
Producing Stylised Game Character

Through high poly sculpt and retopology process

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Abstract

As a 3D game artist, my experience is heavily hard-surface based and I believe the inclusion of character design and game-ready models will benefit me by enriching my game art portfolio.

In order to utilize the high poly sculpt and retopology workflow which is the industry standard for creating stylised physically based render characters, I will learn and use Zbrush for sculpting and finalize the model in Maya, Substance Painter and Marmoset Toolbag.

This project will explore character designs for video games and the process of bringing concepts to production ready products. The outcome of this project will be an original character design and its game-ready model.

Authors Keywords

Physically based rendering (PBR), real-time rendering, (Re)Topology, texture baking, digital sculpt

IDEAS

My Practice

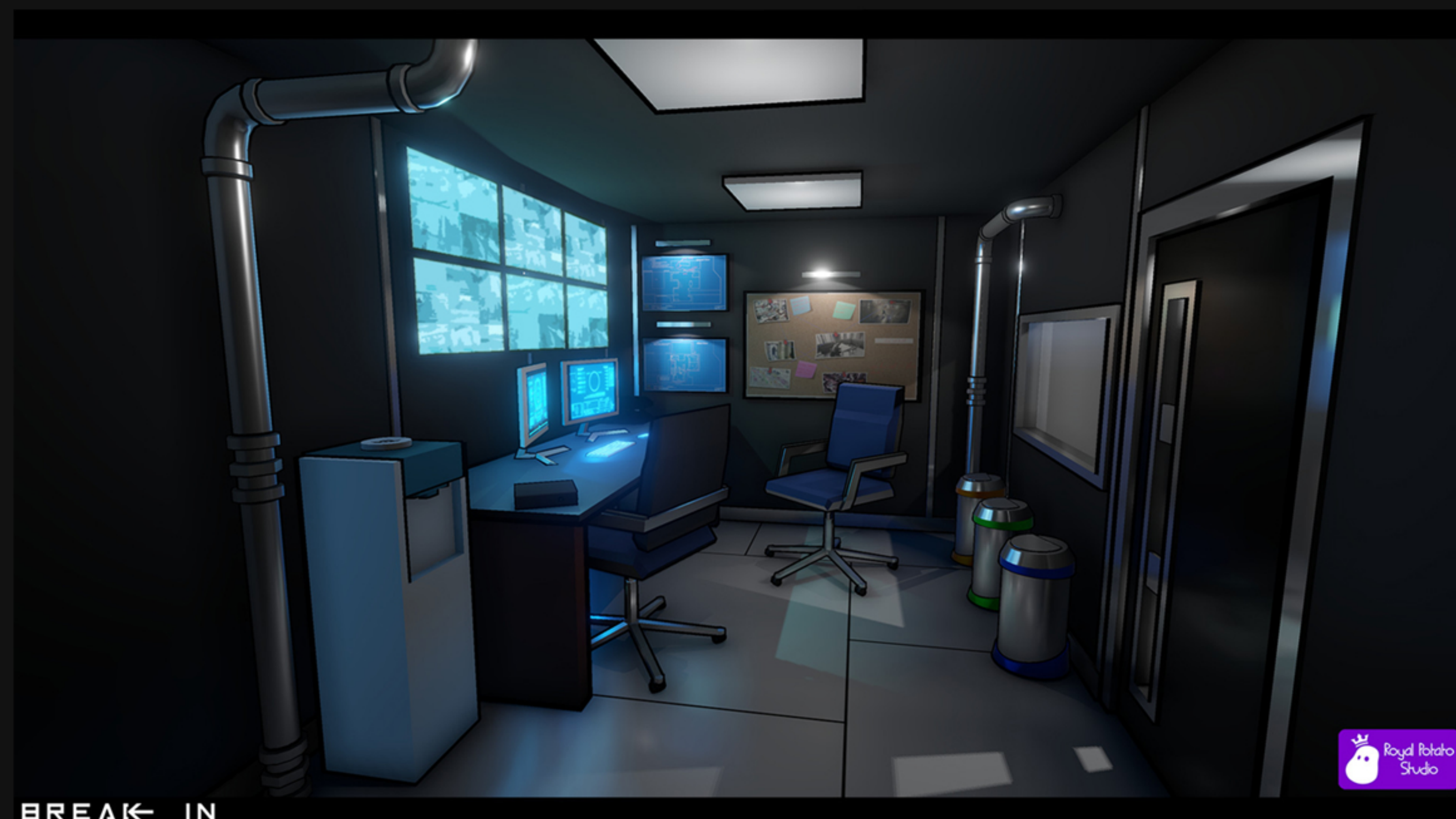
I am a 3D artist & lead creative director at my co-owned company. I am interested in art and design for games and ideas that can generate interesting game-play mechanics.

I also enjoy digital design and painting. I originally aimed to be a concept artist but then my focus started to shift when I started learning game development and 3D art.

I have worked on many hard-surface prop & environment in various styles made specifically for video games. Some styles I have experience with include photo-realism and hand-painted as well as stylised photoreal hybrid.



This is an environment I worked on in the style of photorealism. In this project, I used Maya for modeling, textured in substance painter and rendered in Unreal Engine. The architectural layout was based on a video game level, but lighting and texture are my original.



Above is an environment I worked on in the style of stylised photoreal. In this project, I used Blender for 3D Modeling and it was textured directly in Unity. This was an experimental style inspired by cel-shaded graphics used in 3D anime style games where black outlines are used. The outline effect was created using a technique called reversed normal, where you texture a duplicated mesh black, enlarge it and reversed the 3D faces so it's only visible around the object but not overlapping it.



This is my first hand-paint prop and character created using Maya and 3D-Coat, overall I am quite happy with the outcome, but it was created entirely using box modeling techniques and it also did not utilize any physically based rendering textures. For folio 1, I would like to utilize an approach in characters used more commonly in the industry.

My Interest

My experience is heavily hard-surface based, and as a 3D game artist, I believe the lack of character pieces and outdoor environments is harming my portfolio. This is why I am very interested in organic models such as characters and landscape and utilizing the high poly sculpt and retopology workflow into my portfolio pieces.

My work is influenced by many video games and artists from the industry. Other than keeping an eye on high quality game releases from well-known companies, I am also active in websites and forums related to computer-graphic art such as Art Station and Cubebrush.



Borderlands (2009) is a well known game with a unique art-style. The developers changed the art style during late stages of production, the reason provided by the developers was they felt like the original art style lost the mood captured in their concept art. The success of the game proved it was the correct decision. The game released utilizes cell-shaded graphics, where black outlines are visible on edges of characters, environments and objects, resembling the style of a comic book.



I am a big fan of **Overwatch** (Blizzard, 2016). I really like the artistic style and the overall aesthetic. The approach to the art in this game was stylised PBR where they used real-time lighting in combination with some hand-painted textures. I like the designs of characters especially, each character is unique and iconic yet they feel like they belong in the same universe.



