COLLABORATIVE UNIT

(STARRY TREE)

Jiawei Chen (21006900)

SYNOPSIS

A little rabbit living in the forest finds a strange sapling outside his home one day. The sapling was small and unremarkable, but the little rabbit felt drawn to it and decided to take care of it. As time passed, the sapling began to transform. Its leaves turned into dazzling stars that shimmered and twinkled in the sunlight.

PRODUCTION TYPE

3D Animation

GENRE

Fantasy, Magical, Dream

MY CONTRIBUTION

Character modelling & texturing, Rigging, Character animation

LINKS

Final Animation （https://youtu.be/mtHfH9NUXuI）

Showreel (https://youtu.be/oZzBub2xo7o)

Blog (https://jchen.myblog.arts.ac.uk/category/collaborative/)

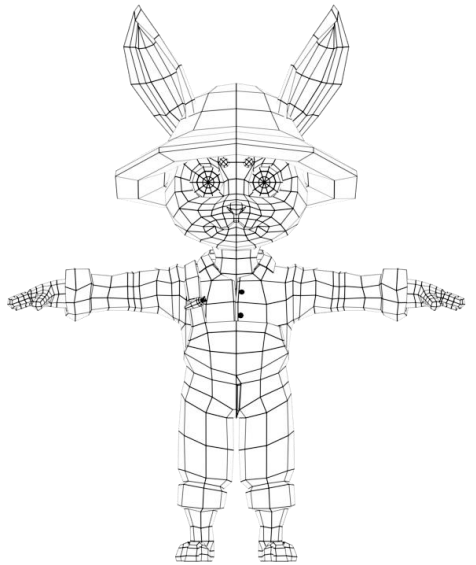
MODELLING

ANALYSES

This model was created entirely using Maya. As it is a low-poly style model, I kept the final polygon faces count below 3000. Additionally, I made the model symmetrical to accommodate rigging needs, and I created edge loops on each joint to allow for proper rigging. Except for the eyes, the character's facial features are not intended to be movable. Therefore, I only created the mouth's overview and did not extrude it to create a mouth cavity.

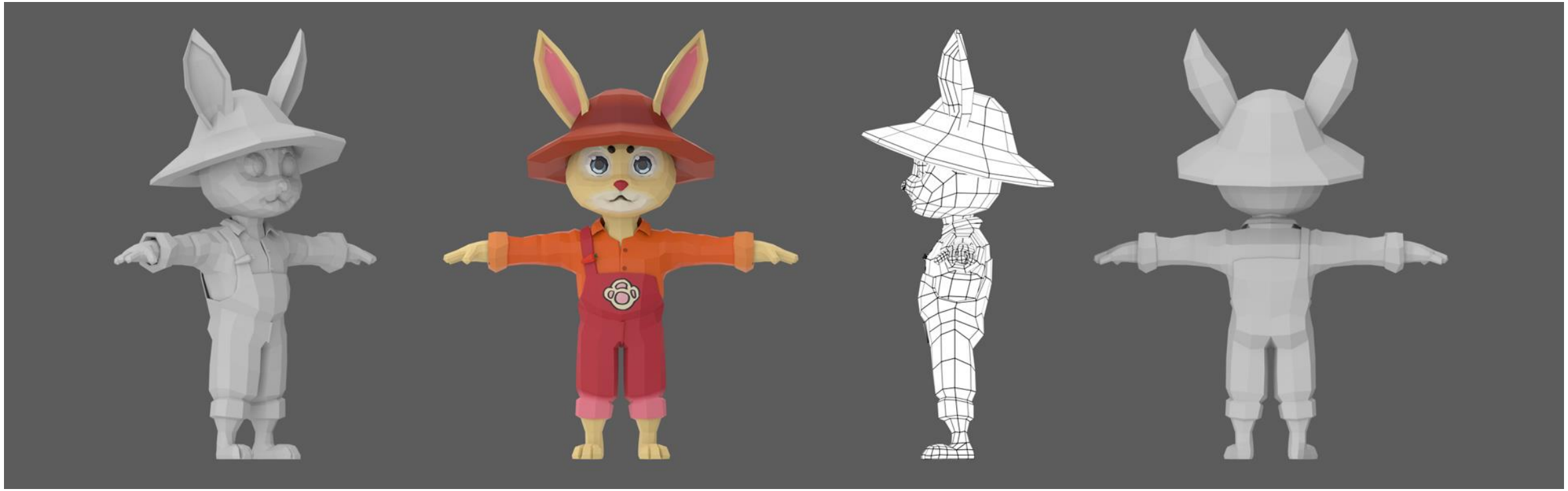
Also noticeable is that the outlines of the characters are all hard-edged, which is a unique artistic effect of the low-poly style. This is the first time I have created a low-poly style character model, so I looked for many references of similar character models to grasp the style and effects, and thus discovered this distinctive hard-edge style effect.

