

**LIVE BRIEF AND EMPLOYABILITY  
FLIX INTERACTIVE  
REALISTIC CHARACTER**



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# BRIEF BREAKDOWN AND ANALYSIS

## CHARACTER ART TEST – REALISTIC

### WHAT ARE WE LOOKING FOR?

This Art Test will test your ability to:

- Use the fundamentals of modelling, texturing and presentation to create a high-quality 3D Game Character.
- Utilise your characters design to explain their abilities, weapons and moves. We're looking for a **functional** character.
- Tailor your work to a specific art style, game genre and performance budget.
- Leverage the full power of Unreal Engine 5's real-time rendering, materials and lighting system to present your work.

The Brief this year is a **Final Boss of an open world Fantasy RPG game.** A 3D Art Brief in which you will create your own high-fidelity character or creature.

**Design, Model and Texture a Boss Character which the player will fight.**

**Setting:** A Fantasy RPG World.

Examples include but are not limited to: Elden Ring, Baldur's Gate, Kingdom Come: Deliverance, etc.

Functional character, can't just be a randomly powerful enemy with no explanation or visual clues

Final boss, think powerful, challenging

Player will engage in combat - make it fun and detailed for potential close ups in combat

Design - Conceptualize, don't look at an existing character and work from it directly

Has to fit into the aesthetics of Fantasy RPG universes like Soulsborne games, Baldur's Gate, Kingdom Come Deliverance

# RESEARCH

grotesque bosses



Godskin Duo



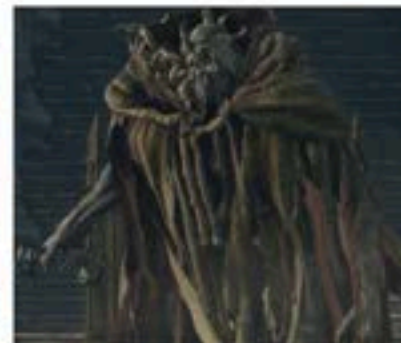
Godrick



Astel



Morgott



My research took me to look at some grotesque bosses from soulsborne games and even to some niche communities like Trench Crusade which is a tabletop game similar to Warhammer. They had very monstrous and terrifying designs and were a good starting point, but I didn't want to narrow my choices down to just grotesque characters, so I also explored games like sekiro and looked at more grounded and human-like designs



# INITIAL CONCEPTS

I was particularly drawn to the idea of immortality, and also more eastern looking designs of almost god-like beings as a final boss following the brief

- Samurai driven mad over time
- Disregarded his vows of keeping peace and became a destroyer

Japanese character for destruction written on armour



Chained up for humanity's safety

Issues:  
Too many various physically textured armour pieces and fur-like features such as cape



- Ronin as old as time holding the foundational elements life
- Wanders the earth building and destroying landscapes

Elemental Orbs

Issues:  
Lots of cards for straw accessories and complex pleated clothing physics

# CONCEPT DEVELOPMENT

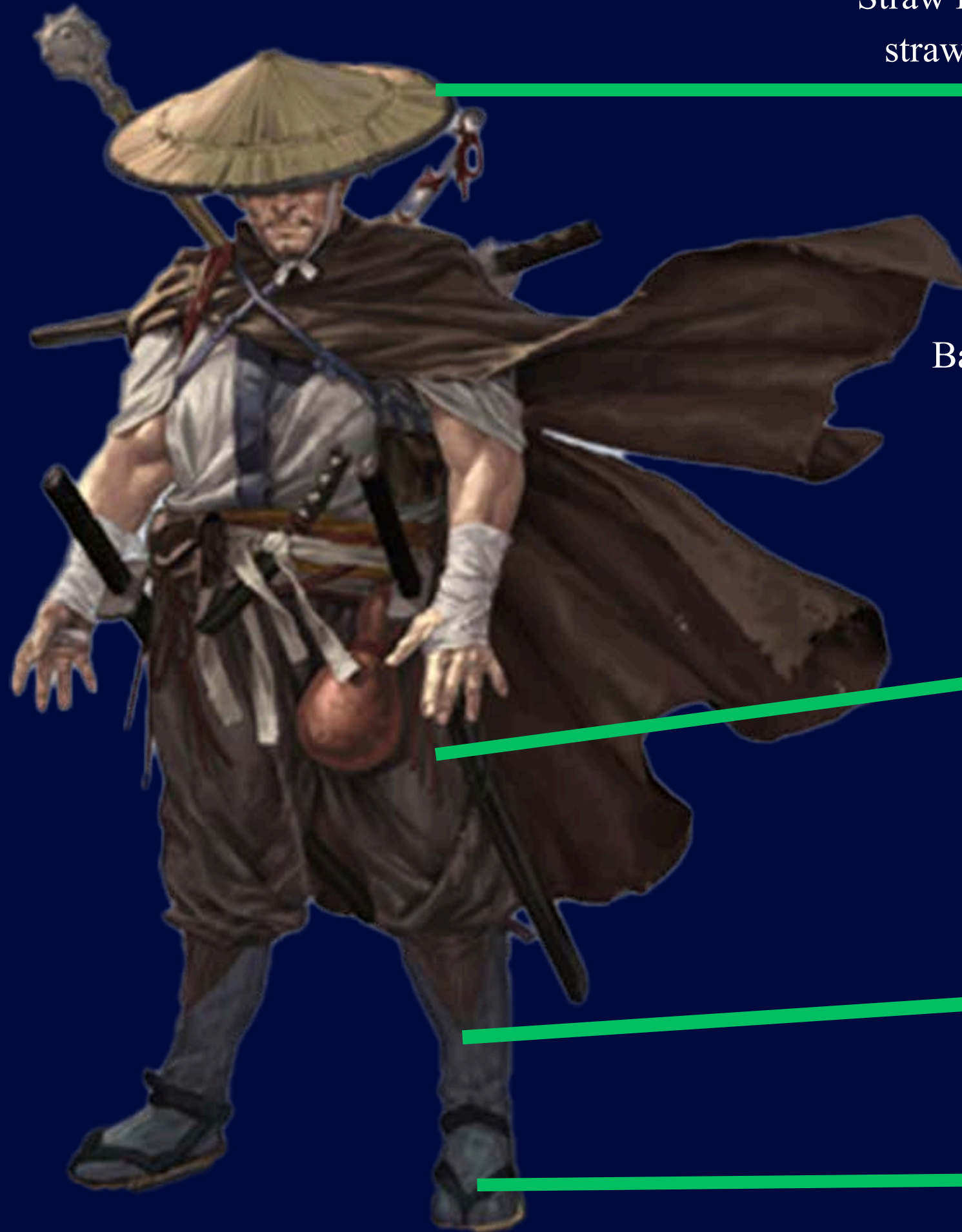
Arrived at a more manageable design heavily inspired by Taron Malicos from Star Wars Fallen Order and this ronin design

My initial design wanted to follow a 'grim reaper' aesthetic, which is why I went for scythes as his weapons



# CLOTHING BREAKDOWN

Straw Hat made of a bunch of packed straw with loose straw around rim



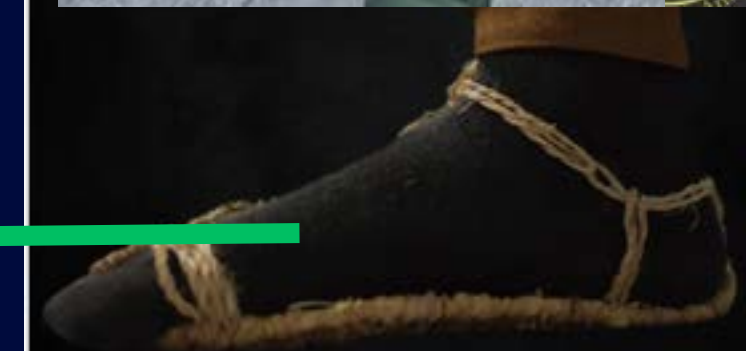
Baggy Hakamas, was considering pleated but arrived at baggy Hakama trousers instead



Hakama Shin Wraps called 'Kyahan'. The Hakamas tuck into the wraps to improve mobility while wearing Hakama



Tabi socks and Warajis, straw sandals.



# MESSOREM, GOD OF SOULS

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- As old as creation itself
- exists roaming the world claiming souls for the afterlife
- challenges reluctant or hostile souls
- hunts down those who cheat death
- cannot be killed, but can be deterred in the rare case of being bested in combat
- uses soul shards as ranged weapon
- uses scythe for melee combat



This is my final design putting together all aspects of the clothing and aesthetics.

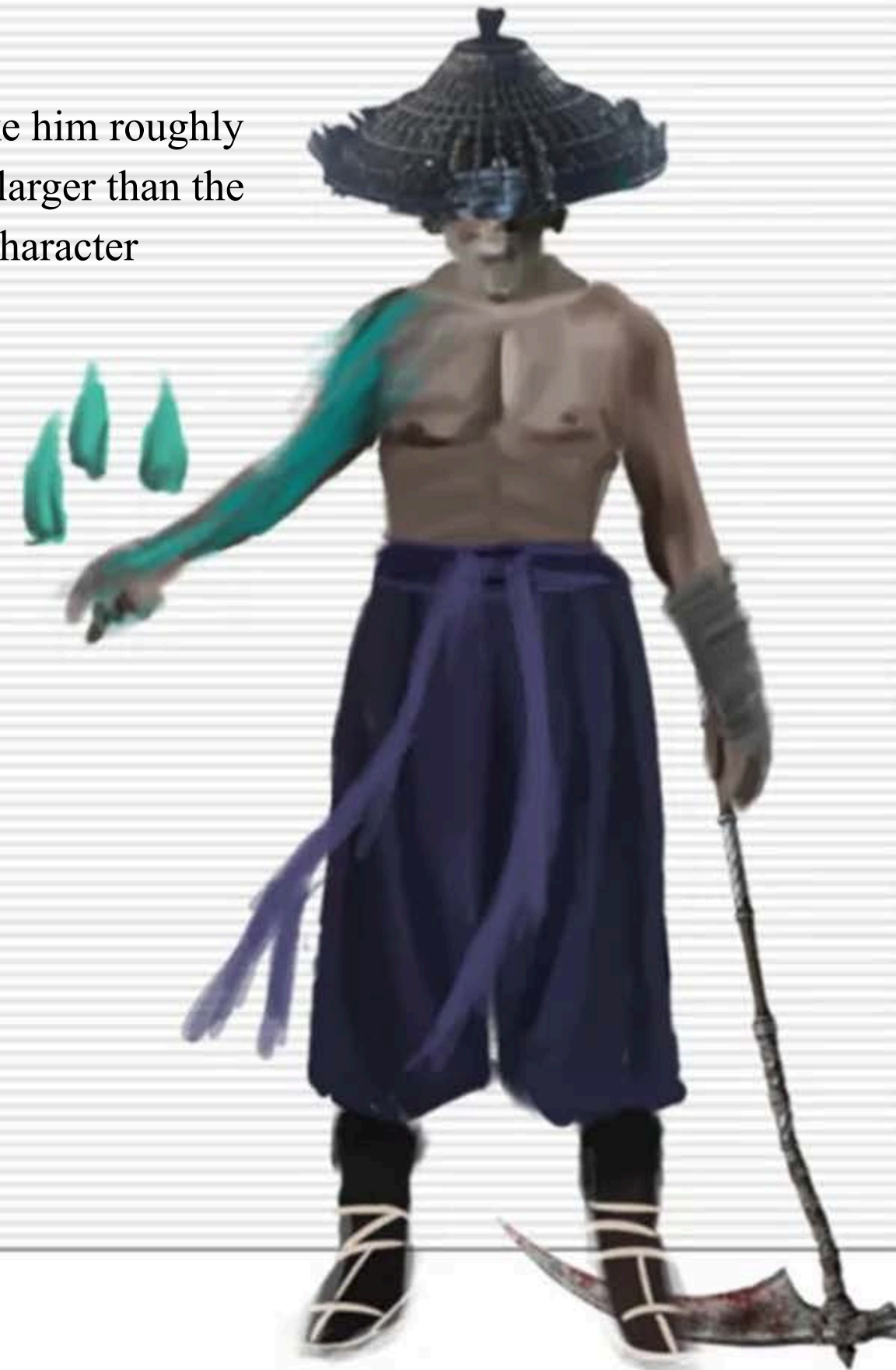
He is a God of Souls who has a decayed and glowing arm where he channels souls through, wearing traditional Japanese ronin clothing

The name Messor is a mixture of Greek and Latin for the word reaper or death

I have explored large monstrous and grotesque designs for bosses before and wanted to play with scale here, but more grounded with how I go about it.

As a result, I have decided to make him roughly 7.5 feet to 8 feet tall, just slightly larger than the average approx. 6 feet tall character

108" = 9'0"  
102" = 8'6"  
96" = 8'0"  
90" = 7'6"  
84" = 7'0"  
78" = 6'6"  
72" = 6'0"  
66" = 5'6"  
60" = 5'0"  
54" = 4'6"  
48" = 4'0"  
42" = 3'6"  
36" = 3'0"  
30" = 2'6"  
24" = 2'0"  
18" = 1'6"  
12" = 1'0"  
6" = 0'6"  
0" = 0'0"

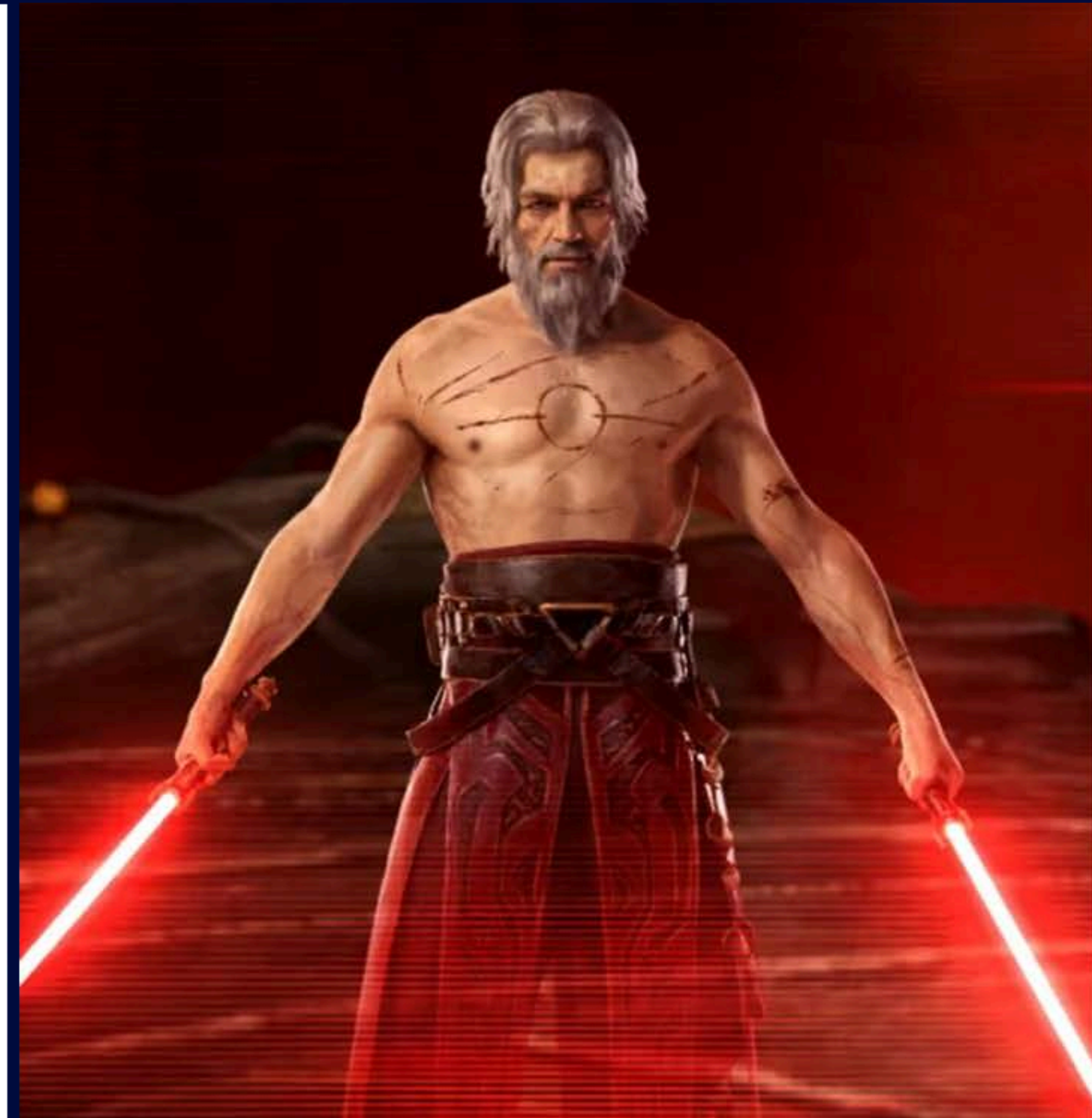


9'0" = 274cm  
8'6" = 259cm  
8'0" = 244cm  
7'6" = 229cm  
7'0" = 213cm  
6'6" = 198cm  
6'0" = 183cm  
5'6" = 168cm  
5'0" = 152cm  
4'6" = 137cm  
4'0" = 122cm  
3'6" = 107cm  
3'0" = 91cm  
2'6" = 76cm  
2'0" = 61cm  
1'6" = 46cm  
1'0" = 30cm  
0'6" = 15cm  
0'0" = 0cm

# BODY TYPE REFERENCE



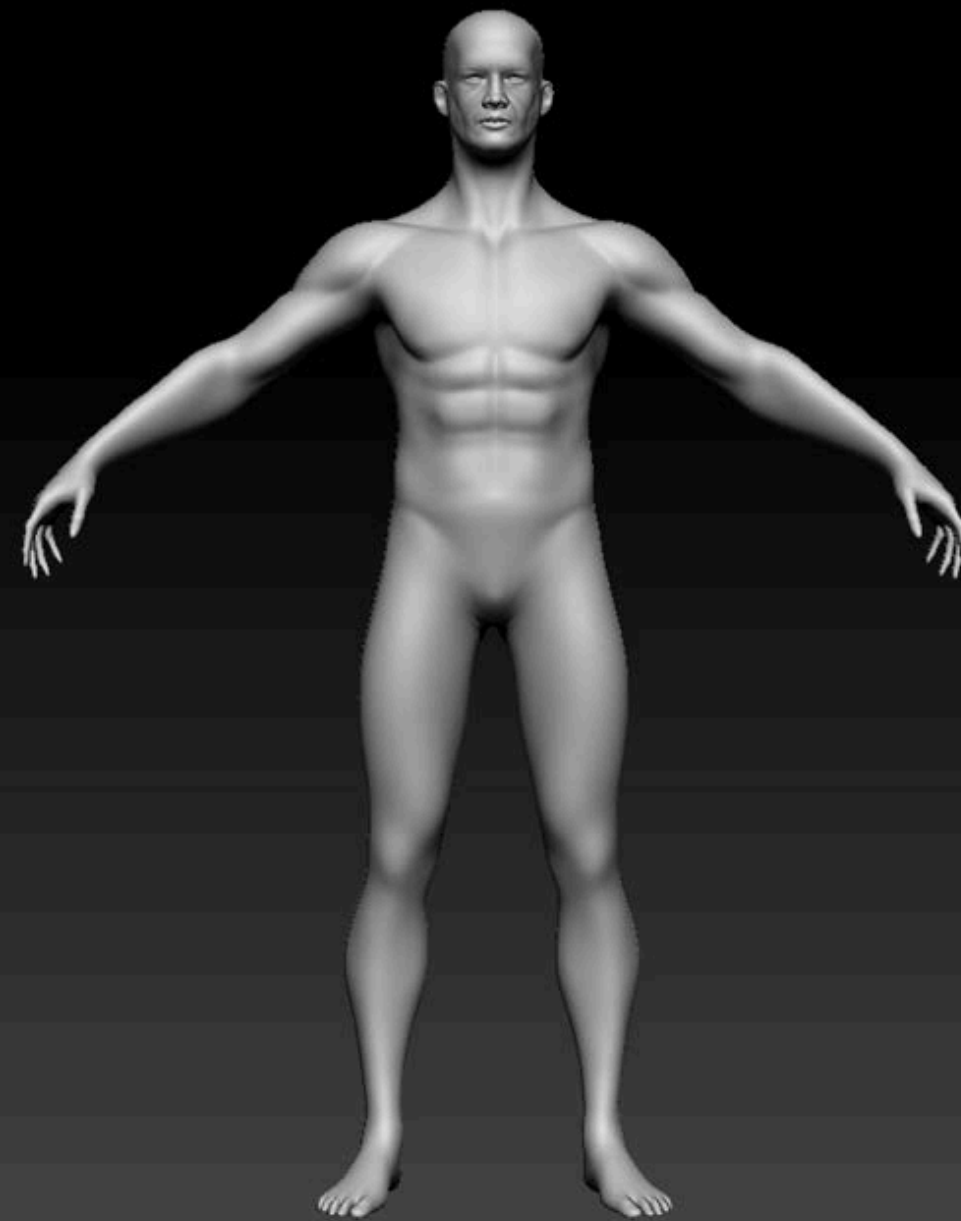
References found on 3D.SK. I chose him because it is close to Taron Malicos' body type but also has more muscle definition, giving me more flexibility with the degree of muscularity



