**Jacob Knaup**

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**Summary**

Robotics Engineering junior with experience programming and testing robotic systems in an academic setting, seeking an internship with iRobot for the summer of 2018 in robotic algorithm development.

**Education**

Bachelor of Science in Engineering, Robotics Engineering *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 systems and predicted expected behavior using Python, MATLAB, and Unity 3D (C#)
* Developed and tested robotic mechanism position and force control software written in C
* Wrote data collection program in Python utilizing parallel computing and computational packages
* Devised test setups, performed experimental trials, and reported results orally and in writing
* Analyzed experimental results using Python in order to compare with theoretical predictions
* Communicated research progress and outcomes to nontechnical individuals to obtain funding
* Managed code development in a git repository to track changes and fall back on stable versions

**Academic Projects**

Embedded Systems Design Project *Fall 2017*

* Communicated project requirements, features, and technical details during design review
* Architected embedded system firmware using a state chart and programmed system in C
* Tested and debugged electrical and software systems using benchtop electrical tools
* Integrated electro-mechanical sensors and actuators in an interdisciplinary team
* Managed team’s time and tasks using project management software

Robotic Systems Pick and Place Manipulator *Fall 2017*

* Programmed object detection algorithm using OpenCV and Python to locate target in workspace
* Programmed manipulator in C to move to specified coordinates using inverse kinematics algorithm

**Other Experience**

ASU University Academic Success Programs *January 2016-Present*

* Communicated calculus and physics concepts to students verbally and in writing
* Scheduled and led Supplemental Instruction review sessions in calculus and physics

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

* Collaborated with R&D team to develop educational products, workshops, and materials
* Explained and recommended 3D printing services to clients to ensure customer satisfaction

Mentor of Campo Verde High School’s Robotics Team *August 2015-Present*

* Taught the use of motor control methods and communication protocols such as I2C and UART

Barrett Honors Writing Colloquium *August 2016-Present*

* Communicated recommendations to improve students’ writing during tutoring sessions

**Technical Skills**

Programming (C, C++, C#, Python, MATLAB), Git, Microsoft Office, CAD (Solidworks), Linux, OpenCV, ROS