Final Project: Modeling a 3D Scene

Justin M Davis

Southern New Hampshire University

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Sheryn Aly

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For my 3D scene recreation, I chose a desk setup featuring a monitor, keyboard, mouse, mug, and pencil case. These objects were selected because they form a cohesive and recognizable workspace while allowing me to apply a variety of textures and materials. I utilized basic geometric shapes like planes, boxes, cylinders, and toruses, modifying their scale, rotation, and material properties to achieve the desired look. Each object was assigned a texture and material, such as metal for the keyboard and monitor stand, ceramic for the mug, and glass for the screen, to enhance realism.

Navigation within the scene is controlled using standard first-person movement: the mouse adjusts the camera’s view, W/A/S/D keys move the user forward, left, backward, and right, while Q and E control vertical movement. The mouse wheel adjusts movement speed, providing flexibility in exploration. This setup allows intuitive control, making it easy to examine the scene from different angles.

To streamline object placement and improve code organization, I implemented a SceneObject structure to store attributes like position, scale, rotation, color, texture, and material. A static list holds all objects, which are processed in a loop during rendering instead of using individual draw calls. This modular approach simplifies adding or modifying objects, and it can be extended to load scene data from an external file for easier adjustments without recompilation. By structuring the code this way, the scene remains flexible and scalable for future modifications.