1. Other than reputation, what most interests you about attending this graduate program in the College of Engineering at CMU?(300 words)

In addition to my fascination with science and technology, I have a great passion for stage art, which may seem unrelated to my professional direction, but it is particularly important to me. As head of the drama troupe in school, I acted and participated in the production of several short plays and a major drama during university, which enjoy an audience of over 3000 people. In theater, I learned to reflect on who I am and what I want, and this self-reflection will enable me to avoid losing myself in this fickle world due to rapid development. Furthermore, when designing a product for ordinary people, we need to think from the customers’ point of view, rather than solely from technology, so acting in different roles enables me to consider different perspectives and to care about individuals.

Consequently, CMU’s distinctive emphasis on collaborative, project-based learning is what interests me most about the MS in Mechanical Engineering program. First, the opportunities to understand and learn from different perspectives will enhance my communication skills and my ability to understand different perspectives and approaches and ultimately help me develop the ability to understand the needs of consumers and potential customers. Second, the large number of team projects that are part of the program will enable me to build innovative approaches for developing new products to meet practical needs and for solving problems I encounter along the way. Since my long-term goal is to develop new technologies to address the adversities encountered in life, I can think of no better way to prepare for my career.

1. What are your expectations of this program and how will our graduate degree help you to achieve your immediate and long-term career objectives? (300 words)

My first thought, as an international student, is how exciting it will be to experience a totally different culture from my own. In the multi-cultural and multi-ethnic environment, I'll have totally different and fresh experience which will help me develop personally and professionally and create precious memories for me. I am sure CMU will offer a free, relaxed and inclusive environment where I could collaborate or study with a diverse group of people. In a word, study in this program will absolutely enrich my life.

In addition, I expect to be a highly qualified engineer after this program, which provides an abundance of technical knowledge, practice in collaborative problem-solving skills and opportunities for hands-on learning. I can obtain all of this from this program, because it offers rigorous curriculum and high standards which can advance what I learned in my undergraduate study and even enable me to study deeply in one area.

Last but not least, I eventually want to research and develop my own products and put them into mass production so as to address the practical difficulties of human life. This requires staying in touch with people’s needs, staying current with existing technology and constantly trying to approach problems from various perspectives. In this regard, this program will help me develop the innovative thinking and research experience that will set me on my way to my long-term career goal, and I am eager to benefit from working with the wonderfully talented people working at CMU.

1. Please explain why you selected your concentration area(s) in the application. (300 words)

My father is an engineer in a power plant and is in charge of maintenance generator array. When I was a child, I used to stay with my father’s office during vacations. When machines broke down, people came to my father's office and asked for help, and after a simple and brief inspection, my father would find the point at fault immediately and fix it quickly. At that time, my father was like a superman in my mind, and it inspired me to want to be an engineer.

As I got older and encountered more complex technology, such as smartphones, I found it exciting. These little devices can provide information search, entertainment, navigation and social interaction. It is simply magical. Yet, it is a highly sophisticated computer that took fewer than ten years to develop from its inception to its current state. This is a modern marvel! Yet all the design and production of smartphones can be attributed to smart engineering. Most people are excited by the technology and benefit from it daily, but I am eager to go further and studied the engineering behind such technology. It’s all about satisfying my curiosity about how things work and the happiness of creating something new.

In addition, I am amazed by what a human body can achieve. It can keep balance, process a variety of information simultaneously, achieve a series of complex motions and more, all of which involves lots of complex control. However, people can achieve those things unconsciously. To me, the human body is the greatest designed system – assuming that there is someone to design it – in the world. That's why I choose to learn more about robotics and control system. I have a great passion to make a machine act like a human, even faster and more precise.

1. Describe an experience with leadership, mentoring, community service, etc. What was the role and how did it impact you? (300 words)

Once I led a four person team to participate in a mechanical engineering innovative contest, and we needed to design a product, make it ourselves and demonstrate it to the judges in the contest. However, because we underestimated the difficulty of producing our design, on the day before the contest, we still hadn’t finished assembling it. The product consisted of tons of parts and required an exact assembling order, so if we made one mistake in the middle, we would have to take apart everything and start over. Also, due to low machining accuracy, lots of shafts were too large to fix in holes, so we needed to grind them manually. Hence, the whole process was slow and kept us reworking parts.

It was late at night, and all my teammates were experiencing low morale, and it seemed like we couldn't finish the assembly on time. I realized that it was time I should do something. First, I made some jokes and encouraged everybody. I tried to lighten the stress around us and create a more relaxed working environment. Then I found the most time-consuming task and assigned more people to work on it. I also reassigned the rest of the tasks, tried to ensure everyone worked on what they were good at. My approach worked. We managed to improve our efficiency and finished our product at 5 o'clock in the morning on the contest day.

Although we succeeded at the end, I think it was my fault to put us in that tough situation. I should do a better time arrangement as a leader and consider all possible problems that we might face.

1. The MechE curriculum allows for some flexibility with technical electives (courses outside of MechE that complement your degree). If you are interested in taking courses in departments outside of MechE, please list the course(s) and/or department(s) here. (300 words)

Anatomy (course)

Biomedical Engineering (department)

The Robotics Institute (department)

Machine Learning (department)

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