The art style of **Dishonored 2** (2016) is also very interesting and one of a kind. Creating a game with a unique art style is not an easy job but the developers by **Dishonored 2** did a great job capturing the artistic style of traditional paintings and sculptures and representing them in a digital three dimensional way.

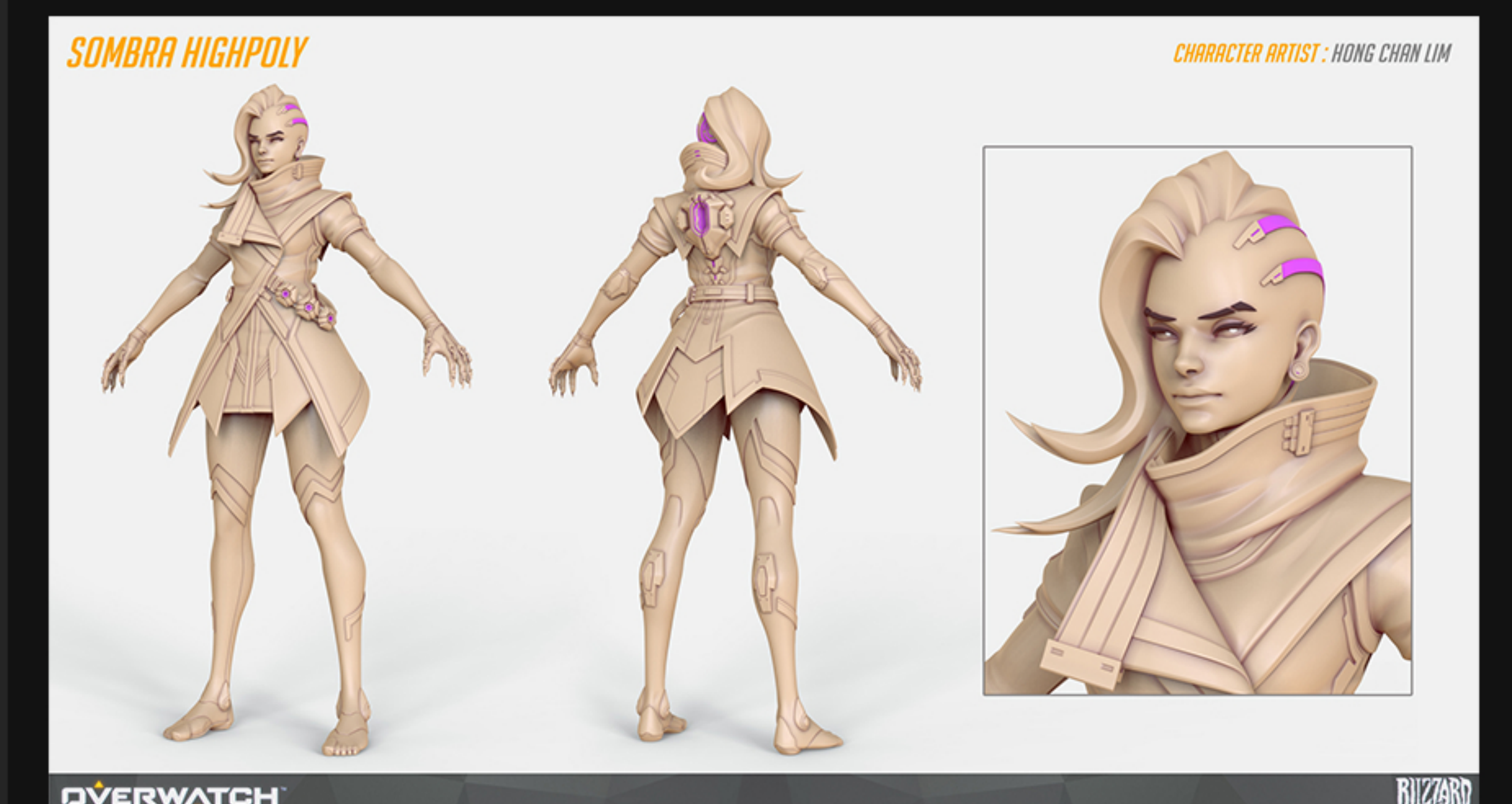
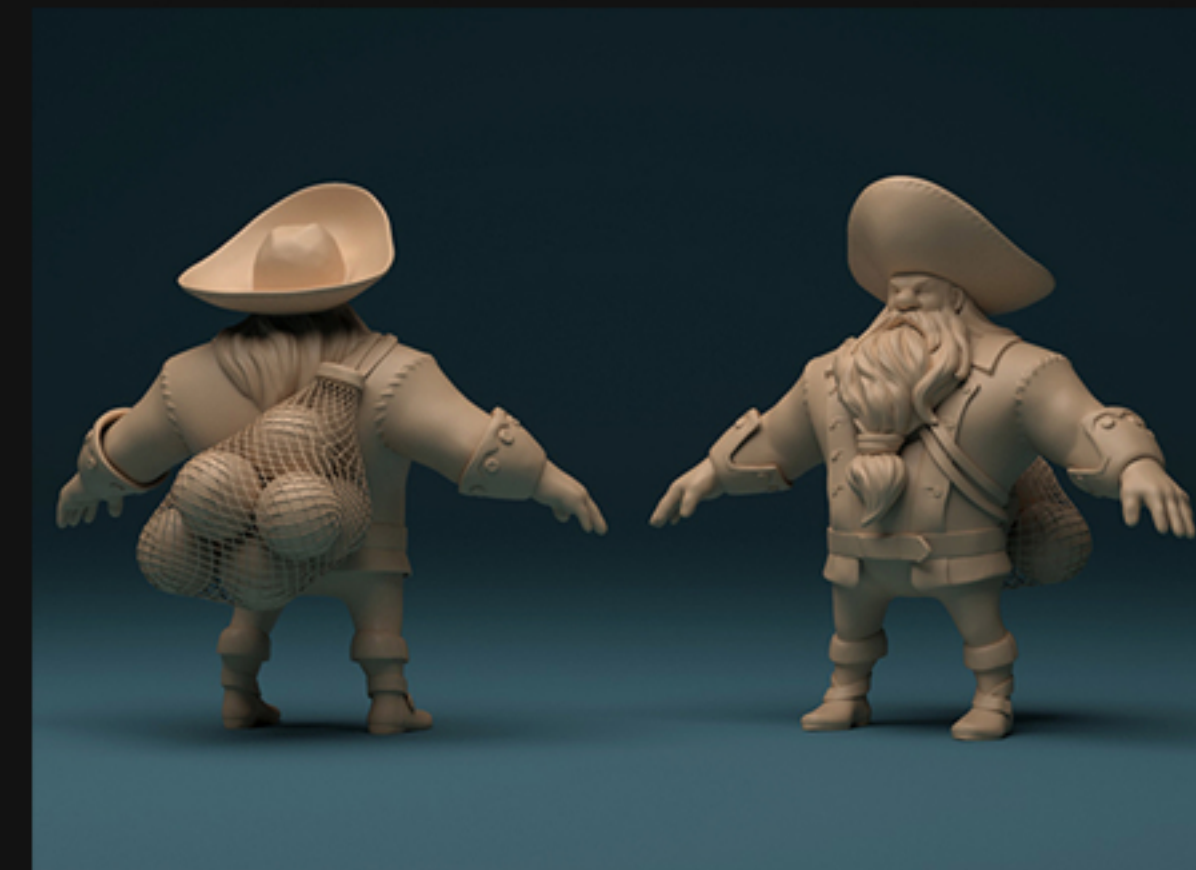
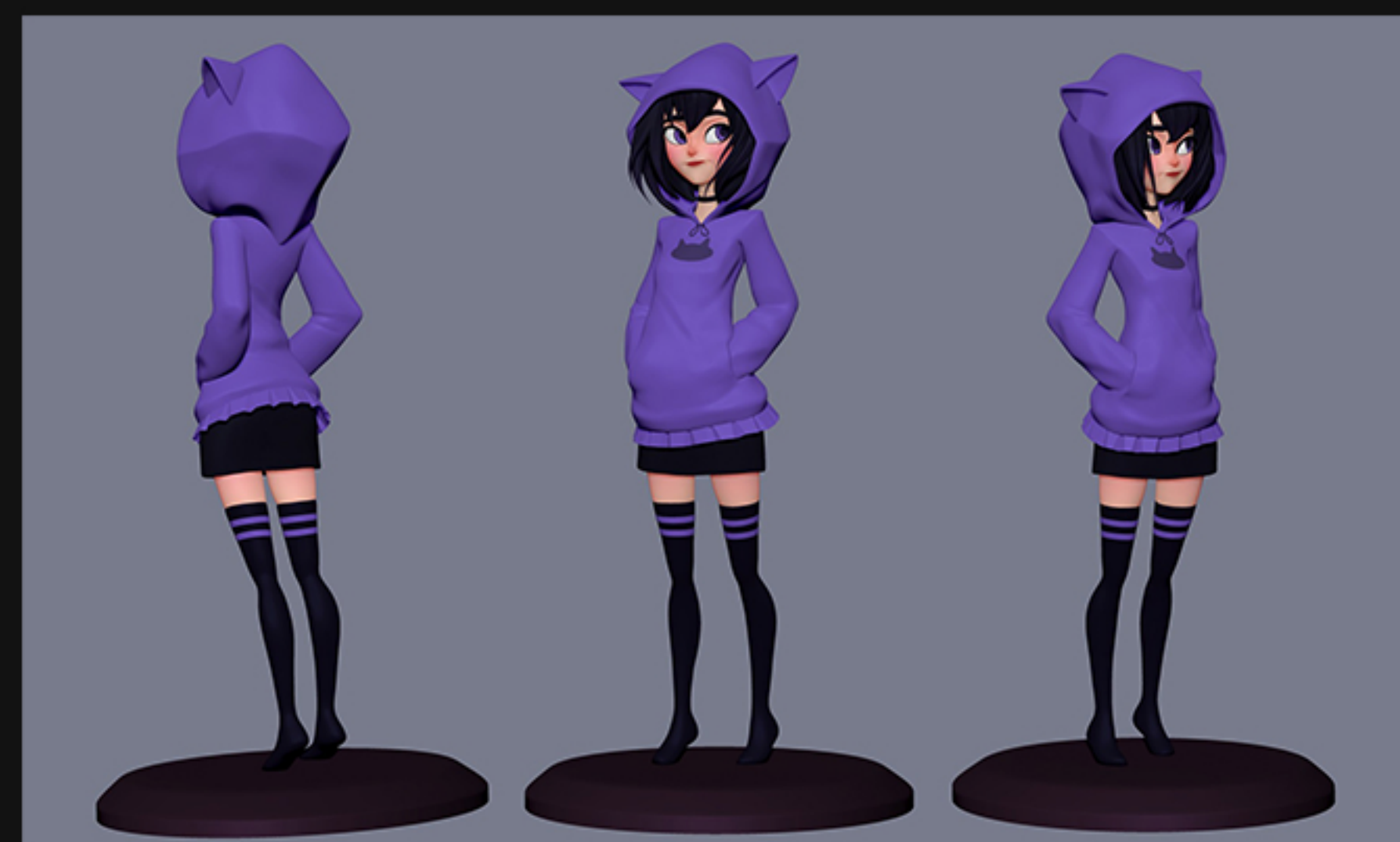
ASPIRATIONS