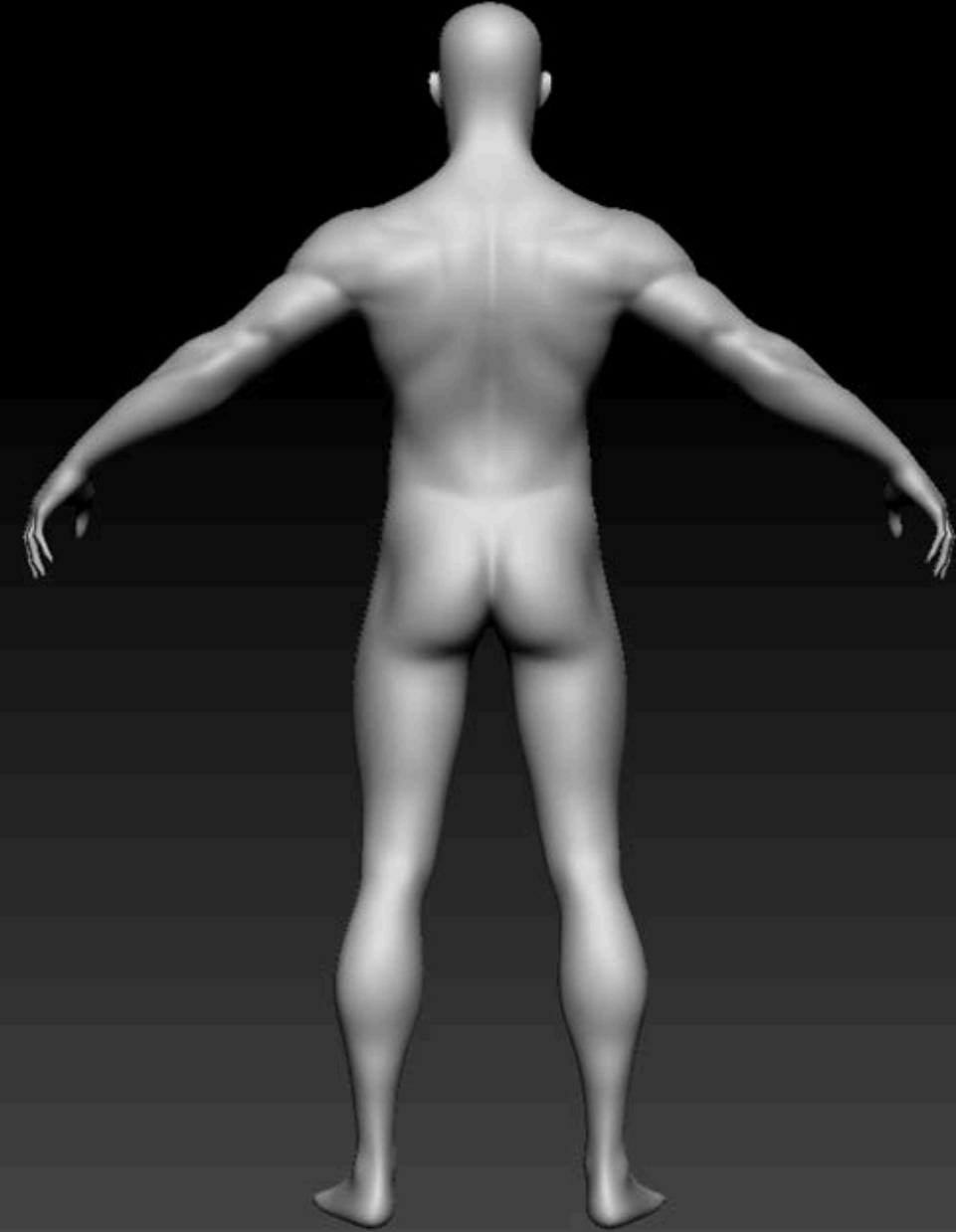
# START OF SCULPTING



I used the Zbrush base mesh with multiple subdivision levels to work between primary, secondary and tertiary forms



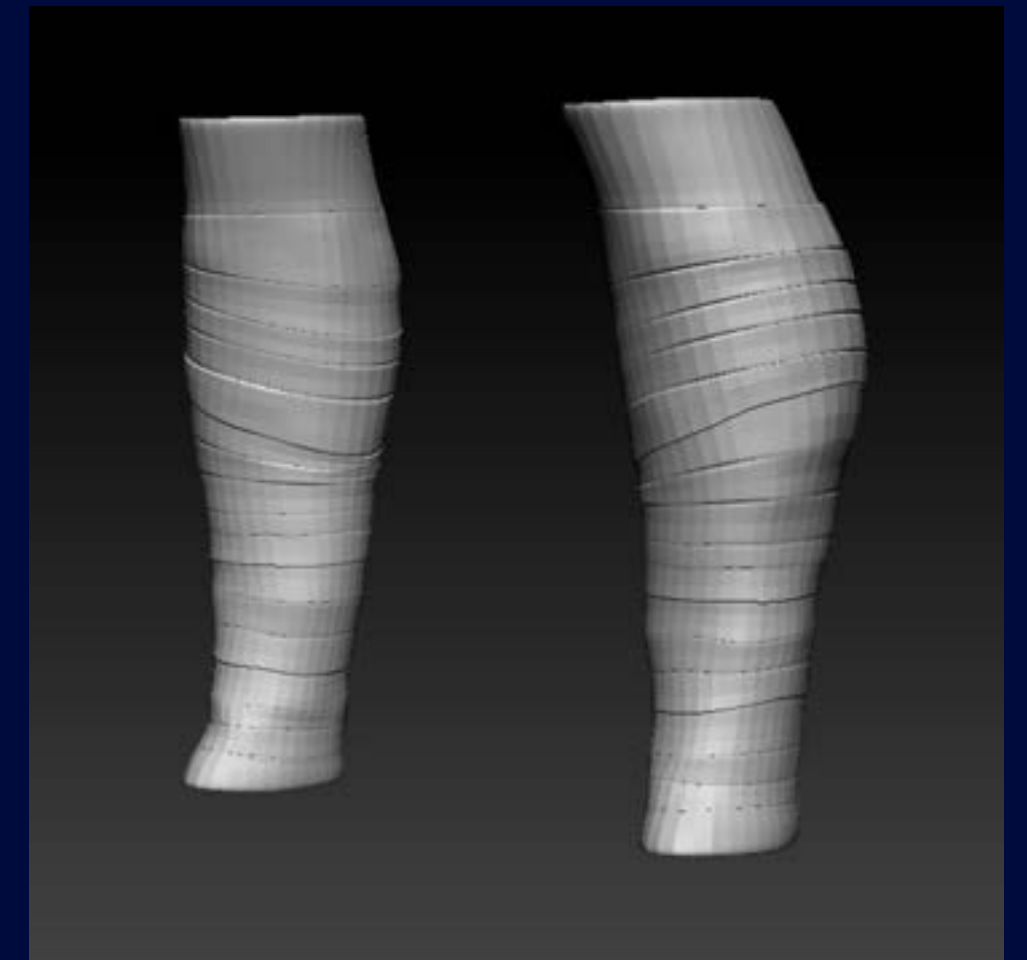
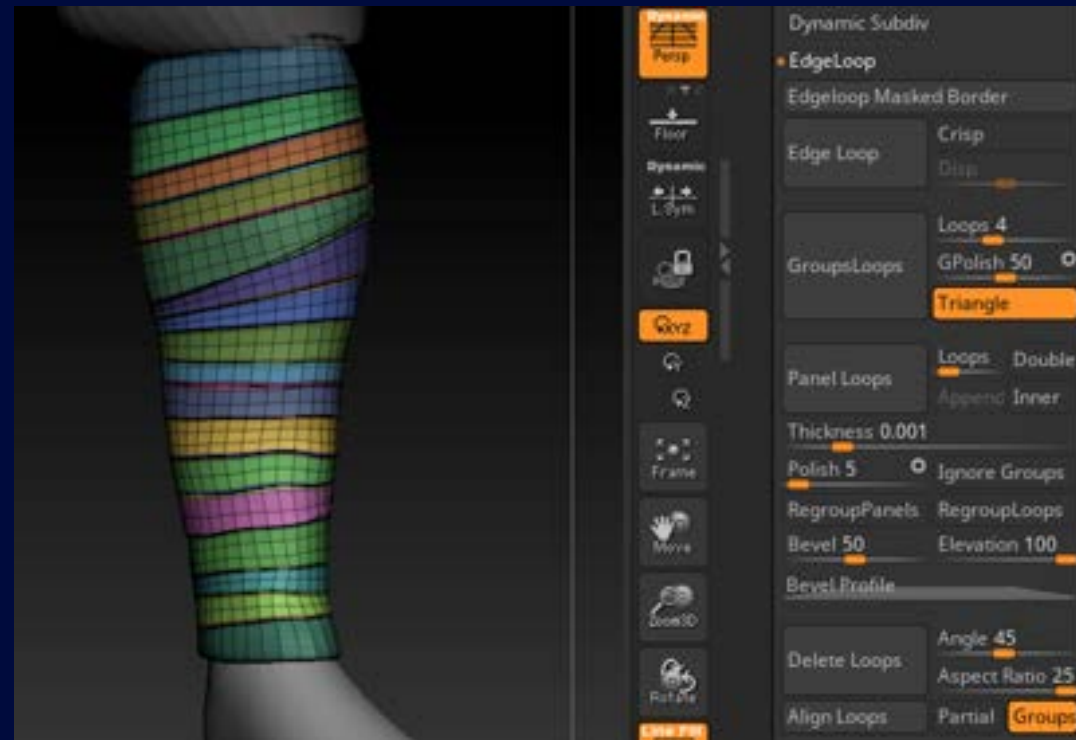
At this stage, I am cutting into the muscle using dam standard and the move tool to establish volume



Muscle groups such as pectorals, obliques, delts, triceps, lats and scapula have been defined at this early stage



# PANEL LOOPS IN ZBRUSH



I watched a youtube video explaining how to get good bandages in Zbrush, as I had never explored this type of clothing before and was lost on how to sculpt it

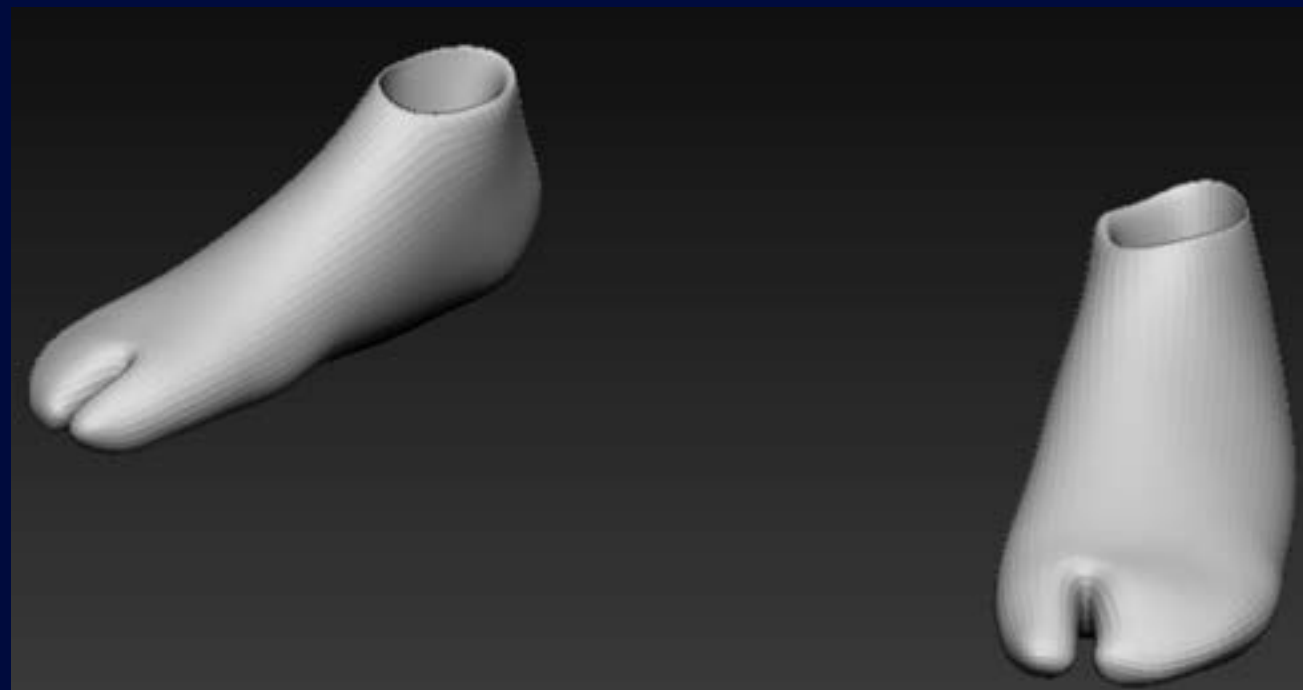
Essentially, I cut into a base cylindrical shape set up around the shin with the slice tool to create different polygroups

After using panel loops it created divisions between the polygroups to mimic the effect of bandages

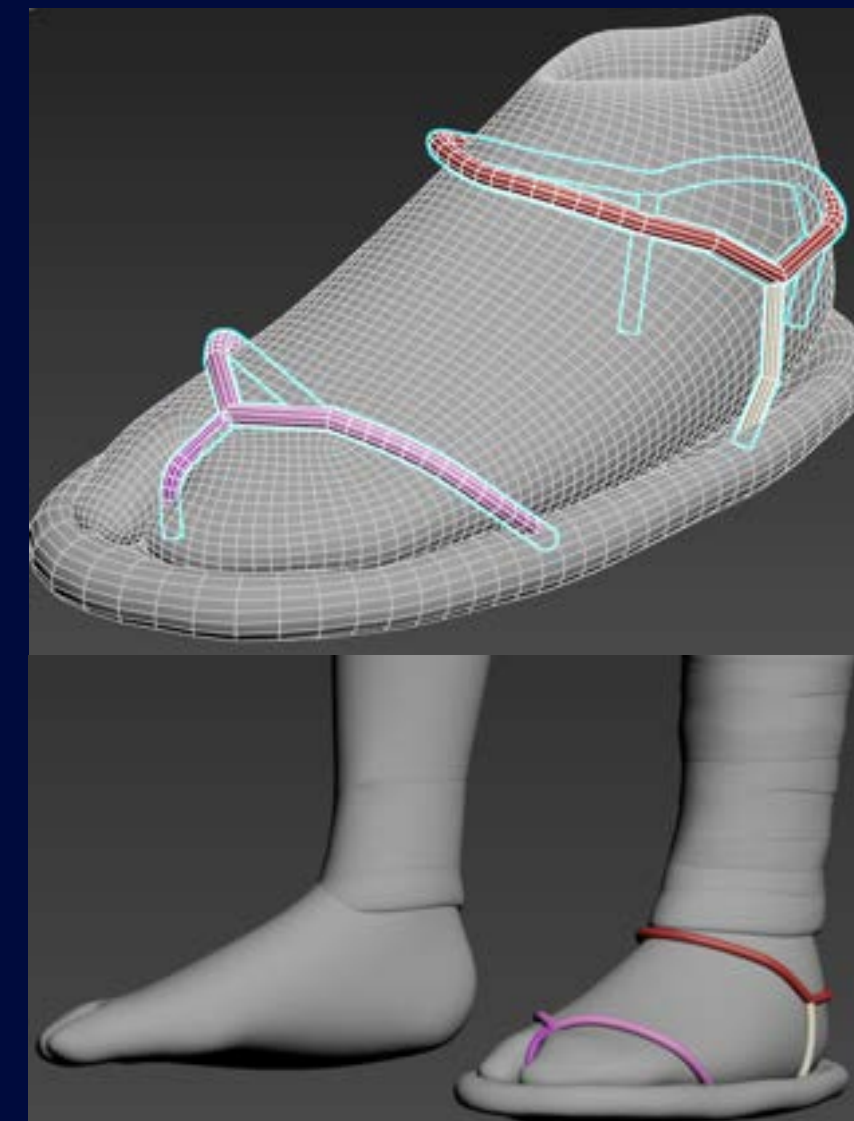
# CLOTHING



Extraction of leg area in Zbrush as a starting point for the Hakama Trousers



The Tabi socks are a dynameshed and remeshed extract of the feet to create the two toed effect and so the straw straps of the Waraji sandals can fit between them



The Sandal base is a very simple cylindrical shape and doesn't need too much detail as it will hardly be seen by the player. The straw straps were done using the line tool and using bezier and smoothed curves where needed

# SCYTHER

## Inspiration

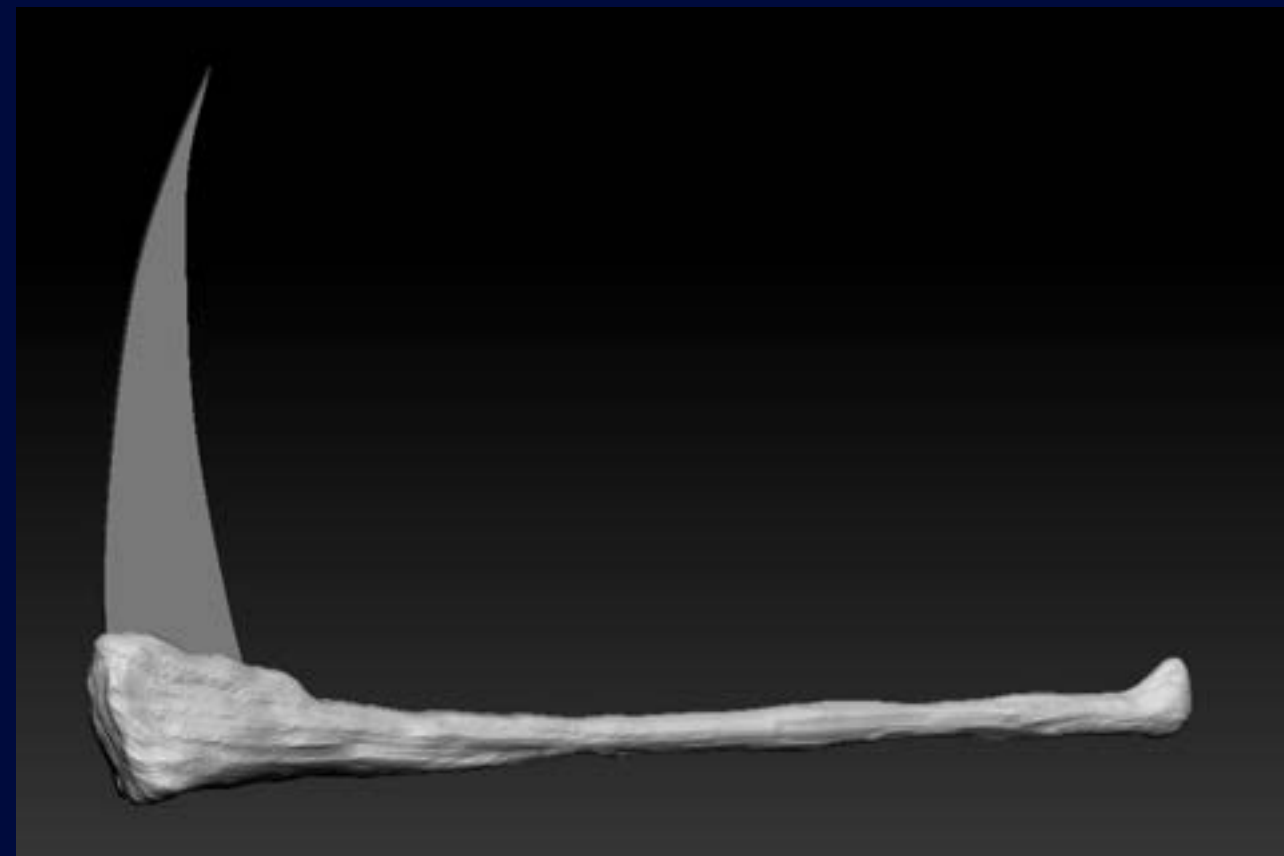


Grim reaper design with a sleek scythe, it was very close to my concept and wouldn't be too difficult for me to sculpt as I have experience with sculpting tree-related models and the handle looks like tree bark

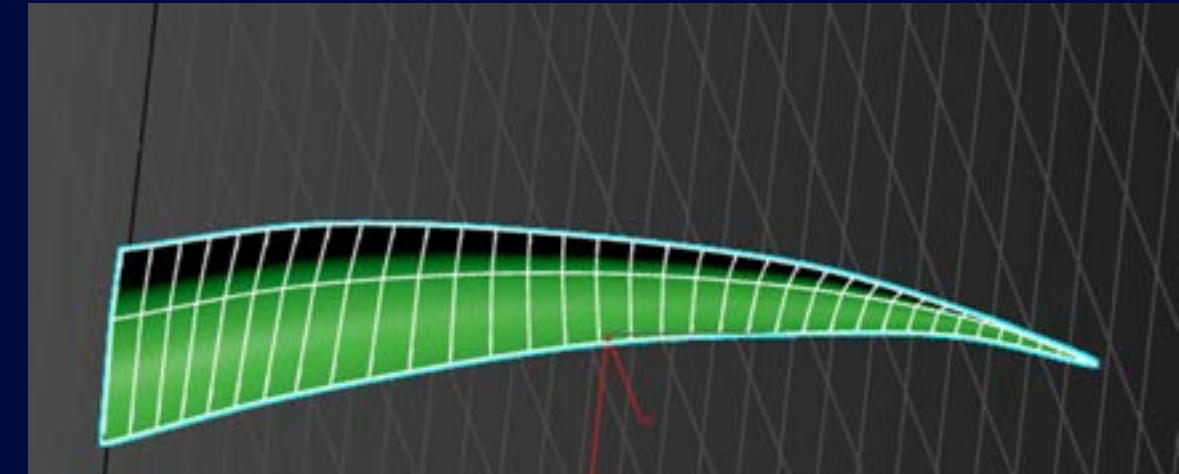
## Zbrush sculpt



Blocked out in Zbrush with a cylinder and then I worked with dynamesh, remesh and multiple subdivisions



