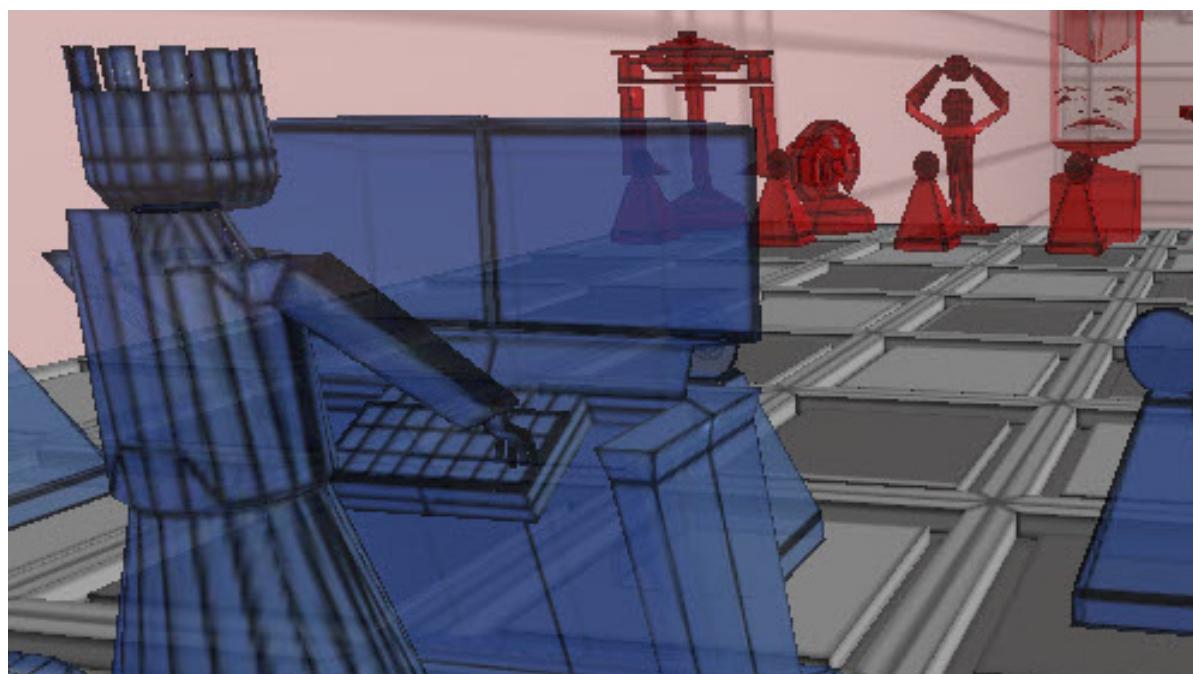
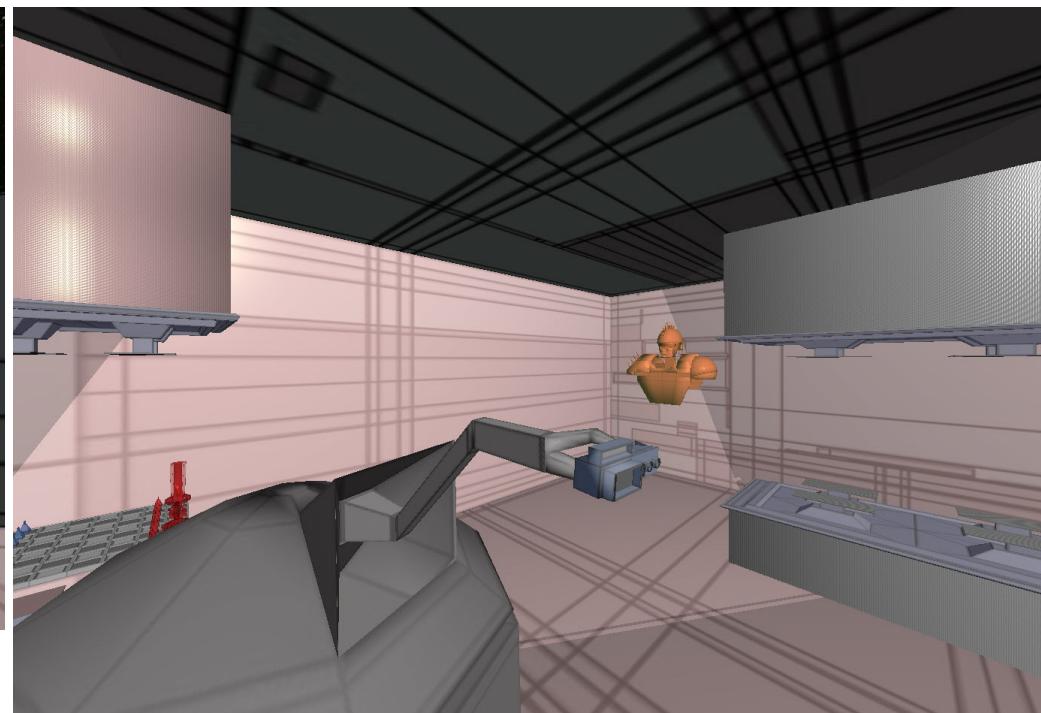


“Taking a Picture in the Game Room”

Part 2: Assignment 4

READ ME



Taking a Picture in the Game Room

The Story

Boba Fett and IG-88 pose just outside the balcony of a game room atop one of the tallest buildings in the dazzling city of Krom. Take in the sights, or what are visible on such a cloudy night. Rather, only the buildings that reach beyond the cloud layer can be seen.

NEW FEATURES added to the Game Room, including a little droid companion for Fett. A reflective mirror gate, the Fuzzy Knight, and holo Tron Chess with appropriate transparency!

Oh, there is a ship flying in the background? Well, now you can follow where that ship goes!

Movement Limitations

Depending on the Camera-Control Schema, there will be different limitations imposed. See corresponding sections.

Mouse Controls

Same as before.

Materials and Textures

All objects have a material and texture applied. I designed all the materials with that program I showed you in class.

Additional Sources

TEXTURES

Moon Texture, from book

Red - Green - Blue, textures, just made them.

Skybox, made it last semester for 165

Various textures from CGTextures.com, which having an account gives me free access to.

Cloud Texture: We have permission to use this work for non-commercial, personal and educational purposes, without attributing the original author.

MODELS

Sphere, from book

All the other objects are from past projects I designed.

Camera-Control Schema 1

I created 3 Camera-Control Schemas, with different movement/control restrictions.

