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Blender learning made easy

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Tangent Space Normal Maps

Creating Realistic Flame

Blender to Kerkythea

Texture Seam Removal

Roof Tops - Making Of



Making of "Tangrams of Light"

- by Adam Friesen

Introduction

I decided to write this article after receiving an invitation from Blenderart magazine to write an article about the lighting of this piece. To start with the basics, the modeling was done with a bunch of extruded meshes with triangle faces randomly deleted and the materials used were a glossy material for the glass and a cracked material for the hall.

Now on to the lighting

At first I thought, I'll do the usual, try to place lamps to give it an atmospheric effect, but quickly found it was harder than it looks. To try to achieve a good atmospheric effect with proper balance of light and dark is no easy

task. When Broken developed soft shadows for all lamps except hemi, the job got a little easier, but was still no easy feat. I wanted decent contrast within the image as well.

At first, I just popped together some lights of many different colors with shadow lamps for shadows, but as you can see I scrapped that idea and went with a largely single color theme for the lights and very weak Ambient Occlusion. I knew bad lighting could really break the image. I wanted the mood to be dark, but not overly gloomy, but also to have an impression of hope that says it's not all bad, and there's light ahead.

The bright orange-red lights in the back

These were to provide an effect of looking at the bright lights through the glossy surfaces. To give decent contrast, I cranked up the power of the lamps so the gradient from light to dark is visible easily enough without any contrast adjustments in post processing. In both images, lights placements are usually behind several layers and can give the glossy surfaces a kind of glow, giving a better atmospheric effect. In the first image, I used nine of these lamps to provide evenness and thus not cause any unwanted darkening in the corners. I also set the lamps to sphere, the reason I do this is because I can get an idea of just how far any light from those lamps would go. Previous setup attempts included mixing the high powered lights through different areas of the corridor, but the contrast achieved was poor in spots and I didn't wanted that.

The shadow only lamp

Shadows can really help improve the atmospheric of the scene and provide a better

relationship between light and dark as well as bring depth in the scene. Because of the high filter value of the gloss materials, some shadows came out colored as well, which was a wanted effect. Broken's build helped a lot, because it enabled me to use the soft shadows, which look much better aesthetically than sharp shadows. To many sharp shadows everywhere was not an appealing options, as the soft effect treatment for the scene would be shattered. In both images these lamps were usually between the bright lights behind several layers and the camera, they're also usually placed off center, generally at this step lots of test renders were done to see if the position of shadows were good. I also noticed they also made some areas almost black but figured that they helped the mood

The yellowish lights

The two types of lamp I just described can make things look pretty, but that wasn't enough. I knew I could've used a light just in front of the camera to help illuminate some of the closer glossy surfaces a little bit better. This light was mainly for this task, and was placed a little towards the corner for the reason that in the first image, the lighting would've looked too symmetrical otherwise. The second image had the camera even farther from the bright lights in the back, so for this reason I needed a way to illuminate some of the closer surfaces. That light isn't as powerful and used a different color to prevent contrast problems, but also of a harmonious color to match the color scheme, these lamps also cast shadows.

The negative lights

The problem I had with the scene is that it appeared brighter near the camera, and because of that it would be little difficult to draw the viewers eye down the hall, and trust me I've made images where the lighting looked weak. The general goal for using negative lamps was to be darker near the camera rather than down the hall. These lamps were placed near the camera area and made the area almost black giving a reason to look down the hall, and offers smooth increases in brightness farther down, sometimes darkening a little but that's okay.

The effect is more easily seen in the second image, where you can see that the front surface is almost in complete darkness and then you see the transition between light and dark. Sometimes negative lights are important in drawing the viewers eye. Here, you don't want the viewer looking at the edges or the front, but draw him towards the brighter area. As you notice in the second image, the first surface in the way is darkly illuminated to give an impression of it being in front of the brighter surfaces behind it and to draw the eye towards the brighter area. Noticing the surface layer, I know I've done this on purpose as part of providing the mood.

Summary

So it took me hours of lighting setup to get a good relation with color, light, and dark. Almost any

material can be enhanced with the right lighting. Lighting to draw the eye, lighting to provide contrast, or lighting to provide a seemingly mysterious glow in an area to attract the viewer. Lighting with shadows to help provide the mood, as a great deal of moodiness is set by the lights. In this scene bright lights can bring about a generic place mood, but here you see that the lights and the darkness purposely left and brought in, sets a sort of mysterious mood that intrigues the viewer, materials are enhanced like as in glossy transparent materials where a light from behind can give them a surreal glow or SSS materials can use lights to give it a glow in an area that contributes to the scene rather than take away from it.



Lighting can help achieve what your vision for the image is, which is maybe to scare, intrigue, or interest viewers, I also purposely left the AO to be very weak as I needed dark space in the latter ideas of how to light it as I wanted this to be sort of dark but not overly gloomy and have areas of light where your eye doesn't have to remain in darkness, or if you're in that dark hall then you may find there's hope to be found in the red area. But take heed that in scenes like this, atmospheric lighting can be tricky and it may take a number of lighting setups and many test renders to get it right.

This image was ripe for atmospheric lighting and for many abstract type pieces, finding and placing the right lights with the right shadows could be the difference between making it good or being slammed into oblivion with comments about bad lighting.

Hope you Enjoyed. Happy blending!

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Adam Friesen is a graduate of Maize High School in Maize, Kansas. He is presently involved in 3D art production and is an active member of the Blender community.