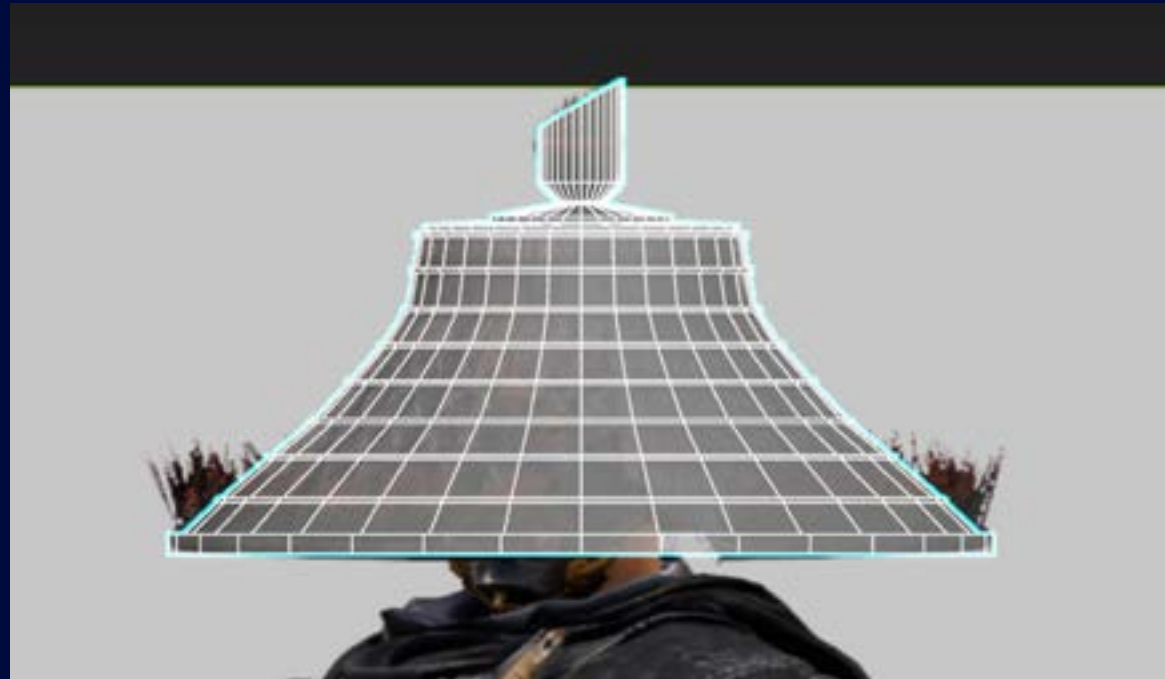
## 3dsmax blade modelling



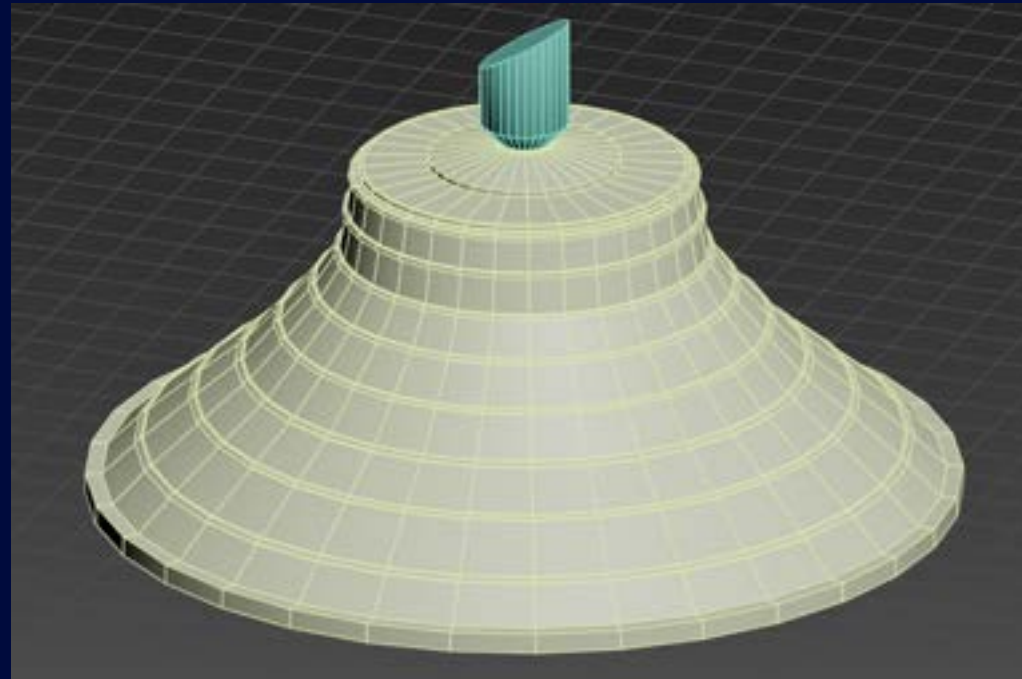
Blade modelled in 3dsmax tracing a screenshot of the scythe reference with edges applied in appropriate places like the ridge just beneath the top of the blade for good light catching

# STRAW HAT

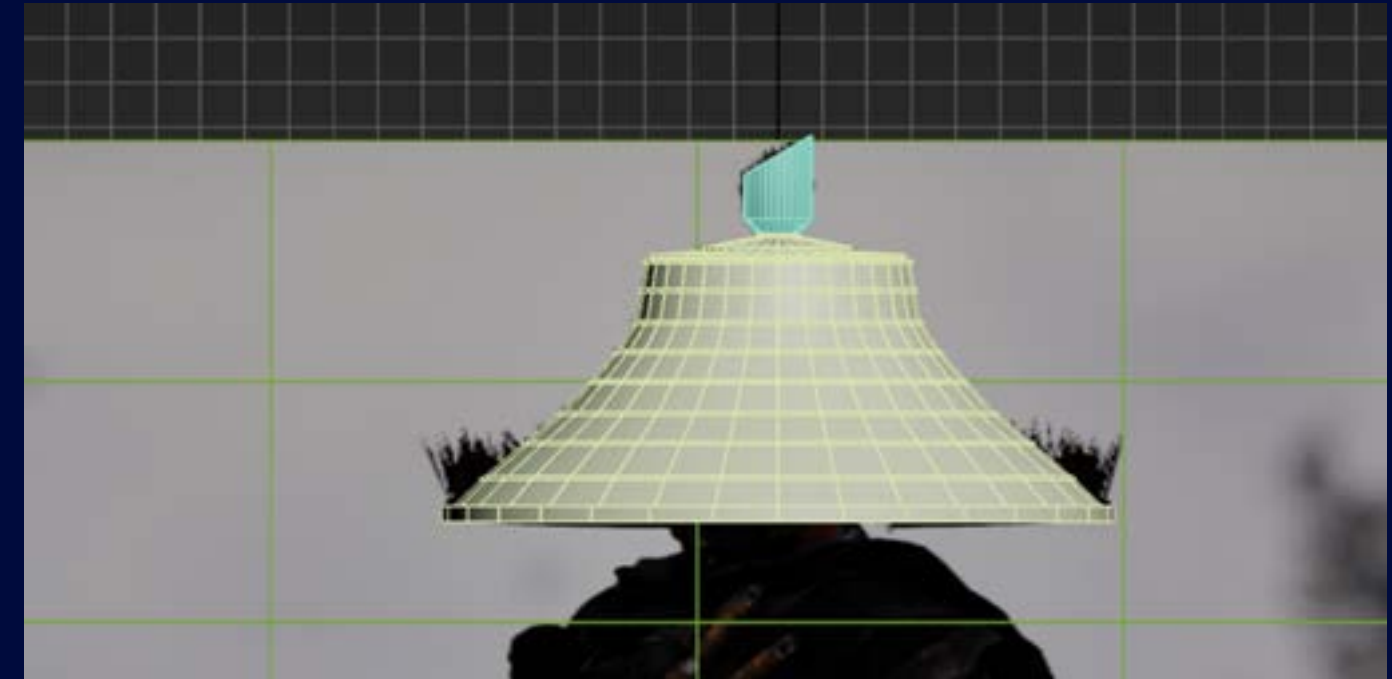
## 3dsmax setup



Modelled against reference in 3dsmax, placing loops in necessary places to slim down and match the curve of the hat

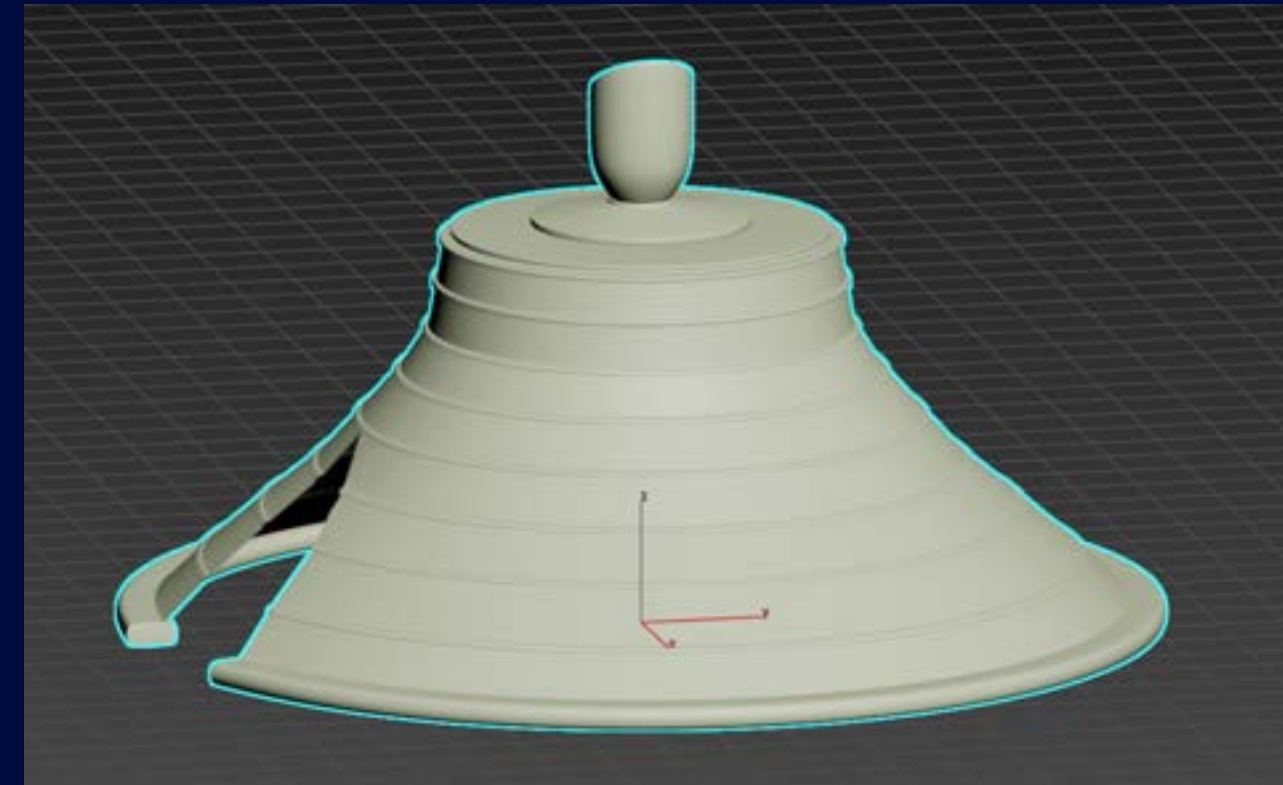
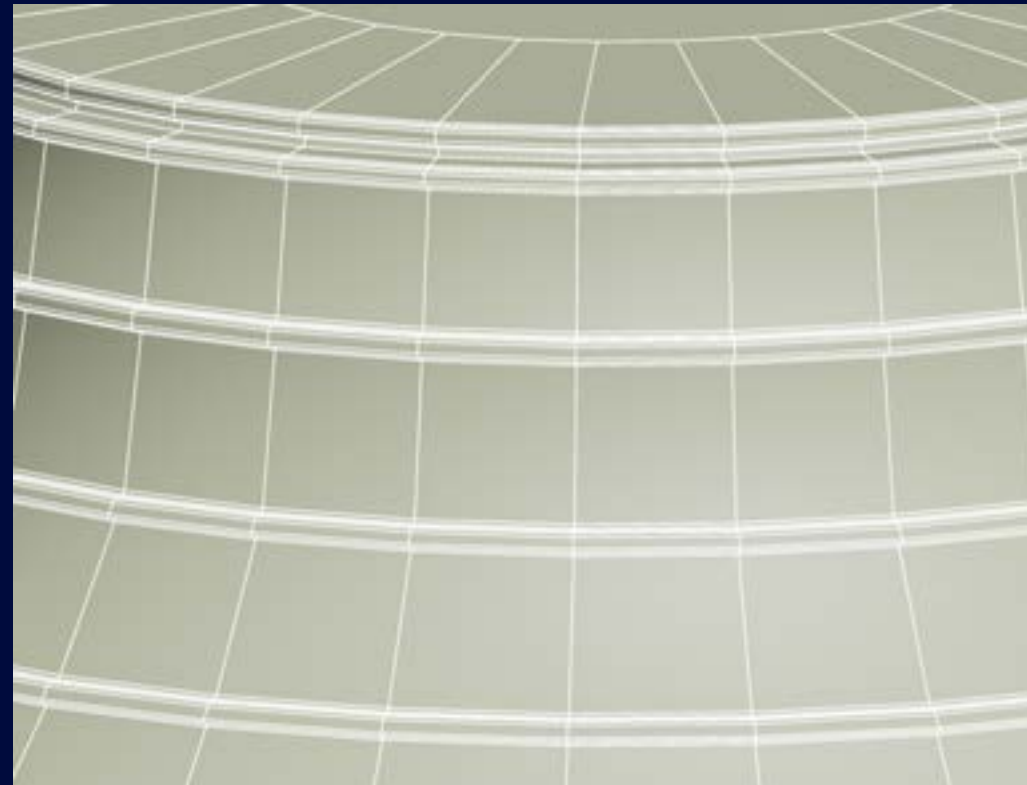
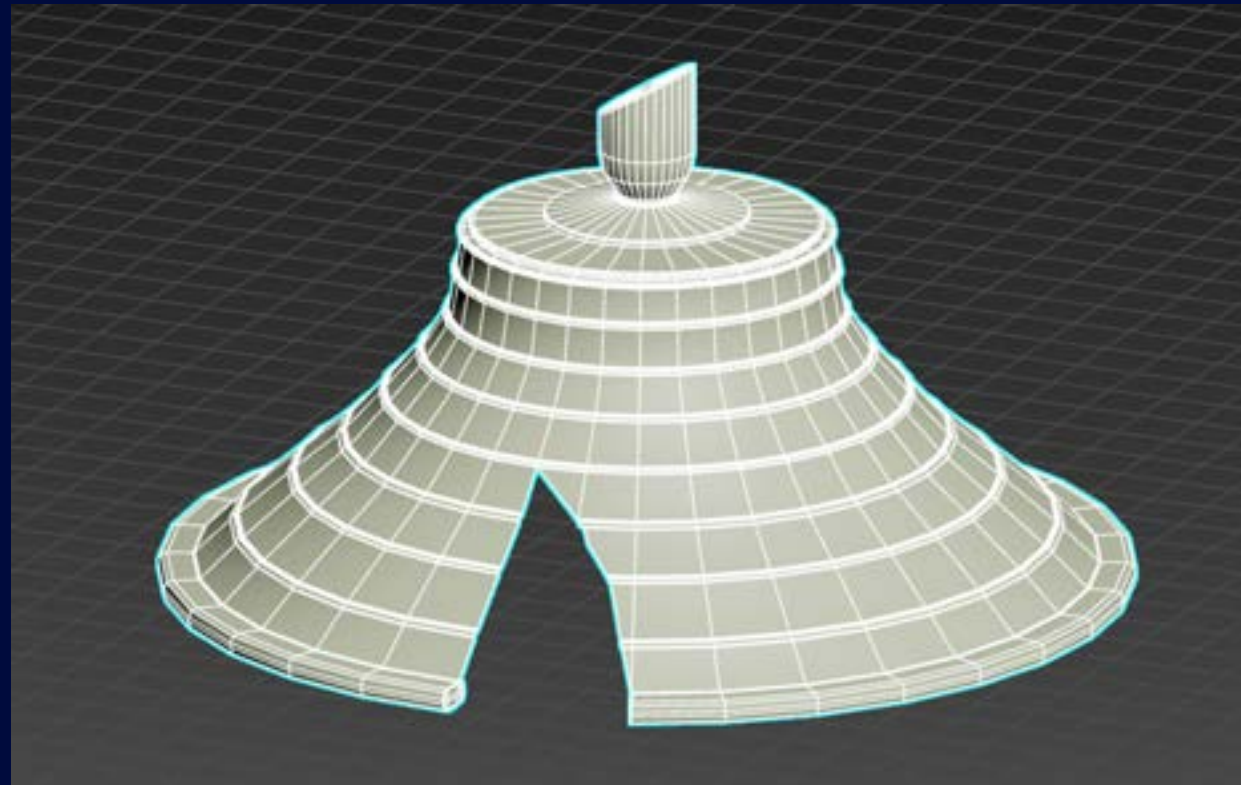


Applied extrusions for the small rings around the curvature of the hat



Applied extrusions for the small rings around the curvature of the hat

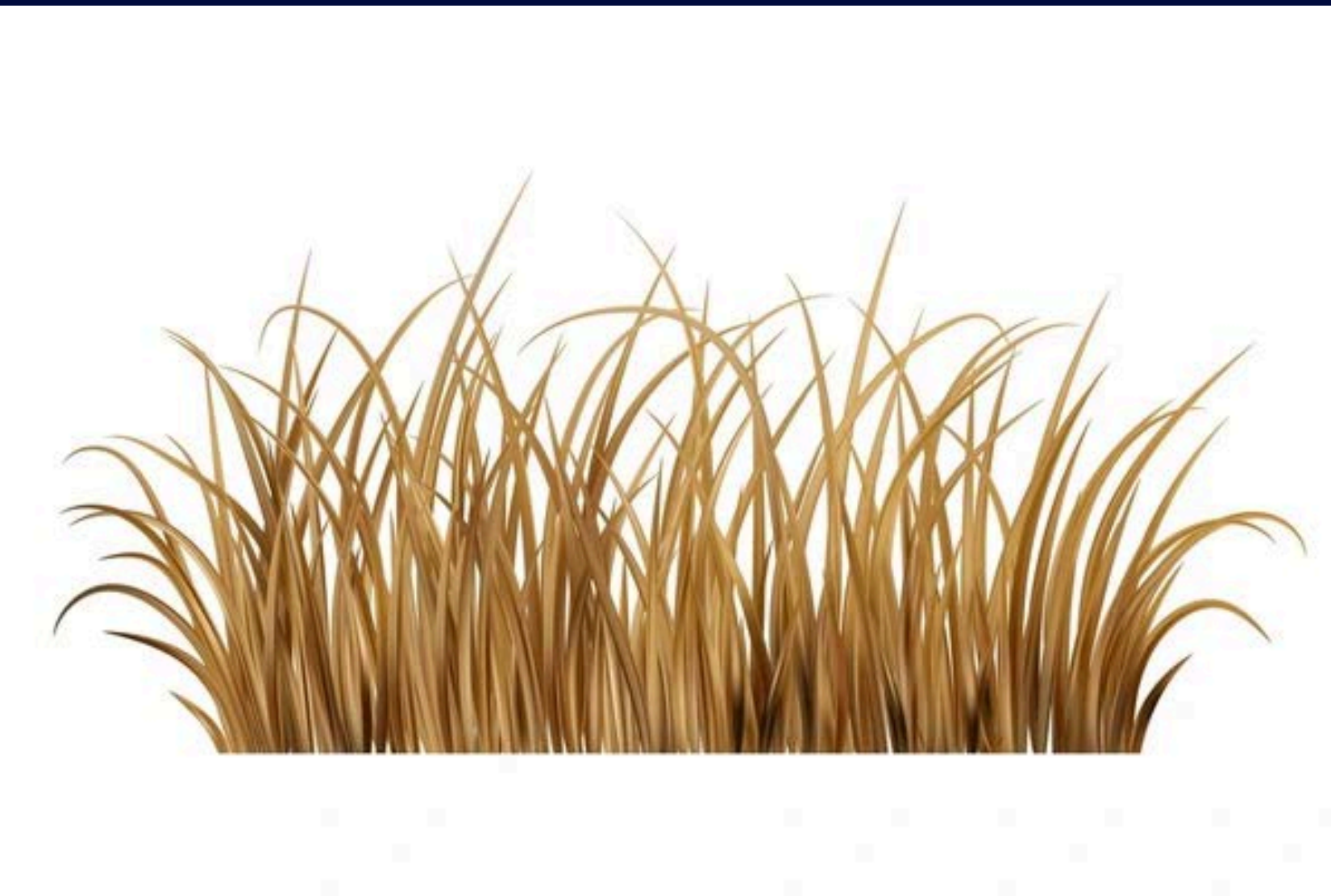
# STRAW HAT MODELLING



Continuing development on the straw hat, I modelled the extrusions for the ridges on the hat. I decided to model them as part of the main body to ensure uniform extrusions with the extrude tool. Cutting into the hat was a bit tricky as there were a lot of layers to get through and the topology is a little bit more complex at the opening now.