My plan is to create a stylised pbr game character. In order to do so I will be designing my own character concept and possibly developing a game concept for the character. I will also be learning Zbrush to be able to utilize the high poly sculpt workflow. I am familiar with texture map baking process where I will take the high poly sculpt mesh and transform the details as maps through to a low poly and game-ready mesh. This project will also be a chance for me to familiarize with retopology process.

I have chosen Zbrush because it is the industry standard software for digital sculpting, having such knowledge will benefit my career as a game artist.

I'm a big fan of indie game characters and how they are designed hand in hands with the core mechanic of a game. My idea is to create a character to appear as if it can generate interesting gameplay mechanics, this will be visually hinted through its physical body and props.

I've also grabbed a lot of reference of character sculpts from various artists on ArtStation. I like these not just because of the quality of the sculpt but also the form, silhouette and the overall design.

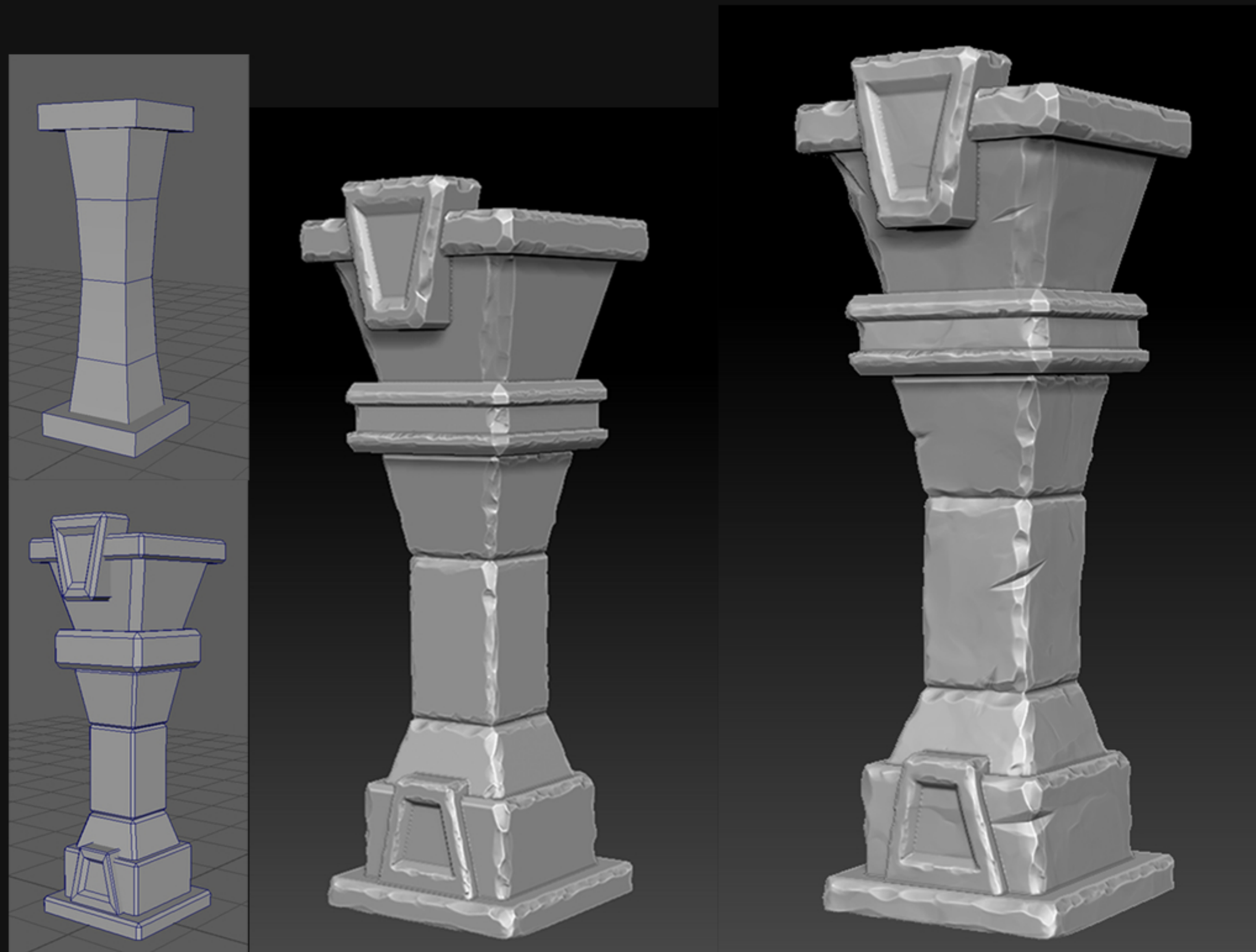


TESTING

As I am not as experienced with 3D characters, I decided to start learning Zbrush with hard surface sculpts then move on to characters as I get more familiar with the interface and creative process.

The stylised pillar sculpt was done by creating a base mesh in Maya with box modeling techniques and then exported to Zbrush for high-poly sculpting.

Working with hard surface assets first allowed me to start sculpting while not entering a completely new realm, this helped me build confidence with sculpting and using Zbrush.

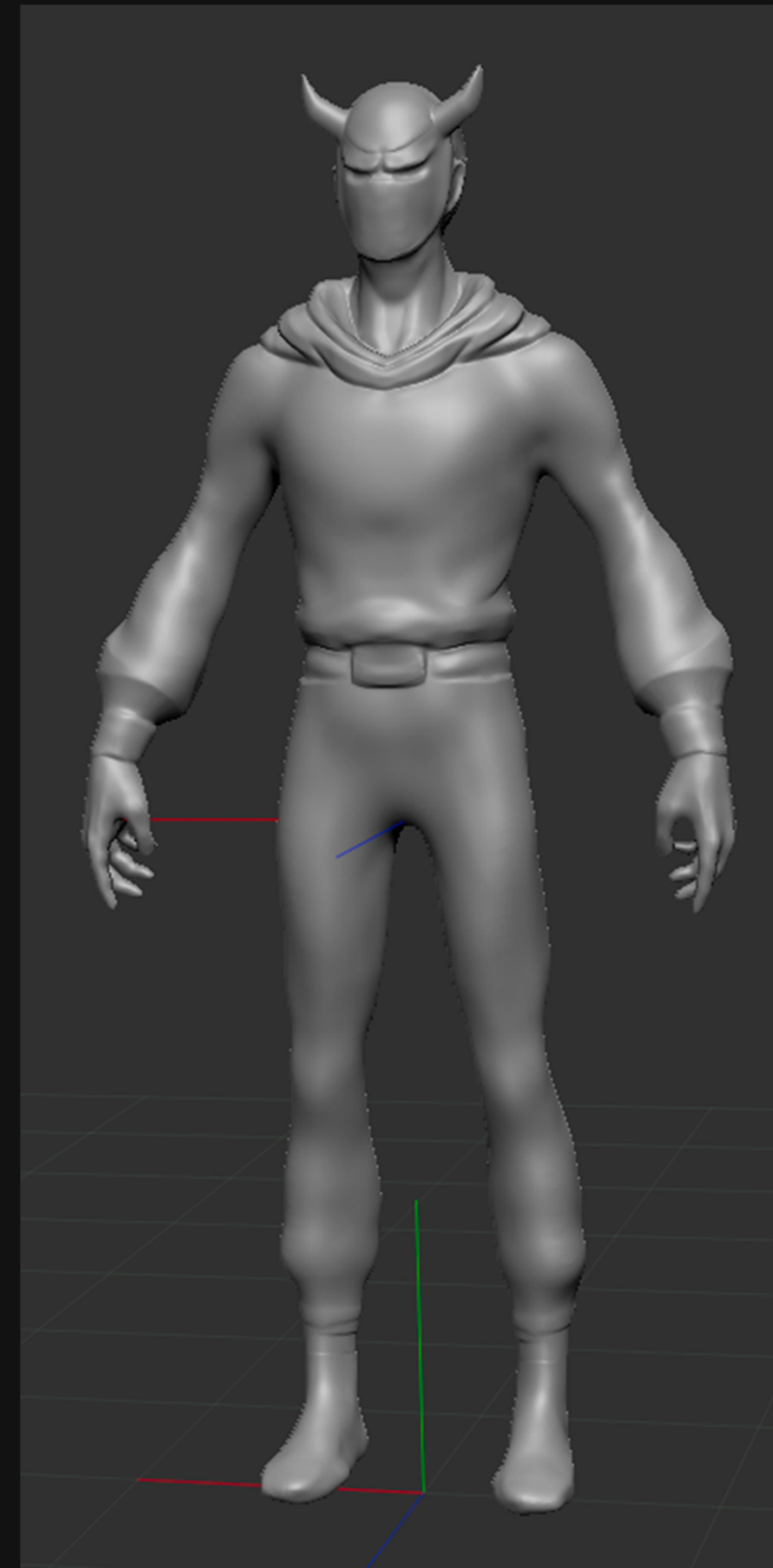


After the pillar, I moved on to sculpting character heads. As exercises, I felt like they went pretty well, however, although the facial features are readable, I feel like it presents a lack of fundamental knowledge in anatomy. Stylised hair is also something I want to experiment more with and improve on.



