cost constraints
* Programmed Arduinos in C to read sensors, control actuators, & communicate over Bluetooth

**Other Experience**

ASU University Academic Success Programs *January 2016-Present*

* Communicated calculus and physics concepts to students while leading review sessions

STAX 3D Printing, Gilbert, AZ *February 2016-February 2017*

* Collaborated with R&D team to develop educational products, workshops, and materials

Barrett Honors Writing Colloquium *August 2016-Present*

* Communicated recommendations to improve students’ writing during tutoring sessions

**Technical Skills**

Programming (C, C++, Python, MATLAB), ECAD (Cadence OrCAD), Electrical Tools (oscilloscope, power supply, multimeter, soldering iron), Microcontrollers (PIC, PSoC, Arduino), Git, Linux, Microsoft Office