Jacob Knaup

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Ford Motor Company

Palo Alto, CA

Dear Hiring Professionals:

I am a Robotics Engineering student at Arizona State University’s Fulton Schools of Engineering interested in programming and testing autonomous and semi-autonomous systems. As such, I am particularly interested in working for your advanced driver-assistance systems team in Plymouth, Michigan to research, develop, and test ADAS solutions. My experience writing programs to model systems, collect sensor data, and perform experiments will make me a valuable addition to your team. I am eager to gain more experience developing algorithms with Ford to solve the toughest challenges relating to Adaptive Cruise Control, Automatic Emergency Braking, and partially automated driving. 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. Thanks to this experience, I will enter your division with valuable experience in simulating and testing complex systems and I am very interested in learning more about your work with modeling for use in driver assistance systems.

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 ADAS.

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

Sincerely,

Jacob Knaup