**Personal Statement**

What excites me most about a Ph.D. is the opportunity to dive headlong into a specific topic, learning everything there is to know about *something*. The concept of a Ph.D. itself is extremely intriguing to me. My name is Jackson Wills and I am an undergraduate mechanical engineering student at Gonzaga University in Spokane, Washington.

I am also drawn to the culture of growth and learning in academia. I want to be a part of an organization like the University of Utah because it contributes so significantly to humanity’s growing knowledge of the world around us. I want to be a part of that force and I know that I can be a valuable part of it.

I am primarily interested in system control. I am doing research this year on the control of the Furuta Pendulum, and this has confirmed by desire to study some sort of control system. The system to be controlled matters less to me. I am a great learner and feel confident in my ability to learn the necessary background to work on biological systems, vehicular systems, fluid power systems, human power amplification systems, electrical systems and more. My experiences thus far are such that I have been continually asked to dive into new topics which I have never studied. This can be seen in many of my recent experiences. In Science In Action, I needed to learn how to teach science to 3rd graders – something I had never done. In a project for my System Dynamics and Controls course, my group and I delved into the fields of biology and anatomy to explore the strategies of control for pacemakers – something completely new to me. And in my undergraduate research, I needed to figure out how to implement a state feedback controller in a real life system. This is also evident in the research I did in the Amazon Rainforest. We studied the effect that the type of ecosystem had on the biodiversity of insects – a topic not covered in my engineering courses. Experiences like this, along with my liberal arts education, have provided me with skills with which I can learn about any subject, however foreign.

I am also excited by renewable energy. The University of Utah has many labs utilizing fluid power or solar power. My senior design project currently is the design and build of a solar collector which runs an off-grid adsorption refrigeration cycle with methanol and activated carbon as the working pair. I have absolutely loved this project. It has shown me a lot about what is possible. This project is what got me excited about the possibility of throwing myself into other projects. It has also shown me the capability projects like this have to make a real difference in the world. I am looking forward to doing research which not only advances the field, but also has the capability to improve the state of our world. I am excited to use the skills I have developed in my senior design experience and in my undergraduate career at large for research at the University of Utah.