Schema 1 is what you should already be familiar with, as it is exactly the same from Assignment 3.



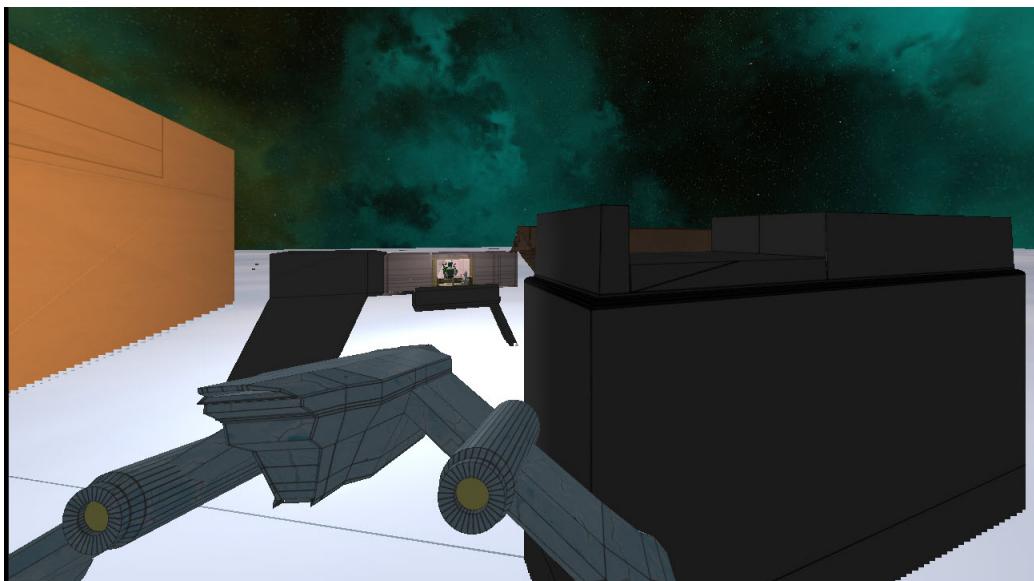
Controls

TURN ON SCHEMA 1	Number 1
Space Bar	Turn Axis on and off
W	Move forward
S	Move backward
A	Move left
D	Move right
Q	Move up
E	Move down
↑	Pan up
↓	Pan down
←	Pan left
→	Pan right
Mouse Wheel	Move Light up and down
Mouse Drag	Move Light along X and Y
F	Turn Point Light on and off
G	Turn on auto rotate for light

Camera-Control Schema 2

I created 3 Camera-Control Schemas, with different movement/control restrictions.

Schema 2 is a 'follow' mode. In Assignment 3, we saw a ship flying down into the clouds. Now we get to follow that ship down. Controls are limited to looking around, so only the Pan controls are active. Also, if you choose this mode, please do so right after starting the scene, as the ship is going with or without you following and to get the full effect, it is best to start right away.



Controls

TURN ON SCHEMA 2	Number 2
Space Bar	Turn Axis on and off
↑	Pan up
↓	Pan down
←	Pan left
→	Pan right
Mouse Wheel	Move Light up and down
Mouse Drag	Move Light along X and Y
F	Turn Point Light on and off
G	Turn on auto rotate for light

Camera-Control Schema 3

Schema 3 is an unrestricted free movement mode. It is intended as more a test mode and is not as a representation of these scene elements. If you need to do some extra exploration and testing? This is the way. Also, note, you can freely switch back and forth between Schema 1 and 3, but switching freely between these modes and Scheme 2 (after the beginning) can cause unaccounted for issues such as camera warping.



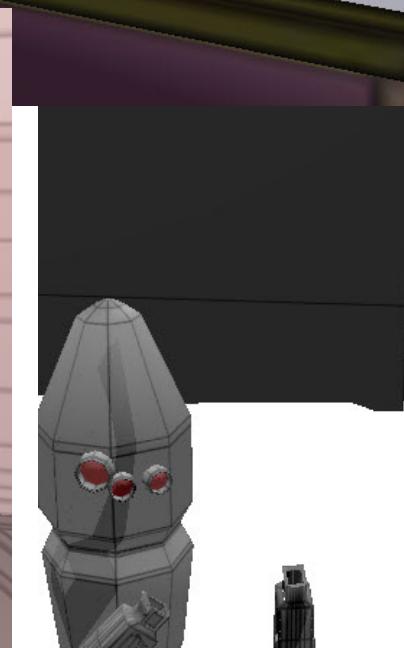
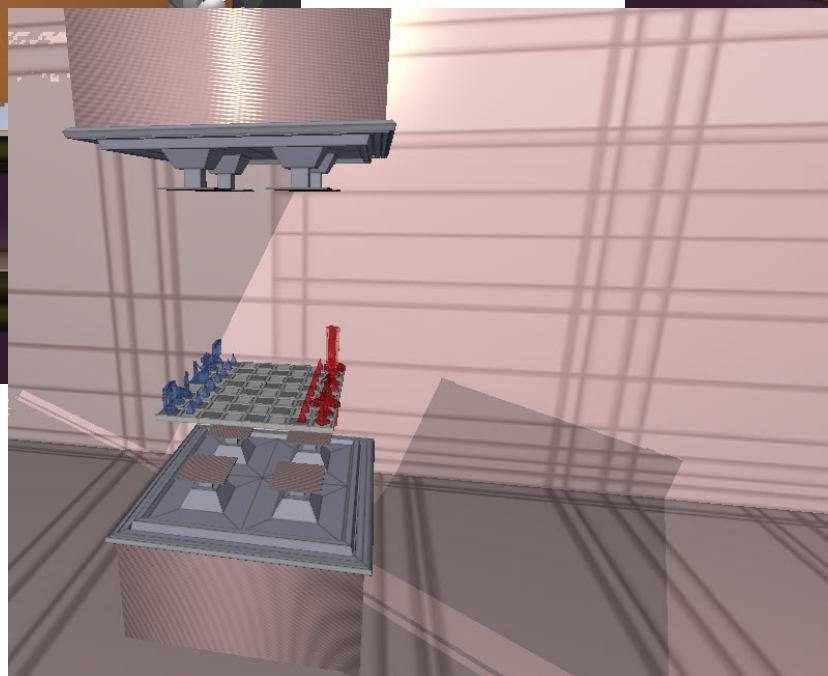
Controls