# STRAW CARDS

Image Found Online



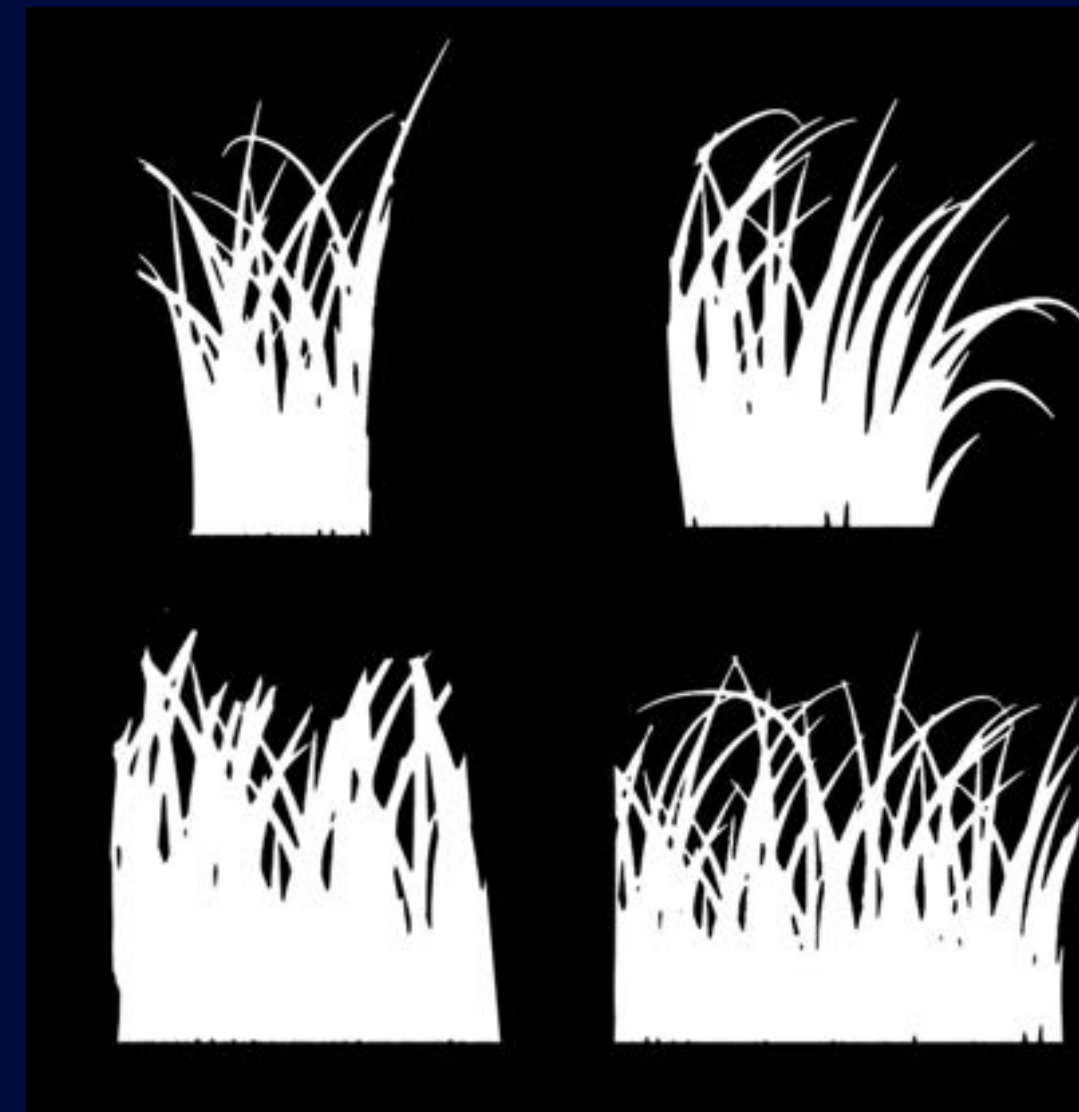
I found this dry grass flat PNG online and planned to make base colour and opacity maps from it

Straw Card Base Colour



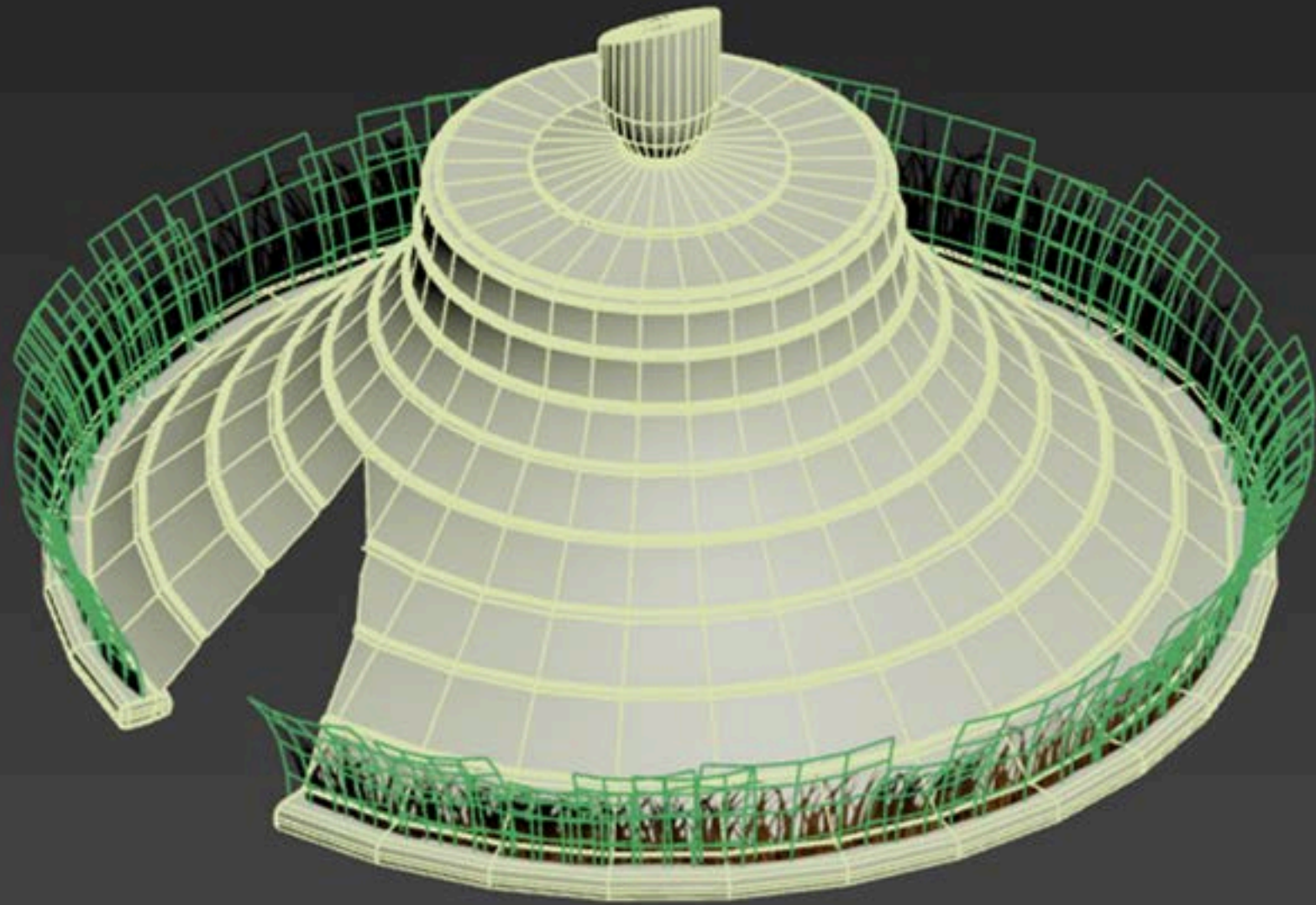
I cut into the grass in photoshop and made them their own types like a thin one, a bendy one and two thicker grass cards for some variation

Straw Card Opacity Map



Using masks I was then able to create an opacity map for the cards too.

# STRAW CARD PLACEMENT



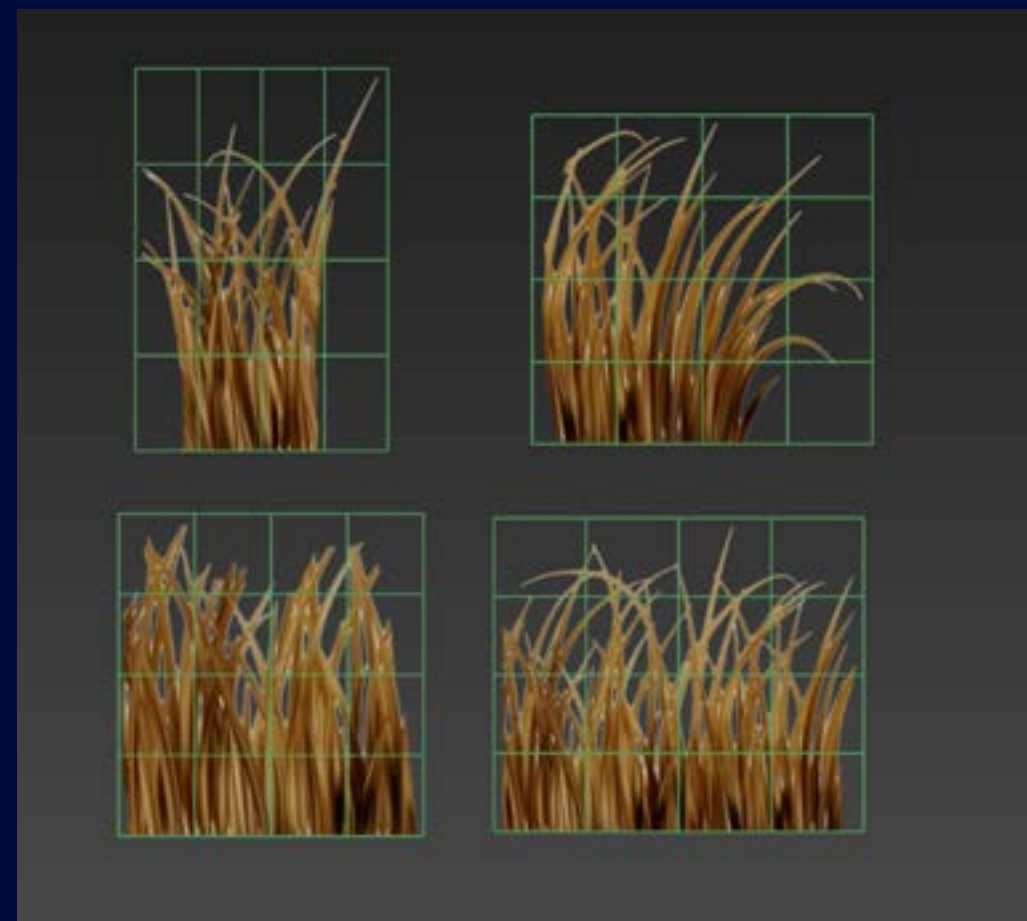
**I placed the pivot points of all cards to the centre of the hat and could then distribute them in a radial manner and was a very simple and direct process. All the cards angle outwards as well due to the bends I applied beforehand and they look very cohesive with the hat.**

# 3DSMAX CARD SETUP

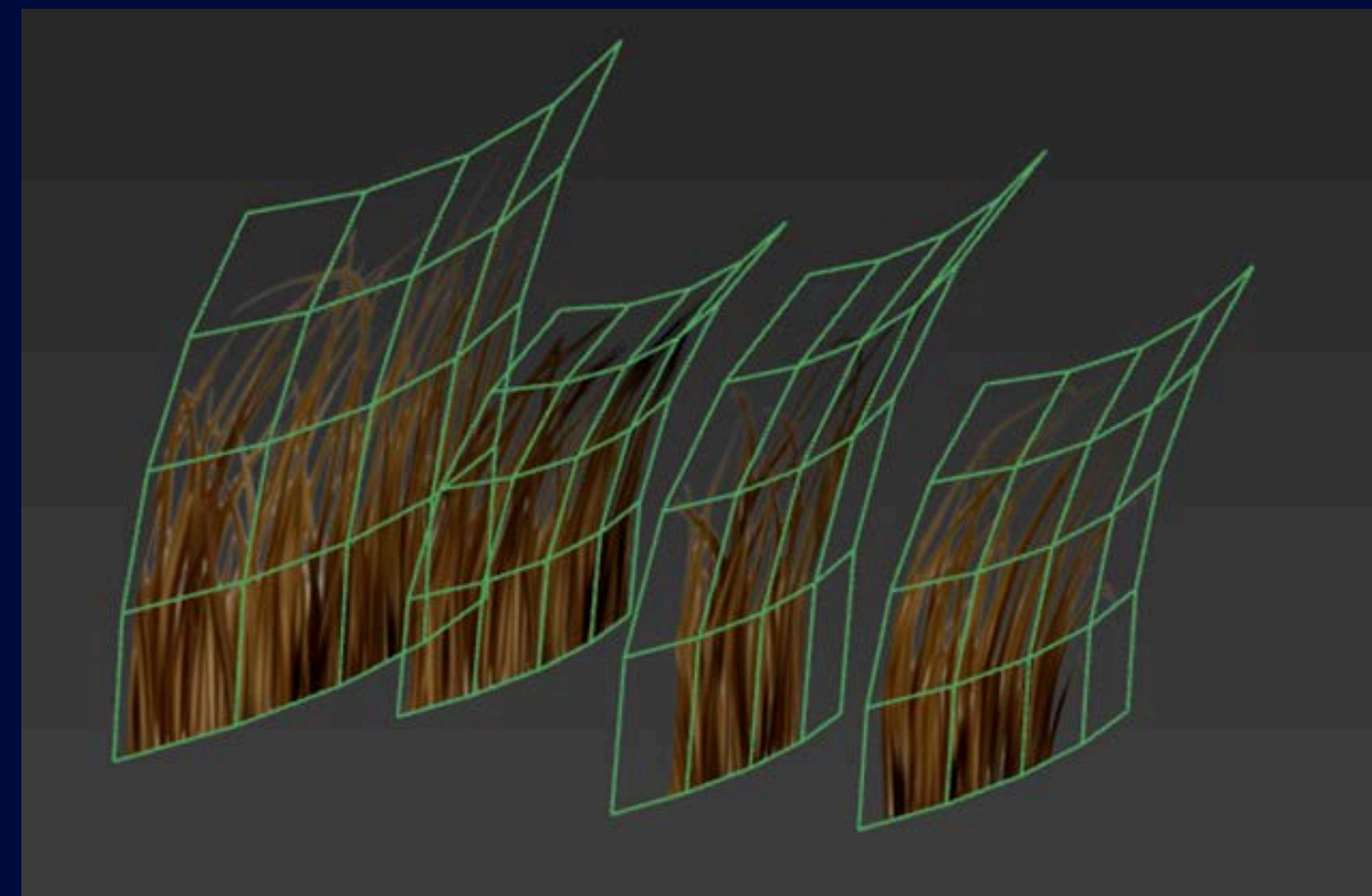
## Plane Setup



## Support Loops



## Bending

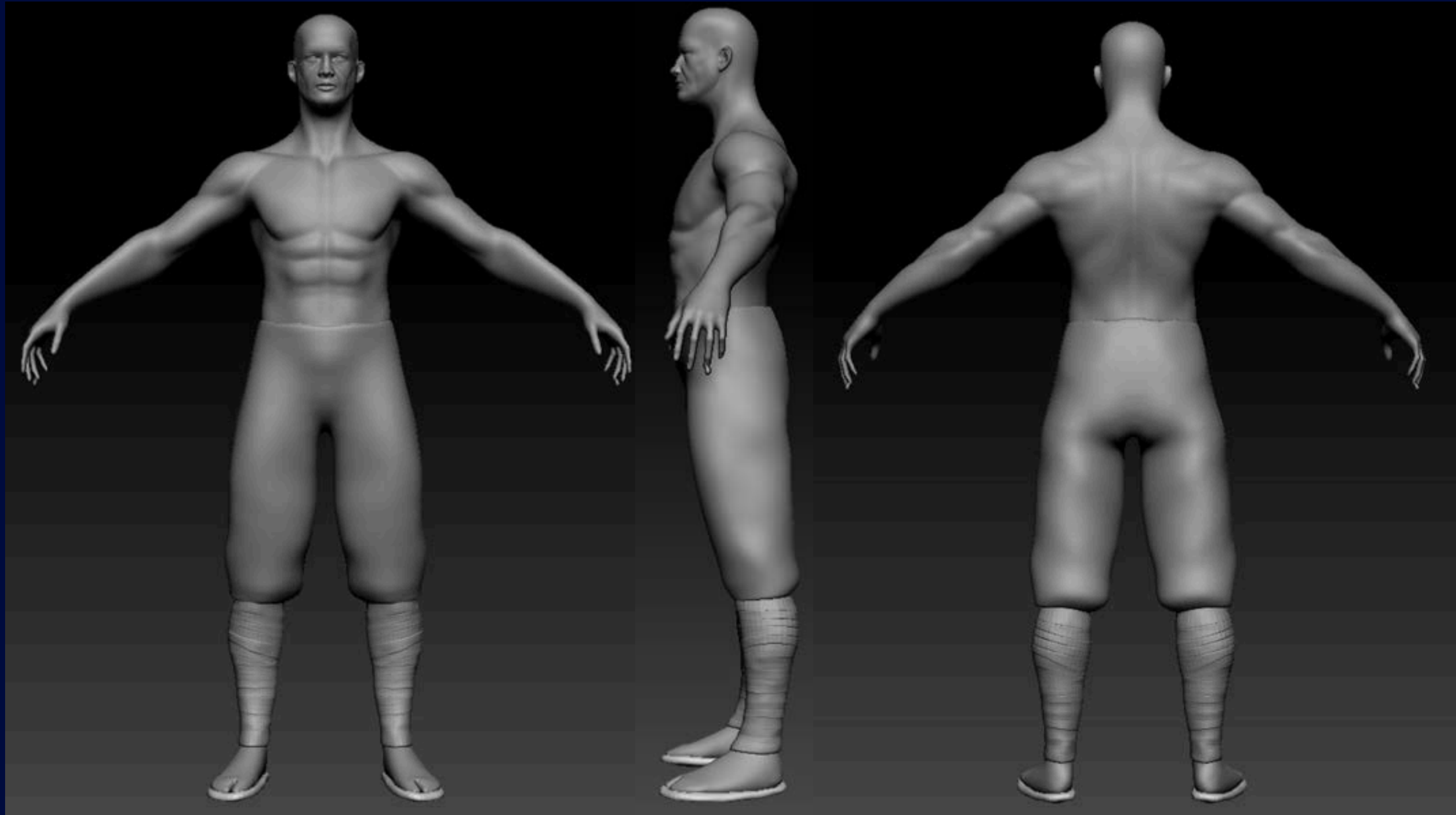


Set up on a single plane which I will divide into their own separate cards

I then gave each card more loops to support bending

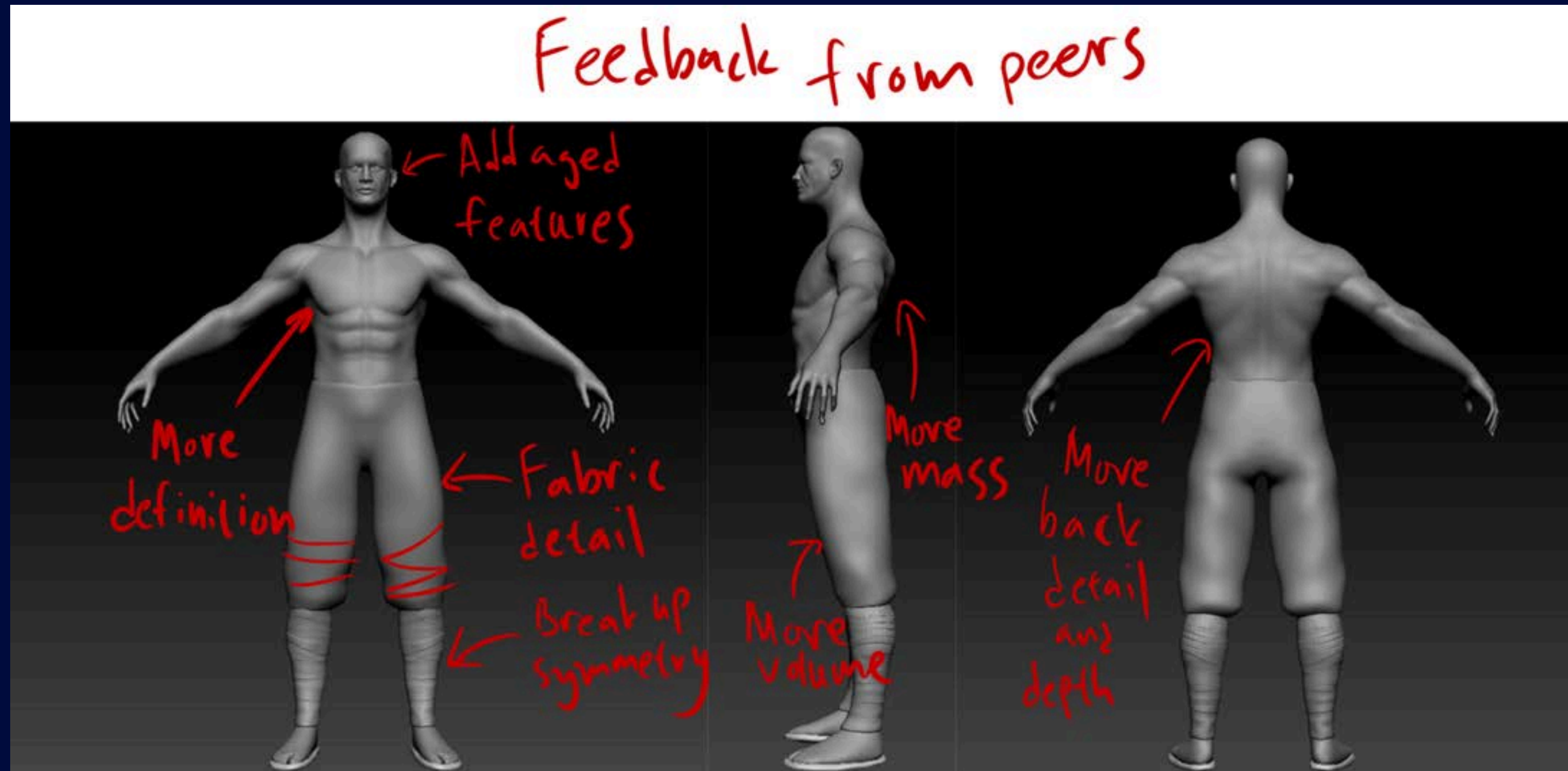
Bending applied to give cards more depth when applied to the rim of the hat

