Scott Courchaine

Link to GitHub ePortfolio: <https://scottcourchaine.github.io/>

**ePortfolio Professional Self-Assessment**

My journey through the Computer Science program was life altering. I chose to enter this field with extremely little experience and formal knowledge, but I possessed a high passion for learning and understanding. I had barely any insight as to where this path would lead me, but I knew this was the road I wanted to venture down. Each class that I took opened up a new doorway for a potential career option. I learned a plethora of subjects and slowly molded myself into an avid computer scientist. By creating an ePortfolio, I was able to reflect upon my previous work and choose which topics best describes my talents. I chose classes that I excelled in as well as material that interested me too. By enhancing these projects even further, I was able to create a truly unique piece of work that displayed my abilities. These enhancements actually encouraged me to view my career goals and choose which path directly related to what I enjoy. I was able to improve my coding of past projects demonstrating my comprehension of data structures and algorithms, as well as showcase my skills within specific software and my masterful manipulation within databases.

The enhancements of previous projects have shown that I have improved my skills tenfold since the beginning of the Computer Science program. Successfully enhancing a past project shows that I am able to learn more material on a certain topic and apply that knowledge to my work. This is incredibly beneficial in the computer science field because technology is constantly changing. This suggests my ability to comprehend and adapt when given new information, which is a desirable trait among computer science professionals. As I continue down my career path, any new material I may learn can be applied to other projects I have developed in the Computer Science program. This can include projects such as mobile development within Android Studio or even improving other projects by implementing secure coding practices. In addition to these programming skills, I have also strengthened my communication and collaboration abilities. I have learned to listen effectively to the ideas of my peers and offer my own insight to the project at hand. Interaction with my colleagues is essential to discovering the optimal functionality of a project. Not only can successes be found via communication, but potential flaws or vulnerabilities can be identified too. As a result, I’ve learned to offer support to my peers as well as take their advice so that the overall team can create the highest quality product possible. These career-related skills, combined with the knowledge I learned from the Computer Science program, can help me stand out as a qualified candidate for nearly any job in this field.

My ePortfolio displays a few areas in which I chose to elaborate upon and showcase my talents. In the software engineering and design portion, I improved my project from my CS 330 course, Computational Graphics and Visualizations. My OpenGL project written in C++ originally displayed a three-dimensional chair with lighting and texture. I decided to add a table to the same environment, which also included lighting aspects and texture. This enhancement expressed my understanding of OpenGL and showed what I was capable of when working with computer graphics.

The data structures and algorithms portion of my ePortfolio allowed me to showcase a different skillset. I chose to update my project from my CS 340 course, Client/Server Development. This project was completed using RESTful services with MongoDB and written in Python. Not only does this project display my comprehension of another programming language, but it also shows my modular development of code using CRUD functions, along with complex algorithms to produce desired output. I also created embedded documents within this enhancement to show relationships between parent and child nodes.

For the databases portion of my ePortfolio, I used the same course, CS 340, for improvement. For this section, I chose to utilize the same database I was provided and extended usage to include two other databases that I created. I created a project that called for multiple python files and started with user/password verification. Certain users were given access to specific CRUD functions. In addition to choosing which database to access, the user assigned to reading data was given the option to search a specific keyword in one database and return all results that matched the user-entered string. The utilization of MongoDB prevents the chances of SQL injection from malicious users because client programs build BSON objects rather than strings. This is highly important in securing the code and making sure that the program runs as intended without SQL commands being entered as user input. Furthermore, user input was protected from buffer overflow by initializing variables with a large size. An assignment of newline characters allowed me to set a variable up securely prior to user input. By ensuring there were no bugs within the code and limiting the vulnerabilities, I was able to create a fully functioning program that is secure from malicious attacks. By creating this project enhancement, I was able to showcase my skills in verifying login information, creating replicable and modular code for CRUD functions, securing the code using best practices, and manipulating data within a database to produce specific output.

Each artifact that I enhanced provided a wide array of skills that I developed throughout the Computer Science program. I incorporated best practices in OpenGL for a software development project, utilized RESTful services with MongoDB, and managed and manipulated a database using secure coding. I even displayed my skills by showing work completed in multiple programming languages and providing clear comments throughout my code so readers can understand and replicate my work. Furthermore, the unique development of my ePortfolio has shown that I am proficient in HTML since my page possesses unique characteristics of design. The skills I have presented in my ePortfolio reflect my desired career path in software development. I enjoy programming code and producing output based on a specific request. Figuring out how to complete a task requires me to use critical thinking strategies, as well as communicating effectively with the client. The published enhancements on my ePortfolio suggest that I am more than capable to do so and prove that I should be considered a prime candidate for potential employment.