The texturing part was created using Substance Painter, which was a simple step. All I had to do was follow the character design and paint the model with color textures, without the need to create metalness, roughness, reflection, and normal maps, among others. This was also the result of our team discussion, as the materials creation will be completed and rendered in UE4.



CHARACTER TURNTABLE ANIMATION

- Link (https://youtu.be/b8MPkrAV6W4)

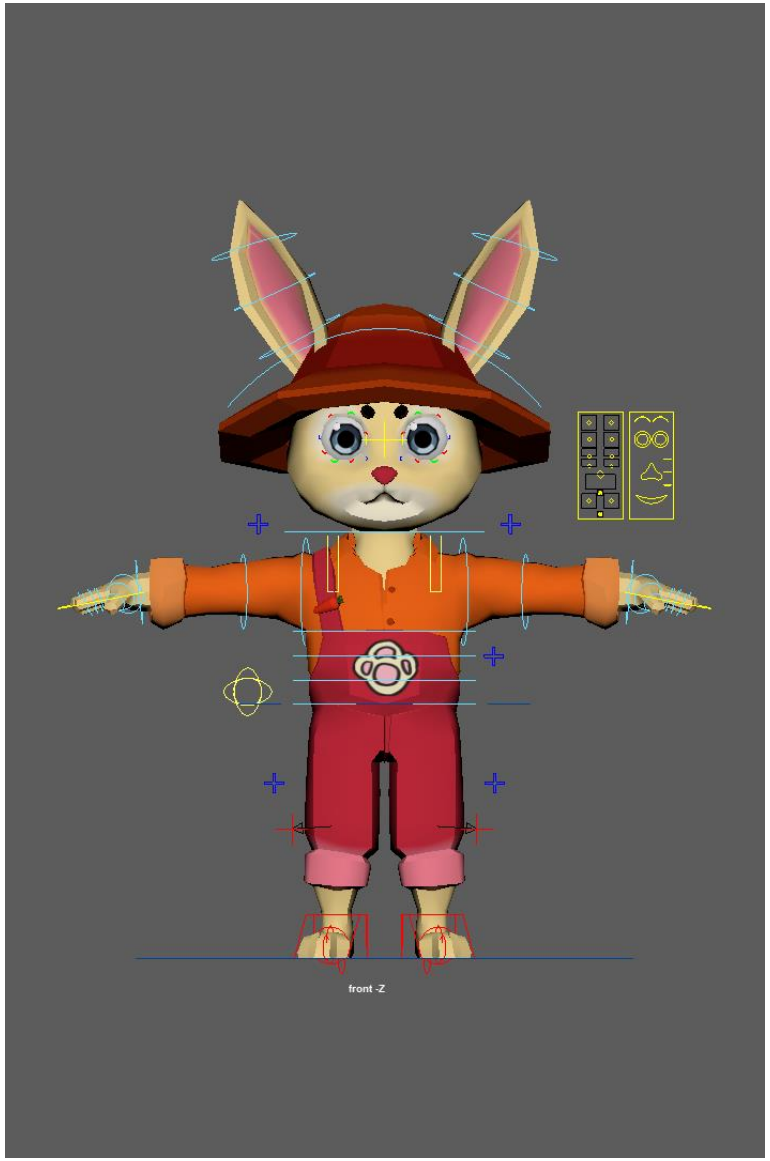


RIGGING

ANALYSES

For character rigging, I used the Advanced Skeleton plugin in Maya, which is a tool that allows for quick setup of skeletons and generating controllers. Since the character model is symmetrical, I've only painted skin weights for one side, and then used the mirror skin weights tool to transfer the weights to the other side and make them symmetrical.

In the latest update of the Advanced Skeleton plugin, a new feature was added that allows for rigging only the eyes when rigging the face, without generating bones and controllers for other facial features. This is exactly what I needed for this project, as only the eyes required animation. After completing the full rigging process, I conducted a rigging test by rotating and stretching the controllers to the maximum range of character movement, checking whether it met the requirements for animation production.



Link (https://youtu.be/njLNe7I_Vuw)

CHARACTER ANIMATION TEST

- Link (https://youtu.be/_Nbe5idRhts)

ANIMATION (Shot 01)

ANALYSES

The first character animation shot, apart from running and walking animations, is a rabbit jumping down the stairs, with an expected duration of 3 seconds.