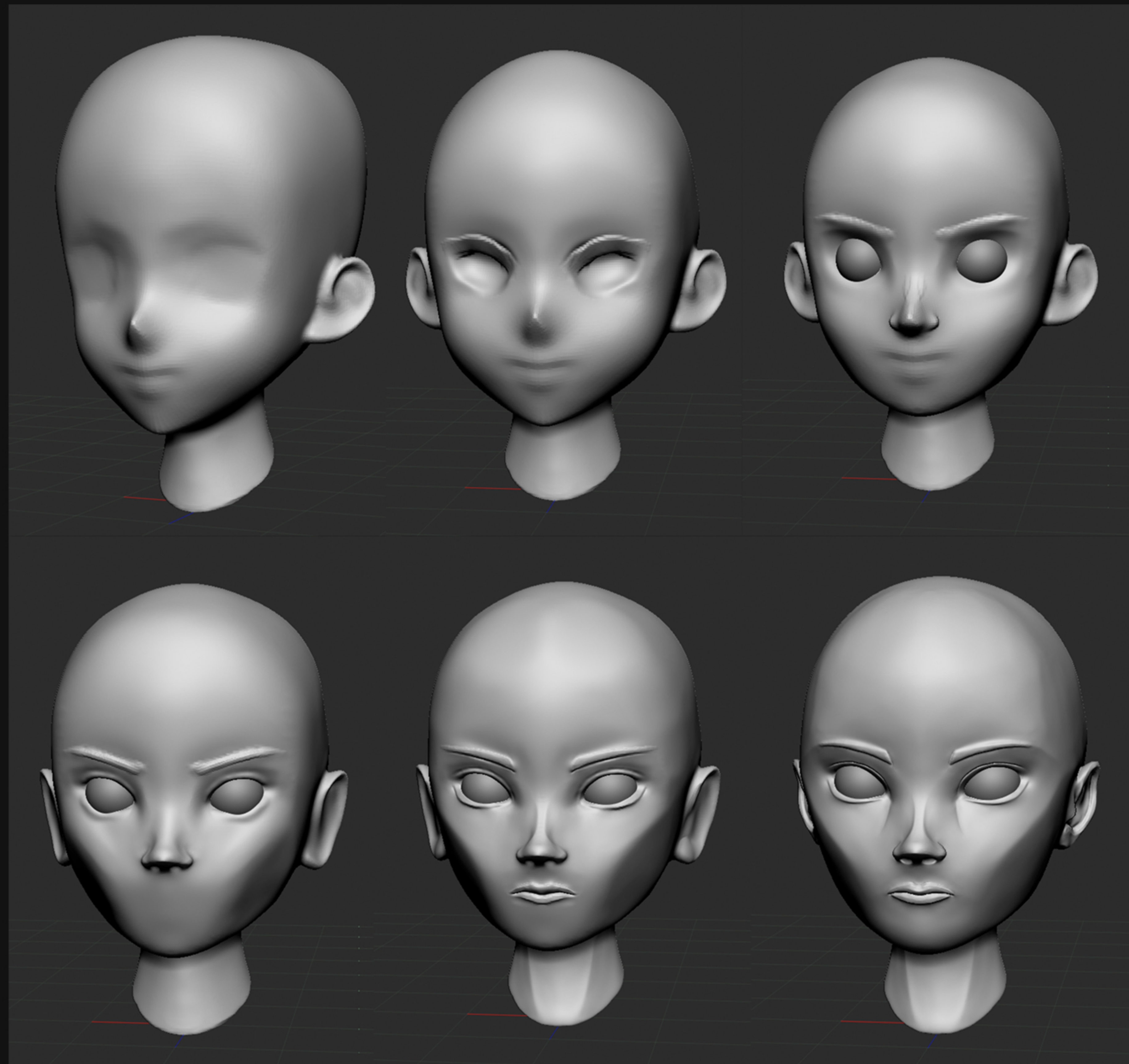
I also decided to experiment with full body sculpts because I would like to produce a full character by the end of Studio 1. I started my first full body character based on my own character concept I did in the past. Basing it off a concept gave this character a direction, but it also pressured me to meet a certain quality.

I stopped working these full body sculpts when I felt like there was too many mistake made and fixing it didn't felt worth it with these characters. With my second character sculpt, I felt like techniques were improving with stylised cloth, but I felt like proceeding with this character and polishing it to a quality game-ready asset was a unrealistic goal with the time frame I had.

