

A Reflective Journey: Navigating Your Cumulative Experience at Iowa State University

William Nash

My time here at Iowa State University has been a very unique experience from the traditional path as I am a transfer student. Iowa State has given me the experience I need to work successfully in a group thanks to courses like Cpr E 288 (Introduction to Embedded Systems), or Com S 309 (Software Development Practices). Com S 309 and Cpre E 288 has prepared me to design, develop large and intricate system and navigate ethical, professional dilemmas. My diverse education here at Iowa State has given me the confidence and the ability to see and act on ethical issues without worrying that I might be making the wrong decision or making the situation worse.

Com S 309 is a great example where my personal drive to understand how things worked helped to further example my knowledge. In this class, we had to use a Java package called Maven. While the instructor gave us enough to be able to complete the program, I wanted to know more and be able to better understand what the Maven package provided. So, I ended up reading more of the documentation about Maven and from that reading, I was able to find a better solution to an issue we were having on implementing web sockets.

Learning does not stop outside the classroom; it extends into all parts of life. This includes clubs and organizations. While it doesn't relate to engineering, I have learned to be safe and respect the rocks while climbing thanks to the Mountaineering and Climbing club at Iowa State. They taught me how to build an anchor system at the top of a climb to be able to safely climb, and they taught me how to safely repel off the cliff to put less wear on the gear. Most importantly they taught me how to leave no trace and clean up after others so that generations to come can enjoy the same views that I can today.

At one of my previous internships, the team I worked on only used Python, which was a problem because I knew every little Python, so I had to teach myself not only how to code in Python but also how my team expected me to code in Python. I am a very hands-on learner so for me it was sitting down and going through a boot camp-like course to learn; however, the style of Python that the boot camp taught me was very different from that of my team, so I had to change and refine further to match the expectations that my team had for code standards.

My journey through my undergraduate has been long and filled with stress and mistakes. If I could go back and start over, it would be hard as every mistake builds who you are as a person, and changing those mistakes would be changing everything about you. But if I had to go back, I would choose to start at Iowa State. I chose my previous university based on their complete swimming, and unfortunately, when that ended, I had no reason to stay as the program there was not very strong.

During my last internship I had to learn how to create and deploy resources within a cloud environment, specifically Amazon Web Services. My team used a tool called Terraform, which is an infrastructure-as-code tool, that allowed for infrastructure to be created within in cloud environment. I had to learn how to use this tool, I started by looking at what my team had already done with this tool to understand how it should be used, as I was doing that, I was also looking at the docs to ensure I was truly understanding what I was looking at. For me, this is a very successful approach as it fits my learning type of visual and hands-on.

I was provided an amazing opportunity to work with John Deere in a hybrid full-time position two years ago and recently, we had a project to improve our support website. It was a very basic HTML website that would be populated statically, every 5 minutes. With my limited knowledge of HTML and a theoretical understanding of modern web frameworks, I set out to make a concept for a new support website using React. Through this process, I had to read documentation and understand John Deere's rules for websites and the required designs, and while my first few attempts were rough and poorly written, I learned the limitations of React. I better understood how to create the site and we were able to get the idea turned into a real produce for our team to continue development.

There are many strategies to conquer not only complex engineering concepts but complex concepts in general. For me, the best strategy is to try and be hands-on. I am a very hands-on, visual learner. While it might not be the fastest method, I like to just get into the thick of the problem and try different solutions. If the problem is really complex, I will try and have the related documentation open, but sometimes there is no documentation.

As my journey through my undergraduate comes to an end, I identify many areas where growth can and will most likely happen. Iowa State has been a fantastic place to learn and grow as a Cyber Security Engineer, however, they lack in the offensive and cloud aspects of Cyber Security. I want to learn more about cyber security in the context of cloud computing environments. Another place where I want to grow is my understanding of websites and modern web frameworks. I have a very basic understanding, but I want to have a better understanding of how it all flows and connects.