Claudia Athens

CPR E 494

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Cumulative Reflection

In my four years at Iowa State University studying computer engineering, I have increased my communication skills, developed and applied my technical skills, and learned how to function in teams and groups. I have learned how to design systems and processes in my coursework. In particular, my senior design project "Distributed Wild Bird Surveillance and Recognition System" has helped my develop my design skills by planning and executing a two-semester long project. This type of project will be similar to the long-term projects I will encounter in the workforce. I learned that the design process is not linear, but a path full of iterative cycles. There's a lot of back and forth of designing, implementing, and testing because things won't be designed or implemented perfectly.

These design projects that I have done in senior design and other coursework like CPR E 488: Embedded Systems Design have helped me learn to work in groups. In senior design, as a group, we have set clear group roles such that it is clear what everyone's job is in the group. This is important to do since in the workforce there will be similar roles that people will fill based on their role as an engineer, architect, manager, etc. In CPR E 488, I learned what to do when not everyone in the group is being helpful or contributing enough. It is important when working in a group to be flexible and to adjust if necessary. If that doesn't work to solve the group's

problems, it's important to go to a higher-up like the professor in my case to mitigate issues instead of just letting them continue on.

These classes have also taught me how to use your resources properly. In senior design, I have a client and an advisor who are both knowledgeable in the field of electrical and computer engineering. These resources must be used effectively and not under or over used. There has to be a balance of when to ask for help and when to try to grind something out on your own. CPR E 488 was particularly good at teaching me that. I always made sure I tried every exhaustible option I had to solve my problem before going to the professor or teaching assistants for help so that I knew I had used all my available resources. Some of these resources were my group members, other students in the course, and online resources. When they knew what I had done to try to make it work, there were more receptive to helping me because they knew I put in honest effort to solve the challenge on my own instead of just asking for help to get the problem solved.

CPR E 488 was also one of the most technically challenging courses I had to take as an undergraduate. The final project for the course was a design project where we had an implement a project of our choice that was related to the course and used the same tools. My group created a gesture-controlled quadcopter. A particular problem that had to be solved was the architecture of the project. How would we go from a camera input to meaningful quadcopter movements? This is where I had to do a lot of research and prototyping, a valuable engineering skill. I also conducted market research into what others have done in projects and products that were similar. When selecting the project, we also had to conduct a feasibility analysis to determine if we could do it. From the architecture standpoint, I was able to develop a system diagram to model how it

would all work. Understanding how a problem can be solved at the system-level is also an underappreciated skill.

My current career goals revolve around me completing my B.S. Computer Engineering in May 2019 and starting full-time at John Deere in its rotational Engineering Development Program shortly after. I will simultaneously work towards my M.E. Computer Engineering. Together, these will

help me further my career and my engineering knowledge. It is my current ambition to rise to the ranks of senior engineer and eventually into engineering management. These will all contribute to goal of lifelong learning.