TURN ON SCHEMA 3	Number 3
Space Bar	Turn Axis on and off
W	Move forward
S	Move backward
A	Move left
D	Move right
Q	Move up
E	Move down
↑	Pan up
↓	Pan down
←	Pan left
→	Pan right
Mouse Wheel	Move Light up and down
Mouse Drag	Move Light along X and Y
F	Turn Point Light on and off
G	Turn on auto rotate for light

Shadow Mapping

Features

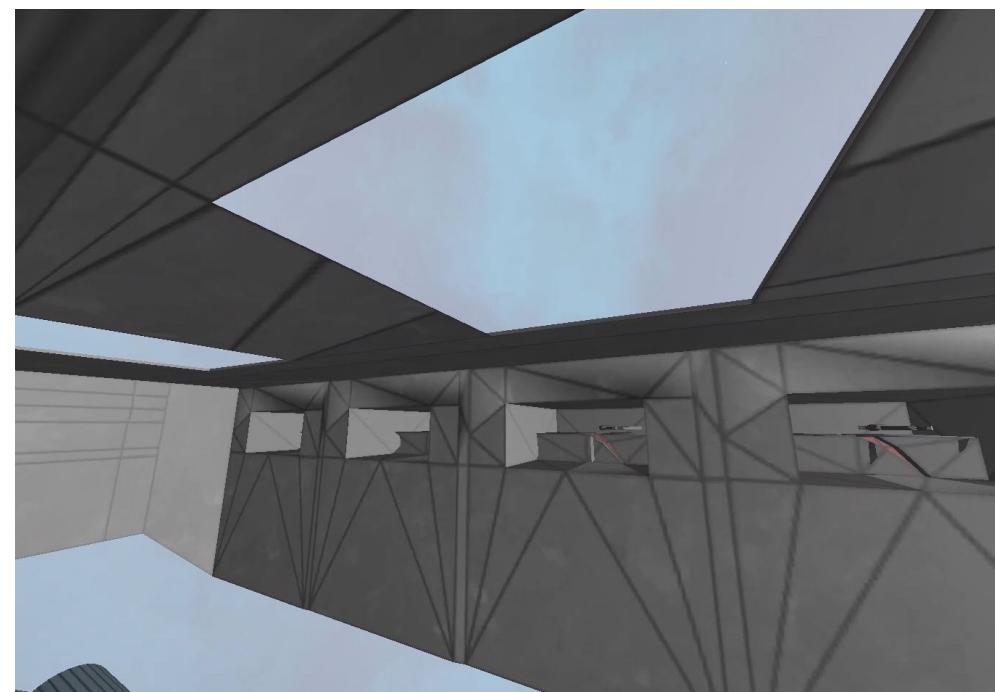
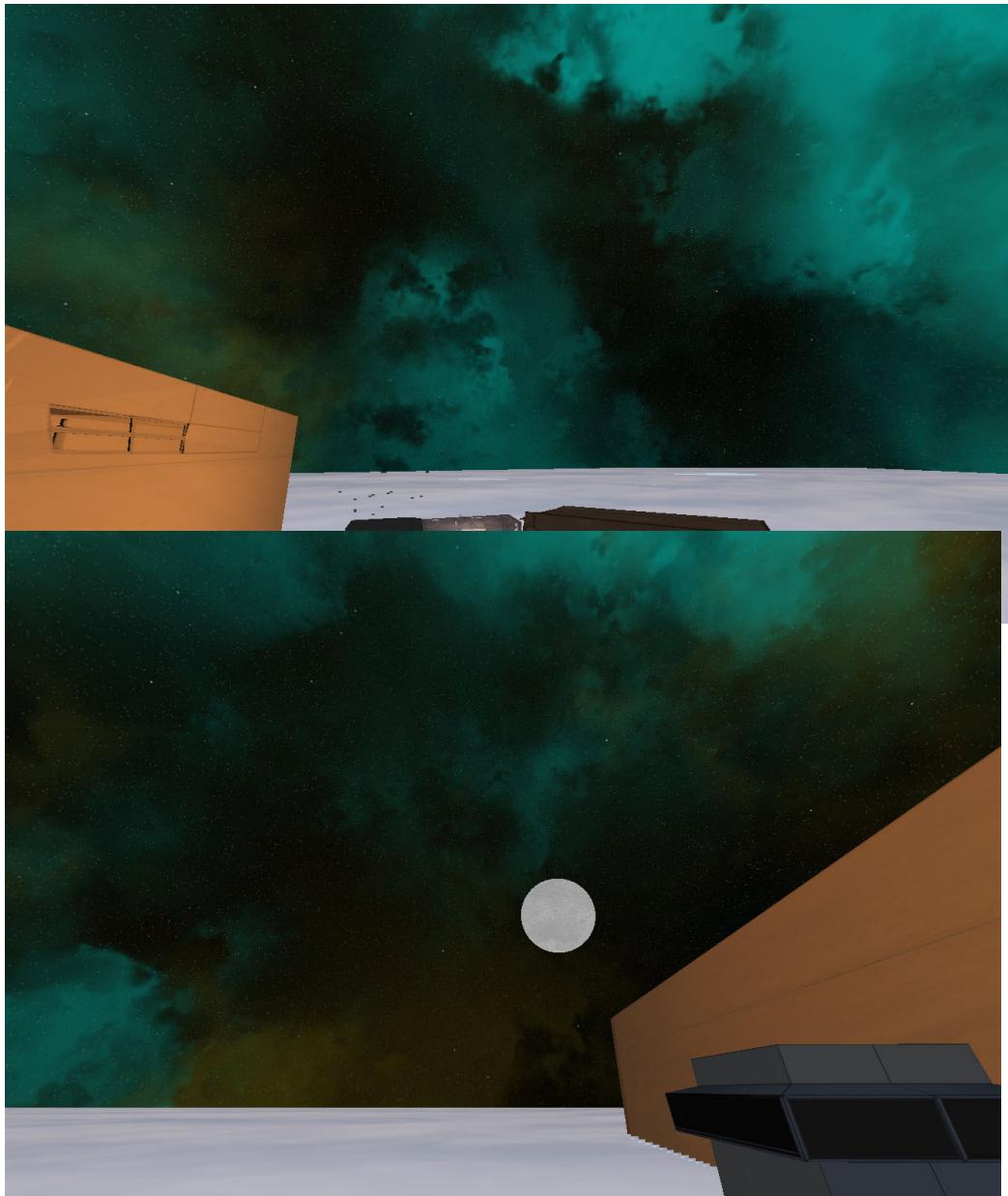
This one is tricky, but I have several example images below showing shadows from one object reflected on another, including Fett's weapon reflected on IG-88. I had trouble nailing down more specifics, though the requirement of an object casting on another is there.