## EARLY STAGE REVIEW



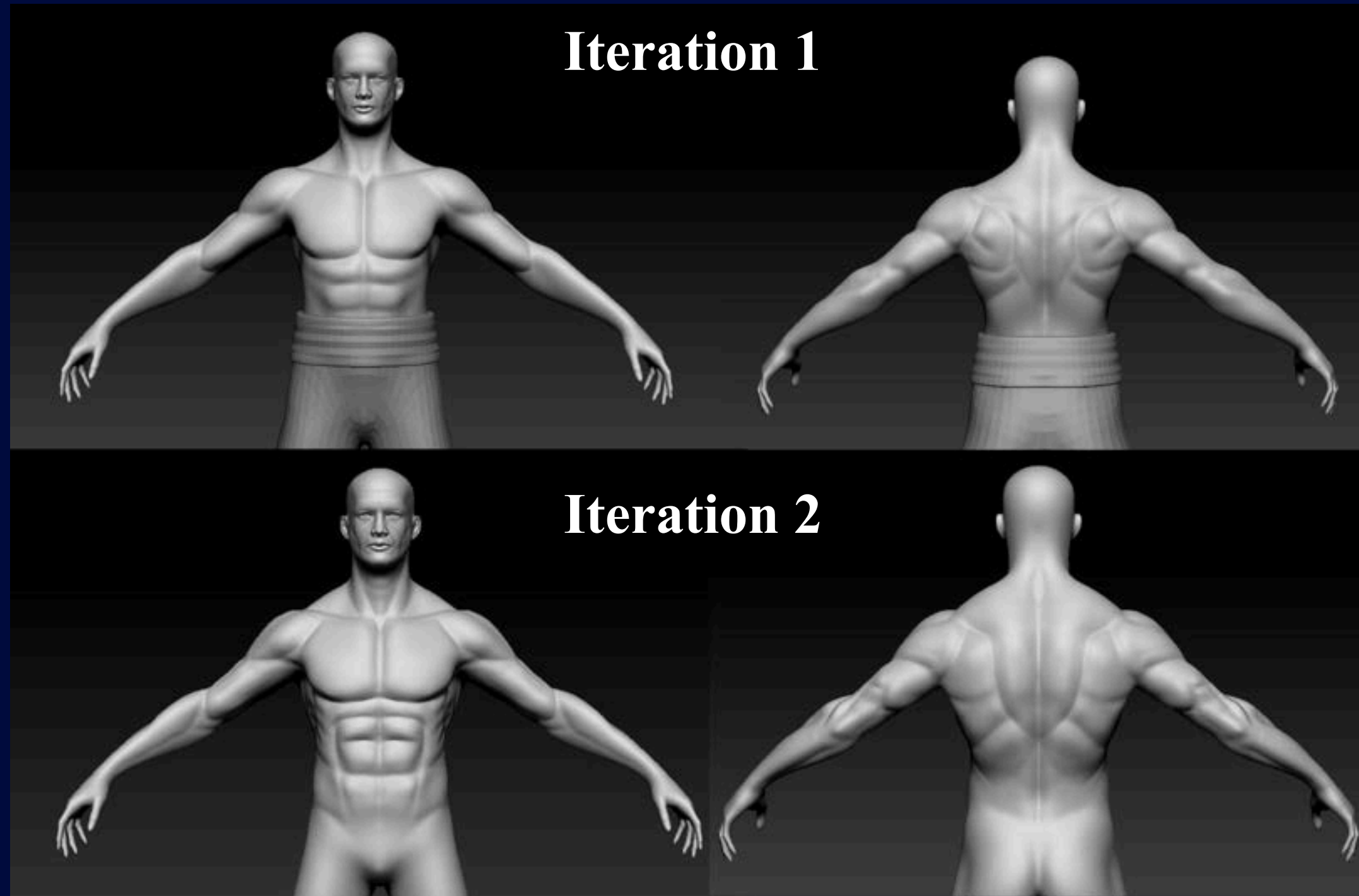
At this point my sculpt is coming out of the early stage with primary and secondary forms sculpted in as well as having a good foundation for the clothing

# FEEDBACK



The primary feedback was about my muscle definition and mass for the character's body. Another was the volume, bagginess and symmetry of the clothing

# MUSCULATURE IMPROVEMENT



Following the feedback I got on my musculature and anatomy, I increased the muscle mass and definition and worked through iterations to slowly move towards the final product of very defined and prominent muscles. I worked through low subdivision levels for large mass changes and high subdivision levels for the definition and surface detail

# FACE

**Before**

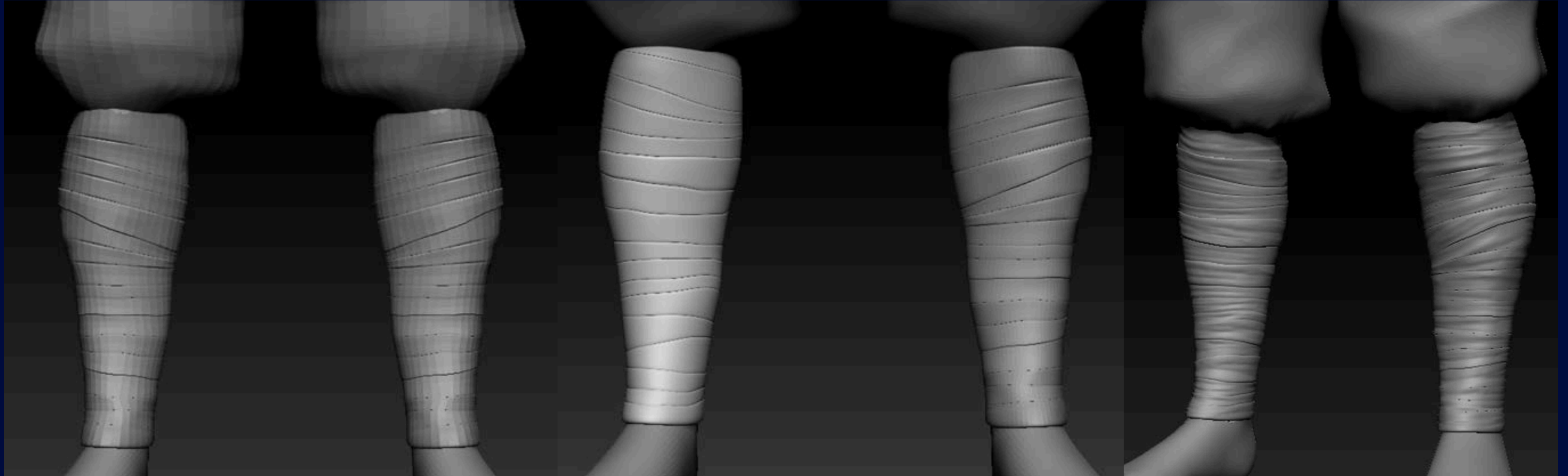


**After**



Building upon feedback from before, I needed to make the face more detailed and aged, so I added a lot of details around highly creased points like crow's feet by the eyes and general aged skin around cheeks and forehead. I used only dam standard to achieve this effect and worked at a very high subdivision level to be able to achieve these surface level effects.

# KYAHAN SHIN WRAPS



Also building on feedback, I had to break up the symmetry for the leg wraps as it was too obvious to the player that they were mirrored.

I repeated the exact same process and broke up the symmetry but still maintained a similar wrapping fashion as, logically speaking, someone who applies these on themselves would have to be repeating the same techniques for both legs

Finally, I created more depth by making some bandages fold over others as well as a lot of fabric fold details on the surface of the wraps by adding and subtracting the shape.

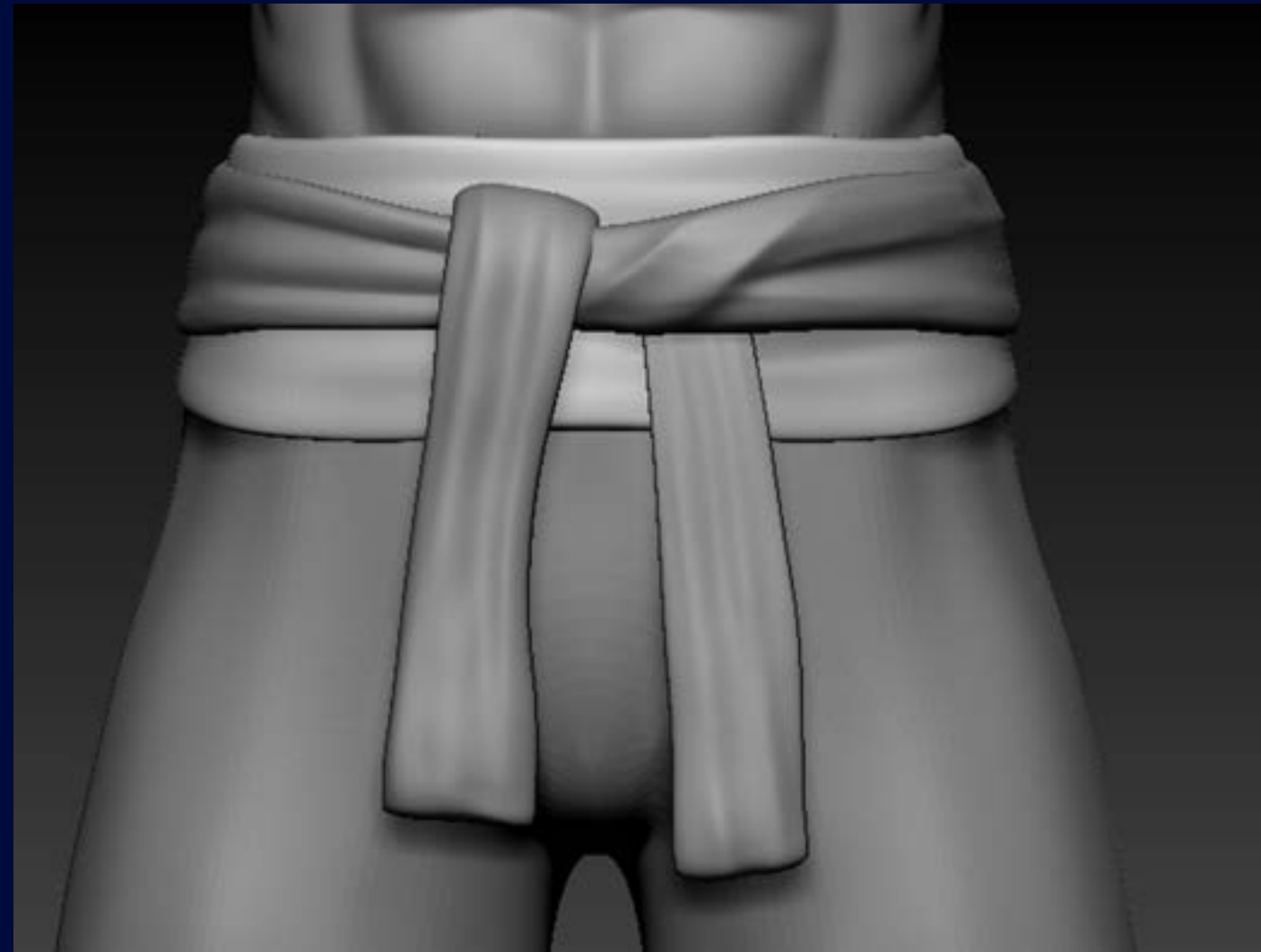
# BELT

## Blockout



There are many workflows for making knots and most I saw involved very manual processes of extruding, rotating and moving which I struggle with keeping clean, so I decided to fake the knot instead by placing 2 fake ends of the belt

## Detail Sculpt



To further the illusion, I sculpted the fake wrap by adding fake tension and folds around the middle of the belt where the two ends are meant to be tied.

## Fake Knot Top View



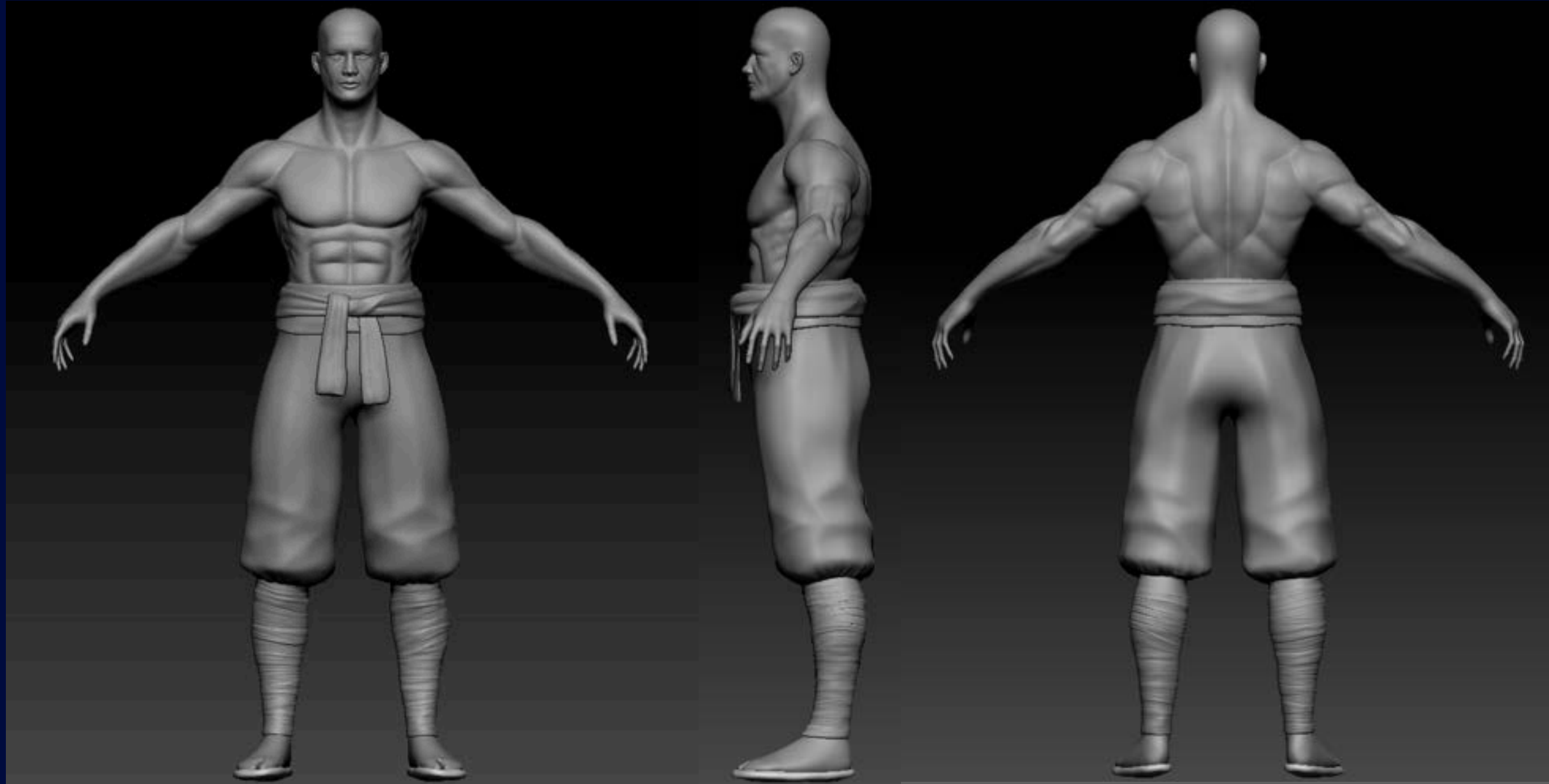
Here is a better showcase of how I've hidden the knot

## SCYTHER SYMMETRY BREAKUP



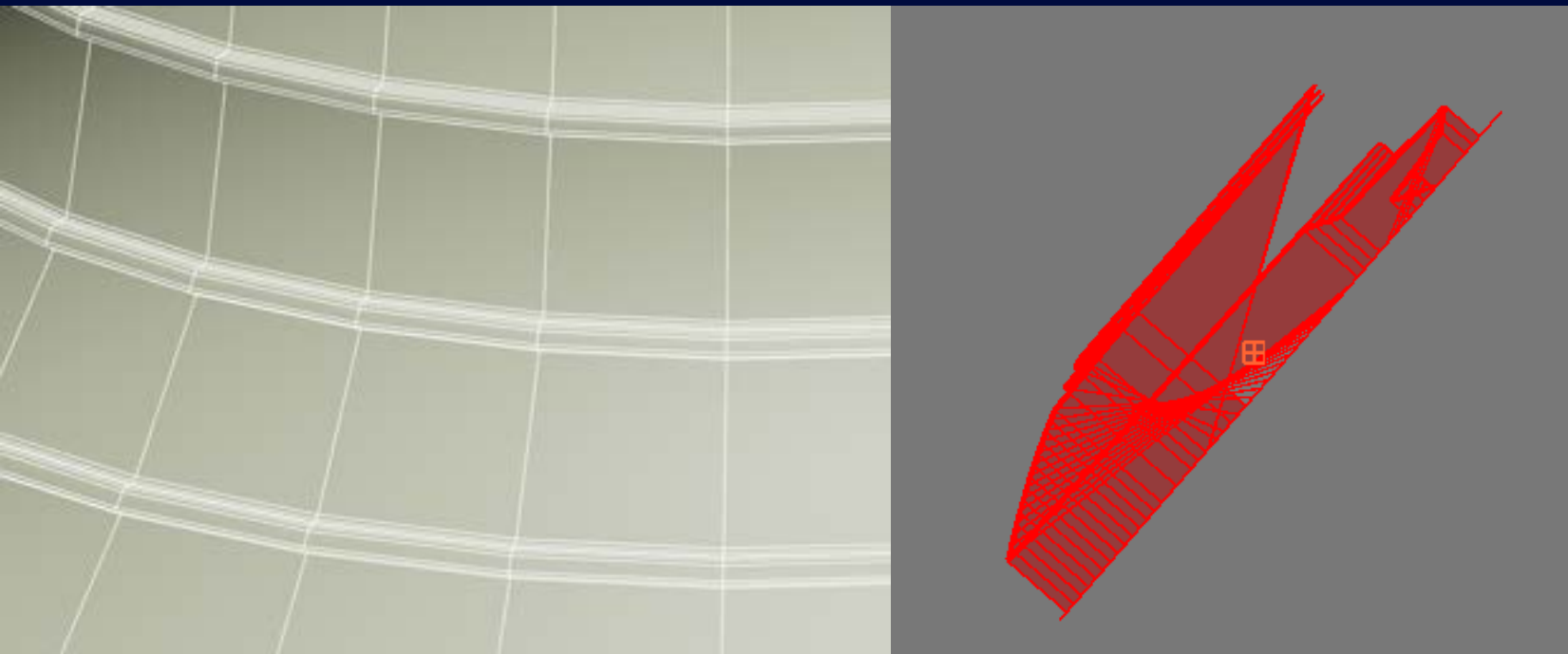
Following the symmetry breakup for my kyahan wraps, I also decided to have more individuality for each side of my scythe. This doesn't affect the silhouette much, mainly just the wood grain detail. This means that I can utilize symmetry when retopologizing.

