SE 494

Spring 2018

Portfolio Cumulative Reflection

Due date: April 6, 2018

Submission of portfolio project descriptions via Canvas

Reflect on your 4-year experience at Iowa State University. Remember to highlight things like your ability to communicate, utilize your engineering knowledge, and function within teams as well as what is highlighted below. Here are some questions to answer as a part of your reflection:

(CR1) How do you think ISU has prepared you to:

- Design systems or processes?
- Formulate and solve engineering problems?
- Impact engineering solutions in a global/societal context?
- Consider ethical implications of your engineering decisions?

Iowa State has done a fantastic job to prepare me to be successful in problem solving and critical thinking for the future. All of the engineering courses that I have taken have required me to use and improve my critical thinking skills through solving problems. Additionally, a few of my courses have had sections devoted to the topic of ethics. I have written several papers during my college career on the topic as well as analyzed a few popular ethical stories. The one topic that I think ISU has not prepared me for that well is design systems. I have had one course on the topic of software architecture and I do not think that I gained very much from the course.

(CR2) What things have you done at ISU to prepare you to:

- Work in groups?
- Recognize contemporary issues?
- Understand professional and ethical responsibilities?

Working in groups is a vital part of being a software engineer in the real world, so I am happy to reflect on the fact that I have gotten a lot of good experience in that area. Several my courses, including CS319, CS309, and senior design. In all three of these courses we were required to form a group of some size and work on projects for an extended period of time as opposed to week long homework assignments. This has provided me experience in team-based decision making, working in a leadership

role, delegating tasks, and using version control in code in a group. All of this, as well as understanding how to conduct myself in a professional manner with professors or employers, will help me in my career after graduation.

(CR3) In class projects & problem-solving tasks, did you draw upon information, research or experiences beyond what was provided in class to successfully complete your work? Design systems or processes?

The course that was most notable for doing outside research and information was in CS309 which is a team-based, semester long project course. The course is open ended in that, as long as the project is approved by the TA's, the students are able to build what they like. Our team worked on an Android App even though no one on our team knew anything about building Android Apps. My role for the project was based around the base of the Android App which meant that I needed to learn the ins and outs of Android development. As the course did not specifically teach that, I needed to do a considerable amount of outside research into the topic to be successful.

(CR4) How did learning activities outside of the classroom (required 124.5 credits), such as Student Orgs, Career or Study Abroad Fairs, Undergraduate Research Experience (REU), or other university programs help you to understand the importance of Lifelong Learning?

One of the best experiences that I had during my time at Iowa State was studying abroad at NTNU in Trondheim, Norway. There I gained an abundance of first hand experience in learning to work with people from different backgrounds, overcome language barriers, and how to manage my time efficiently. Many of the students that I met during my study abroad were getting their masters or PhD and were considerably older than I was. Up until that point I had never considered education past my undergrad degree, but meeting so many students that were going the extra mile helped to open my eyes that learned extends past undergrad, and even past a PhD. Learning, especially for someone in a technical field like software engineering, needs to happen continually, regardless of formal education. Since then I have viewed learning more as a lifelong activity, more so than I did in the past.

(CR5) Have you started to undertake any new learning to improve your ability to apply skills or knowledge to new problems and to develop confidence in taking risks?

One resource that I found though the Computer Science and Engineering club is a website called Hackerrank. Hackerrank has a massive amount of problems that people can attempt to solve in a host of programming languages. I have used this site in the past to apply my skills in various languages and practice my critical thinking. This has helped prepared me for interviews as well as to grow my knowledge on different technical topics.

(CR6) In the context of the first four questions, if you were to do your undergraduate work again, what things would you change?

One of the biggest things that I would change is to get involved with engineering clubs earlier in my college career. My last few years here I have learned a tremendous amount from the clubs that I have been involved with such as CSE, Web Development Club, CyMake, and the Mobile Development Club to name a few. The skills that I gained from these clubs are, in many cases, not things that I would have learned in my coursework. I imagine that if I would have started going to these clubs sooner, I would be that much more prepared for my career after university life.