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Spring 2026

Cumulative Reflection

My name is Ethan Van Caster, and I am a senior undergraduate student studying computer engineering at Iowa State University with plans to pursue my master's degree in computer engineering. Growing up in Colorado, I never thought I would end up going to school in the Midwest, but after countless college visits, my dad suggested we visit ISU to see where he went to college. No campus or program grabbed hold of me like ISU, and I knew this was the right school for me.

I have always had a collaborative experience here at ISU I would work on projects in the TLA in Coover Hall and always find classmates and other students who would help me understand the material and fix problems I would encounter. I also explored resources through my personal connections, whether they be senior engineers at my work, teaching me about networks, or an Egyptologist I went to high school with teaching me about Egyptian culture for my ANTHR 369 Ancient Egypt course.

If I were to retrace my steps, I would work more on going above and beyond on labs, which would give me a stronger ability in the coding languages that I would be using in all my future courses. It would also make me go to my professors and TAs more for help and advice, creating more faculty relationships, something I wish I had more of now.

One of the first classes I seriously dove into was CprE 288, Embedded Systems. From the knowledge base I gained there and in EE 201 & 230, I went on to program other microcontrollers and built a moisture-sensing auto-watering system for my houseplants and climate-controlled greenhouse boxes. ComS 309, Software Development Practices, made me adapt to new challenges. I had to meet the requirements of the app we chose and work in a team with specific roles. I learned backend development in that course, and the next summer at my MITRE internship, I learned frontend development to build my own web app named ACI (Antenna Control Interface). From my courses at ISU, I planned how I wanted the app to work, developed the frontend and backend, implemented it, and tied it into the site’s network so my team could use it from their offices. My approach was effective; I successfully implemented my app in 10 weeks compared to our course, which took 16 weeks. Connecting my app to our site’s network was an idea I had while testing my code. I had to continuously go back and forth between our antenna yard and the site to test my code. I realized I could receive data through a network, so I reached out to different teams about sending data over that network and was able to figure out a way to use the app from the site. This was a development the team was thrilled with and saved them much time and effort.

From my experiences in classes, as the coursework and problems have gotten harder, I have changed my learning strategy from using only what is taught to me in lecture to pulling

from other resources like textbooks, published papers, as well as reaching out to professors and TAs. I started to learn more from my TAs and professors in CprE 381, Computer Organization, because of the project where I had to design my own processor; I now regularly go to faculty with questions about projects and other aspects of classes that I want to learn more about.

Going forward, I plan on continuing my education here at ISU by pursuing my master's in computer engineering. I want to focus on AI and machine learning, as those practices are becoming much more prevalent in every engineering capacity. Looking ahead, my career will always involve learning, guided by what ISU taught me, I'll bring my best to everything I build, whether at MITRE, another company, or in my own projects.