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- BA Hons Animation
- Unit: Exploratory Practice: Game Arts



Brief

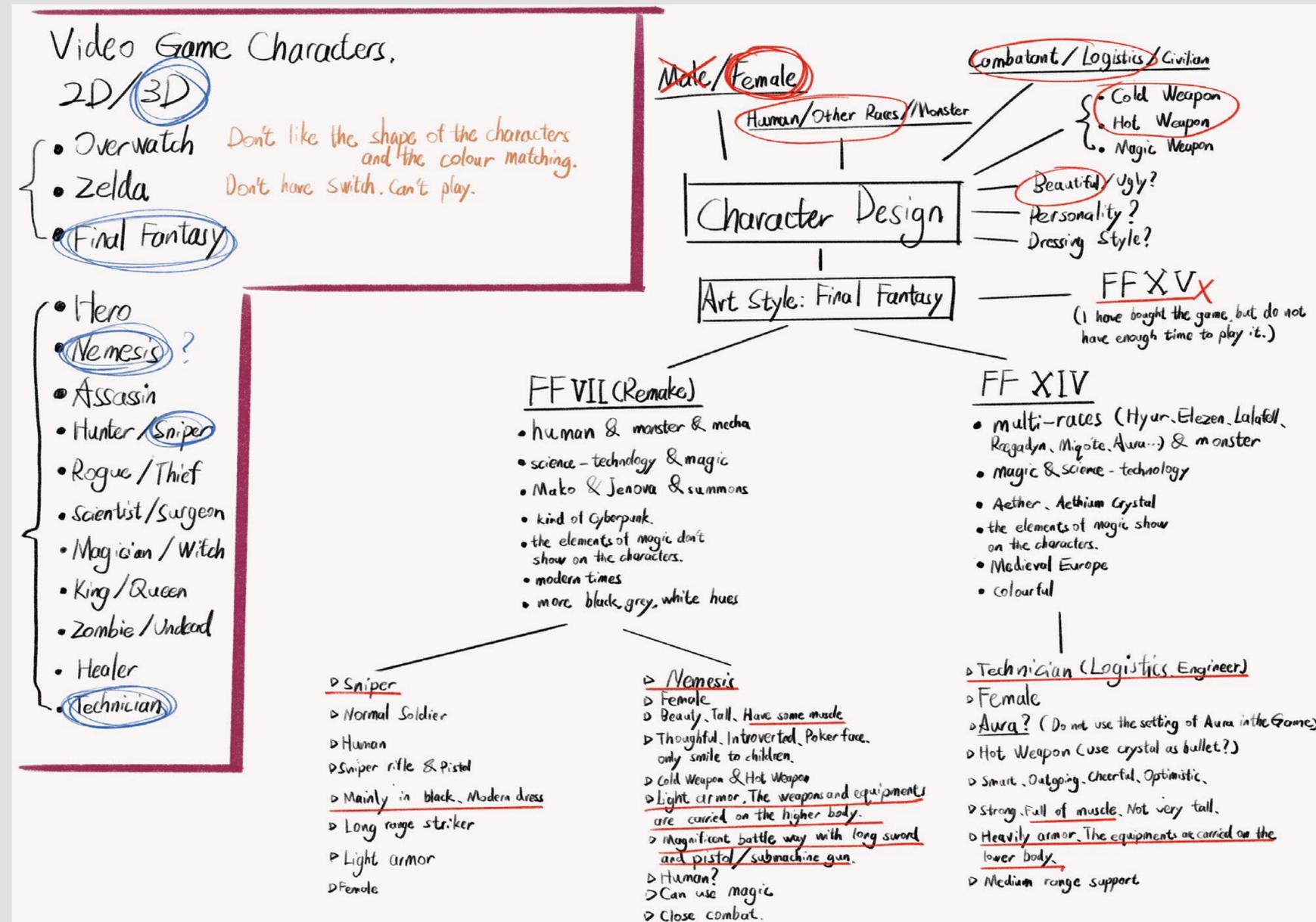
This project is about creating and modelling a character in 2D or 3D. For 2D, we need to animate the character in different poses, and for 3D, we need to rig and skin the character. We can choose a style from three series of games: **Overwatch**, **Zelda** and **Final Fantasy**. And also we need to choose an Archetype for the character from a number of options. (see the mindmap)

Initial Idea

Due to my original art style is a little bit close to the style of Overwatch, I worried about that I would create a robot again if I choose **Overwatch** as my style. For **Zelda**, I do not have a switch which allows me to reach the art style. And I was interested in the series of **Final Fantasy**, so I chose **Final Fantasy** as the style for my character. However **FF** has a lot of series, I chose **Final Fantasy 7 (Remake)**, **Final Fantasy 14** and **Final Fantasy 15**. Due to the time for researching was not enough, I gave up researching on **FF15**. I believe the fastest way of understanding a kind of art style of a game is play that game, so I not only read the art books of two games, but also played games and took a lot of screenshots while playing. So for **FF7(Remake)**, it is based on a kind of wasteland punk or cyberpunk world, but the world of **FF14** is more like a combination of magic and technology. Based on **FF7**, I was thinking create a sniper or a kind of nemesis, based on **FF14**, I was thinking create a technician.