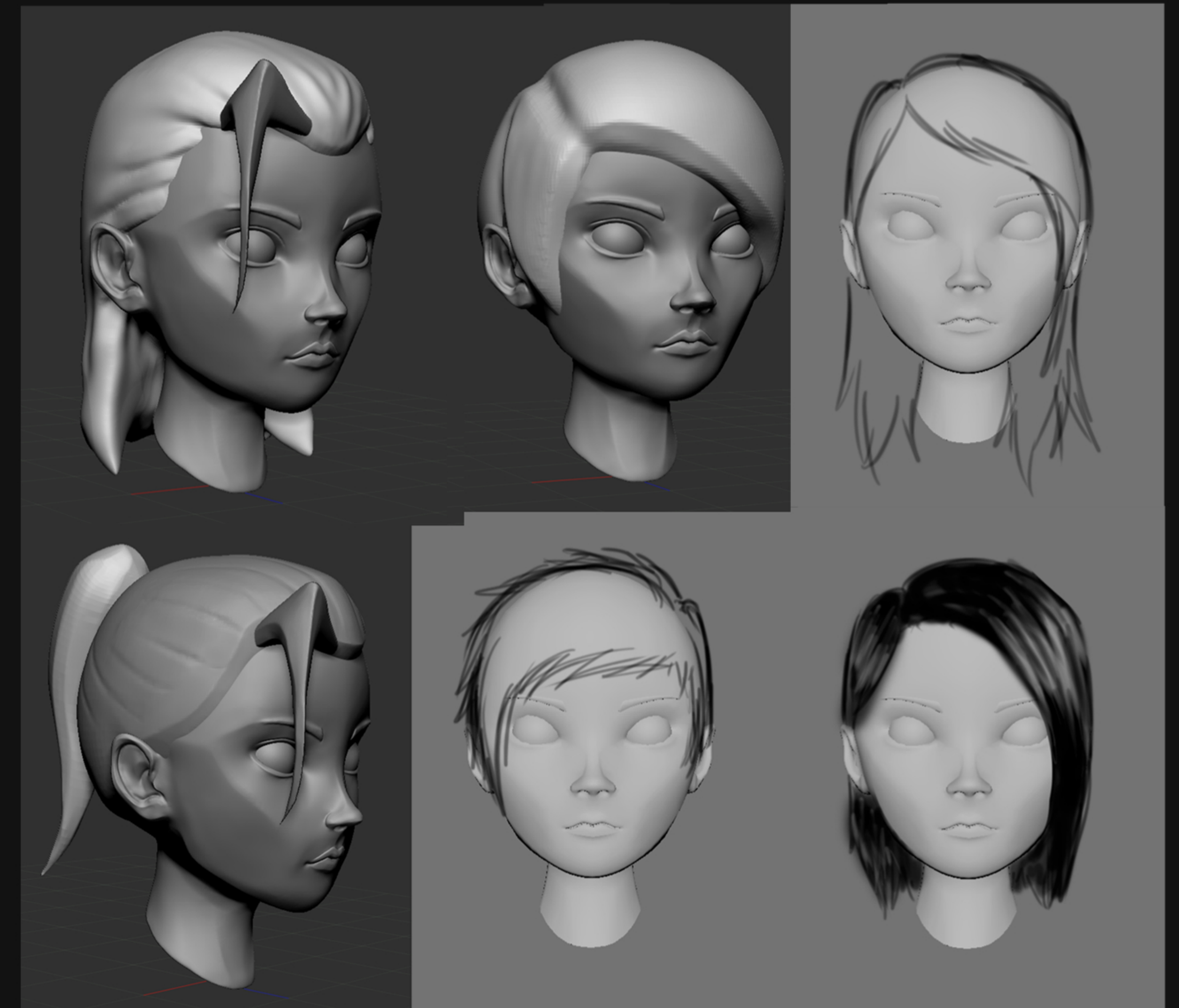


I decided to shift my goal for folio 1 to producing a 'vertical slice' of a character, meaning I would take a part of a character (in this case, the head) and polish it as much as I can. I made this decision because through it, I can get a better understanding of how much time each stage will take with the character.

I started sculpting with no concept in mind, but I was satisfied with the outcome of this sculpt. However, when it came to hair, I tried out many different styles and approach (Zbrush & Photoshop), but I did not feel like they were heading anywhere and stopped working on it before it drain more of my time.



Process of this head was pretty straight forward except for the mouth where I reworked on it multiple times.



Going through all the different hair tests and not being satisfied with any one of them was a sign that I was lacking direction in this project in terms of design.



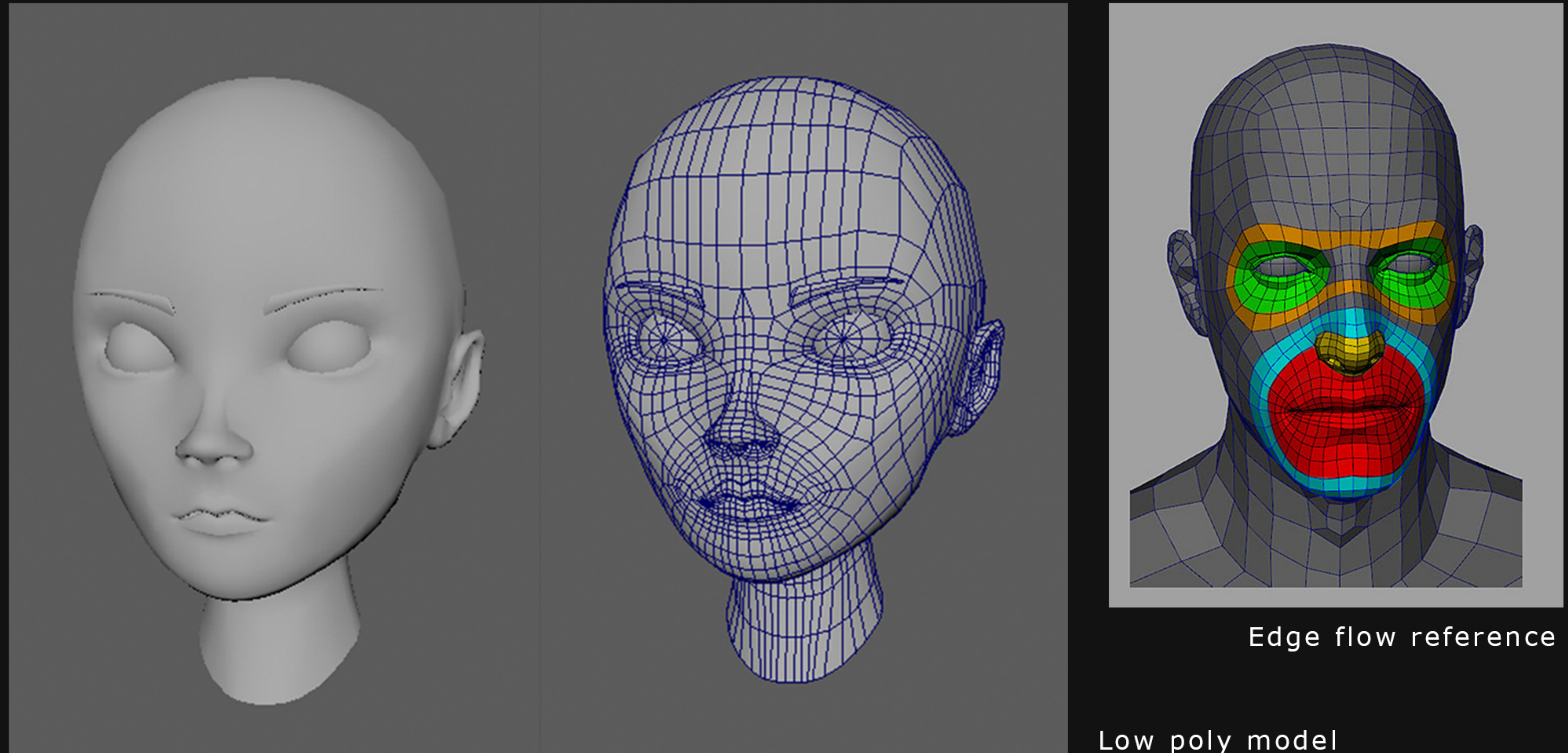
I felt like this final head sculpt was good enough to proceed with for this project because it captures the stylised feel I was aiming for, and I am also satisfied with the quality.

I stopped working on the hair and moved on to the lowpoly, in-game model.

