Cumulative Reflection

My experience as a computer engineering student at Iowa State has been a great one. Going in to college as a freshman, my goal in attending Iowa State was to leave with the ability to think like an engineer. Looking back, I didn't even really know what that really meant – I just wanted to be able to approach problems and solve them like an engineer would. I believe that I have learned this ability through my four years at Iowa State.

I've learned that engineering is much more than answering the question, "how do I fix this problem?" Instead, engineering is determining the *best* solution possible. Good engineers don't just look for a quick, easy fix. Oppositely, they are very thorough and deliberate, thinking of every possible ramification that a potential solution could have. This requires us to constantly look outward and to see problems and their solutions from a broader perspective. Once they've considered all the side-effects of each solution, they choose the best one – the one that benefits the most people in the most powerful way. Engineers "do it right the first time." And if they don't do it right the first time, they implemented a solution that is easy to review, understand, and modify.

One of the things I'm most thankful for coming to believe during my studies at Iowa State is that no problem is impossible to solve. This was a mindset that I had coming into college. I've learned, though, that something magical happens when a team of engineers who are committed to finding a quality solution come together. Creativity thrives in the midst of collaboration, and powerful solutions emerge from creativity. When good engineers come together and encourage each other, value each other's thoughts, and draw the best out of each

other, nothing is impossible to solve. I believe that this is something I've seen and been a part of during my time at Iowa State – both in the classroom setting and in industry. This has a significant global impact. Sadly, I think that college students care more about their grades than they do solving a global problem. But just imagine if a group of 3000 engineers equipped with the mindset that nothing is impossible rallied together to take on the world's problems. It would be incredible!

Iowa State has definitely put in situations where I'm on a team working to solve a problem and a team member isn't pulling their weight. It's unfortunate that this happens, but it does. I'm very thankful that I've been able to be in these types of groups so that I can learn how to best respond to my ineffective teammate while still coming up with a solution in a timely manner. I've learned a few things from these situations: patience, hard work, and professionalism. I've discovered that impatience makes the individuals who are falling behind fall even further behind. On the other hand, I've found that extending patience to them has given them the freedom to recover and to provide quality work. I've learned hard work because a product still has to be delivered, even if a teammate isn't doing what's required of them. Sometimes you have to clench your jaw and give double effort. I've been able to show professionalism with these individuals by talking to them, identifying the problem, and coming up with a solution with them so that they and our team can benefit. These are all very invaluable things that I have taken away from Iowa State that apply to many other areas of my life as well.

Lastly, Iowa State has taught me to always engage myself in learning, whether or not it's related to engineering. I was shocked at how many different areas one could study as a

computer engineer. You can study software, embedded systems, VLSI, and networking, just to name a few. As a freshman, I did not realize the scope of computer engineering. There is so much to learn in this realm! I've also learned from my professors that engaging your mind in activities and studies outside of engineering can have a significant impact on your effectiveness as an engineer. Reading books (many of which are not related to engineering) – autobiographies, novels, non-fiction, etc. – has been a practice that I have rigorously pursued as an engineering student.

I have had a great experience at Iowa State. I feel that I have been well equipped to start making an impact on the world around me. I am very thankful for the education and experiences that I have been able to be a part of at Iowa State.