Mindmap



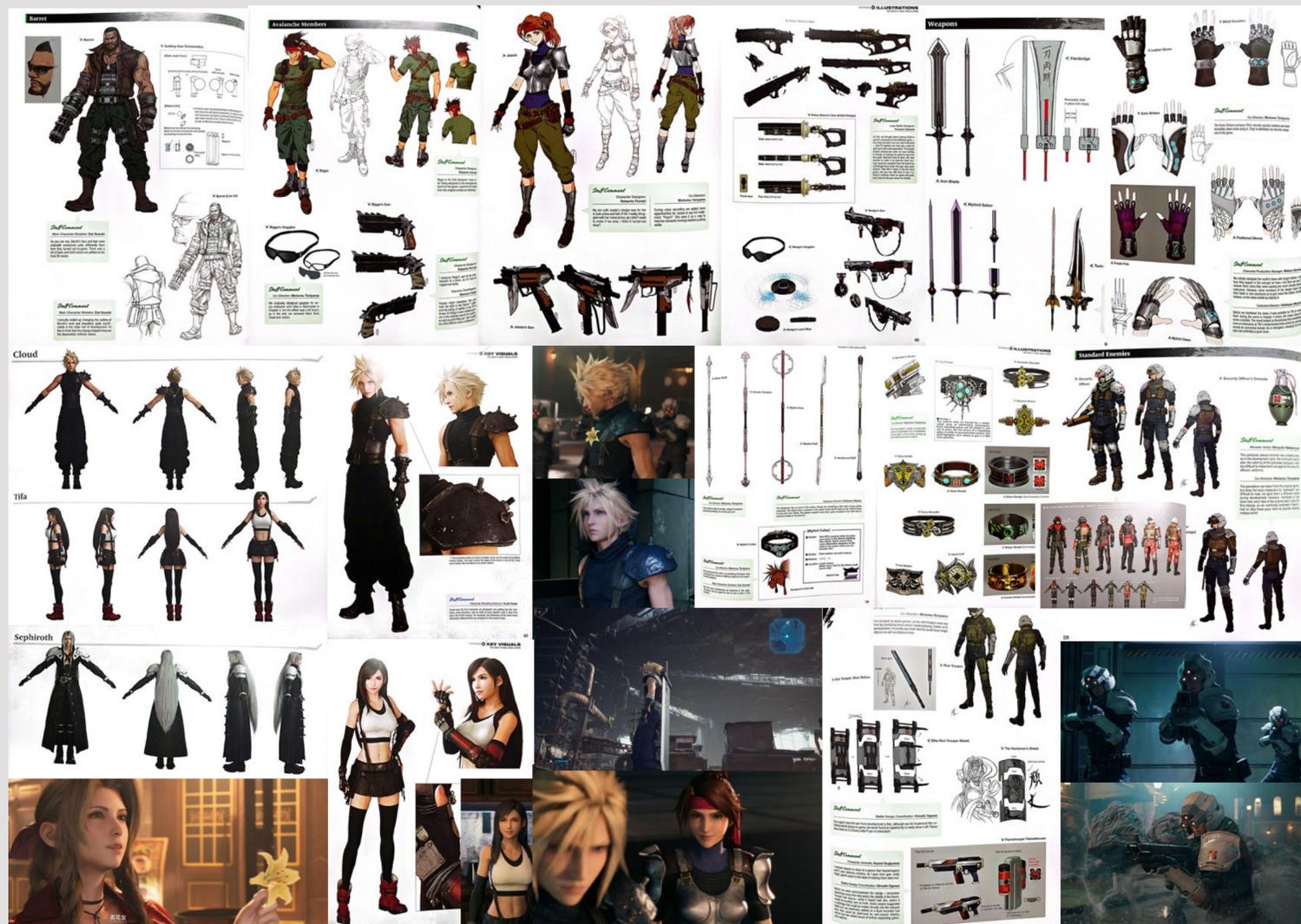
Some Quick Sketches of The Character



Moodboard

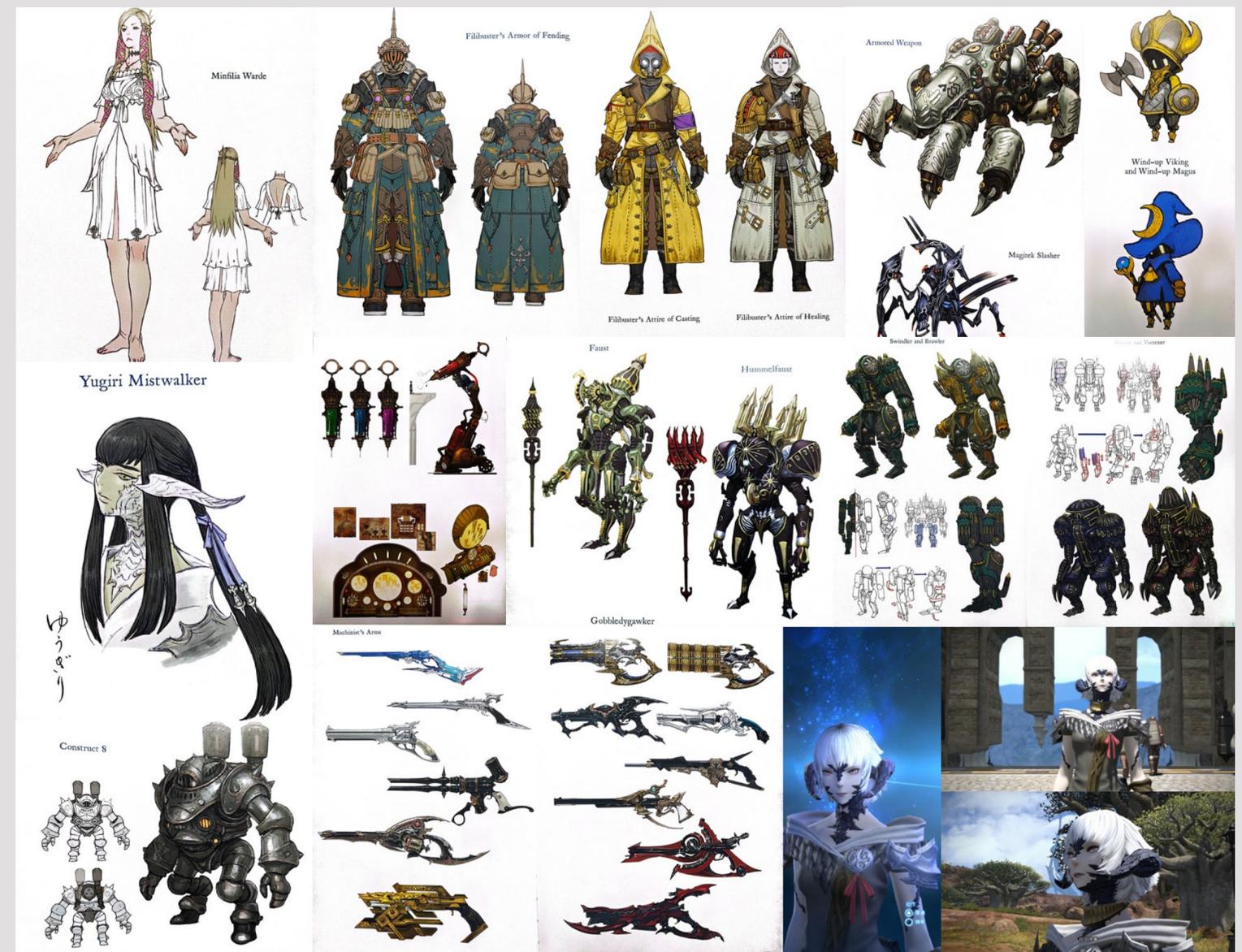
• FF7

The clothing style of the characters in *FF7* is more punk. Most of the main characters wear modern clothes with medieval armor, this style is kind of weird but it makes sense in the world of the game. I thought my nemesis would close to this style. However the armor of the villain soldiers in the game looks more technological. I found a lot of art designs for both styles as references. I especially like the design of Jessie, she has a sense of the contrast of the times. She wears chain mail but fights with guns, which gave me a lot of ideas about my nemesis.



• FF14

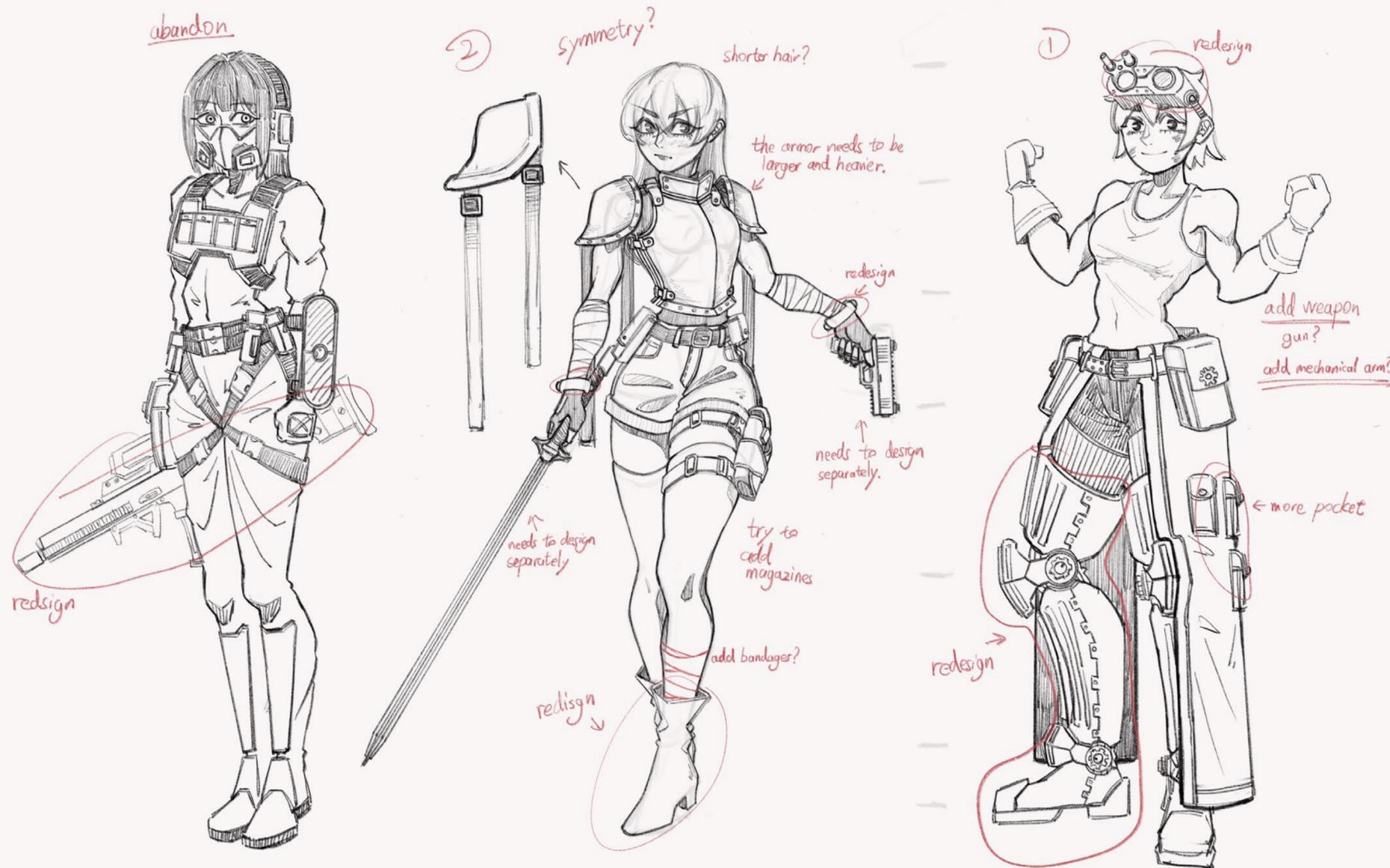
As I wanted to create a technician under the *FF14* style, I found a lot of clothes design and weapon design in *FF14* about technician or in some kind of steam punk style. Most are from the art set book *Final Fantasy XIV Heavensward The Art of Ishgard*. I also played the game to research the art style, and in the game, my race is Aura, I would like to continue use this setting on the character of this project.



2D Character Design

• Drafts

I did three rough drafts of the character I had chosen, and I highlighted the areas which need to be improved. After some feedback, I chose the technician as my character. The character was designed that upper body was barely armored, and the lower body was heavily armored. She was designed as a bright and cheerful girl, her main weapon would be some kind of musket. I spent a lot of time to design her armor on legs so that could seem more reasonable.

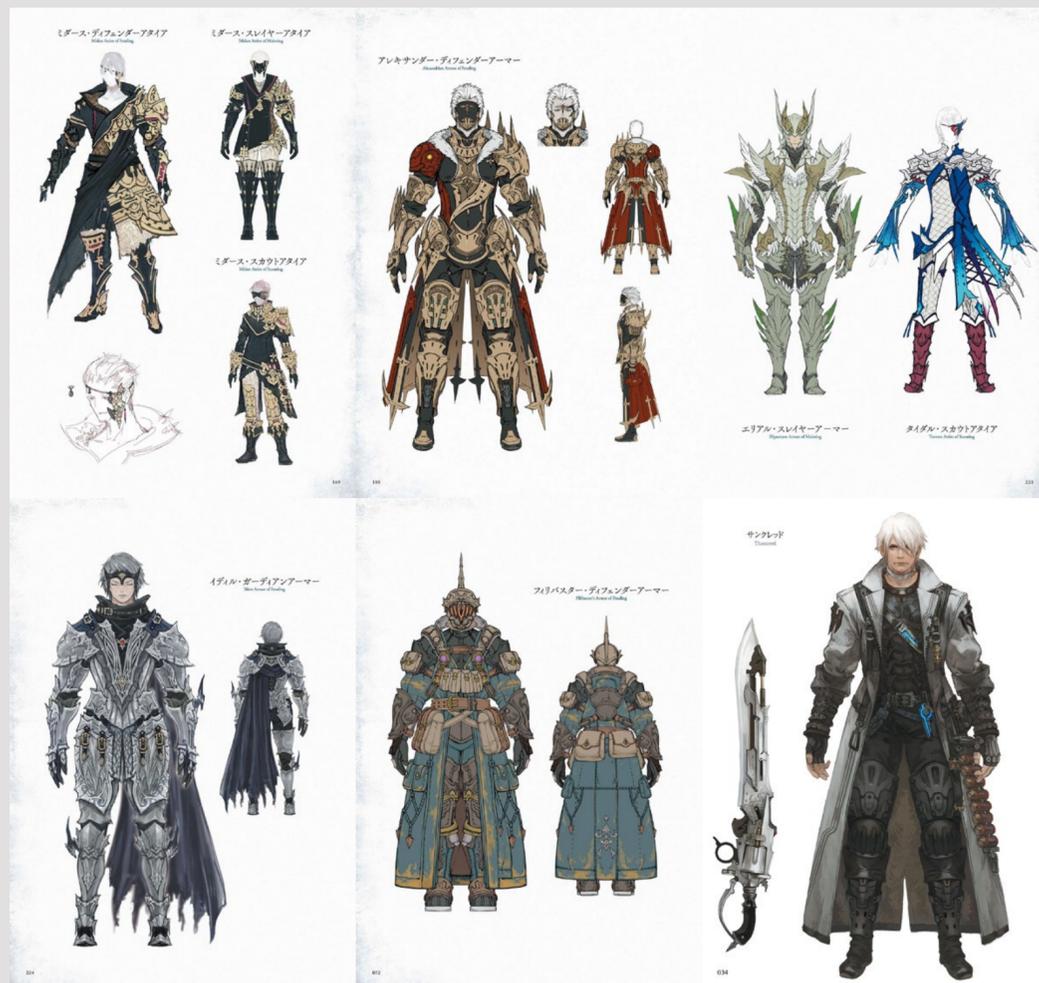


2D Character Design

• Color Matching

When I had a draft of the character front view, I started to think about the colour matching of this character. I found a lot of clothes design in the *FF14* with the colour matching that I thought could be used as references. And I made seven sample of the colour matching, I also added some belts and pockets as details. After I asked my classmates and teacher for their suggestions, I finally chose the right one. Dark gray with dark brown, plus some red and gold as embellishment. Compare with the other options, this one looks more industrial, more like a technician.