When creating this animation, I was thinking about how to showcase the agility of the rabbit, as its face is almost immobile, so I needed to demonstrate its flexibility through its movements. To preserve the original jumping style of the rabbit, I created the action of the rabbit jumping down as a double-footed jump, which also matches the character's image as a small rabbit.

Link (https://youtu.be/eZXBPvNJhHw)

ANIMATION (Shot 02)

ANALYSES

This shot features a close-up of the rabbit's face as it looks at a small sapling for the first time, feeling greatly perplexed by this unfamiliar growth emerging from the ground. The shot is intended to last for two seconds.

When creating this shot, my objective was to express the character's feeling of confusion without relying on facial animations. I found that resting the chin on the hand is a gesture that represents deep contemplation, and combined with a slight movement of the head, I aimed to convey the character's sense of puzzlement to the audience.

Link (https://youtu.be/BuuCtNmE0Cc)

ANIMATION (Shot 03)

ANALYSES

This shot is a continuation of the previous shot where the rabbit is confused while looking at the small sapling in front of it. The expected duration of this shot is approximately 6 seconds.

In keeping with the same emotional context as the previous shot, I intended to incorporate some distinct motion variations, starting with resting the chin on the hand, then placing the hands on the waist, and finally spreading the hands out in confusion. The rationale behind this design is that when the rabbit sees the small sapling, it initially feels puzzled and begins to contemplate what it could be, and he still has no clue. Finally, he raises both hands in a gesture of surrender and says, "Anyway, I don't care what it is."

Link (https://youtu.be/7cU9nt1yp3I)

ANIMATION (Shot 04)

ANALYSES

This shot is from a different timeline, where numerous days and nights have gone by, and the young sapling has slowly grown taller. One day, the rabbit comes to inspect the growth of the sapling, expressing its interest in the tree's progress. The estimated length of this shot is between 6 to 8 seconds.

During the creation of this animation, the character walks into the shot from a blank frame, so I need to allocate approximately 2 seconds to allow the audience to experience the transformation from nothing to something. When the character enters the shot, I initially created a walk cycle animation and then manipulated the character's master position controller to align with the walking pace. After the character glanced at the sapling and verified that it was flourishing, he turned and exited the shot.

Link (https://youtu.be/ZcxFfoSypJw)

ANIMATION (Shot 05)

ANALYSES

This shot is an over-the-shoulder perspective, featuring the character gazing at a towering tree adorned with stars, and it is approximately two seconds long.

This is an only 2 sec shot, and its main aim is to demonstrate the comparison between the character's and tree's size, a massive star tree and a small rabbit, respectively. Since only half of the character's body is required to be shown in the movement, the key focus lies in the follow through and overlapping action of the body and the lifted head.

Link (https://youtu.be/qGDcMz-mM5E)

REFLECTION

I am thrilled that this project has been completed successfully. This is the result of the efforts and labor put in by every member of our team. Although there were difficulties and impediments along the way, the outcome is unquestionably satisfying. The final render of the animation still lacks some polish due to time constraints. In the areas that I was responsible for, such as character modelling, texturing, rigging, and animation, there are still numerous detail-related areas that can be enhanced.

The model's overall appearance and the degree of authenticity of the character design are relatively high. As this production was created in the lowpoly style, however, there are still control issues with the style. Due to the excessively smooth of the characters, when using solid-colored textures, the lack of sufficient reflection angles during rendering caused a lack of detail in the characters, preventing them from reaching the expected level of sophistication. Due to inexperience, the material and texture renderings in the UE4 engine were slightly oversaturated. The overall tone of the characters and scenes deviated due to the omission of layered rendering, a subject that also requires additional study and adjustment.

Regarding rigging, there are few glaring concerns. However, it is essential to take special note to the wireframe's setting. At the joints, additional rigging lines should be added to make the model's skin weights appear more natural.

Finally, for the character animation section, this was the aspect where I spent the most time. The actions were based on the 2D layout as a reference, but when creating the 3D animation, some pose adjustments were not aesthetically pleasing, and the transitions between key poses were not natural enough, leading to a lack of overall fluidity in the actions. Although a large part of this is due to time constraints, having a proper animation production process would greatly increase efficiency. Additionally, I underestimated the time it would take to create the animations. I created about 30 seconds of character animations in total, and my initial expectation was to complete them within a week, but it ultimately took more than two weeks to finish them, which undoubtedly delayed the progress of the entire project. This is something I need to pay special attention to in the future, including when making FMP animations.