# FINAL SCULPT



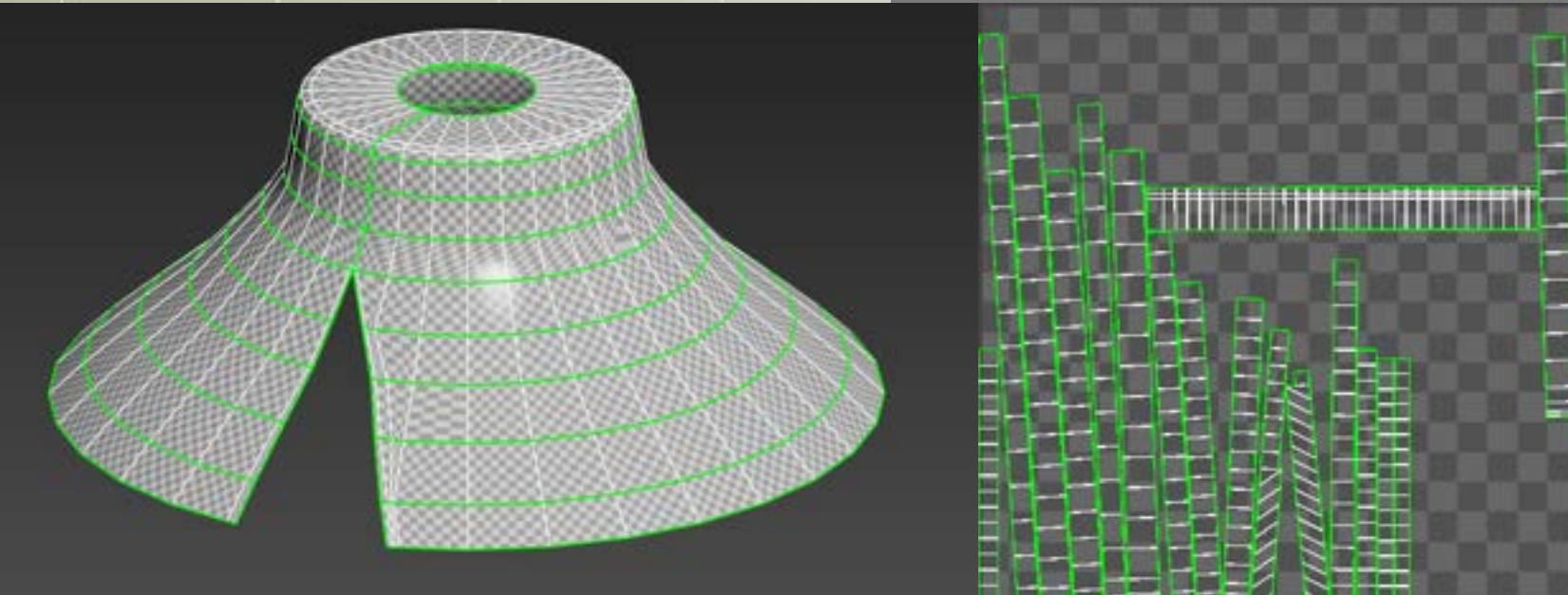
At this stage I have built upon feedback and arrived at a point where the mesh is ready to move on to retopology. The musculature and anatomy is strong and clothing detail is good but has some room for improvement around the hakama pants especially for the fabric folds and wrinkles

# STRAW HAT UNWRAP ISSUES

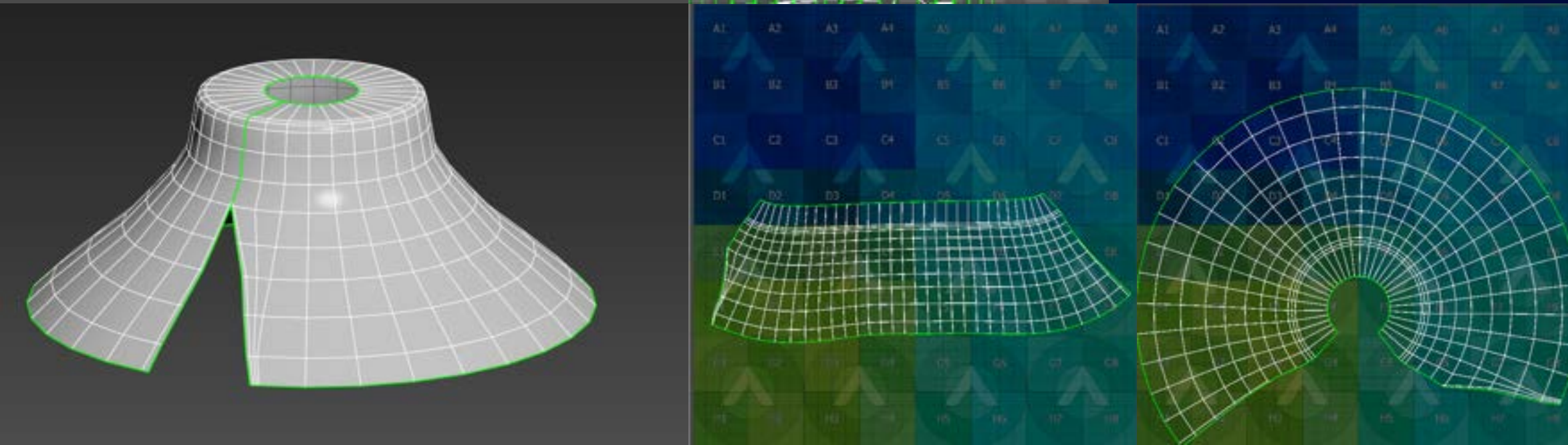


I ran into some issues and a contributor was that I had modelled all the extrusions and ridges on the main body of the hat, which overcomplicated geometry when it came to the UVs

- The UVs turned out very bad when straightened.
- It was crucial that I straightened it as much as I could as the straw texture needs to tile very well and consistently



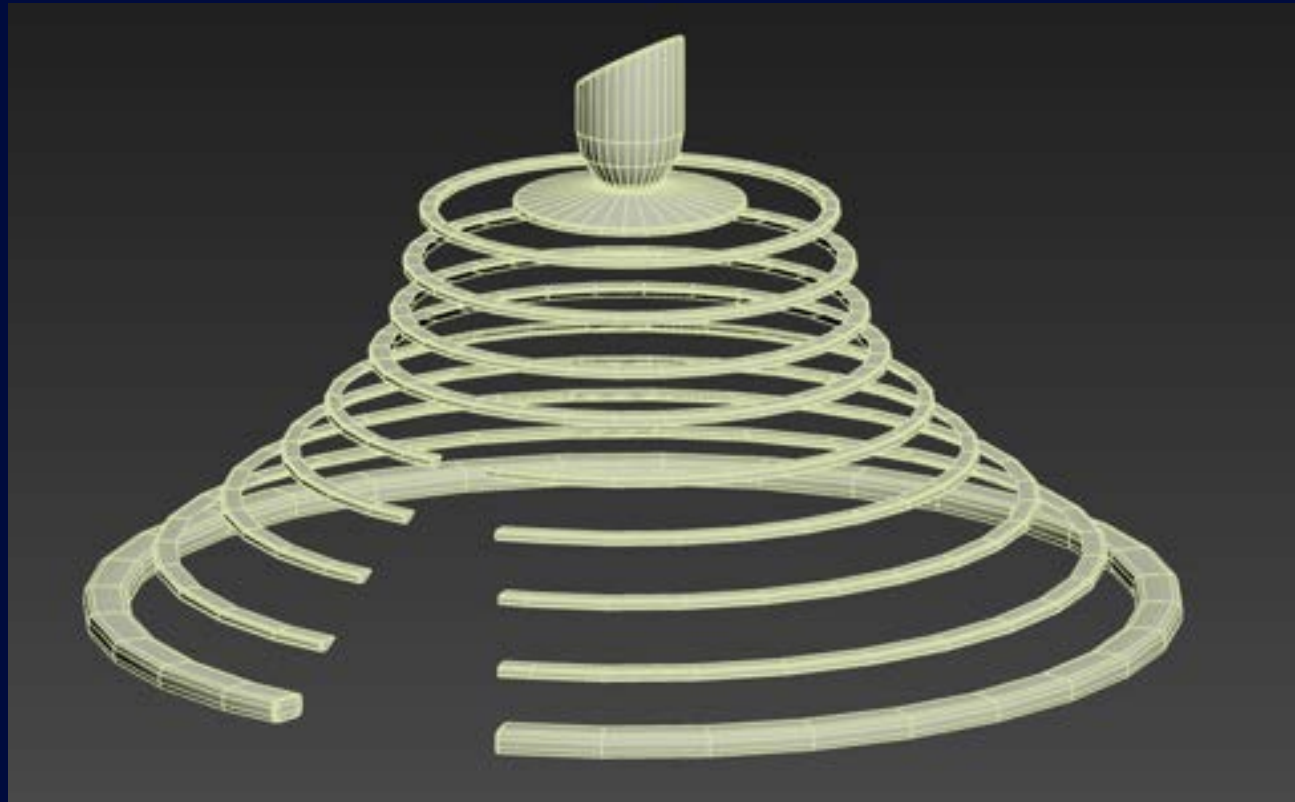
- Simplified the main body by removing extrusions and leaving only the cut
- The pieces straightened a lot better, but going in and manually adjusting some of the pieces resulted in some distortion



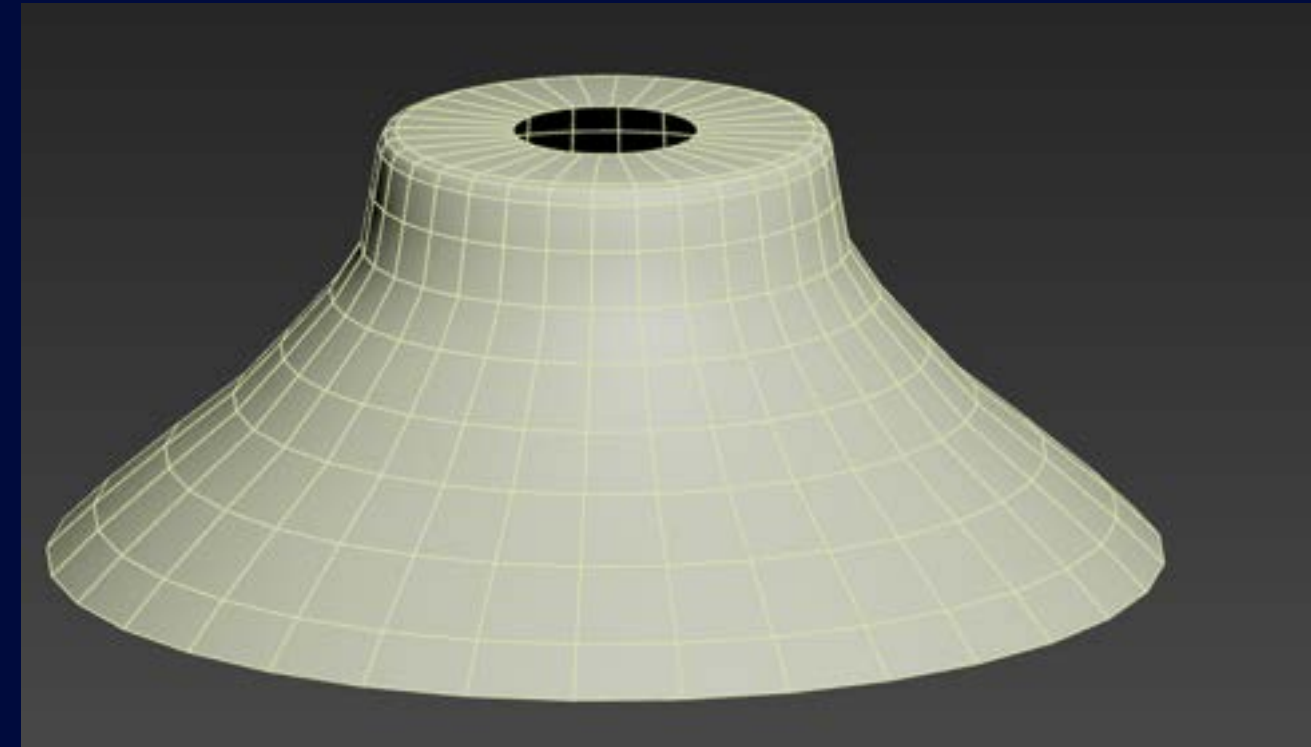
- Tried leaving the whole body as its own island
- The cut overcomplicates the straightening process

# STRAW HAT FIX

## Parts separation

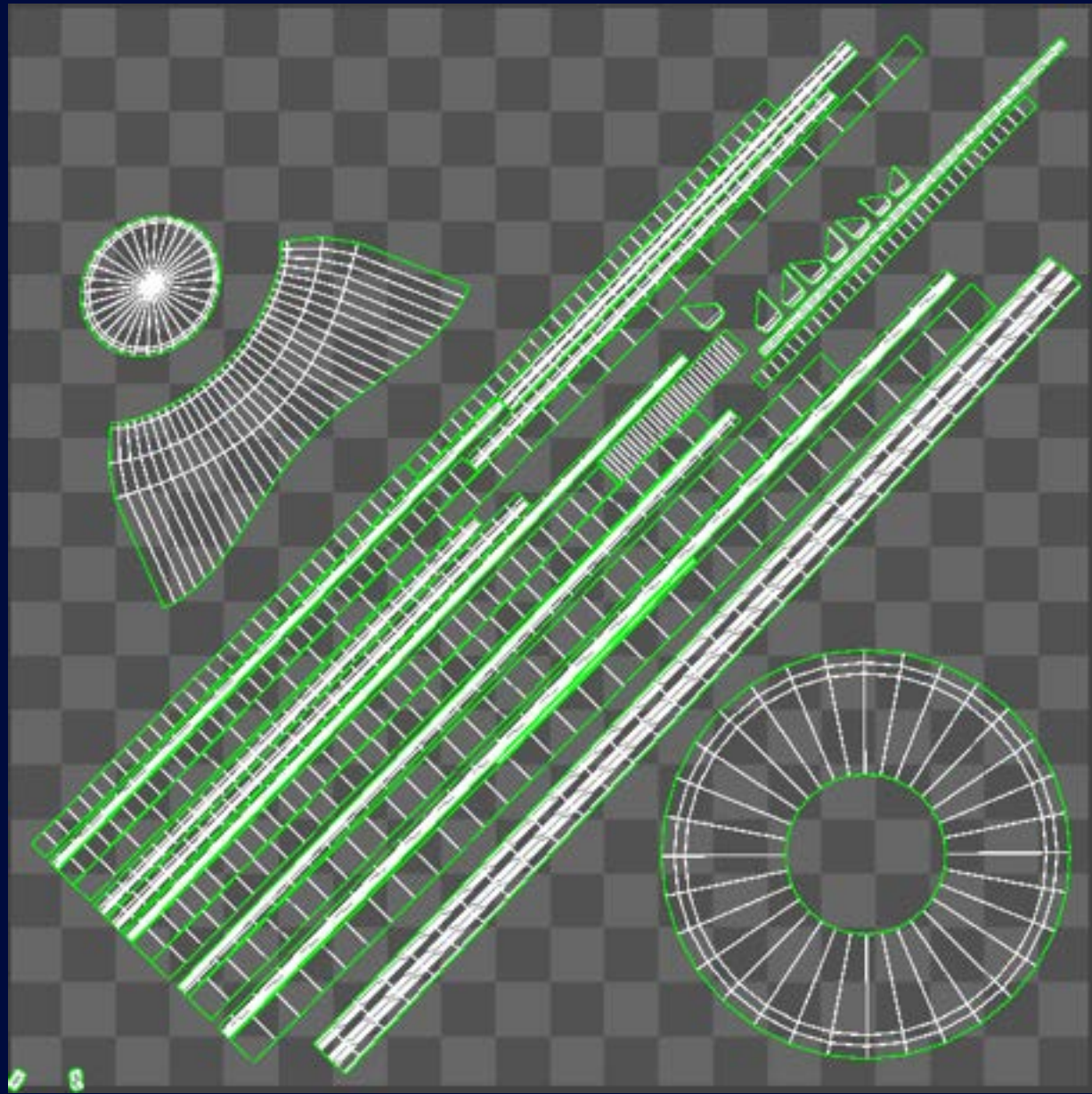


- Separated the parts for my straw hat to reduce the complexity of the geometry and make UVs clean.

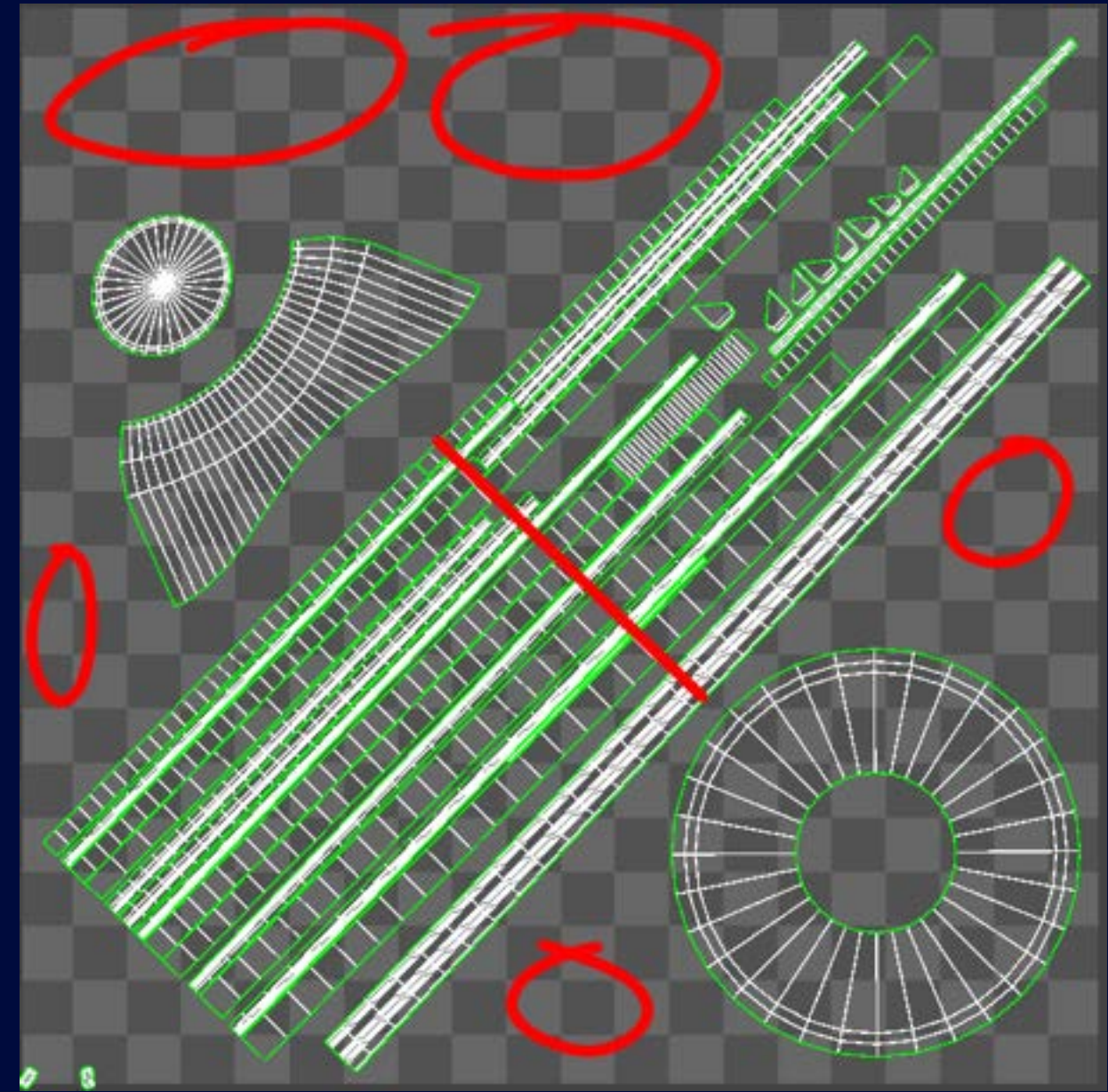


- Since the hat is extremely thin and has no volume I will use an opacity map to cut into the shape manually to further simplify geometry and ensure flow of textures

# STRAW HAT UV ISSUES



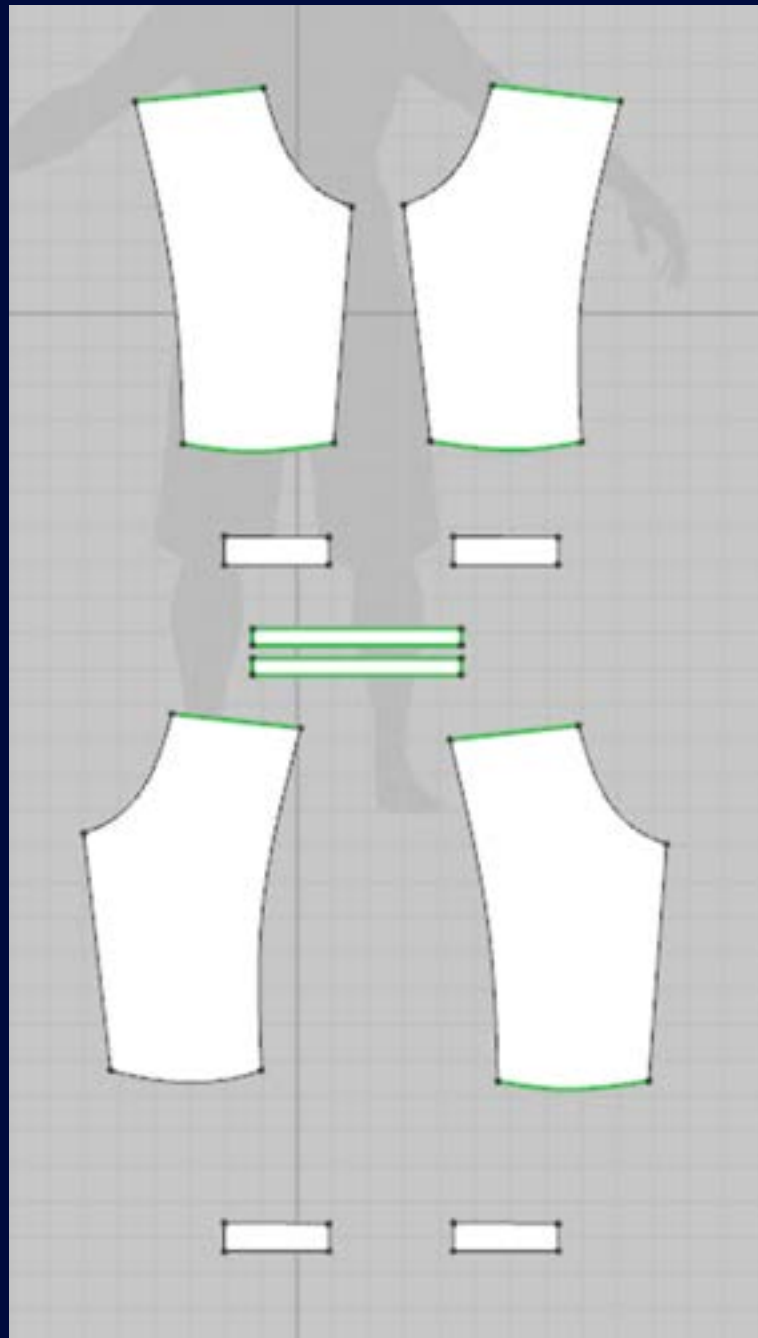
These were my initial UVs and the space optimization is not the best, as I thought the only way to maximize resolution on the long rectangular pieces was to rotate it diagonally and scale it up as much as I could