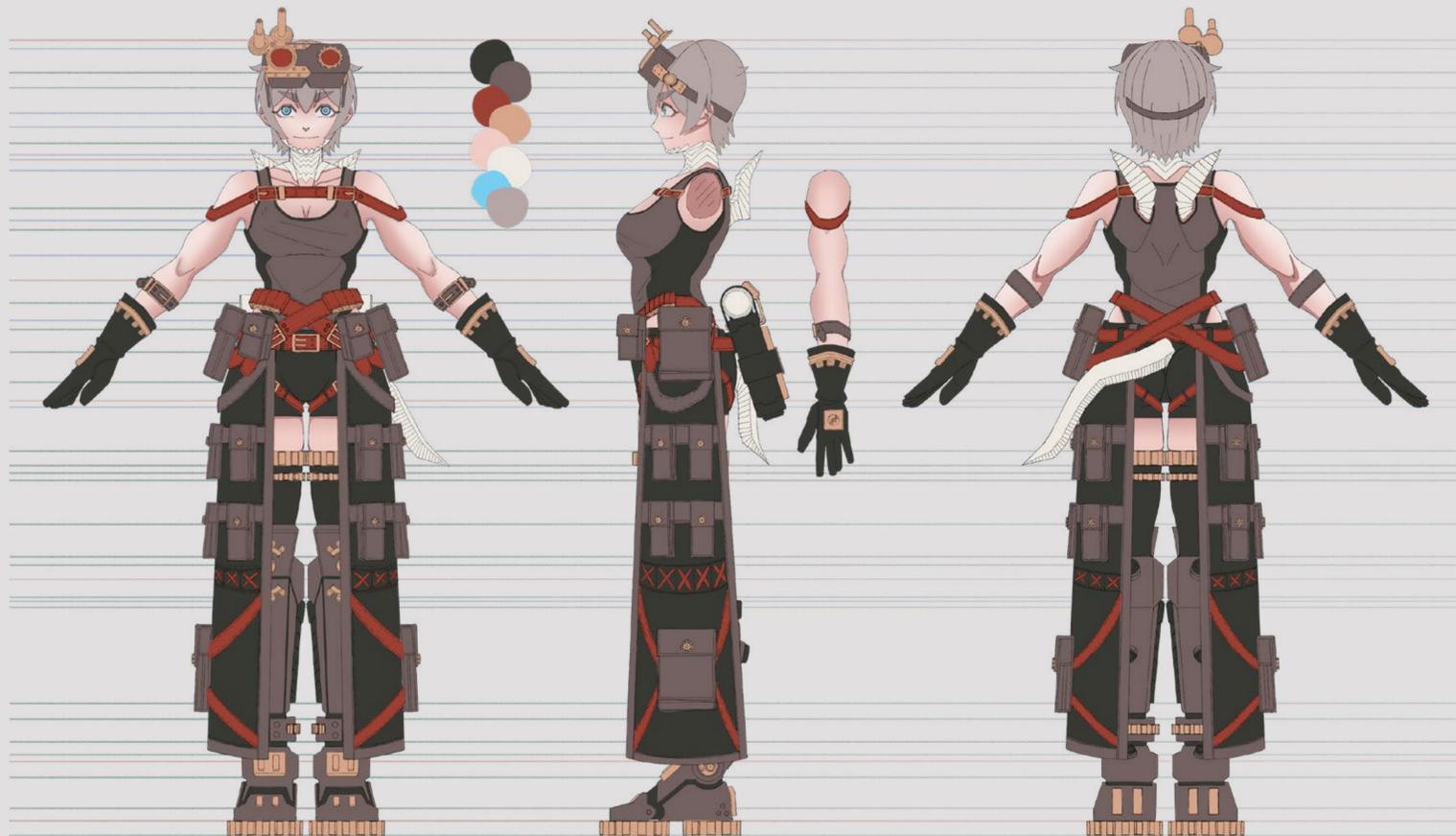
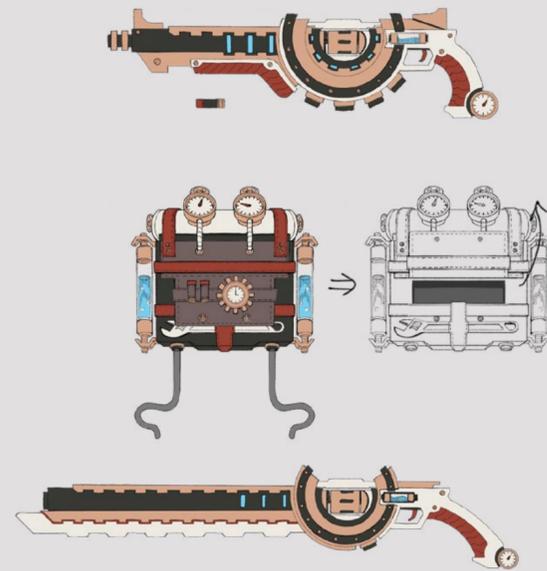
▼ Some References of The Color Matching



2D Character Design

• Model Sheet & Character Portraits

After I decided the colour matching, I finished the model sheet. I changed some colours and some details to make the whole character more harmonious. I also moved the horns of the Aura in *FF14* from her face to her back. I also finished the design of the weapons. I equipped her with a musket and a gun blade. But I didn't think that I would have enough time to build them in 3D at this stage. I also draw some illustrations of this character with poses which allow me to confirm the atmosphere of the character.



3D Character Modelling

• High Poly Model

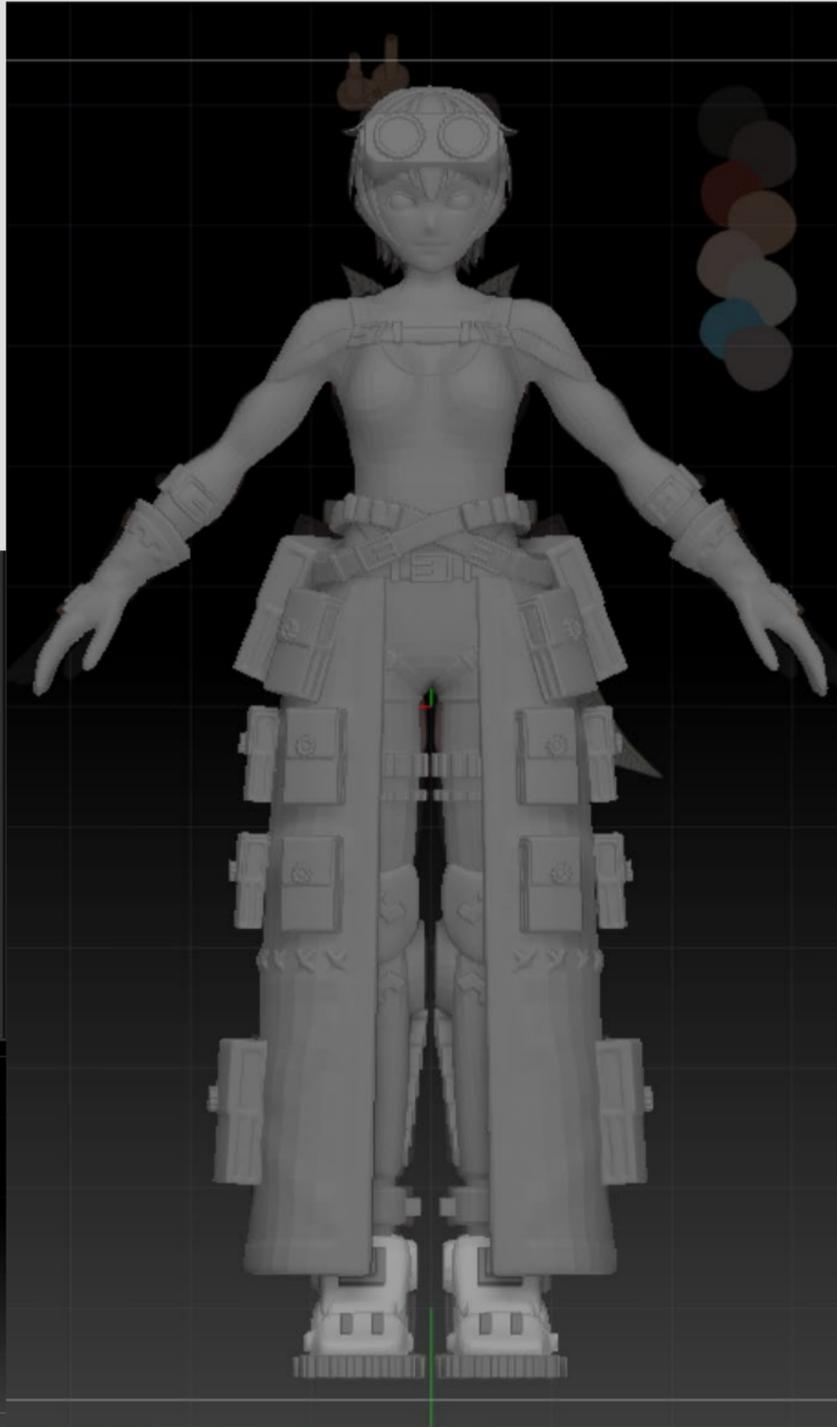
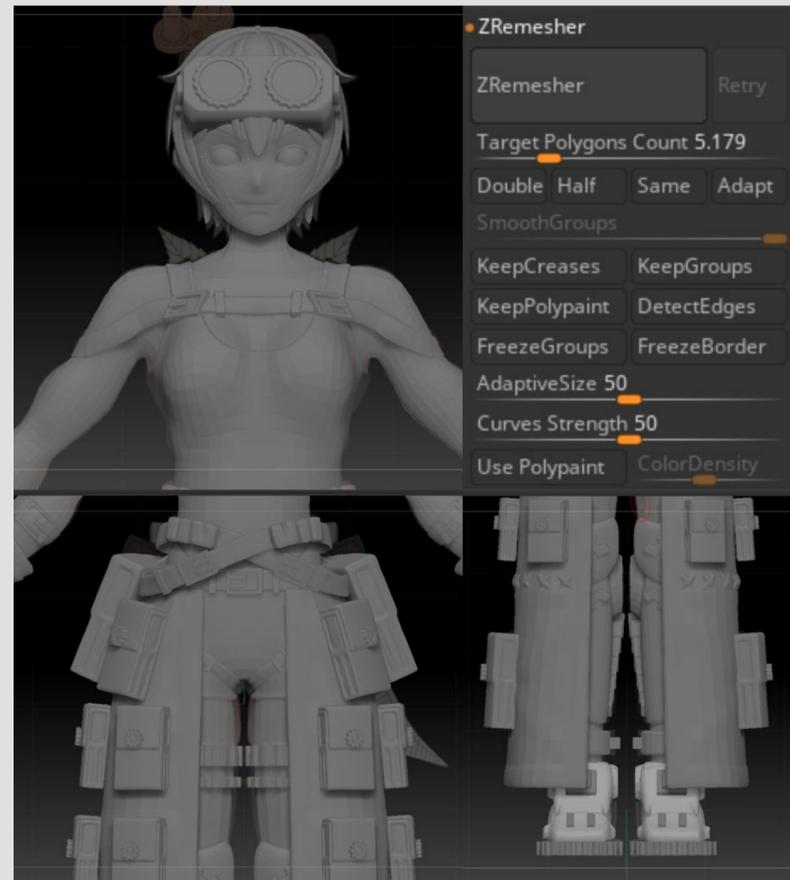
After I finished design of the 2D part, I started to build the 3D model. In fact I tried building low polygon model of the character in Maya, but it didn't seem so good. Then I had to use Zbrush to make the high polygon model first. Cause this is my first time use Zbrush to make a model from 0, I used a lot of time to be familiar with the basic operation of Zbrush. Then I started making the head through sculpturing a sphere. And I made the body also through spheres. Due to I was making the high polygon model, I didn't need to care about the number of the polgon. I used cutting tools to make those hard surfaces however I decided to rebuild those hard surfaces in maya. Cause I thought that Zbrush was not very good at making the topology of the hard surfaces.



