Scott Hunt

Senior Design Individual Capstone Assessment

I am Scott Hunt, going into my 5th and final year here as a Computer Science major at the University of Cincinnati. My groups' senior design project is focused on letting users view/interact with AI generated imagery using a virtual reality environment. Most of our focus will be on the AI generated image aspect. This will most likely be done using Python, as we can apply what we've learned in classes over the years fairly intuitively. On the VR side, we will be using the Unity3D game engine, as I have some experience using Unity to create some parallel computing simulations. The goal is to have a functioning VR application that allows the user to select a theme for the AI to take 'inspiration' and create images from, then also allows the user to walk around a virtual space to view said images.

Like I mentioned briefly in the previous paragraph, I have some experience applying different computer science ideas into Unity3D, which was the main purpose for choosing it. This experience mainly came from the Parallel Computing CS5168 class. My final project was to use parallel computing techniques and Unity3D to create a fully interactable, and realistic cloth simulation. Other classes come into play here as well, such as CS4033 AI: Principles and Applications, and other fundamental classes like CS4075 Design and Analysis of Algorithms. We will try to apply ideas from each class, and more, to the design and implementation of this project.

As for co-op experience goes, I will say that my latest co-op has prepared me more for the intangibles rather than technical knowledge. I've co-oped at two similar companies as a Software Developer/Engineer: CADTalk and Siemens. Both experiences dealt with the backend of CAD software, so while not applying directly to this project, I've learned skills that will help with the project. For example, how to manage time, problem solve efficiently, and deal with a large workload. Obviously, I've learned more, but these are the main skills I would like to highlight as they will most likely be the most relevant to a project like this. Either way, I'm sure the technical skills learned along the way will also apply.

I have recently just hopped on the VR trend and got an Oculus Quest 2. Of course, coming from a Computer Science background, I very stereotypically used it through the lens of a software developer. This meant that I wanted to know how it works

and why some things are the way they are. That is where the VR part of the project comes into play for me. The need to know how something is done, and then to be able to do it myself is something important to me. This is where the motivation comes from in this case, an itch or a drive to want to know how it is done and the same thing can be said for the AI generated imagery as well.

The approach to each part of project at first will be research oriented. Although we each have the generic technical skills, these are new topics for us. We will help each other research areas where and when necessary. Eventually we will get to a point where we will be comfortable enough to implement accurately. At this point we will evaluate the progress periodically. If the app reflects the goal to the best of our ability, we can then consider it finished.