Skybox

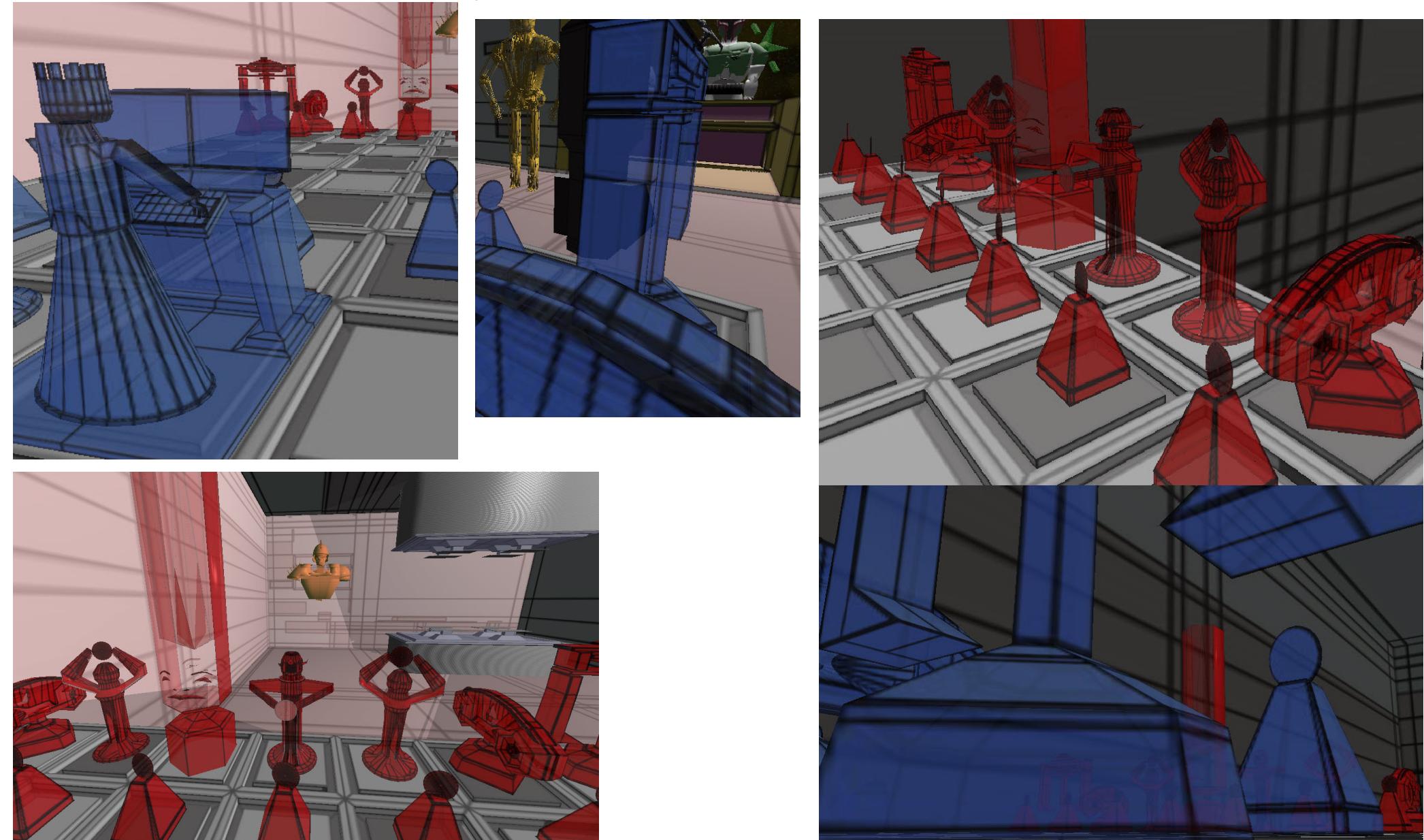
Features

I finally moved away from the stack and as a result, the Skybox remained static in the background, which revealed certain flaws from meddling with it in the skybox program. I had to go back to the original version of the skybox from 165 to fix it. I then also made two versions of the skybox, a clear version and a 'fog' version, and the scene switches whenever the camera or the ship dip below the fog, which help with little bits of skybox that peek through as well as the final Chamber.



1a. Transparency Features

I initially tried to make the Cloud Layer transparent and I got it working in my stripped down version, but never could get it working in the main version, so I scrapped that idea and came back later with a fresh approach. I actually wanted to do something like this with the Tron Chess initially and my new approach was really to create Transparency in its own pass, separate and a part from everything else and it ended up working out.