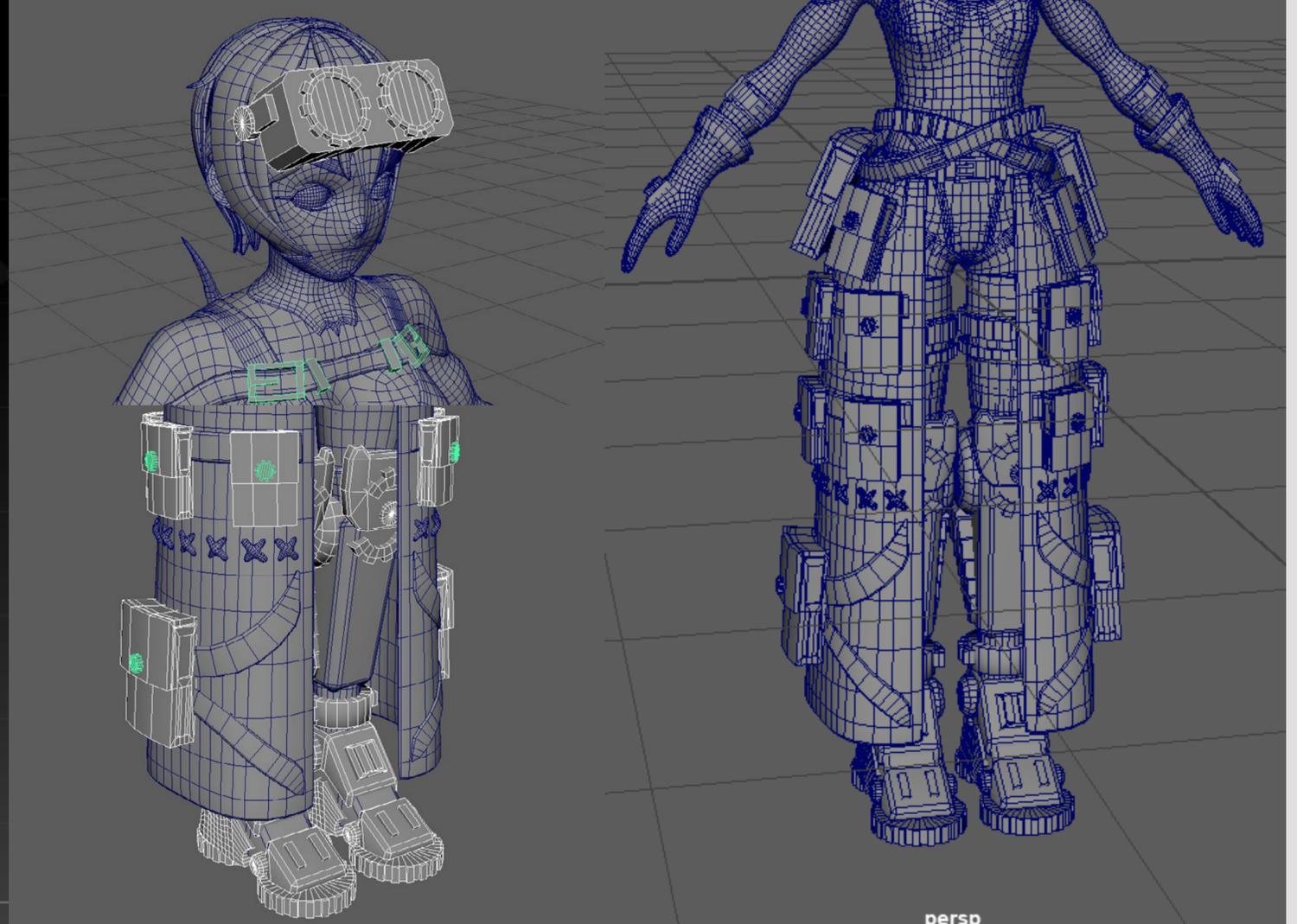
3D Character Modelling

• Low Poly Model

I continued to make the low polygon model of some parts of the character in Zbrush after I finished the high polygon. At this step I mainly made the low polygon for those soft surfaces. I used ZRemesher to reduced the number of polygons. Then I export the whole model as FBX and import into Maya, and tried to delete as many cyclic edges as possible.



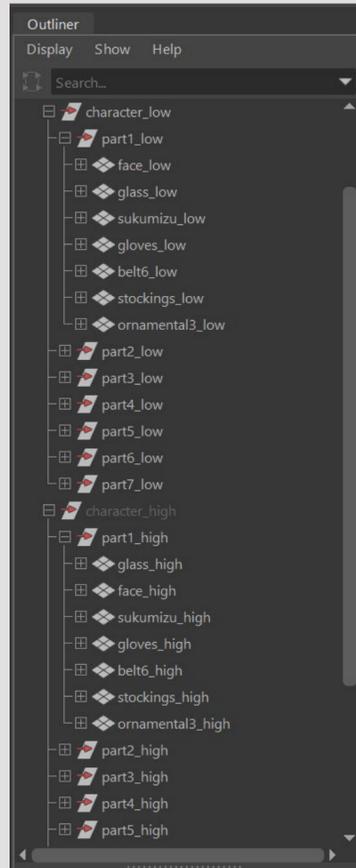
I remade those parts of hard surfaces like gears, pockets and belt buckles in low polygon and then make the high polygon model by using the Bevel Components. And put the high polygon model and the low polygon model in the same position in Maya.



persp

3D Character Modelling

• Baking



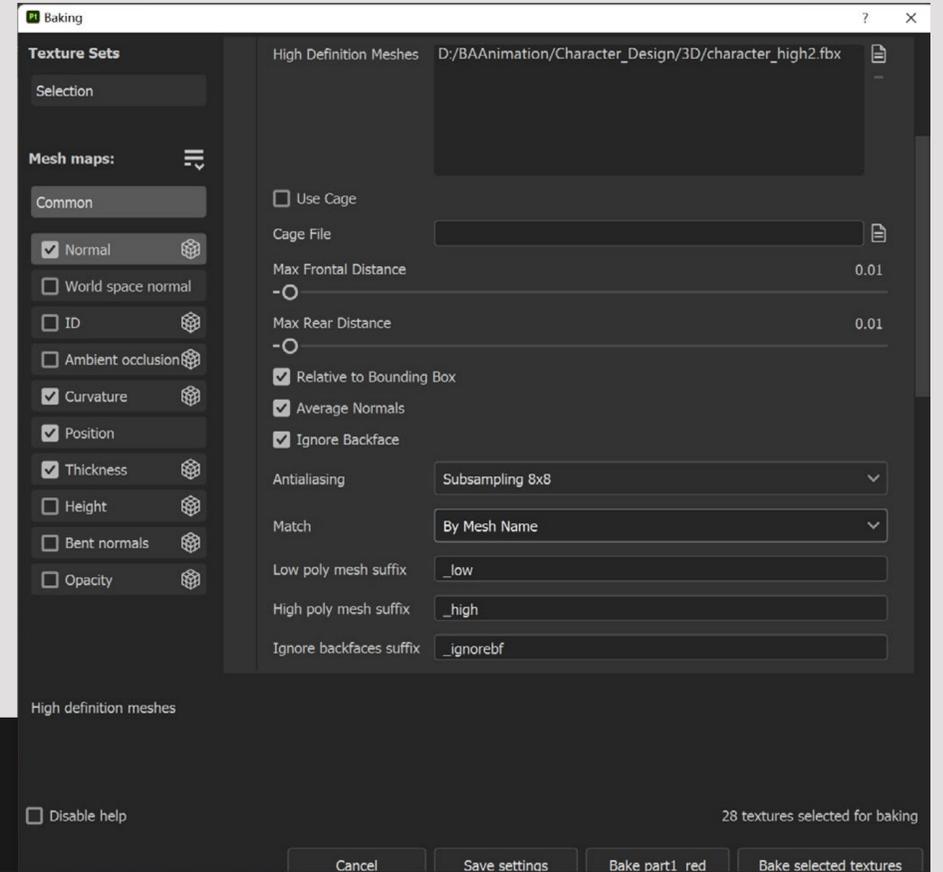
Due to the character was divided into a lot of parts, I had to group them before the baking of high polygons to low polygons. I made those parts which were not close to each other into one group. And there were seven groups.



