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My name is Andrew DeSomma. I am currently a master’s student at Wright State University with a mechanical engineering major with a specialty in thermodynamic systems and thermal fluids. My main research currently is power/thermal interactions within an adaptive turbine engine. My bachelor’s degree was from Ohio State University with a major in engineering physics. During my bachelor’s and my NASA internship I realized that I have an aptitude and enjoyment for designing and building hardware. My professors have described my work as “phenomenal” and on multiple occasions have had the other teams express their desire for me to work with them. I have a proven history from NASA and OSU of being able to produce machines working to spec that are both finished ahead of schedule and under budget. The robot for example, I was charged with building the chassis and drive train systems and I worked extremely hard to get it done 2 months early and using less than 10% of the allotted budget. My research at WSU is strictly MATLAB programming based and I am using that to enhance my skills in programming and thermodynamics.

During projects and am more than willing to go above and beyond what is needed. An example again from the robot was that before the material for the chassis arrived I used my own initiative to build a small prototype robot to test and dial in the PID (proportional integral derivative) algorithm that controls the motor. Using spare parts and scrap material I found and using nothing but a hand drill and my Swiss army knife I channeled my inner MacGyver and was able to build the prototype in less than an hour. Testing with the prototype allowed for the algorithm to be optimized and transferred to the main robot with minimal modifications saving months of testing.

I also consider one of my strengths to be that I can grasp complex concepts relatively quickly. An example would be the research for my Masters. When I began my master’s program I had not used MATLAB/Simulink and had only the barest idea of how a turbofan engine worked. Within 2 months not only did I understand the complex engine model, but I was able to implement new control systems that improve the efficiency and increase the amount of power able to be extracted while maintaining thrust requirements and preventing compressor surges. When I presented these control systems to the Air Force Research Laboratory they were very impressed and said that such a control system was something they never even considered. I strive to have as well rounded of a skillset as possible so that I can tackle complex problems that require many diverse skillsets to solve. I hope you will consider me for this position. Thank you.