**CS330 M7 Project Design Decisions**

From looking at the source photo that includes multiple trees and bushes all on a gravel floor, I choose to represent the scene through multiple boxes, taper cylinder, cylinder, torus, and half spheres. By using multiple boxes and manipulating their rotations specifications, I was able to replicate the two bushes stretching between each of the trees on either side of the walkway. Additionally, I used a box as the for the green background. To implement the background, I briefly thought about using a plane (similar to the ground), however, I noticed that the source photo background had some dimensionality. Therefore, I used a box to provide a smooth background with some dimensionality. All of the trees (excluding the one in the middle) were composed of tapered cylinders at the base and a half sphere as the top. By using these two shapes together, the trees were able to have a thick and solid base with the branches/width decreasing as the height increased. Additionally, the half sphere gave the tree a rounded look on the top rather than a sharp point. For the middle tree and bush, a cylinder was employed to create the circle bush. For the tree trunk, I used a simple cylinder. To give the appearance of tree trunk with rows of leaves wrapping around it, I used multiple torus. Each row of leaves has three different torus to ensure that they are full and touch the tree. While only using one torus, I could not manipulate it to the desired size and still touching the tree, thus I placed two additional torus to give the appearance that the leaves touched the tree. To give the tree a rounded top, I again used a half sphere.

Within the scene navigation, users can adjust the camera movement speed through the scroll wheel, use the mouse to change the point of view, and use WASD for basic movement. Additionally, Q and E were implemented to move the camera upwards and downwards. Finally, the keys O and P enable either orthographic or perspective views of the scene, respectively. Overall, the implemented functionality provides the user with a dynamic and customizable navigation field.

The custom functions I developed, like the mouse scrollwheel callback, allow for quick and streamlined adjust to the scene and its navigational properties. By developing this functionality through its own function, it is perfectly modular and can be used wherever applicable.