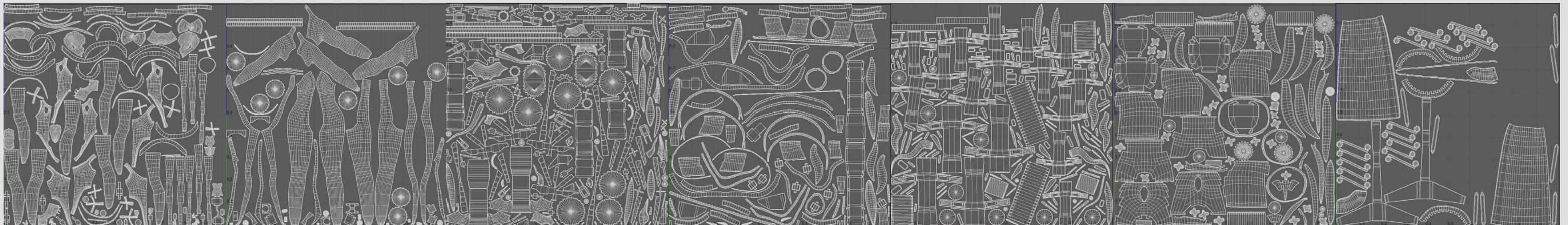
- part1_red
- part2_blue
- part3_yellow
- part4_green
- part5_orange
- part6_purple
- pasted_part3_yellow
- skirt2_high:defaultMat1
- skirt2_highpoly:defaultMat1
- layeredShader1
- UMesh_PATCH1_ncl_2
- part7_miku

Then I edited the UVs of the objects in one group into one UV map. All the objects must be renamed with the end in `_low` or `_high`. One group of objects need to have the same material, I used different colours to separate them. Finally I export all the low polygons as one FBX, and all the high polygons as one FBX. Then inport the low polygon FBX into the Substance 3D Painter. When I did the baking, I choose the By Mesh Name in Match, so that the high polygon will match to the low polygon with the same name.

character_high.fbx	2023/5/6 13:32	FBX 文件	137,272 KB
character_high2.fbx	2023/5/6 18:04	FBX 文件	136,170 KB
character_low.fbx	2023/5/6 13:30	FBX 文件	2,760 KB
character_low2.fbx	2023/5/10 20:44	FBX 文件	2,757 KB

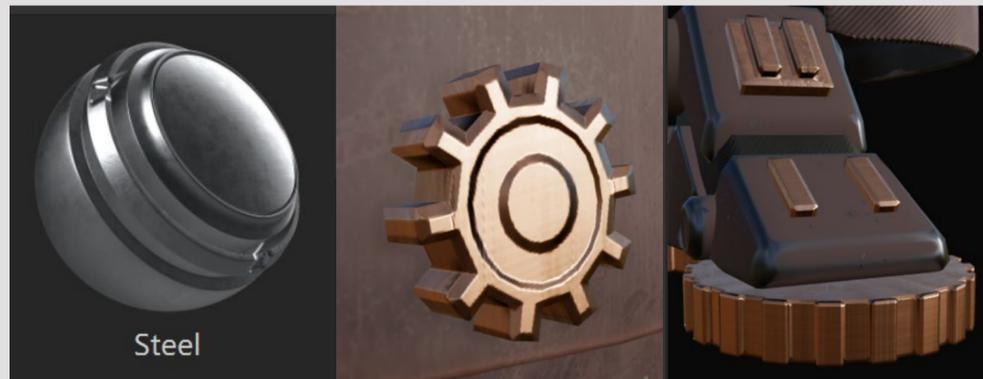


• UVs



3D Character Modelling

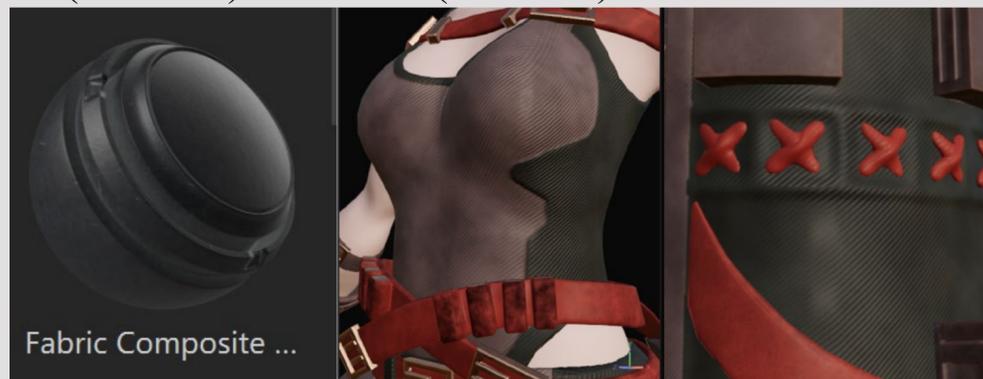
• Texture



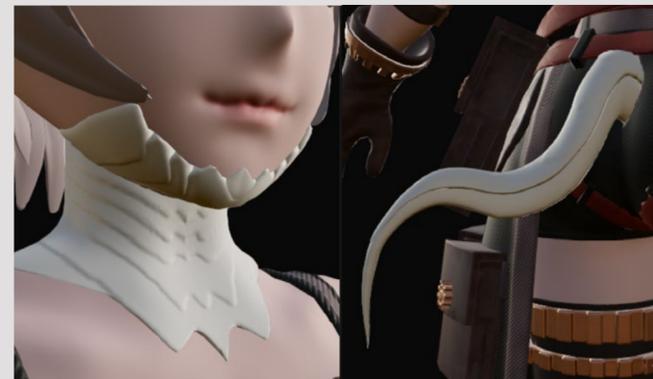
For the gears and the decorations I use smart material Steel in SP. And use the colour golden(#d7a68a).



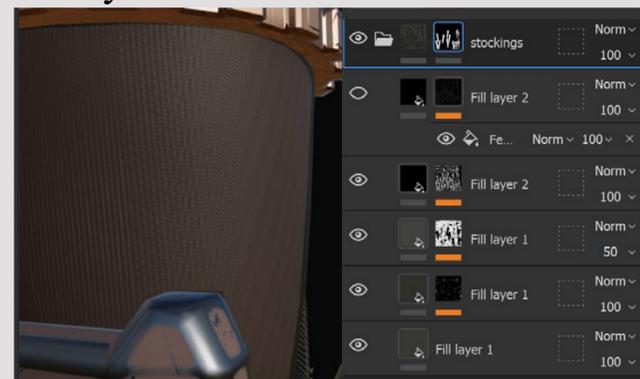
For the belts, pockets and gloves I used smart material Leather Stylized with red(#9d4134) and brown(#736160).



For the sukumizu, pants and skirt I used Fabric Composite Reinforced Used in SP, I was thinking of using some textures look like flax but they don't look well on the model.



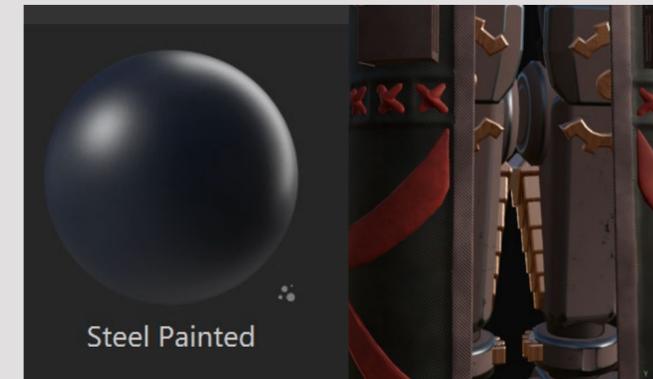
For the skin and scales I just used a fill layer with colours.



For the stockings I made a transparent texture with the grid, however it didn't show transparently when I import the textures back into MAYA.



For the eye of the character I used a lot of fill layers with different blue, and add black mask on those layers. Then used brush to paint on the masks.



For the armors on characters feet I used Steel Painted in SP with brown colours.

3D Character Modelling

• Rendering in Maya

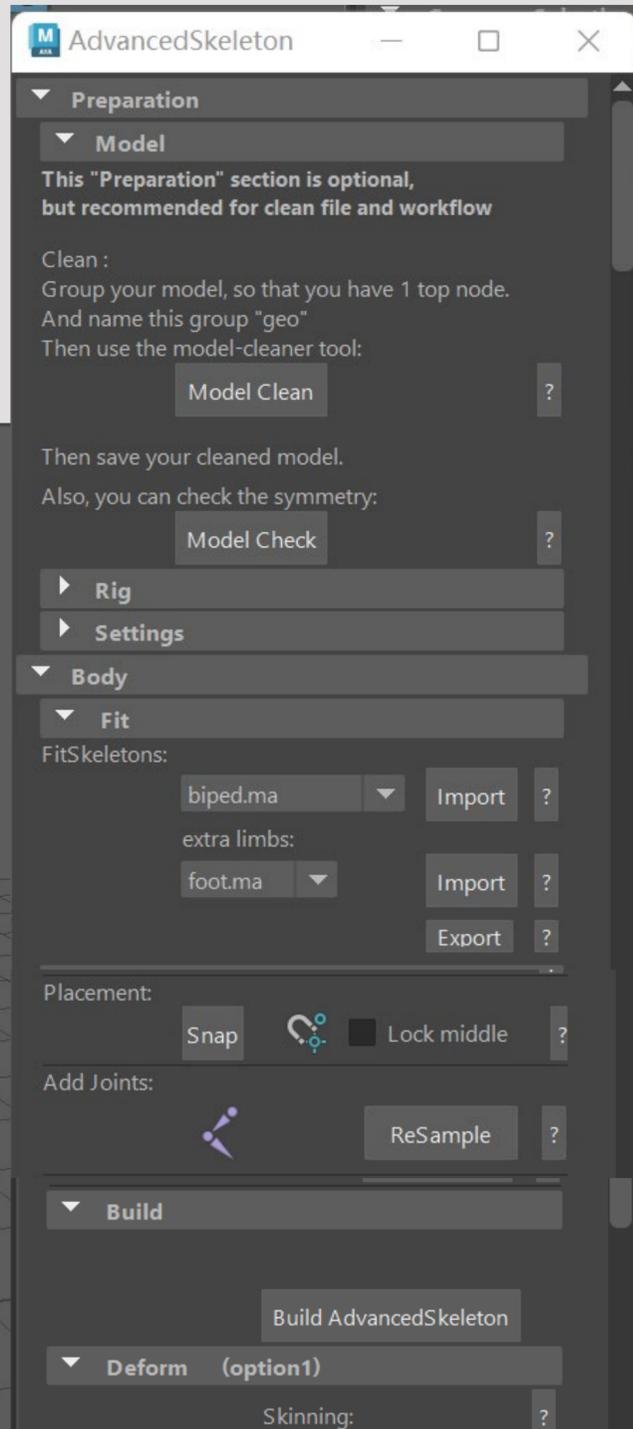
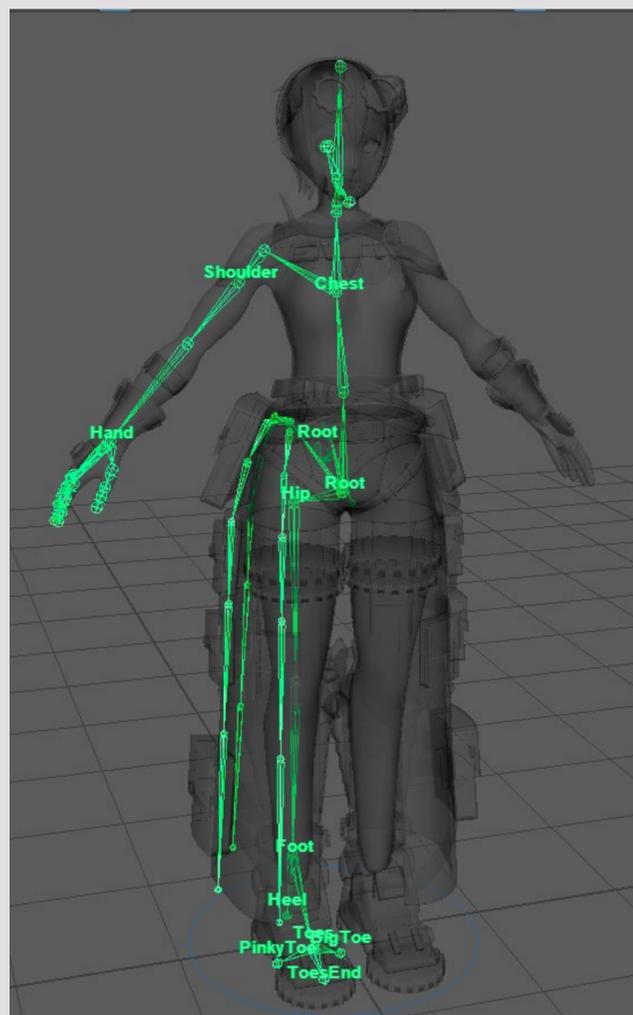
After I finished the textures of the character in Substance 3D Painter, I imported those textures into Maya and used Arnold to render to see how she look. And it turned out that she looked good. The eyes looked much better than those she looked in SP.



