

I would like to illustrate and reflect on this group assignment in three stages.

### **Technical vision and story creation phase.**

I chose the theme from everyday objects to fantasy objects. I like this subject for two reasons. First of all, I like fantasy themes very much. I have watched a lot of fantasy movies and studied ordinary objects personification in Pixar animation. I like to observe the things around me and make them look like things in fairy tales with my rich imagination. Secondly, in terms of my skills and specialties, I am good at design and modeling of various styles, which can realize objects from plane to finished products. I believe my skills are well suited to this topic.

Through the joint activities organized by the school between various majors, I met a lot of friends from other majors and decided to work with 2D animation students to do an animation project combining 2D and 3D. I think the benefits are, first of all, for 3d, once it comes to character animation will greatly increase the workload, whether it is modeling to binding or to k-frames, so 2d drawing characters is undoubtedly a good choice, but also better reflect the animation effect, more tension. Secondly, for 2d, the most difficult point is the overall perspective and the huge workload of painting the background. Therefore, 3d scenes and 2d characters combined is a good choice.

Using blender to produce animation combining 3d scenes and 2d characters was the original idea. But the main difficulties we envisioned were: 1. shadows. 2d character drawing is equivalent to a face piece inside blender, just under a specific camera angle that can be displayed as a complete image. It is not a 3d object, so it does not project shadows directly as in traditional 3d scenes. So how to generate shadows is the part we have to consider. We give the solution or by hand. 2. character highlighting. The reason is the same as the shadow. But through youtube tutorials, we found that the right light source can give a highlight to the face piece. This is one of the methods we want to try. If not, only by direct drawing method.

Then came the group discussion of the story stage. At first, we just envisioned a very everyday item, the coin. On this basis all group members discussed together and used their imagination. We decided to give it a few different layers of meaning and then a fantastical story.

Rights: Coin with the king's head on it

Greed: Fight for treasure

Hope: Throw coins into the wishing well

Also, a schedule was prepared to ensure that the animation could be completed within a manageable time frame.

### **Production and personal responsibility phase**

The part I am responsible for is the 3d scene. The original three scenes were the wishing pool, the throne and the desert. I started with the wishing pool, followed the tutorial to learn a secondary effect 3d water node. Later, according to the will of the 2d temporarily canceled the progress of the wishing pool, proceeded to the desert and the production of the throne. Finally added the scene inside the cave.

Desert scene: this is the most time-consuming scene, mainly because I want to achieve a

stylized three rendering two effects, so try a lot of different material nodes, very tangled, which can be seen in my blog process. The traditional three rendering two nodes are mainly composed of three solid colors, respectively, the original color of the object, the color of the light surface and shadow color, characterized by a relatively clear boundary between the colors, the excess is not soft. But if the pure three colors do the material, out of the feeling similar to the style of flash animation, I am not very satisfied. So according to the online tutorials plus the texture, constantly adjust the size and position of the texture, and finally achieve a more subtle effect. Another one is the stroke. Three rendering two has a cartoon and hand-drawn feeling, is because of its clear outline. There are many ways to add edges inside blender, I also summarized. freestyle, a key stroke scene, very convenient, but only after rendering to see the specific effect. The specific position of the stroke is determined by the corner of the turn. Crayon, more convenient, you can choose the whole scene stroke, you can also choose the specific stroke object. You can see the rendering effect in real time. The disadvantage is that the model of the stroke if the number of faces is too high, it may cause the whole file is very stuck. These two are blender's own effects, the advantage is very convenient, the disadvantage is that the effect out of the general. There is also a way to add materialization to the item and reverse it after the last material, which is the last method I chose. However, these three strokes have a common problem, the stroke line will have a little depth-of-field effect. This is also and 2d sense of the part of the violation.

Throne scene: overall I made a style scene between realistic and secondary style. This is because I want to highlight the details of the part, so the main throne is also drawn with sp a metal map up. But at the same time, weakened the part of writing its realistic materials, such as metallic, specular, etc.. On the lighting, choose to meet the dramatic sense of the stage lighting, with a spotlight to highlight the theme. In addition, then use a daylight to lay a large range of light, resulting in glow luminous effect. At the same time, the use of Eevee renderer can highlight its secondary effects. This renderer, although it will never beat path tracing engines, especially in the areas of "global lighting", "refraction" and "focal dispersion", is fast, with volume rendering, sub surface scattering, hair support, powerful Shader-to-RGB nodes for NPR shading, and recently added Motion Blur and Cryptomatte support. This results in it not being realistic and realistic, but having a bit more of a secondary effect.

The cave scene: This is the one that I struggled with the most and was not satisfied with. The problems I encountered was that the hole as a whole was encased and it did not have any light source hitting in itself. The most important thing for a triple rendered material is to have a clear light source to form the main color, highlight color and shadow color. Therefore, this scene could not use the material node of the three renderings, which once bothered me a lot. Therefore, I had to use the traditional 3d material, out of the effect I am not very satisfied.

## **Self-reflection stage**

1. There is a problem with time management. We made a good schedule at the beginning, and as a rule, we should strictly follow it, but in the end, there was a situation that the 2D animator did not finish drawing. I think I also have a problem. Our schedule should have been that I finished making the white film, my classmates finished the camera lens, immediately handed over to the 2D animator to draw the lines, then I finished the material, and they

colored it according to the main atmosphere. The three scenes were staggered with each other so that we could make sure everyone was working at the same time. But the reality was that after I handed in the white model and finished the camera, they were still waiting for me to finish the material and then the line drawing, and by the final deadline the king scene was finished with the line drawing. In fact, I should have let the 2D animation synchronize the process when I finished the scene a few weeks ago. This is also the problem of my miscommunication, as a team member, there is not so strict pre-post, we should be busy together at the same time, to help each other.

2. I am not mature enough and not skilled in using blender. I found it hard to restore a certain 2D style perfectly, because I was not skilled in mastering the material nodes. I joked with my friend that I couldn't ask what I would make at the beginning, I had to wait until I was done to tell you what I had made. That sounds really bad. But there is a real confusion when it comes to mastering stylized scenes. It's not like realistic scenes where there's a very clear reference, and you have to rely more on your own art aesthetics to determine what looks good. In addition, not every stylized tutorial can be taught, and I am not strong enough to TA to write their own very complex material nodes. This is the difficulty of stylization.