I got feedback on my UVs and the main parts to fix up was optimization of space and shortening of pieces by adding another UV seam down the opposite end of the cut

# MARVELOUS DESIGNER

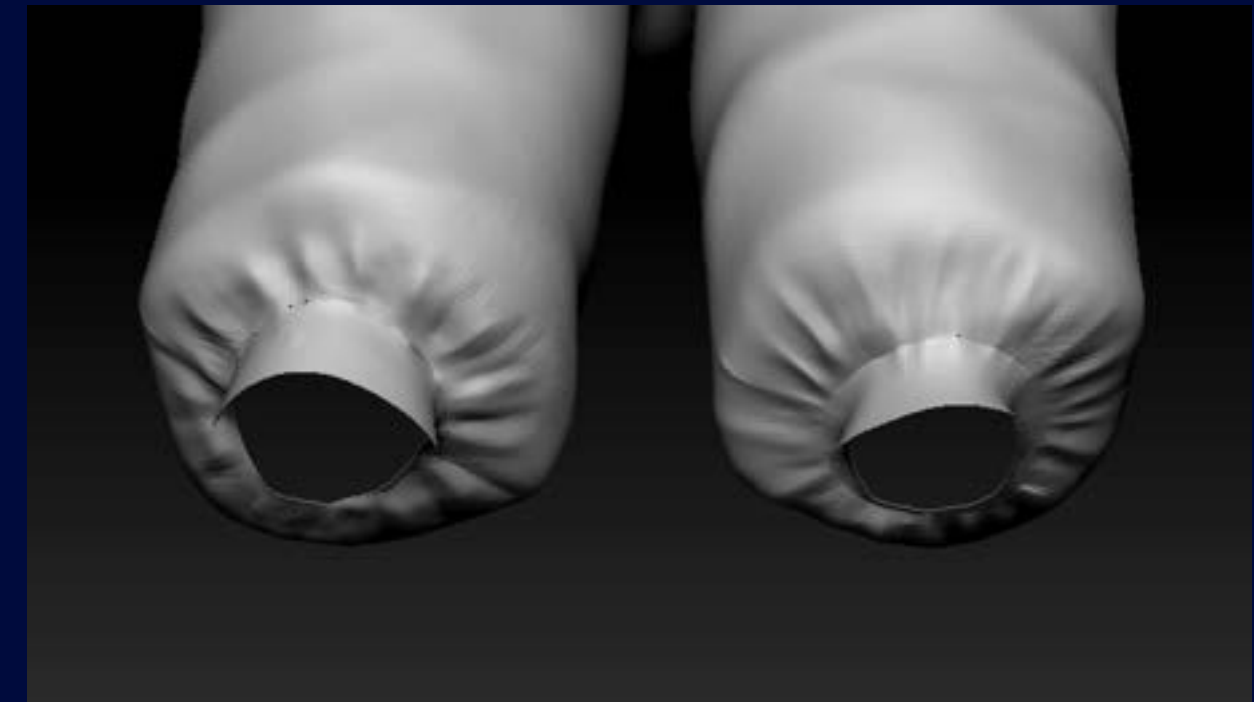
Building upon feedback again, I took my mesh into Marvelous Designer.  
I consulted a peer who was familiar with this software as I had never used it before and they assisted me in navigating the UI and running simulations, as well as some basics of garment making, which was extremely helpful



It started off with cutting drawing garment shapes like how garments are cut out in real life



Next was simulating the cloth onto the mesh and I kept the trouser sculpt beneath it to assist in retaining the form as without it, I was struggling to get the volume correct

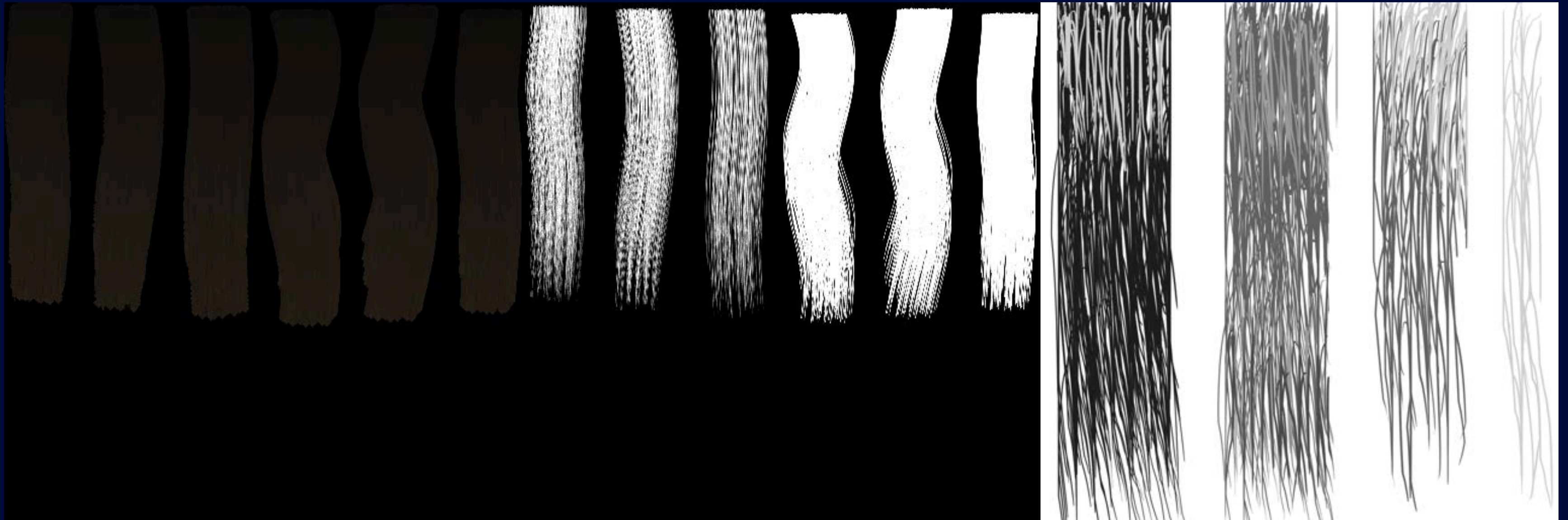


The simulation also helped add new wrinkles in the tuck of the trouser legs and helped significantly as it meant I didn't need to sculpt them myself

# HAIR CARDS

Fibershop

Photoshop

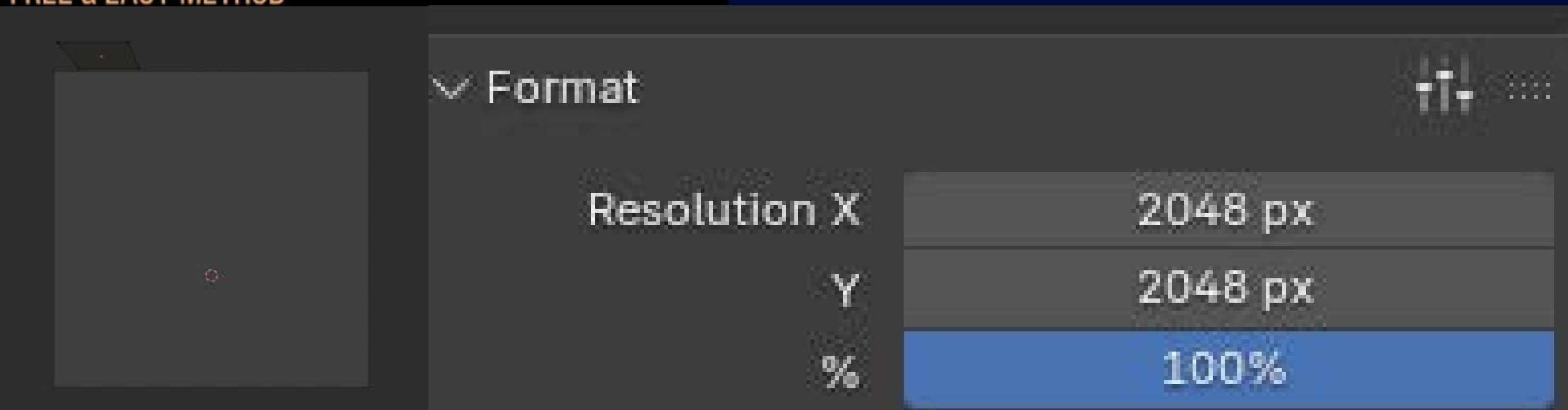


I am rather inexperienced with hair card texture creation and was looking for some beginner friendly workflows and softwares. Fibershop was a strong tool but was locked at 512x512 without a full license and photoshop was not very beginner friendly as hair is very complex and difficult to capture length, density, overlap and colour variation by drawing them.

## BLENDER HAIR CARDS

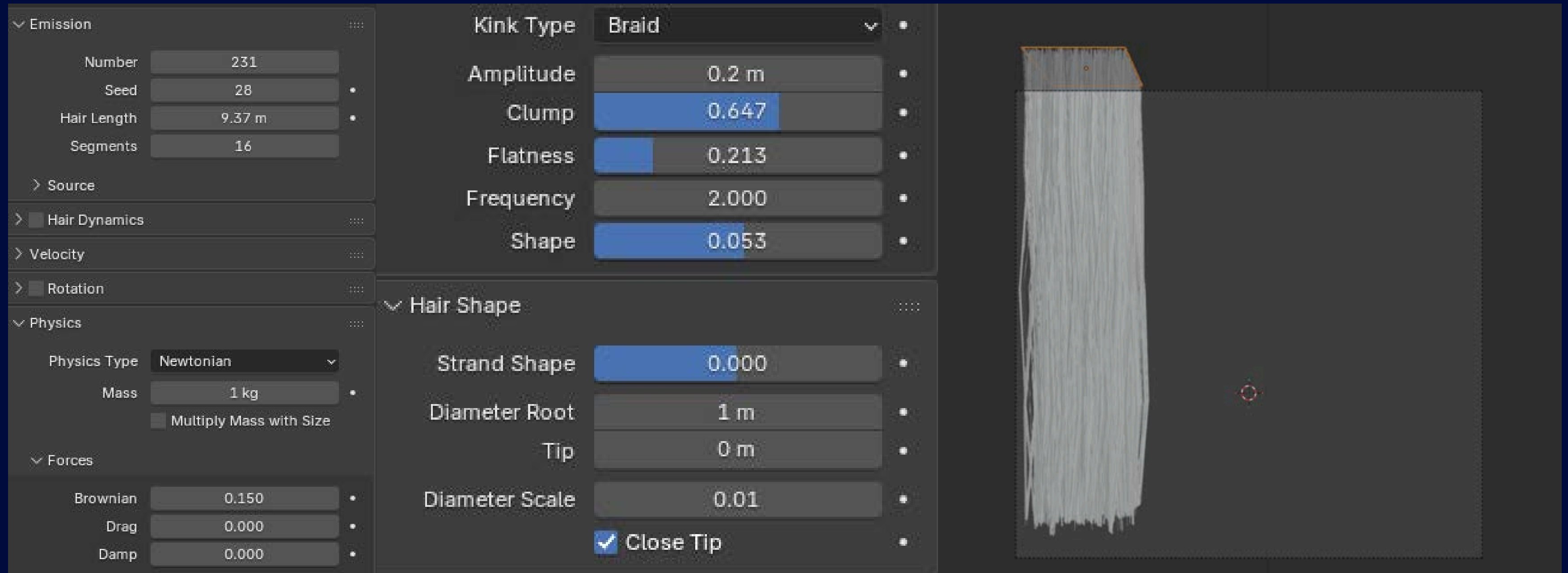


I had watched a lot of videos on Blender as it is very beginner friendly, but most tutorials needed downloads and plugins. I finally arrived at a youtube video that explained very clearly how to create hair textures in Blender using built in features.



The tutorial showed me how to set up the camera in blender to 2k resolution and also set up the first plane in the top left corner where the hair particle system will come down from

# BLENDER HAIR PARTICLE SYSTEM

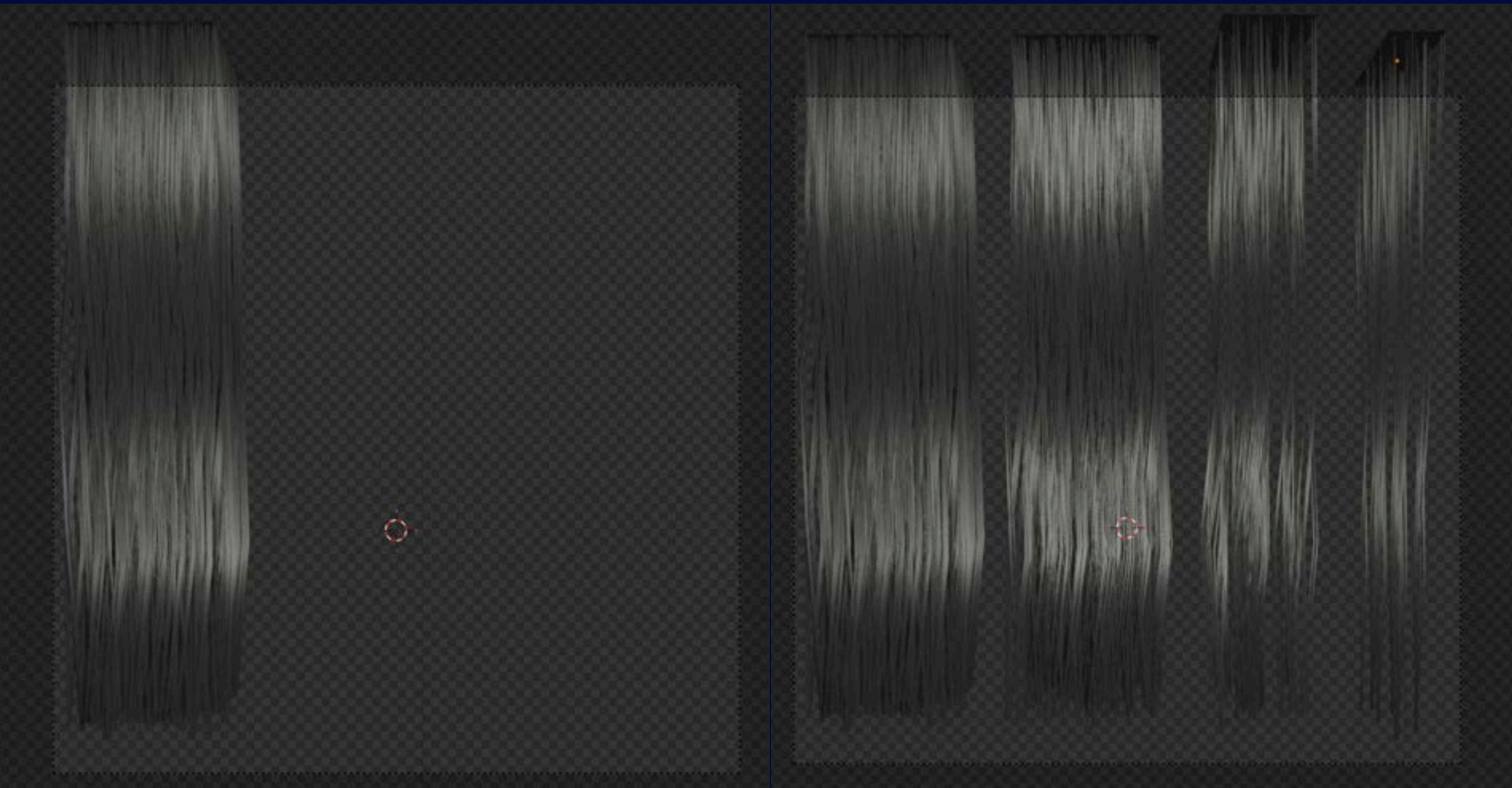


It was at first intimidating seeing all the sliders for adjustments and needing to figure out what they do, but the tutorial helped narrow it down to the key settings.

- Emission for hair density and length
- Physics for hair distribution physics
- Kink type for waviness, braids and curls

First hair strands created. The next steps were to improve material and lighting for more detail. This was a great starting point and also gained me an understanding of Blender hair system

# HAIR CARDS PROGRESSION

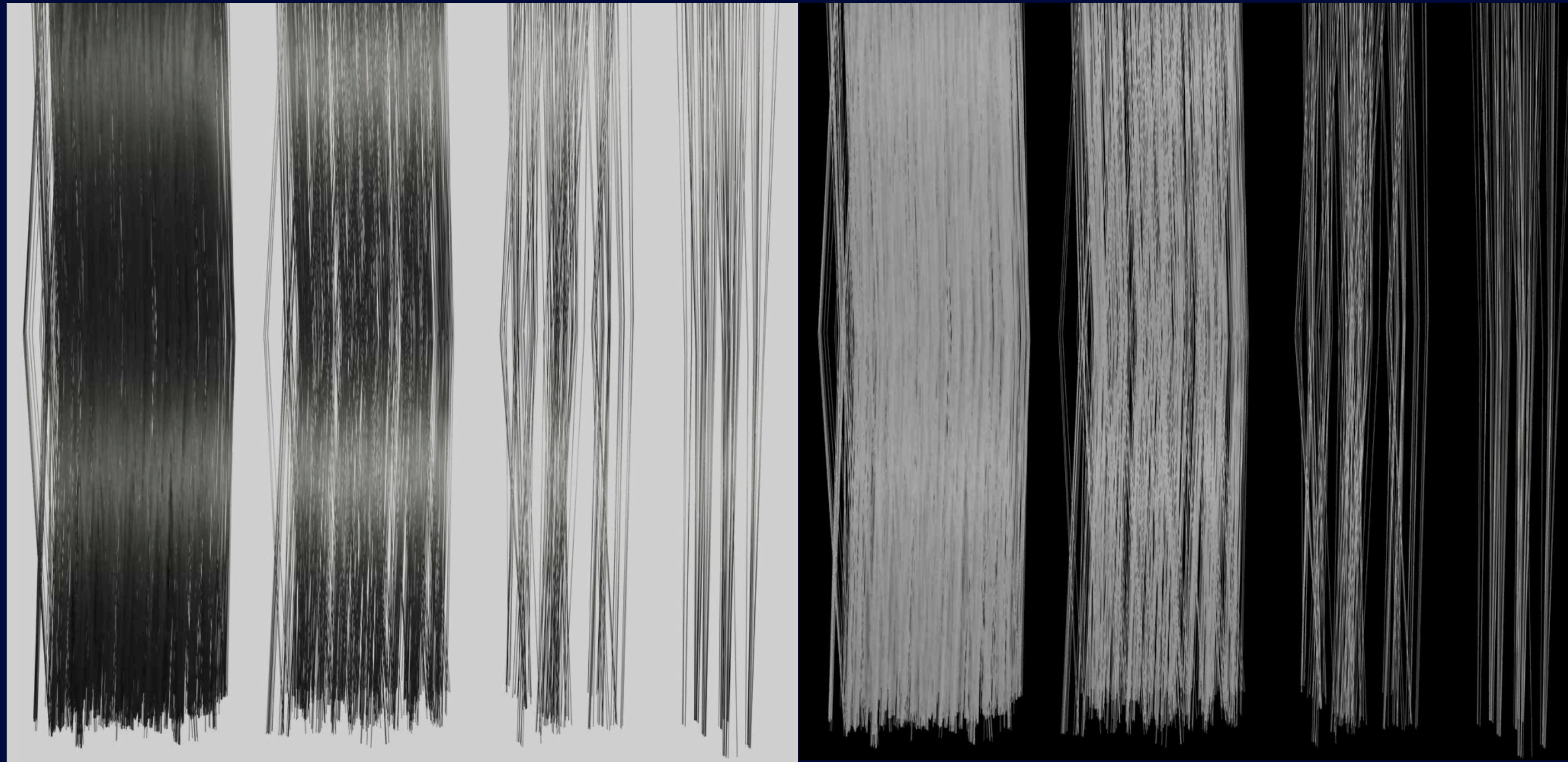


played around with lighting to make shiny surface effect, and then made 3 more hair cards getting gradually thinner towards breakups



The video then led to a point where it needed another software but there were issues with downloading and setting it up, so I had to find alternate ways to extract the opacity map

# FINALIZED HAIR CARDS



As my character's facial hair is rather small and less visible, I thought it was only necessary to extract base colour and opacity for the texture. Without the Materialize software, I turned the lighting off for flat lighting and turned the material to maximum white, and took another render for the opacity