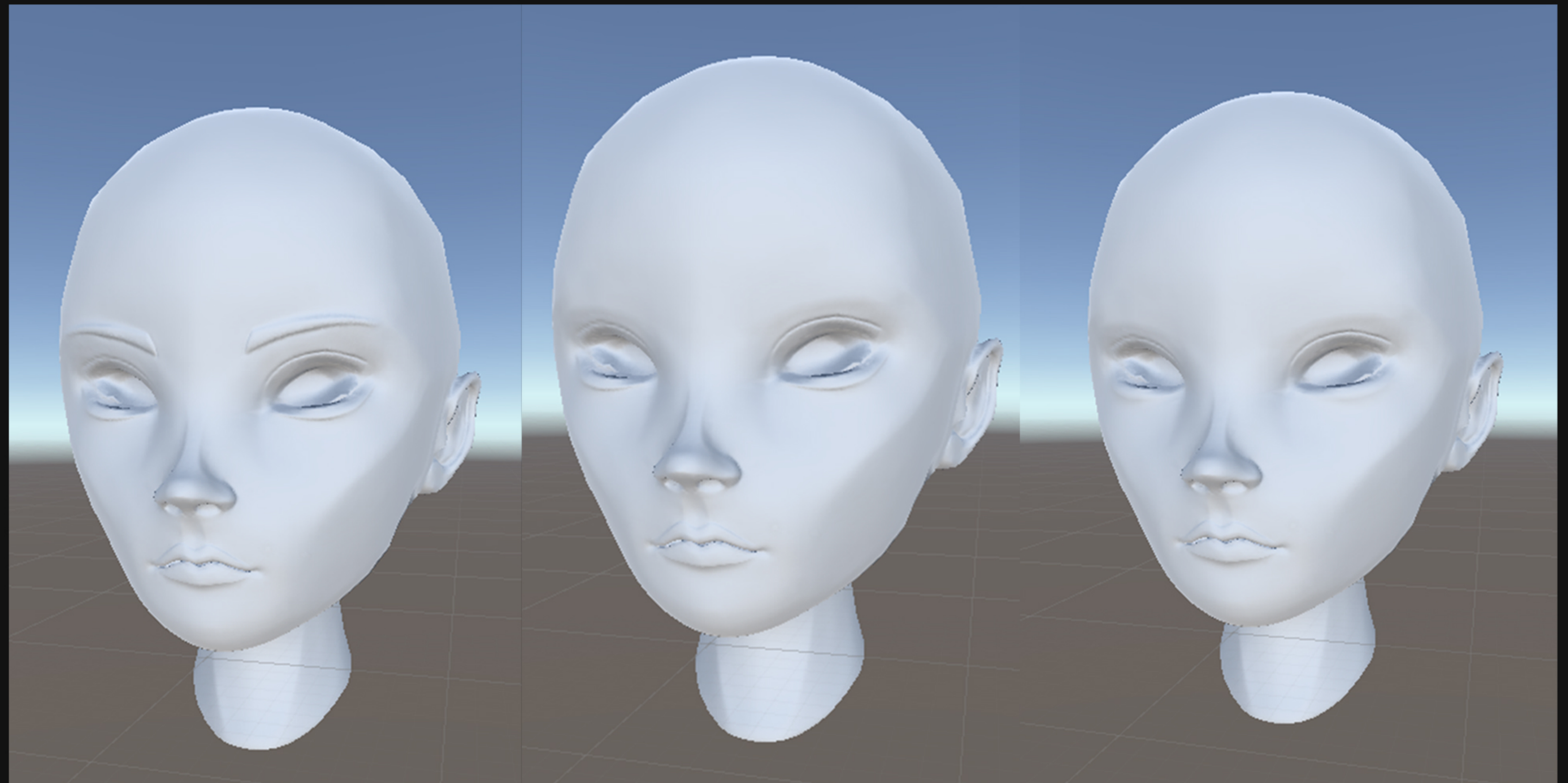
The retopology process was fairly straight forward, I had a reference image that I referred to with the edge-flow. The edge flow is important as it determines how well animation can be made with model. Although I don't plan to do animation with this game model, I believe it is just good practice to do things as professionally as I can.

Overall, I am quite happy with how the topology turned out even though it isn't perfect, it has a few triangles in areas such as between the eyebrows.

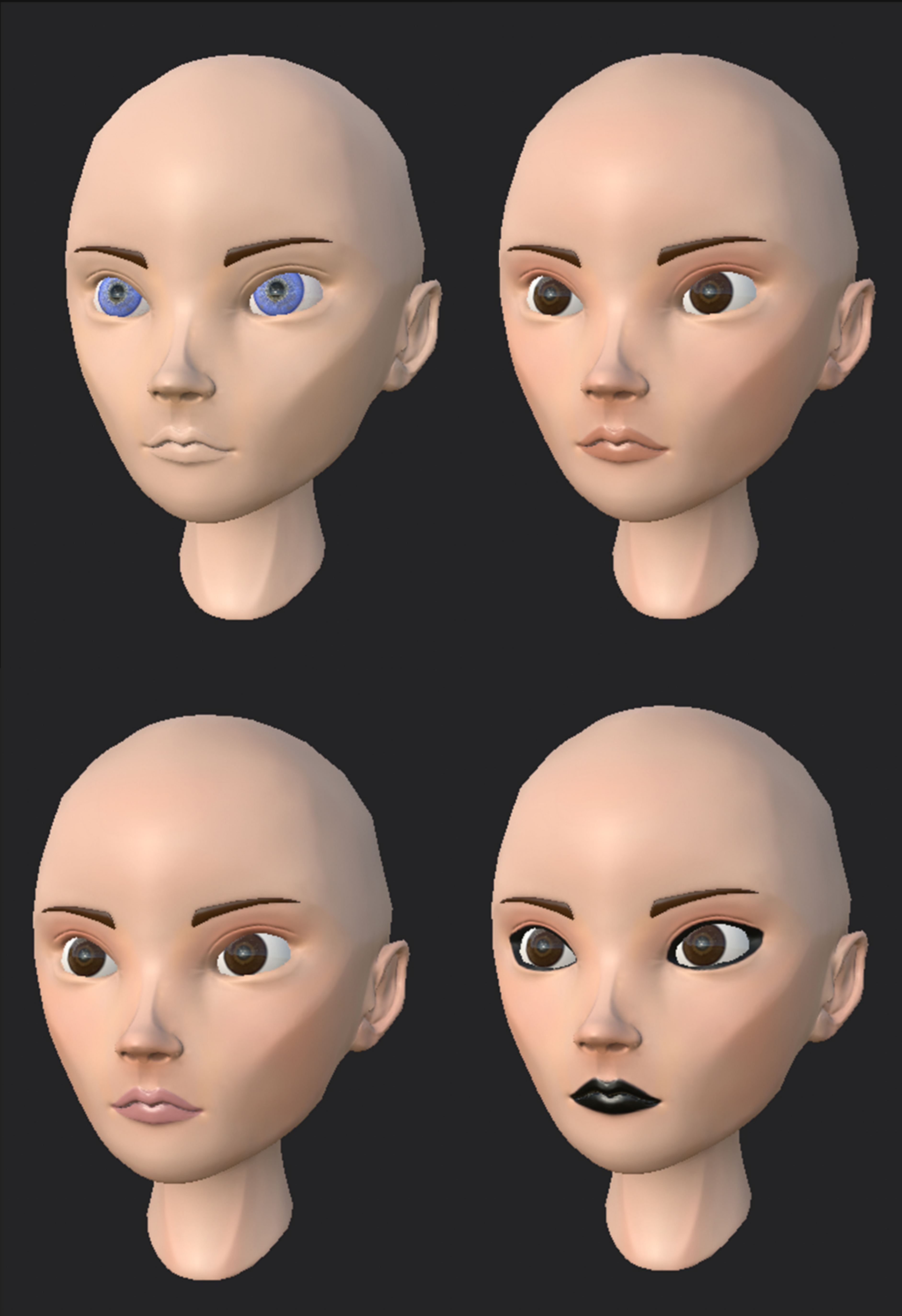
After the retopology model, I baked normal maps using Xnormals and the result was excellent as it transferred all the details from the high poly sculpt into the low poly model. I used Photoshop and painted over certain details I didn't want from the sculpt such as the eyebrows and under eye, this decision was made because the eyebrows was modelled in maya during the retopology process and the under eye detail just did not feel right artistically.



