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CPRE 494

Cumulative Reflection

The past four years have helped me transition from someone just interested in computers to an engineer with the necessary skills and experience to enter the computer industry. This was possible through a combination of coursework from leading experts in the topics, experiential learning opportunities, and external sources. Through the computer engineering curriculum, I now understand how to design and develop software and hardware solutions that solve complex real-world problems. In addition, I also learned critical soft skills such as technical communication and practical teamwork.

I took many classes taught by passionate professors who are highly knowledgeable in their fields. One that stood out was CPRE 381, computer architecture. From that class, I learned all the subsystems of a modern computer system and designed one from the ground up. We were able to learn the complex topics in bite-sized lectures and lab activities. One biggest takeaway from that class was how to explore an open-ended question. Often we would be asked a question that does not have one answer. We would have to conduct research by reading journals and studies about that question and come up with our own conclusions. It was very different from just reading the lecture slides, and I felt more comfortable analyzing academic writings in the end. After taking that class, I feel prepared to dive deeper into the architecture area and explore the front end of that topic.

Apart from learning in classes, I also gained a lot of skills and knowledge from learning activities outside of the classroom. One of the most significant sources for me was the Cyclone Rocketry Club. I joined the avionics team freshman year, and I have learned so much from that. The organization's senior members taught me how to program software to control a rocket that's flying faster than the speed of sound. I learned how to design and manufacture PCBs, a class only taken by upperclassmen. I also learned about topics outside of my major but great interest to me, such as rocket aerostructure manufacturing. In addition, I learned that there is always something I do not know. Every year we have new projects that challenge the team, and we would learn something new every time. This helped me understand the importance of life-long learning. As the team lead last year, I got to make some important decisions. In that process, I had to assess the risks involved with my choices and take on those risks. Thankfully, things went smoothly, and I became more confident in taking risks. Now, as I pass my knowledge down to new team members, I feel very fulfilled that I can learn and help others learn.

Just as I did in the club, my coursework also taught me that there is always something to learn. Every year as I browse the course catalog, I see something I want to take. In addition, almost every class I took had a section in the end where we discussed the state-of-the-art in that area and what is coming up next. Also, I learn from my teammates from many team projects since they bring in new skills and experiences in tools or areas I am not familiar with. Those conversations helped me understand that professional and technical skills need to be refreshed and updated continuously.

If I were to do my undergraduate work again, I would focus on a broader range of topics to study instead of just drilling into a specific topic. As I enter my last semester, I find many topics I want to learn but do not have the time. Working with computers started as a hobby, but now I can continue doing it as a career. I feel like I am prepared as a professional engineer and also a life-long learner from the curriculum.