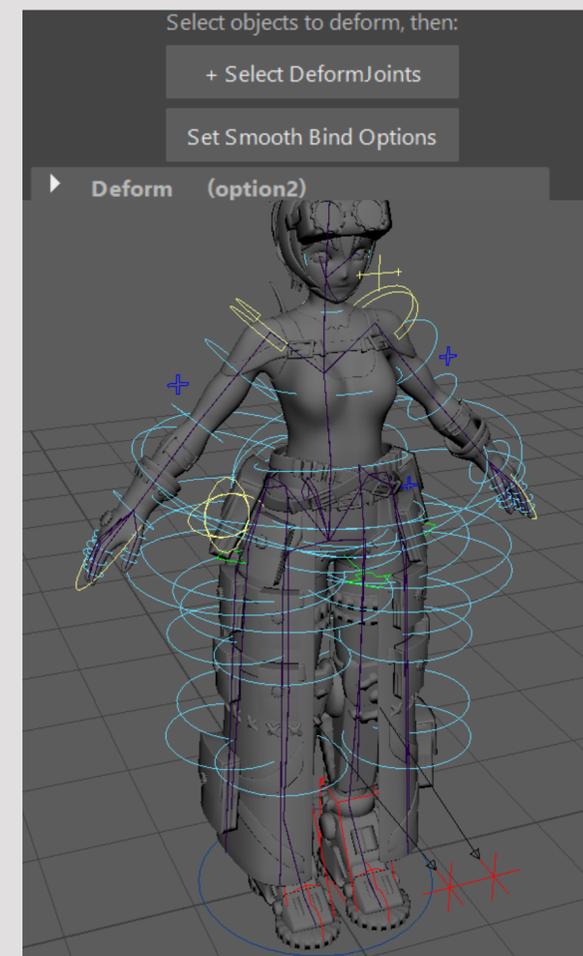
3D Character Modelling

• Rigging

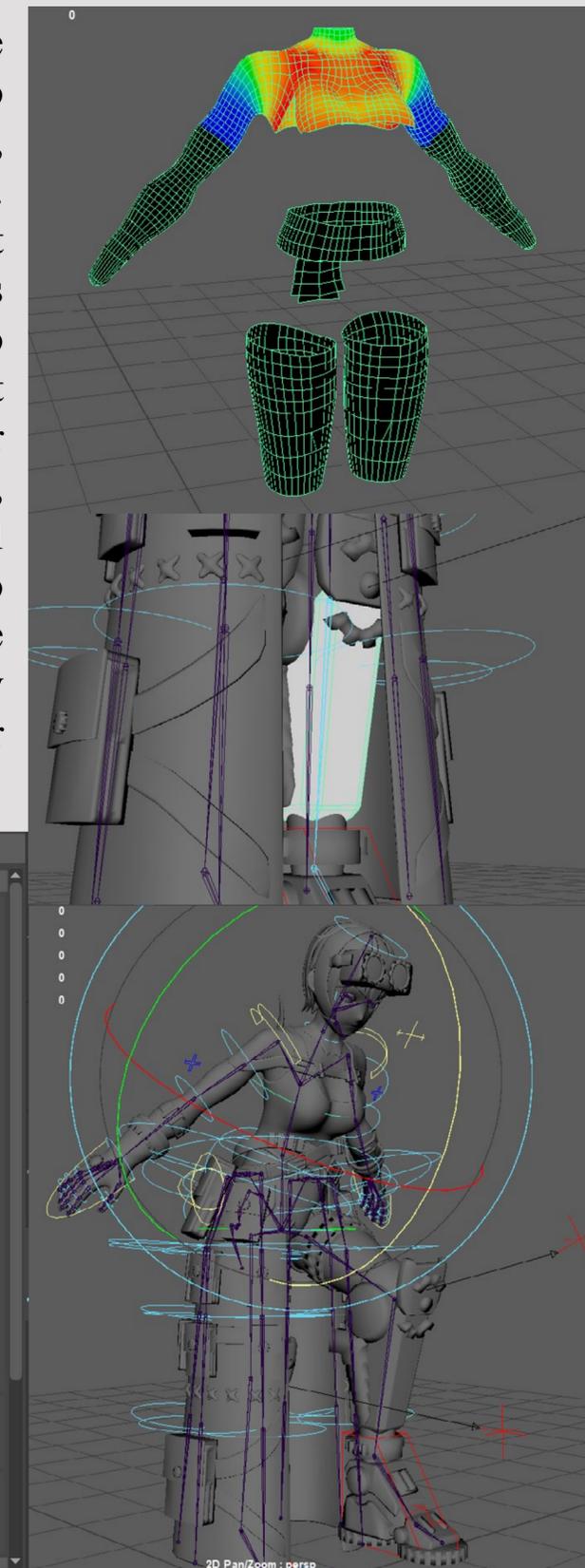
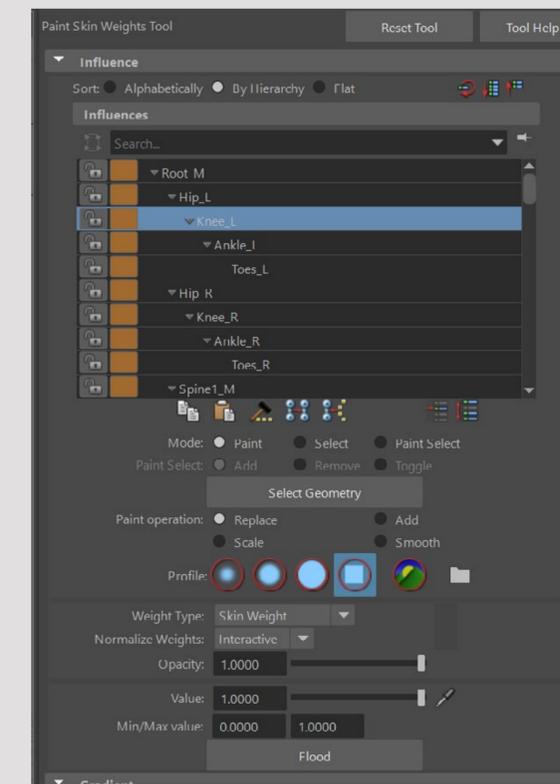
In fact I had some experience of using Maya to rigging, however the final of my last rigging is a total disaster. But this time we were taught of using Advance Skeleton which is a plugin of Maya. I used basic skeleton in the Plugin which is biped.ma and add joints for the skirt.



After I moved all the joints to the position they should be, I clicked Build Advanced Skeleton and there came controllers for the character model. And to bind the model, choose all the meshes and the skeleton, click +Select Deform Joints and Set Smooth Bind Options.



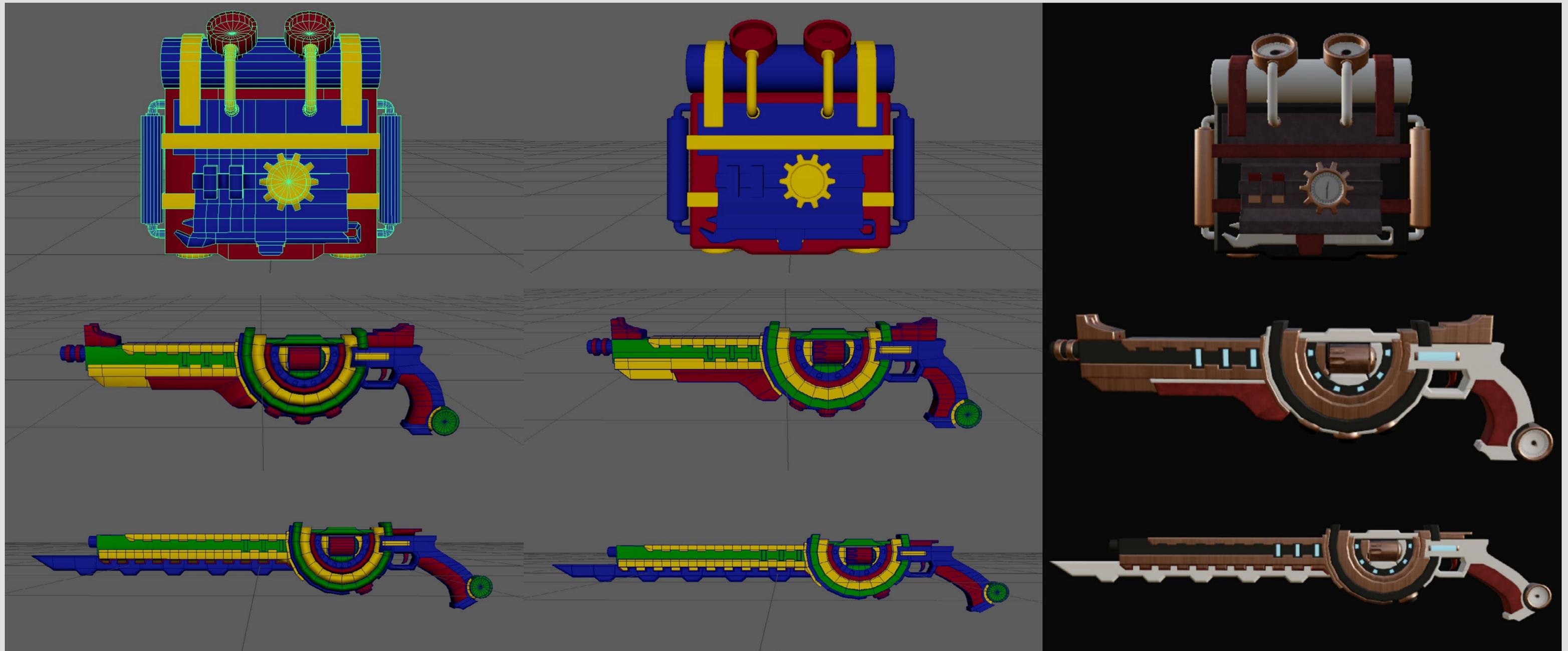
After the binding, the controllers would be able to control the model, however, there will be a lot of problems. The meshes need to be repaint of the weight. For the parts of soft surface I needed to carefully paint the weight with different value. But for the meshes of hard surface, I only needed to replace all the weight with max value, so that part would keep the shape during moving. And finally made the whole character looks normal while acting.



