This Portfolio goes over what I have experienced at the University of St. Thomas to go down the path to a Computer Science Career. Mainly, I observe what I have accomplished in the direction of this career choice. While it did originally start with a passion for engineering, my path changed as I decided to learn code instead. Regardless, I enjoyed the challenges that came with the classes over the years.

When deciding this path originally, I thought about becoming a game developer perhaps. However, with the complexities that came with it through Object Orientation. It was very difficult to imagine that I would become one after struggling to figure out how to set up the rules and conditions for a dice game of Farkle. It was the summer of my sophomore year when I first attempted to create it. It wasn't great since it was single player with some conflicts in statements at the time, but it was functional for scoring. However, after getting more experiences with other code, I thought about what path I want to walk down once more. I want to deal with cyber security.

Although only having one semester dealing with the field in information security, it was enough to invest my passion exploring. The class itself taught about how websites and browsers could be exploited by criminals to steal information from people. It was also my first experience into HTML and Python coding. Some of the methods that we learned that could be exploited was brute force attack (the last-ditch effort), POST attacks, and exploiting the use of cookies and search history. In fact, I placed an assignment in this portfolio that came from that class where we created a fake captcha page. How they work is that they show certain letters based on what sites you looked at. Upon submission, the site could tell you what you have not visited based on the letters submitted. It was a simple example, but it shows that if one isn't careful, they might accidently give private information to a criminal.

When I worked for the Medical College of Wisconsin, the security for handling data was taken seriously. I figured out how serious information security was as although I was an intern. During the time that my name was not in their employee database, they would not let me look at the data of their patients even though they wanted me to organize their excel template for sorting personal information about patients hearing data. It really gave me an idea of how important security is for any online platform.

More recently, I learned about security being exploited in models from my Deep Learning class. Normally, many of us use anti-virus programs to prevent malware from attacking our hardware. According to a study, malware could be placed into a deep learning network and be used to attack someone's computer and regardless of how much it is scanned, it cannot be detected because it is broken up into the different hidden layers within the model. While the best solution would be to keep people aware of the dangers of downloading random things on the internet, it does get me to wonder if there is a way to perform some sort of byte tracking to check if a certain number of bytes correspond to the bytes of malware.

Although there are many ways that I might be able to support the security of code which would help people across the world, I would like to consider the other paths available through what I have learned about computer science careers. Like before, I could create games especially after learning artificial intelligence or I could help observe how AI could be used to help people responsively for example, the self-aware cars that will attempt to break if the driver is about to collide with someone walking across the street. Since I know about setting up conditionals and searching for the optimal solution by performing tree searches, I do believe that it could be a possibility.

However, I don’t think I could go too far into deep learning or use coding for behavioral study. It is difficult to make code that is unbiased especially if the training dataset is biased. In the senior capstone class, we discussed about the possibility of unintended consequences which can appear in our code. If bias shows up in a deep learning model, the programmer will have to retrain the model to try to eliminate said bias. While there can be other problems may appear in training a model such as over constraining it, the greatest unintended consequences of deep learning models come from biased data.

With Web Development, I could design profession webpages for companies. I know how to make a webpage that communicates with a server if they need to show data. This code could be shown by the two projects which I have done where I have focused on displaying the data on a template. The Energy Consumption project and the Criminal Database project from Web Dev show that I know how to use GET requests to retrieve and display information from a database. However, I could refine my skills and make them display better such as scaling the chart on the Energy Consumption page to be a more reasonable size that I could take a picture of it.

Using Computer Graphics, I could perform model design for either a real-life product or I could create the models that would be used in a game once again. In the class, we experienced projecting 2D and 3D polygons on a canvas. Also, we learned about applying textures, light illumination, and VR recently and how to apply them with OpenGL. Although all these options are available to consider, I would prefer choosing cyber security because it seems like one of the most important (at least to me) where I know that if I do well, I believe that I could provide back to the community for the common good of all. If UST hadn’t offered me the opportunity to explore this field, I probably never would have thought about becoming a computer scientist.

Originally, I had planned on getting a career of engineering. Although I enjoyed looking at what could be created by engineering, I didn't feel like it was the path for me. After remembering that I enjoyed a coding class back in high school, I pursued it. However, when the first semester of COVID occurred, I really questioned myself to if I wanted to go down this path seeing as I was still uncertain from just recently swapping majors. Although that first semester was a blow to my confidence in my decision, after exploring it for three years, I do not regret it.

The one project from my World Religions class is mainly just an example that I have experienced the ideas from different cultures and religions during my time at St. Thomas. It's my example of experiencing diverse ideas from different groups of people. I couldn't find the code for my personal Farkle project, so I'm sharing what other projects I did have where I do have the files for them. The reason why I also used a presentation is because it is an example of practicing speaking and conversing with a partner which is an important skill to have in the workplace.

From my experience at Chick-Fil-A, I learned that communication is very important. If I didn't communicate what people wanted to order well with the other employees, we could get something in the order wrong. There have been many different types of people I've had to experience during that time as well. Some were kind and patient when a mistake was made since the store was in the middle of a management change when I first joined. There were a couple that complained and turned me into a carrier pigeon for them for a couple minutes. There was even a deaf person who I had to learn how to communicate with them. In the end, the experience helped me communicate better with others personally and re-emphasized the fact that communication is a key factor of a career job.

Regardless of where I go to work, I can thank the university for granting me the opportunity for my experiences that will support me in the events that occur after this. With the

next chapter in life, I plan to bring my experiences from college with me. I am a Tommie, who plans on bringing his communication, patience, and experience in computer science and building upon my skills to improve who I am. My plan currently is to get support from the place I work to help me pay for a master's in Cyber Security.

I plan on working for the common good by what I accomplish in my career. If it can protect someone from losing something important to them, I think I have begun accomplishing something. There are many criminals that would attempt to harm people's computers by placing Malware or stealing information to break into their accounts. I can at least do what I can to help solve the issue.

While there are many different fields that I could go into using the skills from different classes, I would still prefer entering a computer security career if possible. I may enter a career of webpage design, game design, or more likely debugging and testing before then. However, I ultimately want to go into cyber security.

I feel like my experiences both here at St. Thomas and at my previous places of employment have prepared me for this career path. Although not all of them may be directly related to computer science, they at least prepared me with the skills necessary for my career. Regardless of what coding language I will need to learn for my career, I will do my best for the future.

Thank you so much St. Thomas for granting me the opportunity to dive into the field of computer science and experience it. Thank you so much for the faculty who is willing to help and support us through our struggles and guide us back in the right direction especially when we overthink the problem. Thank you for everything.