Jacob Knaup

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Verb Surgical

Mountain View, California 94043

Dear Hiring Professionals:

I am a Robotics Engineering student at Arizona State University’s Fulton Schools of Engineering interested in programming and testing autonomous systems. As such, I am particularly interested in working with your surgical robots as a Diagnostic Test Engineer Intern in Mountain View, California to research, develop, and test robotic surgery solutions. My experience writing programs to model systems, collect sensor data, perform experiments, and control robotic system will make me a valuable addition to your team. I am eager to gain more experience testing and debugging robotic systems with Verb Surgical to solve the toughest challenges relating to robotics. I look forward to speaking with you about your internship opening.

I have a passion for simulating robotic systems and it has become the main focus of my ongoing academic research in ASU’s Integrated Design, Engineering, and Analysis Lab. I am currently working on a project to design a low-cost robot capable of dynamic, terrestrial locomotion. As part of this project, I am comparing the fidelity of an analytical model created in Python with a computational model created in the game engine Unity 3D. I have run simulations with both models to determine the optimal leg characteristics, and recently completed manufacturing and testing those leg designs. I am currently in the process of analyzing the experimental results using Python, so they may be compared with the theoretical results from the two models. I will enter your division with valuable experience integrating and testing mechanical, electrical, and software systems and I am very interested in learning more about your methods for testing surgical robots.

Through academic projects and competitive robotics, I have applied my programming knowledge to develop robot control and sensing solutions. For example, in my robotics systems class last semester, I wrote background and color subtraction algorithms using OpenCV and used them to send coordinates of a target object to a pick and place manipulator’s microcontroller. The pick and place manipulator was programmed in C and used inverse kinematics to move to the specified coordinates. I then built on this project and used a Linux system running ROS to locate and track an object using OpenCV’s feature detection and object tracking libraries. These have been two of my favorite projects and I look forward to experiencing your advanced research with robotic controls.

I am available starting the second week of May through the third week of August this summer. I am happy to relocate to California for the summer. Early afternoons Monday through Friday are the best times to contact me. Thank you for your consideration.

Sincerely,

Jacob Knaup