3D Character Modelling

• Backpack & Weapons

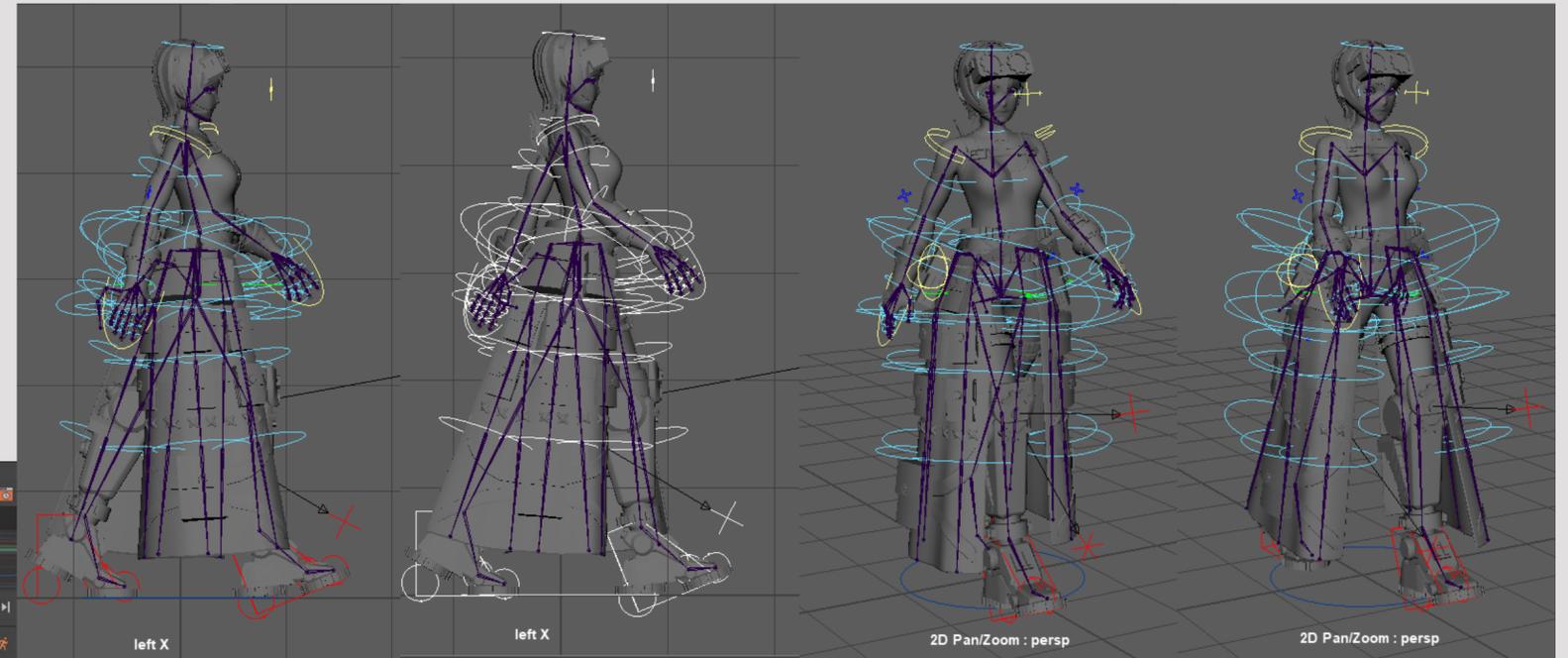
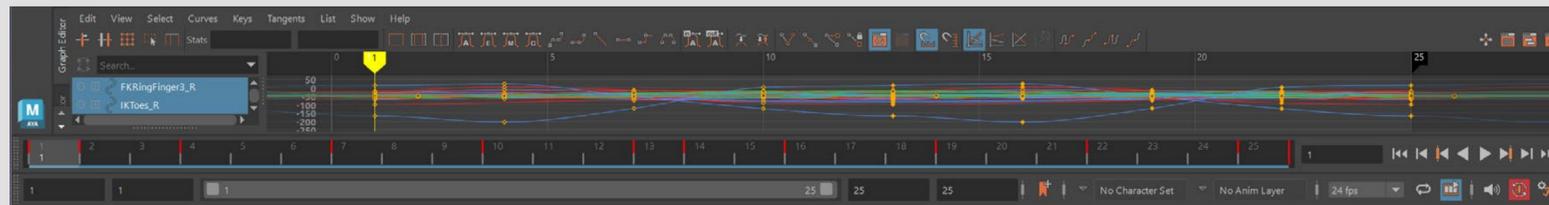
Due to I have to make an attack animation, and I thought the time was enough, I modeled the accessories of my character include a backpack and two kind of weapons and textured them. These didn't take me too much times cause I didn't make them very detailed like the settings. But I thought they are enough for my animation.



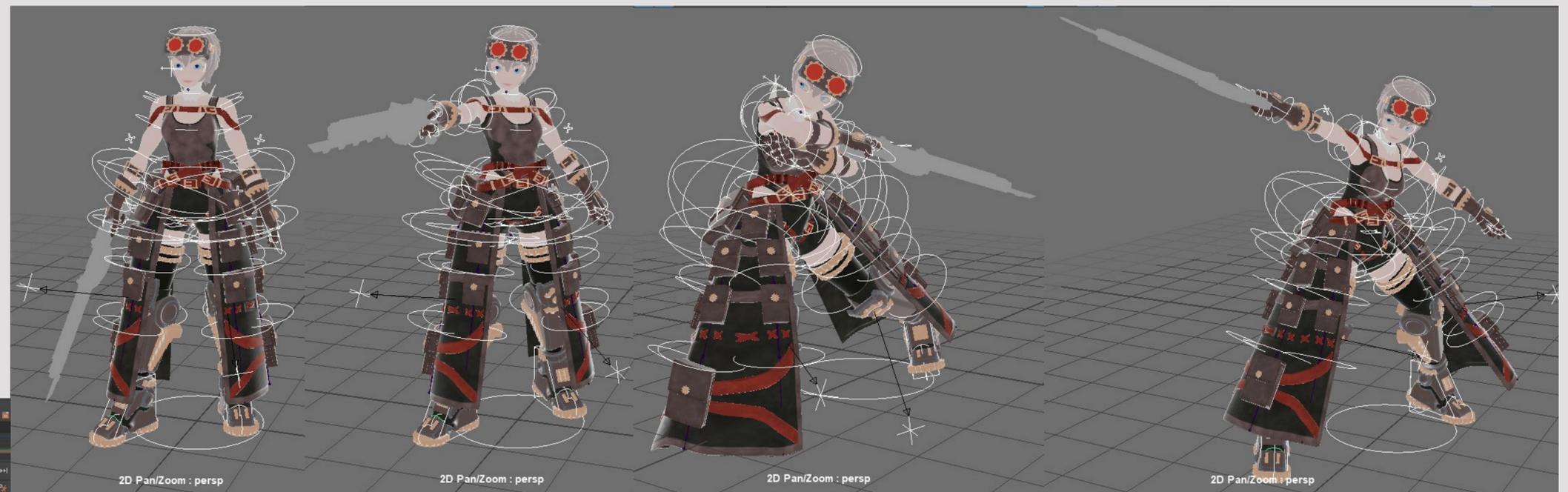
3D Character Modelling

• Animation

According to the assessment, we needed to animate our characters and make an idle cycle, a walking cycle, a running cycle, an attack animation and one more animation of our choice. I made the walking cycle first. There are a lot of tutorials about making walking and running cycle on youtube, I just followed one of them. My walking cycle is in 24 frames, due to it is a cycle, the first frame and the last frame are the same, and the middle frame is heterochiral. And then I made the other frames. The same process as running cycle. When export the animation, choose the meshes and the skeleton and export as FBX, made sure checked Animation and Bake Animation.



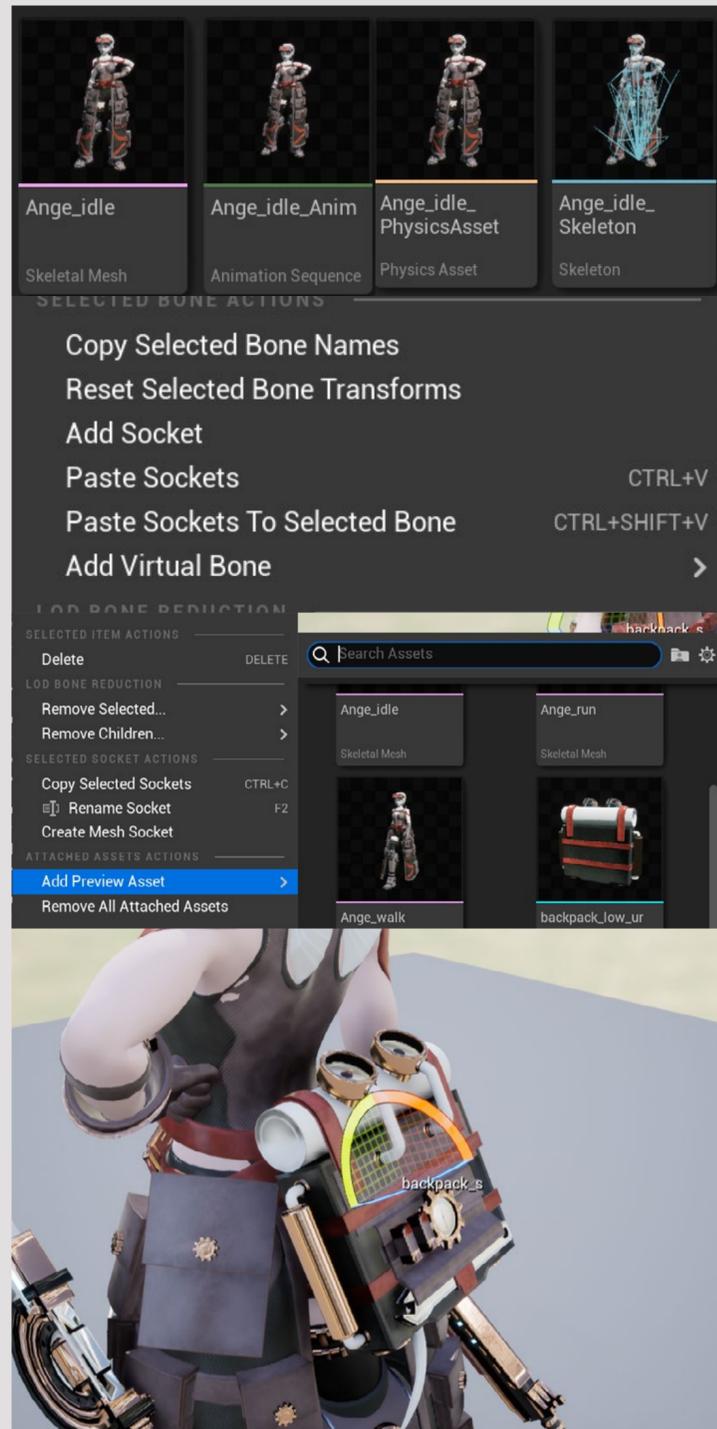
The one more animation of my choice is the attack animation of holding the gunblade, cause my character has two kind of weapons. Of course I had made the attack animation of the character holding the gun. So the attack animation of the gunblade would start two gun shoot, and followed by a chop. During the action the character will move forward for some distance. And this is one attack of the gunblade. The same as the other action, I made the keyframes first and add frames between them.



