

CS148 Final Write Up

Inspiration & Scene Description

For the creation of our scene, we were inspired by a snippet in the history of computers, the creation of Apple & the Macintosh computer. We felt that an interesting way to capture this moment in history would be to render a scene revolving around the individual 80s tech developer, and settled on creating his/her desk. In the desk, we placed an apple macintosh computer model and three posters, two referencing apples and one referencing the year in which the scene takes place. We added a few objects on the desk, which we placed triangularly to achieve a pleasing composition, but tried not to clutter the desk too much.

Assets

All downloaded models came from turbosquid. Most of these assets were modified in blender to reshape, resize, remove certain vertices, etc.

These are the assets we downloaded in the scene:

- Apple Macintosh Computer
- Pencils
- Book

These are the assets we made in the scene:

- Apple
- Cupholder
- The room (Wall & Desk)
- Poster

Technical Contributions

1. Point light attenuation: We added point light attenuation so that our scene appeared more like a nighttime scene. The code we changed was in `PointLight.cpp`.
2. Area light attenuation: We also attenuated area lights. We wanted our scene to be very soft and remain dim enough to appear as though someone was working at the desk, and we thought it seemed more mysterious to create an ambience that was primarily lit by the computer screen.
3. Transmissive Ray Tracing: We implemented transmissive ray tracing, primarily for the green point light inside the macintosh. Adding in the green light emitting

from the computer was the most challenging part of our project. Because the ray tracer does not support emission lights, finding the right glow and the right placement of various point lights and area lights so that it did not appear so harsh was difficult. We attempted to use four smaller point lights and trap them in the inner corners of the computer to prevent a massive green light from spilling out, but it made the shadows quite harsh and the light quite unnatural. We also tried smaller area lights, a sequence of point lights in the front of the computer, and inside of the computer, and then moved to transmissive ray tracing to make the face of the computer appear glasslike and create a soft glow from within the computer. After implementing transmissive rays, however, most other objects started to reflect in odd ways and did not achieve the look we wanted. Instead we opted to turn the monitor, reframe the camera perspective and use a small soft area light with attenuation.

4. We also added a secondary, smaller area light directly in front of the camera to light up some of the objects (the apple and the boxes near the monitor) a bit more.