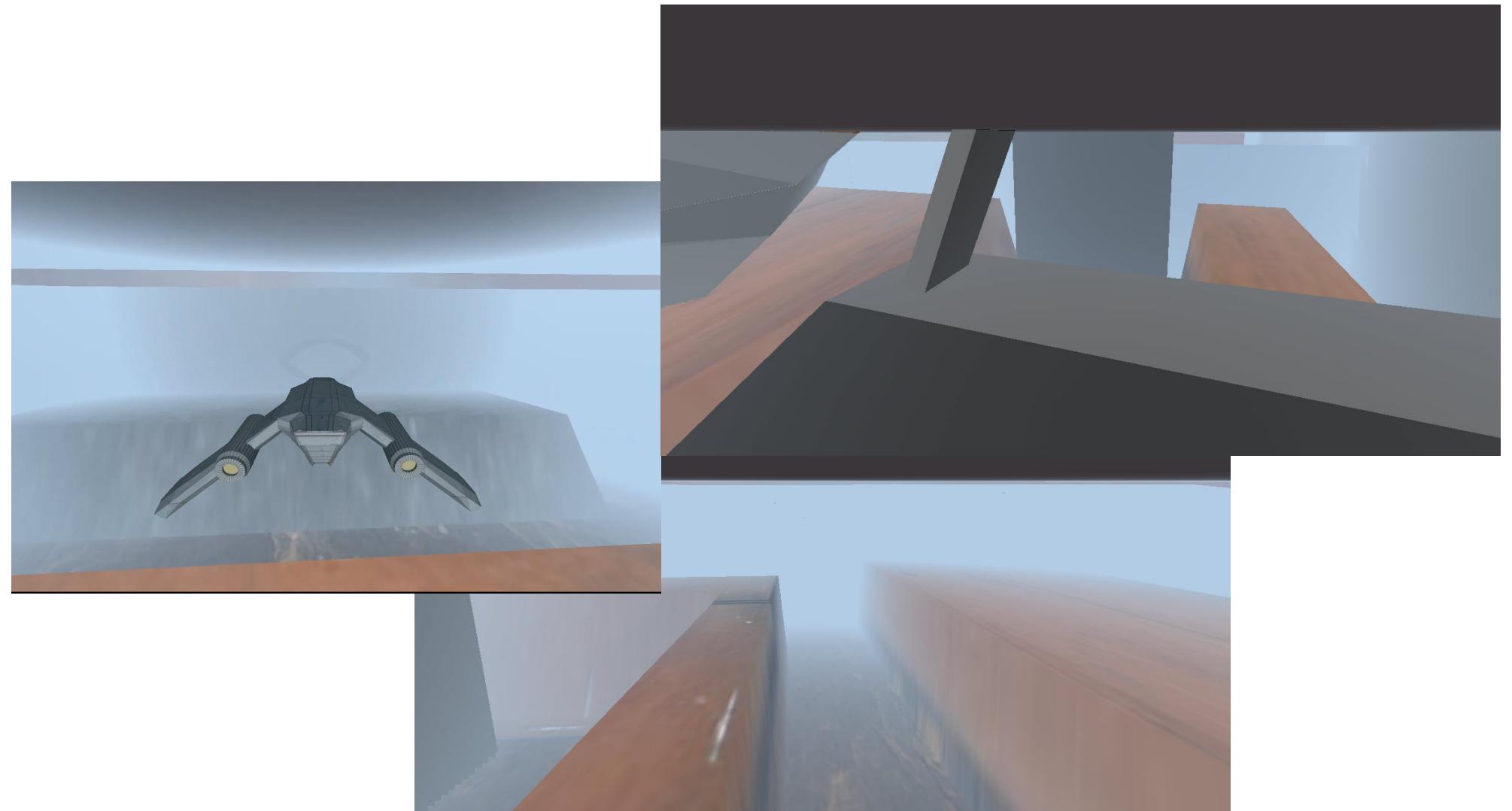


1b. Fog + Height Map (bonus feature)

Features

Fog made the most sense to add to the scene given we were now going below the fog. I wanted to follow the ship to a specific destination (the master landing chamber is what I came up with) and initially I was considering adding a bunch of the other features to have them pop up in the fog, but ended up scratching that idea in favor of the game room so that they could be better viewed. I also built extensions for each of the buildings for two reasons. 1, they were never intended to be seen outside of the game room, so some buildings previously floated in the air and 2, to create the Fog version extensions that would go in the Fog Pass.

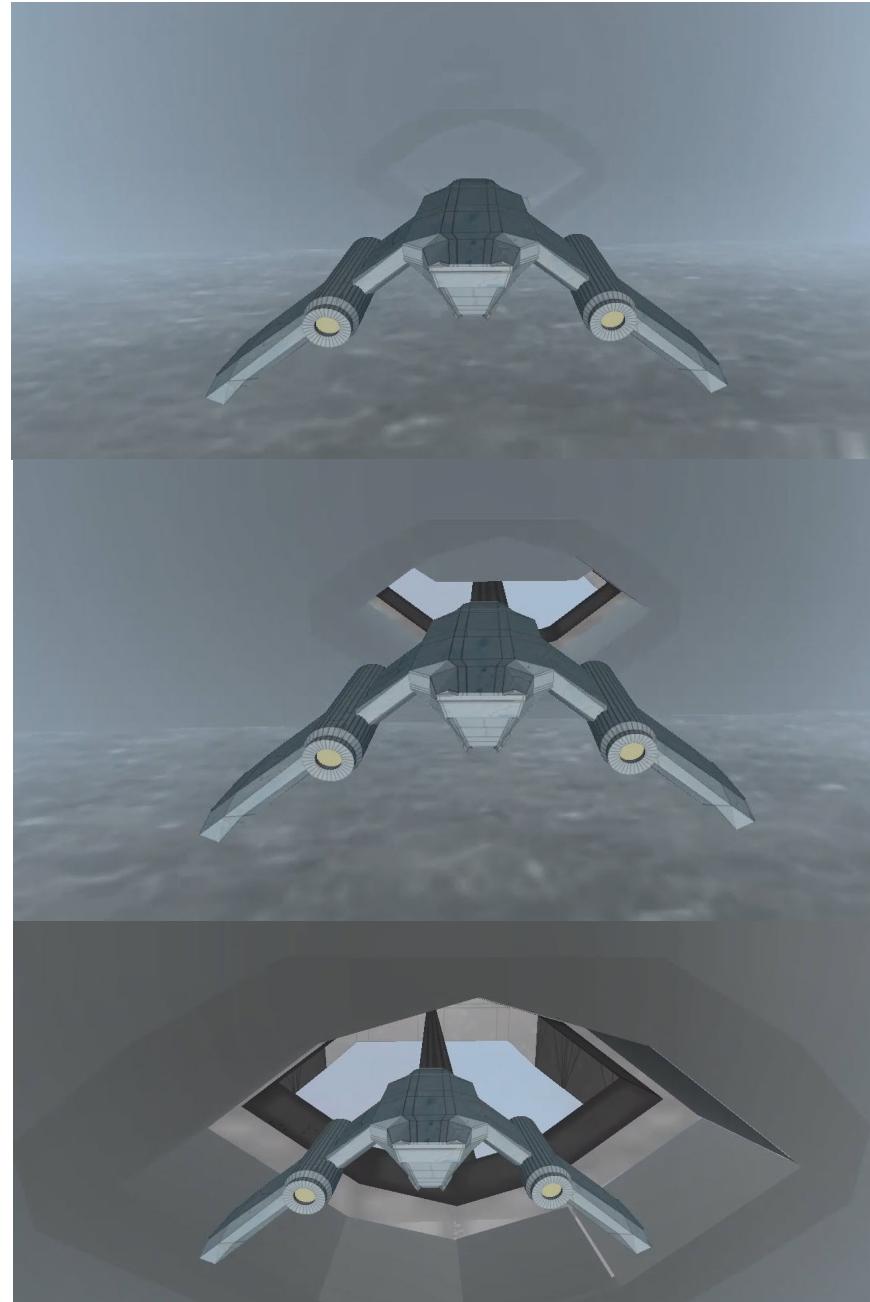
The height map was planned to be paired with Tesselation, but my initial tests with that did not go well and I never returned to attempt tessellation. I created my own height map to create ravines (seen below) and then created a texture file with the height map as the basis.



