**Jacob Knaup**

4190 W Allen Rd. jknaup@asu.edu

Queen Creek, AZ 85142 480-323-5061

**Summary**

Hard-working and motivated Robotics Engineering student with experience researching the design and optimization of robotic systems for terrestrial locomotion and programming in diverse environments for the purposes of controls, machine vision, and modeling.

**Education**

BSE, Engineering Robotics (Honors) *Expected: May 2019*

Arizona State University *Cumulative GPA: 4.0*

**Work Experience**

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

* Develop and test robotic position and force control software in C
* Optimize robotic mechanisms by modeling them using MATLAB, Python, and C#
* Confirm models by devising test setups, testing performance, and analyzing results
* Design and manufacture robots using Solidworks and CAM software

ASU University Academic Success Programs *January 2016-Present*

* Communicate calculus and physics concepts to students verbally and in writing
* Schedule and lead Supplemental Instruction review sessions in calculus and physics

STAX 3D Printing, LLC *February 2016-February 2017*

* Collaborate with R&D team to develop educational products, workshops, and materials
* Explain and recommend 3D printing services to clients to ensure customer satisfaction

**Academic Projects**

Embedded Systems Design Project *Fall 2017*

Develop a functional product incorporating sensors, actuators, and a microcontroller in a team setting. Select components according to criteria and plan software using a state chart. Explain technical details of product during design review and ensure completion of tasks using project management software. Write software in C, following state chart design, and ensure functionality by testing and debugging system using benchtop electrical tools.

Robotic Systems Pick and Place Manipulator *Fall 2017*

Program a robotic manipulator to locate an object using a background subtraction algorithm written in Python using OpenCV and send this location over UART. Write a program in C to move the manipulator to the detected location using inverse kinematics.

**Volunteer Service & Extracurriculars**

Mentor of Campo Verde High School’s Robotics team

* Suggest design changes and debug code, while teaching students to be self-sufficient

Barrett Honors Writing Colloquium

* Communicate recommendations to improve students’ writing during tutoring sessions

**Technical Skills**

Programming (C, C++, C#, Python, MATLAB), Microsoft Office, CAD (Solidworks, Autodesk)