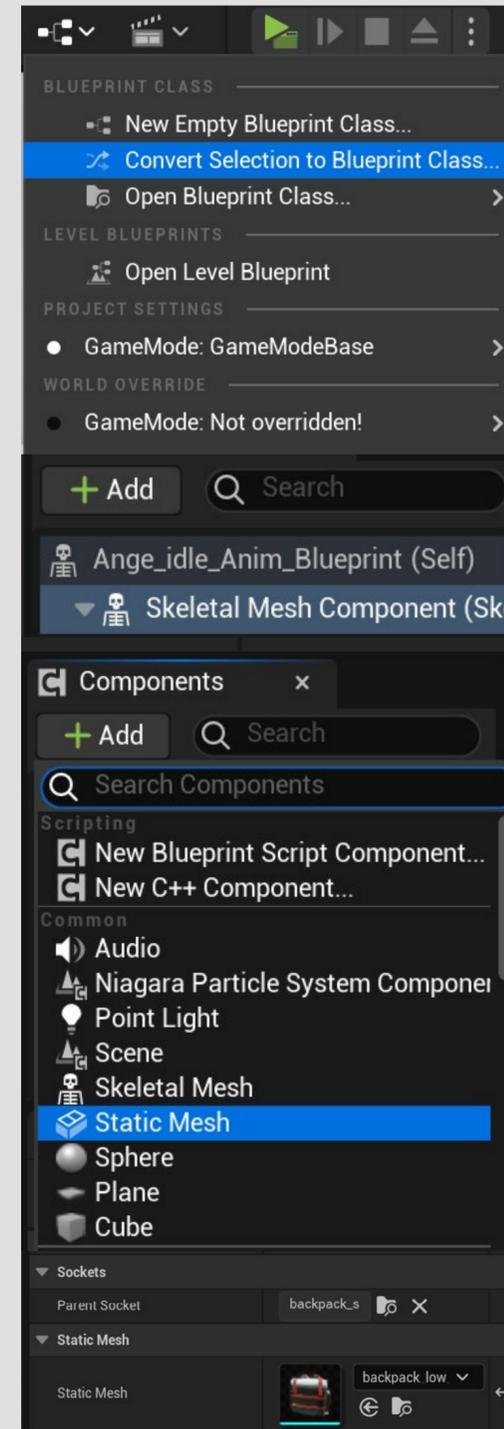
3D Character Modelling

• Rendering in Unreal Engine 5

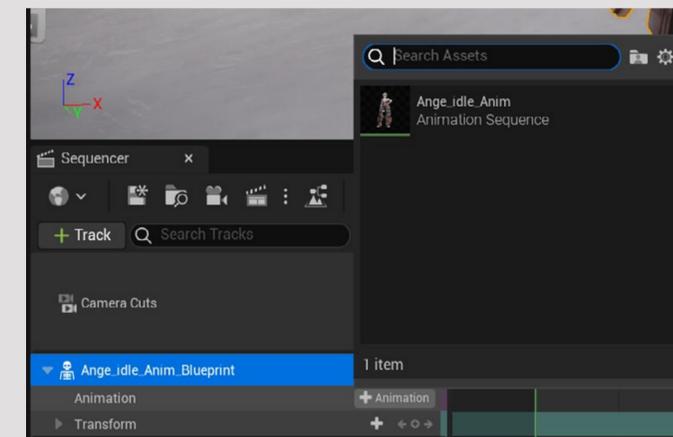
I use the Unreal Engine 5 for the final rendering. After importing the FBX of the Animation into the UE5, there were four items. Due to the backpack and weapons can not be export through the FBX, they need to be attached on the character through socket. First import the FBX of the weapon independently. In the skeleton, right click the joint that need to be attached by the weapon and choose Add Sockets. Rename the socket and right click, choose the Add Preview Asset and then choose the weapon. Now the weapon has been attached on the joint and it just need to be move to the right position.



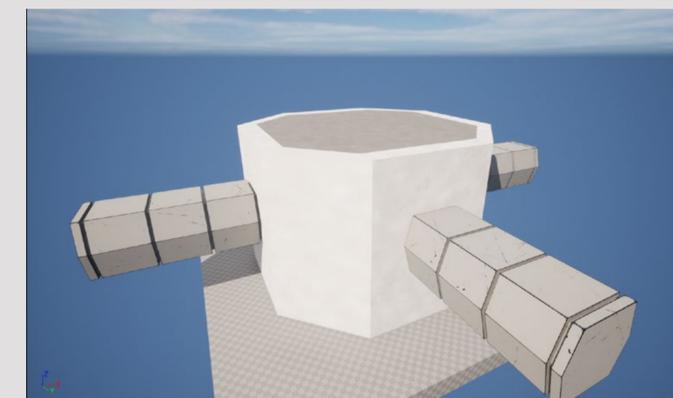
However, the weapon still can not show if you drag the animation into the scene. So choose the animation in the scene, and click the Convert Selection to Blueprint Class. In the blueprint, choose the Skeletal Mesh Component on the left, click the Add find the Static Mesh. On the left, find the weapon at the Static Mesh. Then find the socket you create at the Parent Socket. And now the weapons can show in the scene when you drag the blueprint of the animation. After these steps, the only thing left was adding Level Sequence and Cine Camera Actor and create the shot for showing the character animation.



To make the animation showing in the scene. You needed to drag the blueprint of the animation into the level sequence, and add the animation in the level sequence.



To make the rendering more clear and bright I imported part of my environment into the scene.



3D Character Modelling

• Final Rendering



• Character Bio

So at this stage, I finally started thinking about the character bio. This Character named Ange. She was living in a small town on the Eorzea (Mainland of *FF14*) with her parents. And on day, an engineer came to the town and opened a shop. Ange was so interested in those novel mechanical equipments in the shop. After a long time of badgering, the engineer took little Ange as his apprentice. One dream of Ange is that she can create a greater weapon than her master. Although the weapons now she use are excellent works, they still less than a tenth of the weapons that created by her master.

Animation: <https://youtu.be/IxB0ZsVYzmk>

My Blog Link: <https://shiyuantong8145.myblog.arts.ac.uk/exploratory-practice-game-arts/>

Reflection

In general, I thought my character look very complete and great. The clothing style is close to *Final Fantasy 14*, and the clour matching looks kind of harmonious. However there still a lot of problem on the model and textures, and some regrets about not reaching there.

- So the hair is one problem of my character. While I doing the animation, I found that the layer of her hair is a little bit less, cause when you look at her head slanted upward, you will see that the hair is not on the head, the back of her neck look so empty. And there was not enough time for me to remake the hair and doing the rigging and animation again.



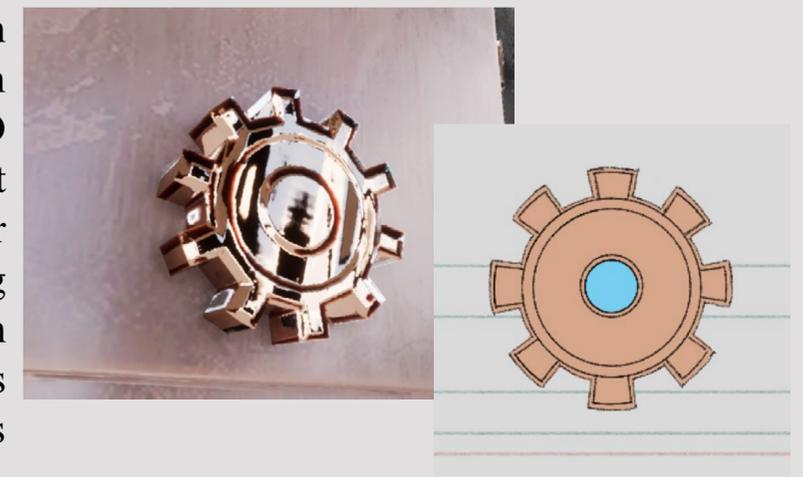
- There are some parts of my character should be transparent, like the glass of the eye patch and the stockings. Cause I'm not sure about how to make only those parts on the character transparent in UE5, so I just let them look like they do now. Next time I real need to learn how to make single item on a character looks transparent.



- The belts also have a lot of problems, like there are no holes for belt buckles, and there are no detail of the end of belts. I forgot those deatils while making the low polygon mesh of the belt. And it's hard to modify after that.



- With the pictures on the right, you can see there is some different between the gears of the 3D model and the 2D design. There should be some blue light on those small gears like what on her weapons. However when I was building the character, I didn't think I have enough thime to make weapons, those gears looks fine when there were no weapons beside the character.



Therefore there are still a lot things could be improved of my character. And also my animations are not very smooth. The walk cycle and the running cycle are smooth due to I had reference. The idle cycle looks well, but two attack animations just looks so weird. Especially the attack animation with the gun, the left hand of the character threads the gun all the time. Besides there also some problems with the weight paint of the model, like the crotch is really weird when the character lift her leg. Anyway, this character is still much better than the character I made last year, so I say it is a big improvement. And I think I can spend more time on how to arrange edges while making the low polygon of human models later.