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# Cumulative Reflection

I have always wanted to be an engineer. My grandfather was a civil engineer and my father was the greatest engineer, without an engineering degree. Although he pursued business in college, he has always demonstrated the qualities of an engineer; precision, analytical thinking and exceptional problem-solving. My grandfather and father were my biggest inspirations, and I wanted to be just like them. In high school, I considered becoming a civil or mechanical engineer. That was the plan, until my junior year of high school, when I took a computer-aided design (CAD) engineering course.

I fell in love with the technological aspect of engineering. I loved learning and utilizing sophisticated software and was fascinated with watching our school's 3D printer bring our designs from the screen to life. However, after being accepted into the University of Iowa's engineering program, I was torn when deciding an engineering field. On one hand, I enjoyed the idea of a more technological engineering degree, but on the other, I grew up with the idea of pursuing a more physical, hands-on degree and struggled with the idea of walking away from that. So, in the fall of 2021, I walked onto campus as a Computer Science Engineering student.

A year and a half into my degree, I felt like something was missing. Not only did the coursework feel unfulfilling, but I never truly felt at home on campus. I began talking with one of my high school friends about their college experience at Iowa State University. They raved about the campus, environment and programs. I decided to do some digging into their College of Engineering, and discovered the Cybersecurity Engineering degree. After some careful consideration and convincing of my parents, I parted ways with the University of Iowa after 2 years, and began my journey at Iowa State as a Cybersecurity Engineering major, in fall of 2023.

Throughout my 2 years at Iowa State, I have completed many courses, worked with many students and learned many skills. One of the first courses I took relating to my new engineering major was Digital Logic (CPRE 281) with Professor Stoytchev. This course laid out the foundations of design in simple digital systems. It was also the first class I had taken that included a lab component, which was impactful for several reasons. I applied what I learned in lecture in a hands-on way, collaborated with other students in order to build different components and watched all my little assignments integrate into an entire system by the end of the course. This was one of the first courses that felt truly rewarding to complete as I was able to compile all my work to create a functional unit from my previous subcomponents.

I believe that courses that include a lab component (such as Digital Logic), helped prepare me more effectively for group projects. Throughout my 2 years at Iowa State University, I have been a part of

several team projects and created many different mechanisms. I've built multiple processors (single and multi-cycle), developed an app, built and exploited virtual machines and am currently working with faculty in order to innovate their research tool for my senior design project. All of these projects required teamwork, knowledge application, deadline management and resource navigation. I believe Iowa State University has prepared me for a professional work environment, as I have learned, practiced and demonstrated many successful workplace skills.

Although I have learned a lot through my courses, it is also important to utilize outside resources in order to succeed. Lecture learning is important, but it isn't everything. As an engineering student, one of the most important skills we learn in college is how to problem-solve. One solution to that is discovering resources, outside of the classroom. One of the most powerful tools I have discovered in college is your peers. Many people around you are taking the same courses, completing the same projects and most likely have the same problems/questions as you. Collaborating with classmates in similar situations provides a practical and effective approach to problem solving. Some other valuable resources I have utilized throughout my time at Iowa State University are textbooks, extra practice/reading links, supplemental instruction sessions, TAs, external libraries/coding techniques and online videos (such as YouTube tutorials/examples). I do believe teachers should teach the basic building blocks of knowledge, but it is up to the student to dig deeper and discover how to apply them.

I believe that making connections is a very important skill to have in life. Although I have only scratched the surface of networking, I regret not taking more advantage of all that Iowa State has to offer and intend to do more throughout my senior year. I have participated in several "Women in Science and Engineering" sessions, attended multiple career fairs and utilized my fair share of professor office hours. Although I have yet to obtain an engineering internship, I have worked on several projects that demonstrate the skills I have learned in college and hope they will help further me into the professional workplace. I am hoping my senior design project itself, as well as working closely with a prominent engineering faculty, will allow me to explore new connections until graduation.

I knew I always wanted to be an engineer, but I was never set on what specific field. As I sit here and write this today, I can confidently say that I chose the right major for me. Not only have I completed and enjoyed all of my technical work/projects throughout my courses, but I have also gained a passion for cybersecurity. I have learned about the importance of security and the role it plays in everyday life. Cybersecurity is responsible for protecting individual's personal privacy, financial security and general public safety/well-being.

 Last semester, I took an Ethics in Cybersecurity (CPRE 234) course that really highlighted the real-world implications of cybersecurity. This class made me truly understand the scale of importance that

cybersecurity plays in the world. I have also learned an environmental aspect related to computer engineering, as when building certain systems/projects, we were expected to take environmental effects into consideration. We learned to make components as environmentally sustainable as possible in order to maximize system power and ensure all components are able to utilize available resources. Although demonstrating and practicing learned skills was very beneficial in my career development, I believe learning about the implications of cybersecurity is also necessary when pursuing this degree.

Despite being a senior in college, I still have much to learn. I will carry the information I have learned throughout my career, utilize it in every job I obtain and share it with others. I will never stop learning, from project work or other people. I believe that it is important to always be learning, adapting and innovating in all aspects of my career. I've had many teachers, teammates, mentors and resources available to me that I have utilized throughout my schooling experience here at Iowa State. However, I truly believe that I must take full responsibility for my failures and successes.

Every bad assignment grade, every missed attendance point and every mark on an exam. But also, every passed course, every boost in GPA, every successful project grade, every friend made and (in less than a year's time), my diploma. It was up to me to seize every opportunity in order to be successful and I did it. That is why, come mid-May, when I walk across that stage and reap the benefits of five years of sacrifice, dedication and hard work, it will be the proudest moment of my life.