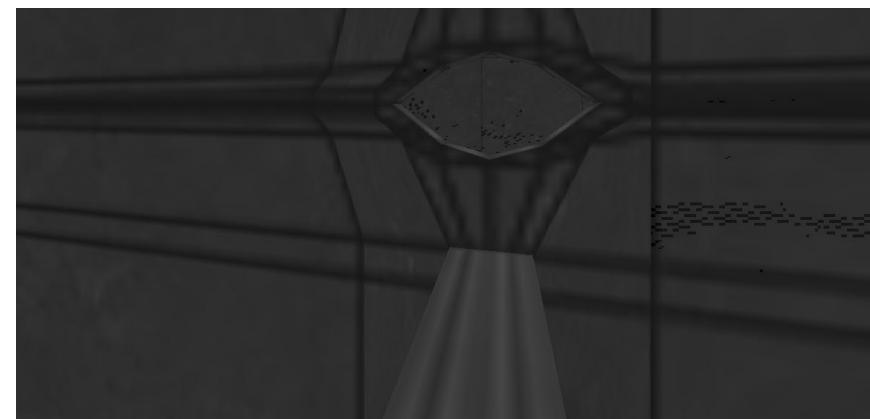
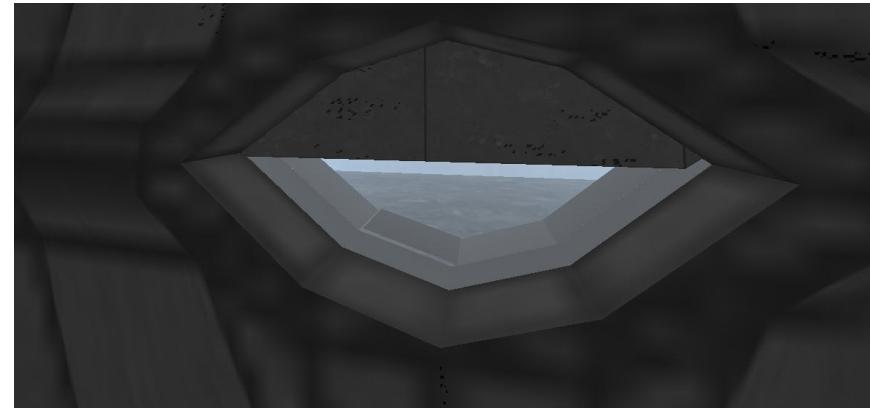
Fog the Door (bonus feature)

Features

I wanted the journey through the fog to lead to somewhere to step outside of the fog into a new place. A door seemed like a natural way to create this transition, hence the outer door is fog based and the inner door is not.

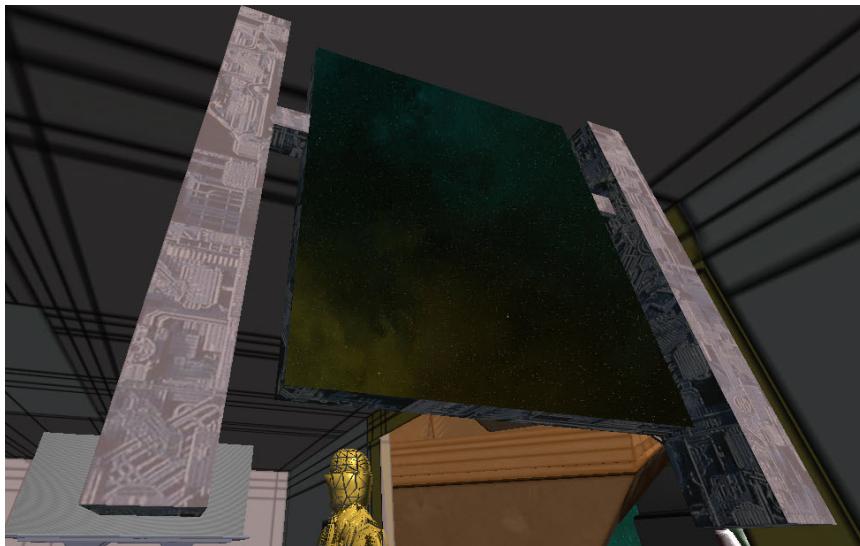
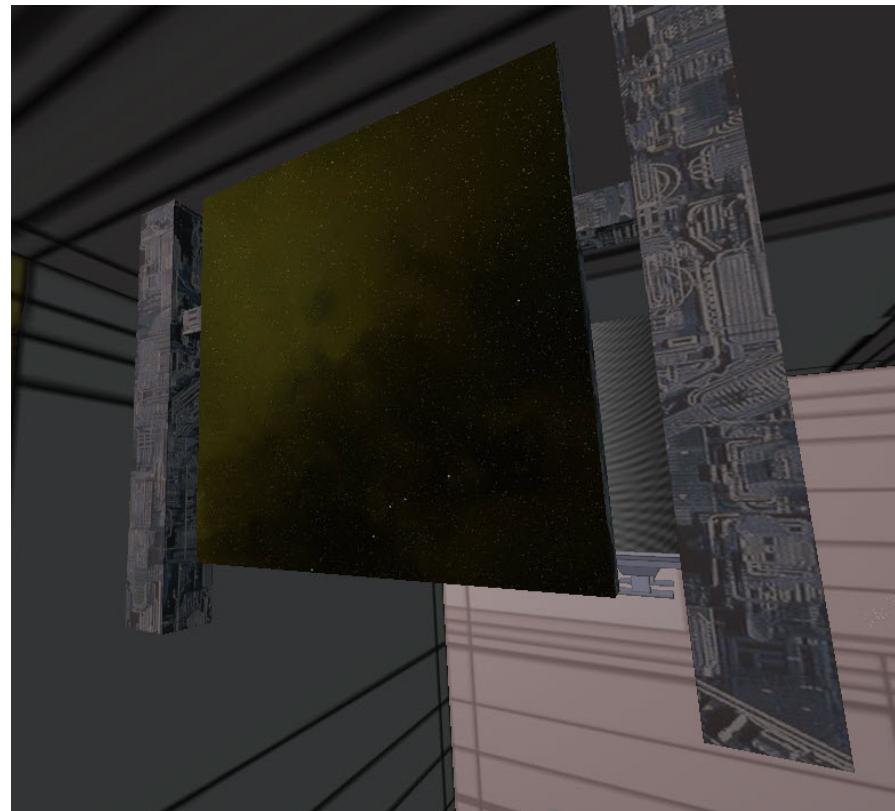
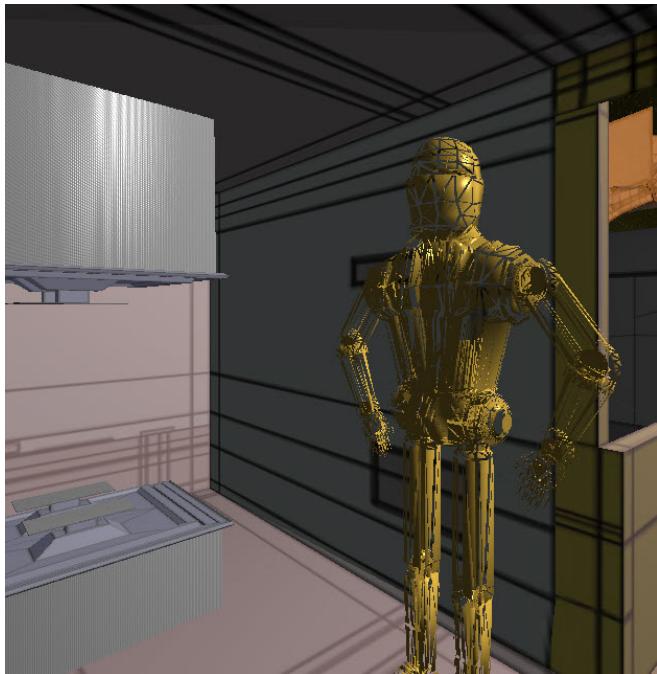