Low poly model



Low poly + Normal Maps



The success of the normal map bake allowed me to start texturing. I decided to stick with Substance Painter which I have used in the past. I used flat colors for the whole skin and I also used an eye texture downloaded from the web as a starting point. From there I painted more tones to the skin to add more life into the character. The goth look I ended up with was an happy accident as I couldn't find the right color for the lips and dragged the color wheel to black, the result looked alright and gave me a direction. From there I decided to add makeup around the eyes to add more personality and style to the character.

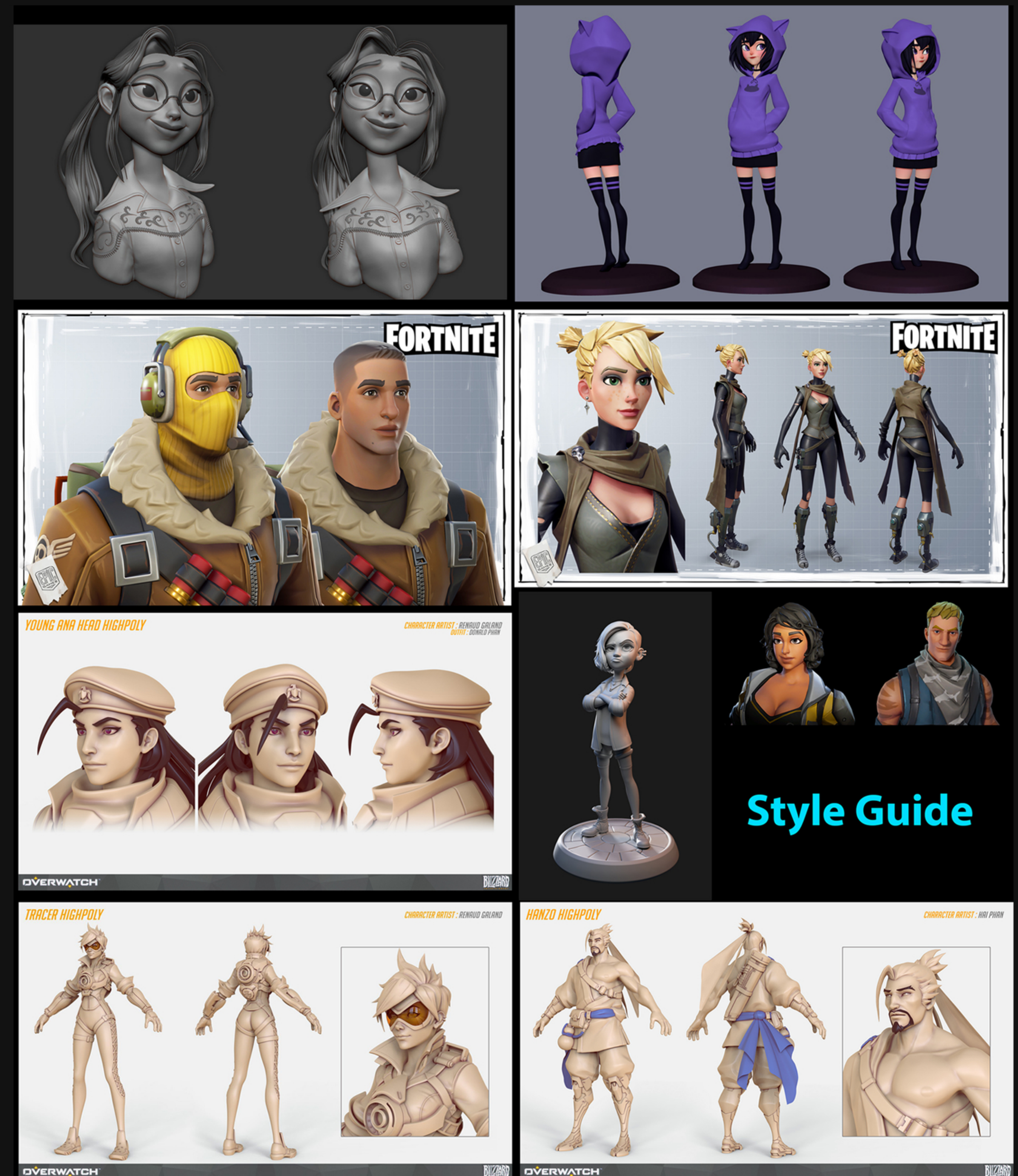
After texturing the head, I went back to Maya and modelled ear pieces, choker and eyelids to polish the design of the character up a bit more. I also had another go with hair, this time using box modeling techniques in Maya, but the quality of it was lacking, I decide to stop working on the hair after setting up renders in Marmoset Toolbag because I felt like I needed a stronger direction instead of working on design decisions as I go.



I gave myself some constraints and worked on the background of this character and the world in which she lives in.

- 3rd person role playing game
- Cyberpunk theme
- Stylised PBR graphics

I have chosen this direction because I wanted to experiment with the tone of cyberpunk genre, and whether or not the high-tech, low-life vibe can remain in a relatively light-hearted art style.



Art and design are two very different things to me. For this specific project, I am focusing more on the quality of the art of a stylised game character rather than producing a unique design.

paint-over concepts



secretary



Helicopter pilot



Hacker



With the direction in mind, I started working on some concept designs by painting on top of the renders in Photoshop. I experimented with a few designs for the character and each were designed as different professions. I wanted to design this character as a side character of a game, because creating a key character required much more design thinking, creating a side character also meant I could mature the design language of this project so if I want to create key characters in the future, the process would be much easier.

I picked some elements I liked with the concepts and started working on a draft sculpt. I didn't get enough time to work on hair and details of the glasses, but I am liking the direction of the design of this character.

CONCLUSION

My goal for the final outcome for Folio 1 has shifted slightly during the past 6 weeks. Originally I planned to produce a key character that can introduce a unique game mechanic of a simple game. The goal started to shift when I started learning Zbrush and experimented with character sculpts. I wanted to focus more on the art rather than the design, because my motivation behind this project was to learn Zbrush and incorporate it into my game art production portfolio pieces.

For Folio 2, I will be polishing up and completing my outcome of Folio 1, I will be completing the full body of the character through the same process utilized for the head, starting from high poly sculpt in Zbrush, retopology in Maya, texturing in Substance Painter and rendering in Marmoset Toolbag. However, depending on the process, I may experiment with other programs for texturing and rendering such as Mari and Keyshot. The character will be, as mentioned, in the visual style similar to the one utilized in Overwatch and Fortnite but in the theme of cyberpunk.

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