For efficiency sake, I also turn off the fog based objects once inside the room, though I'm not sure how much of a real effect it had behind fixing some potential clipping issues the further the ship moves into the chamber.



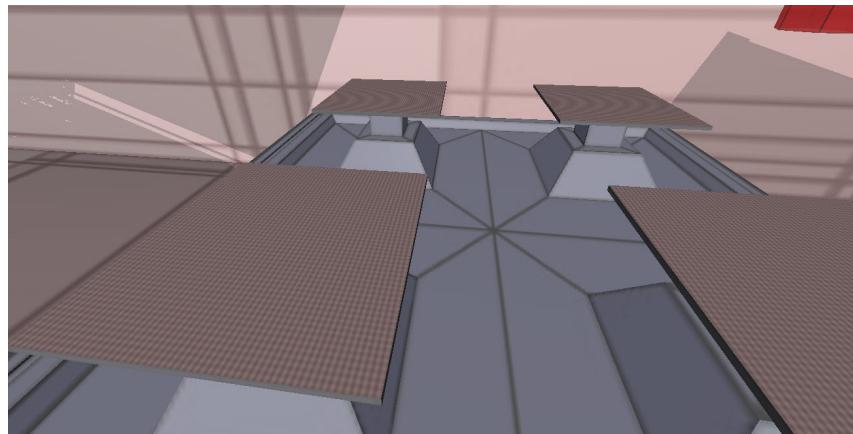
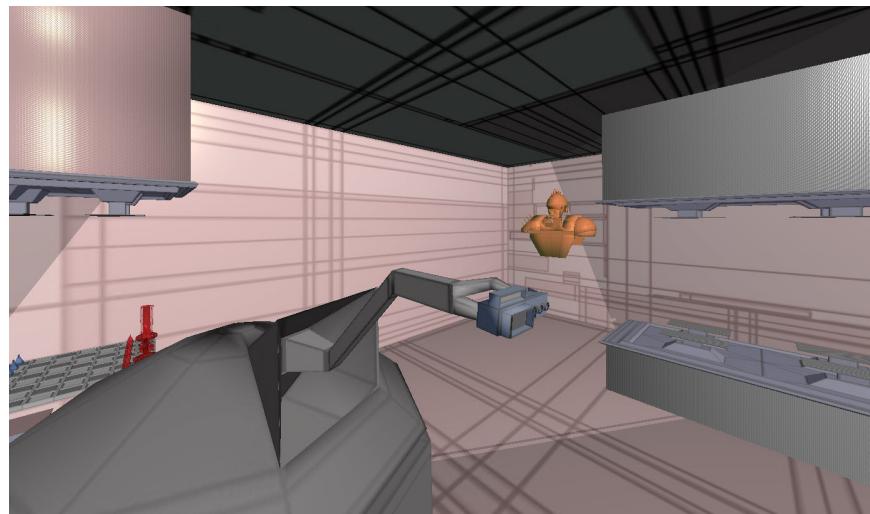
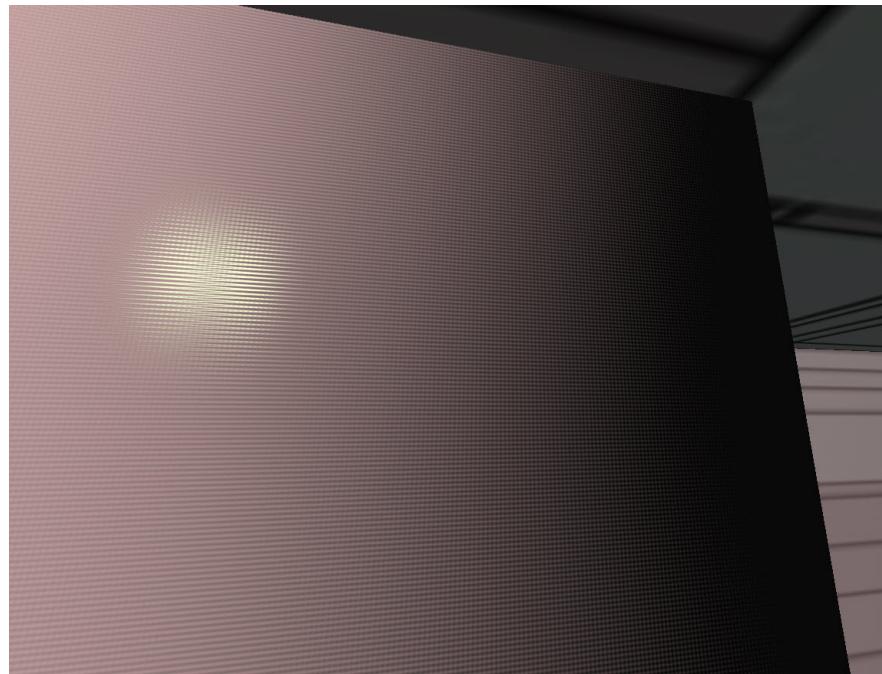
2 & 3 GEOM Mod + Environmental Mapping Features

I already talked about the models specifically. Initially, Furry Knight was intended to be used with the SUB Geometry Shader, but I didn't like the result at all no matter how much I messed with it. The Environmental Mapping is pretty straightforward, I added it to the front and back of the central 'gate' section. In the Schema 1, you will only be able to see the front, but you can always switch to the test mode to see the back (Schema 3).



4 & 5 Procedural Bump Mapping + 3D Texture Features

I broke a part the Holotable once again to procedurally bump map specific parts of it and this was applied to all the Holotables easily enough. As for the little floating, rotating star near Fett's shoulder, I saw him as a little droid companion kind of in the same vein as Tron's Bit was in the original film. It was a model I really liked when I designed it for 165, so happy to see its return!



New Object Sources: Everything Else

You saw the ship in Assignment 3, but it was the ship I built for CSC 165 for the final project. The Star (lower right) was also made for 165, as it was intended as an animated model for the final project, but I could not get it to show up due to animation issues on my computer and lack of time, so I brought it back here. The Warp Gate has also been repurposed from 165 (lower left). The 'Furry Knight' was so named, because I initially tried the Geom subtract program, but didn't like the result. The model comes from an old project I made in Modo that was going to be my animated logo for a film company I was trying to put together. I thought a golden droid seemed like an appropriate reference for the scene.

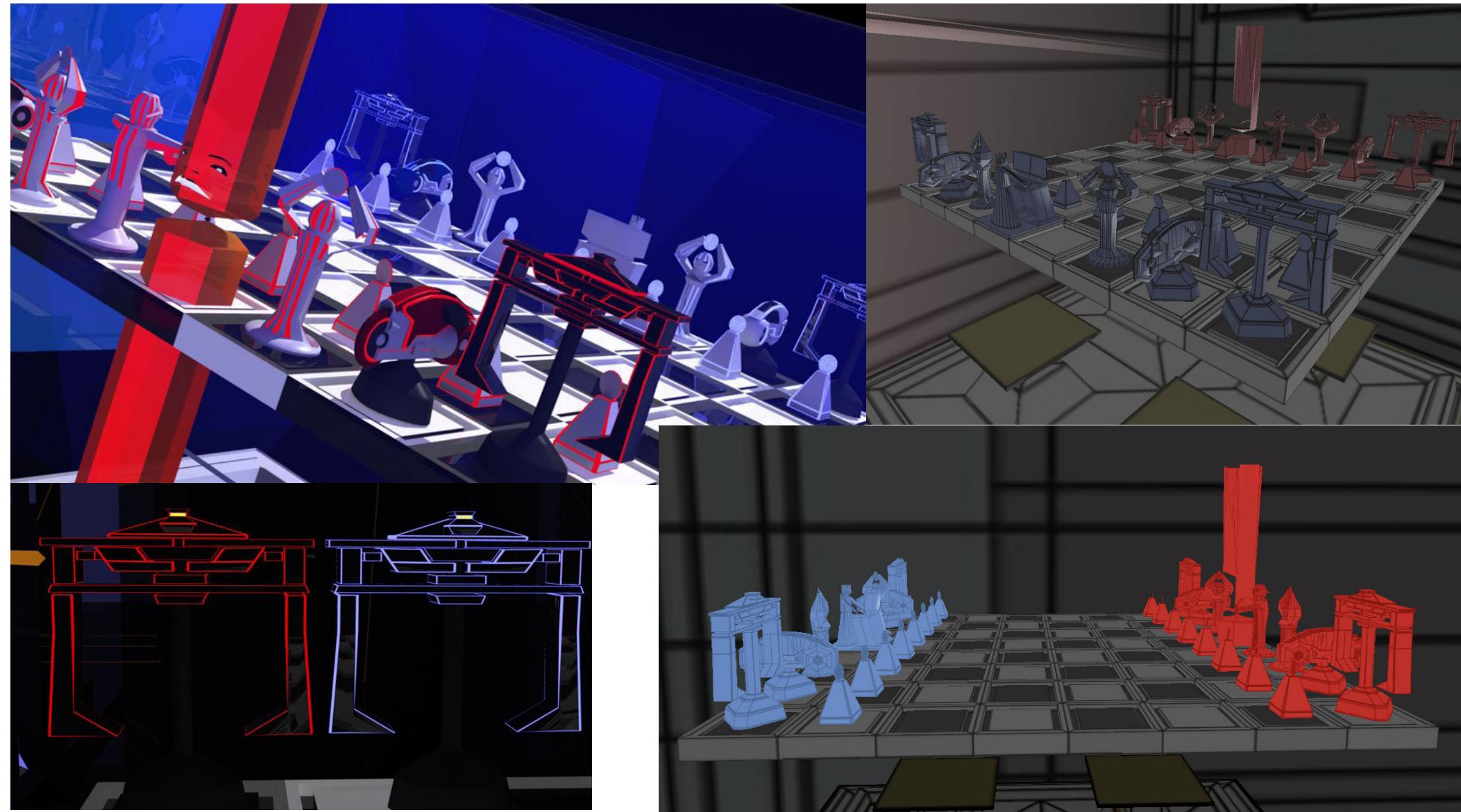


Object Sources:

Tron Chess

Original vs NEW Version

I designed the original version in Modo and it is a more finished result than say the Fett/IG-88 models in terms of materials, as you can see. So the original Tron Chess set has the more idealized polished look to it. The new version, I imported the Holotable and chessboard and each Chess side separately, but applying the same transformations and scale, to keep them in place. This allowed me to retexture them separately, making it manageable.



Object Sources:

Fett and Co

Original vs NEW Version

On the left is the original drawing I did back in High School. The middle is the 3D Model recreation I did in Modo as my final project for a class at Sac City. Unfortunately, it was such a time consuming, ambitious effort, that I could not get the background to work nor the texture/materials on Fett to be fully right. Bringing these models into Assignment 3 was quite challenging with Fett, since he has so many components for the model to texture, but I got it done! Also, I did a lot of rearranging in the scene. The bird building also came from a HS drawing and is in the Modo project, but is not visible from these angles. You might recognize the ship in the background from csc 165.