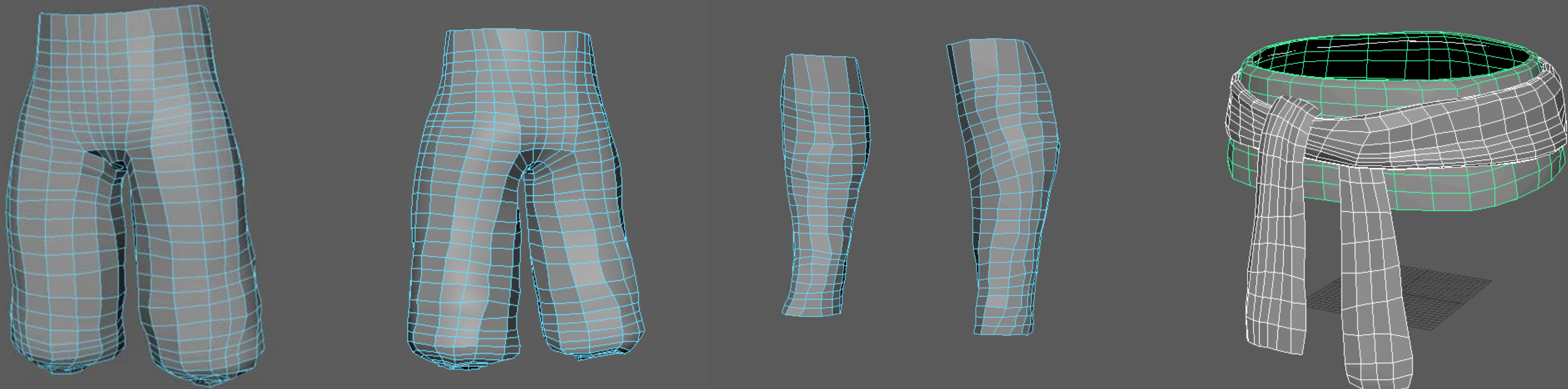
The hair cards turned out pretty well, but if I were to do them again in a different project, I would create more cards with length and density variations as for more detail and break ups

## FACIAL HAIR SETUP

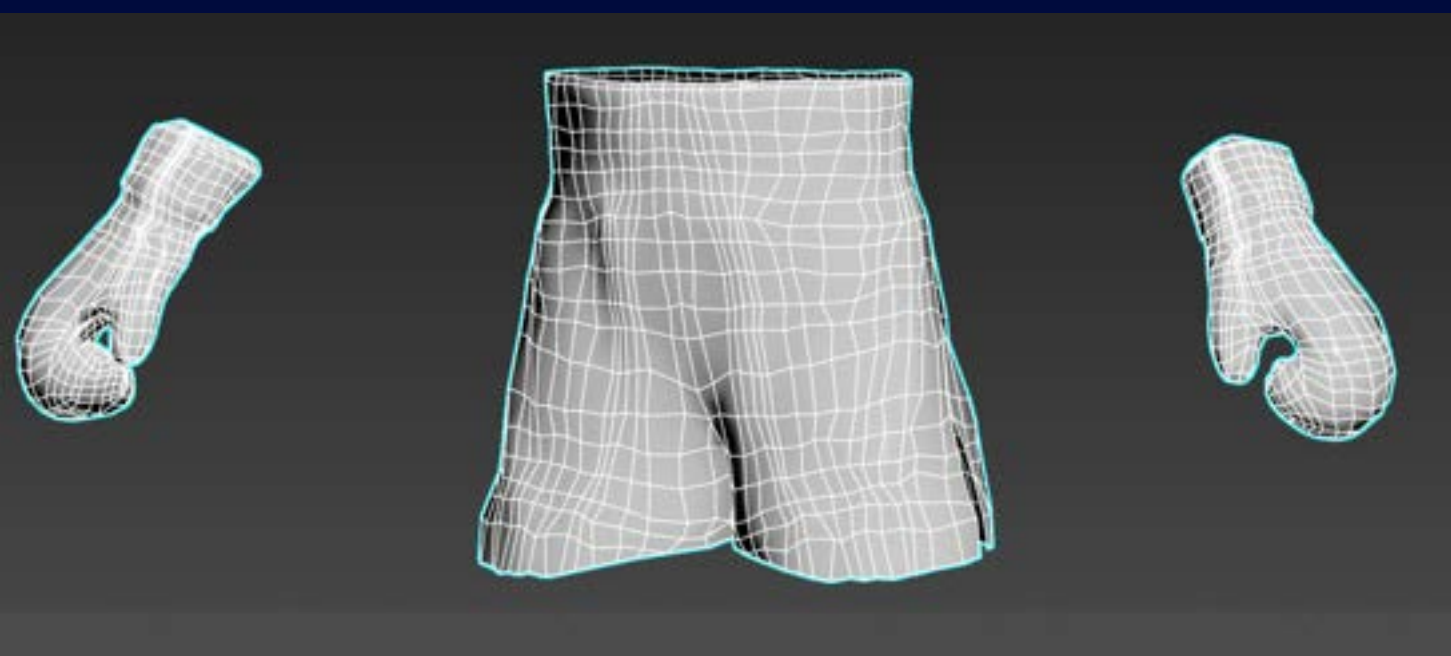


I used the thickest cards as the base to take up the most structure, then I used the thinner layers to slowly and gently break them up. I did this in brush as I don't like using path deforms in 3dsmax and find it very messy whereas Zbrush gives me more mobility and flexibility with the move tool.

# RETOPOLOGY



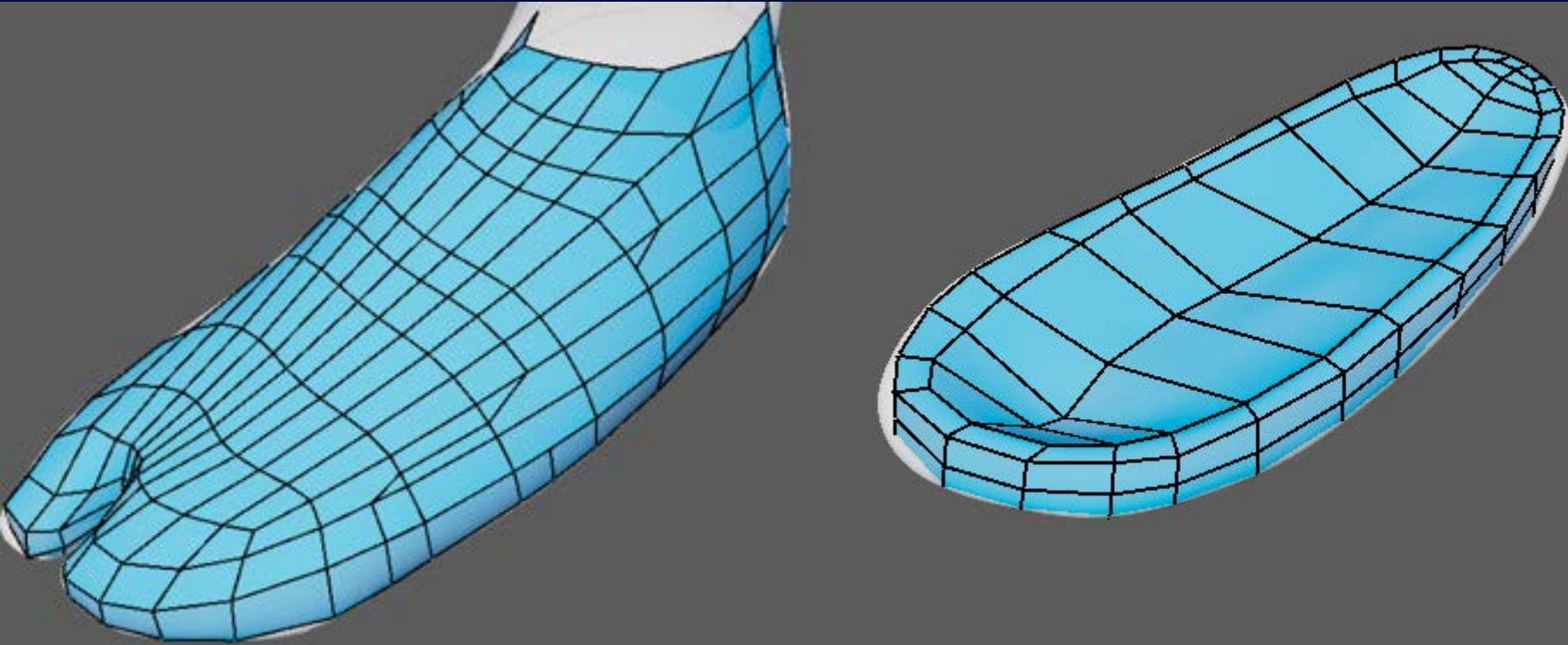
Retopology was done in Maya using quad draw. I maintained quad flow for all meshes and thinking of the models as cylindrical or tube like shapes allowed me to retopologize them cleanly and set me up for cleaner unwraps later down the line



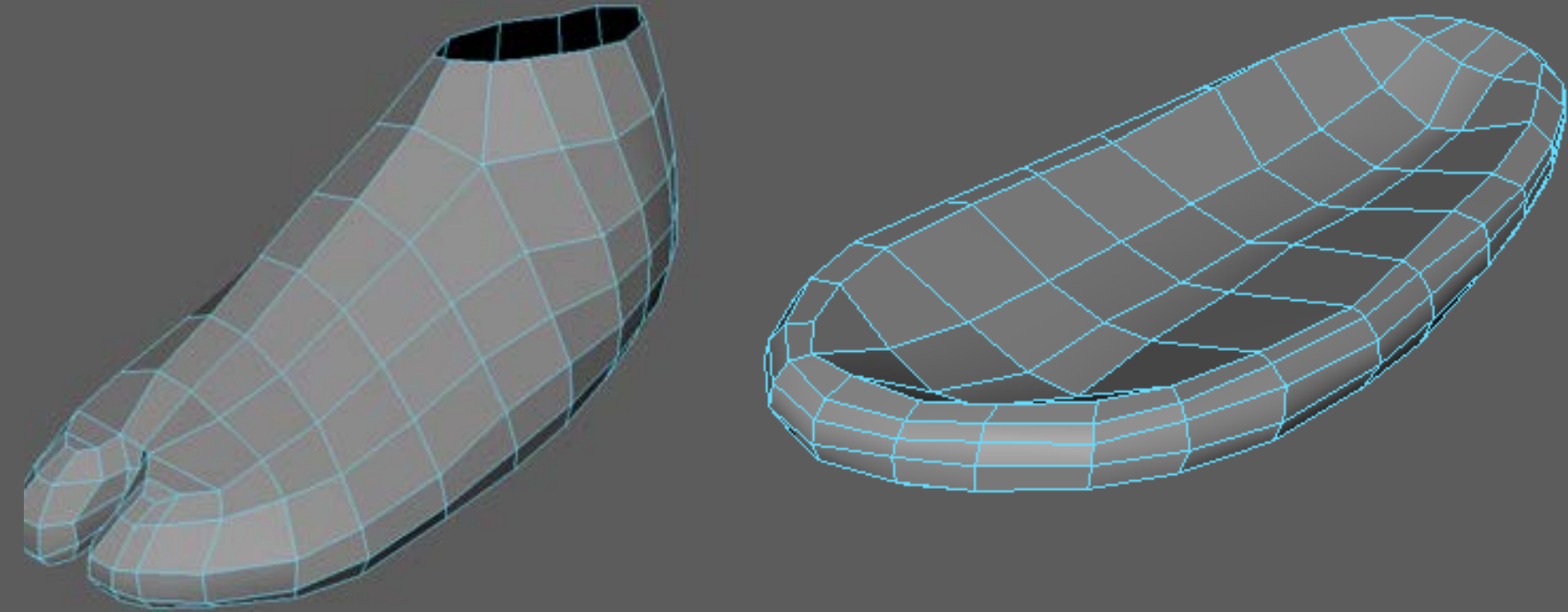
I have developed my retopology skills a lot in my character modelling process. This image is clothing that I had done for a boxer model previously and it shows very jagged edges and rather uneven quad flow in certain places. The retopology in the images above demonstrate a significant development in the tidiness and understanding of topology

# TOPOLOGY ISSUES

Before



After

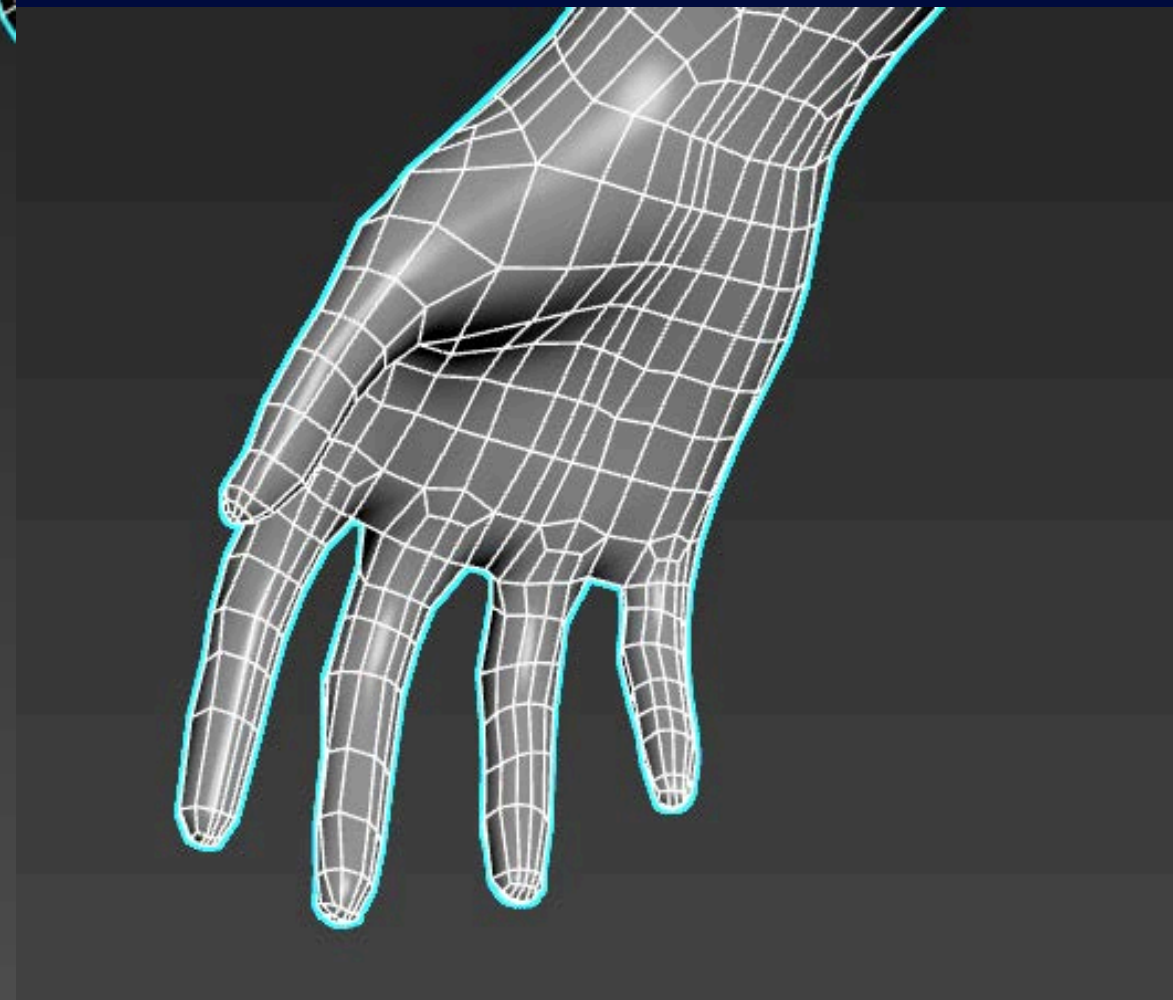
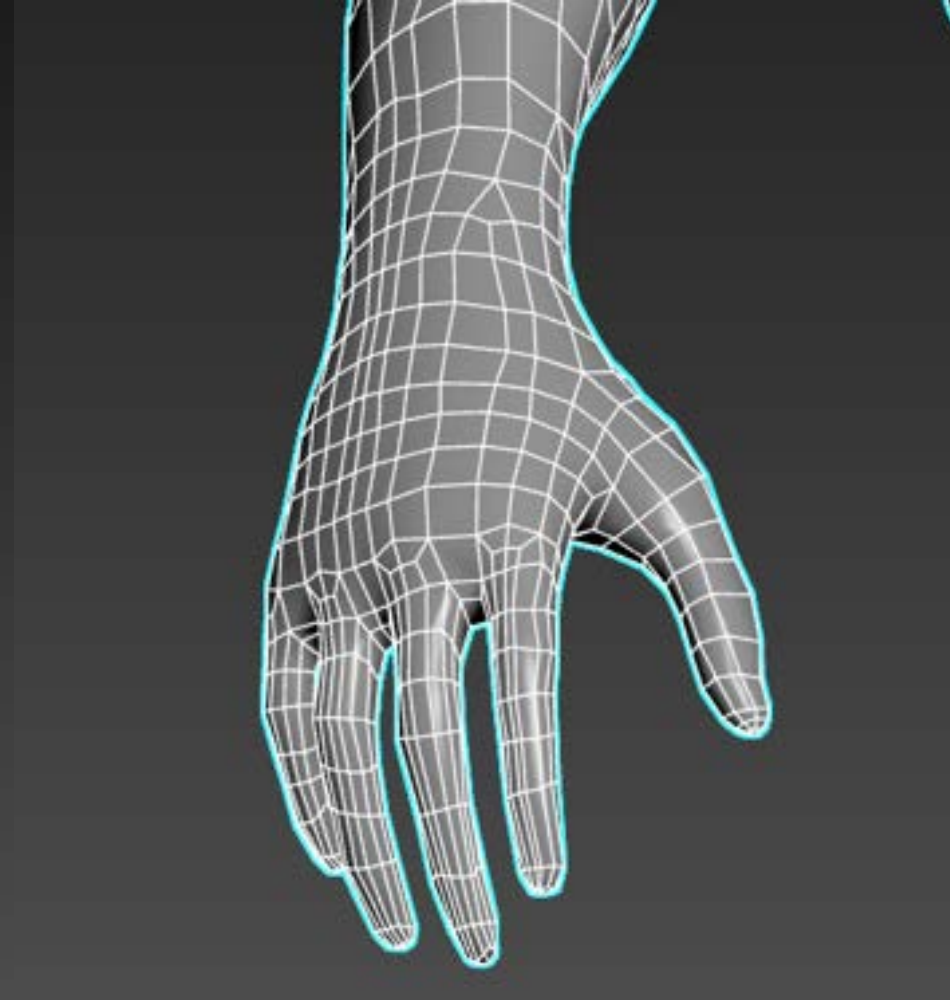
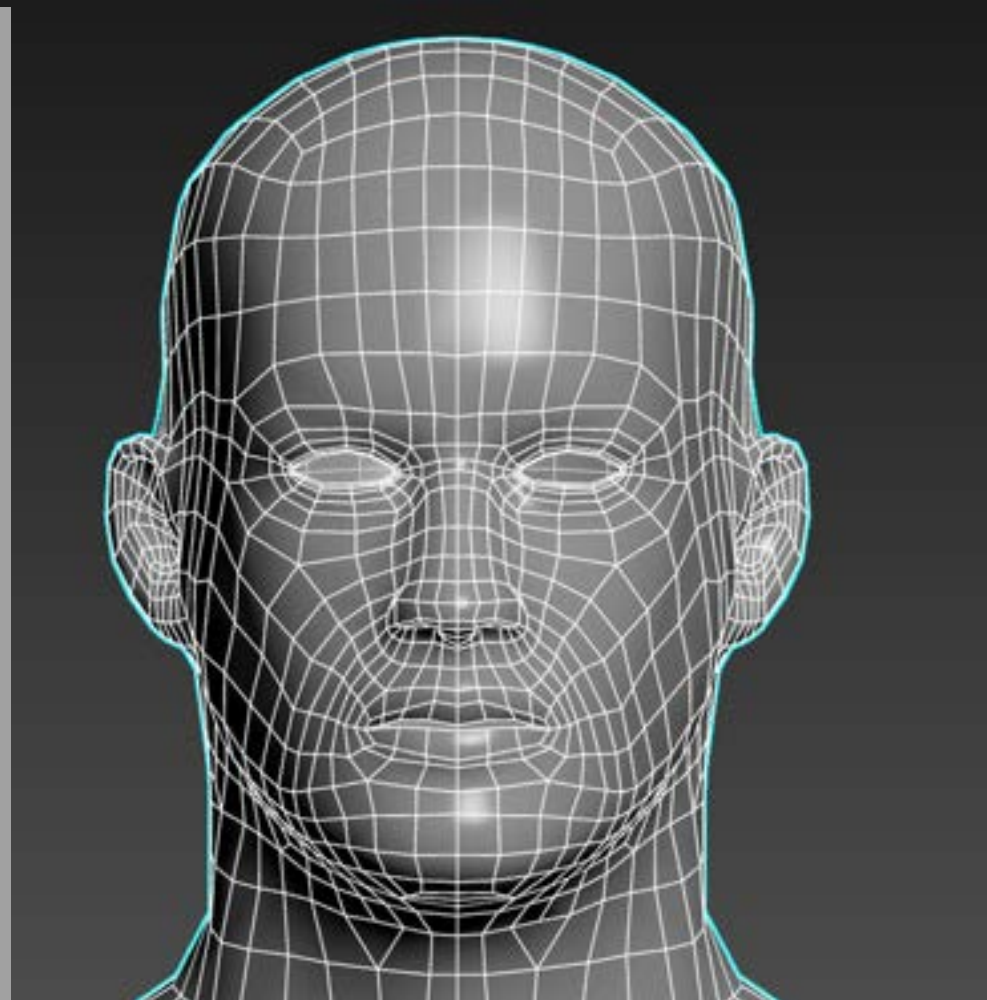


Topology issues:

- Bad spiral loops
- Toes not rounded off
- Sandals too blocky

- Rounded off the toes like I would with fingers, and that allowed me to eliminate the spiral loops and retain the tabi sock's shape with clean topology.
- Sandal rounded more by adding more loops to the outer edge for more support and more loops down the middle to capture the dip for the foot.

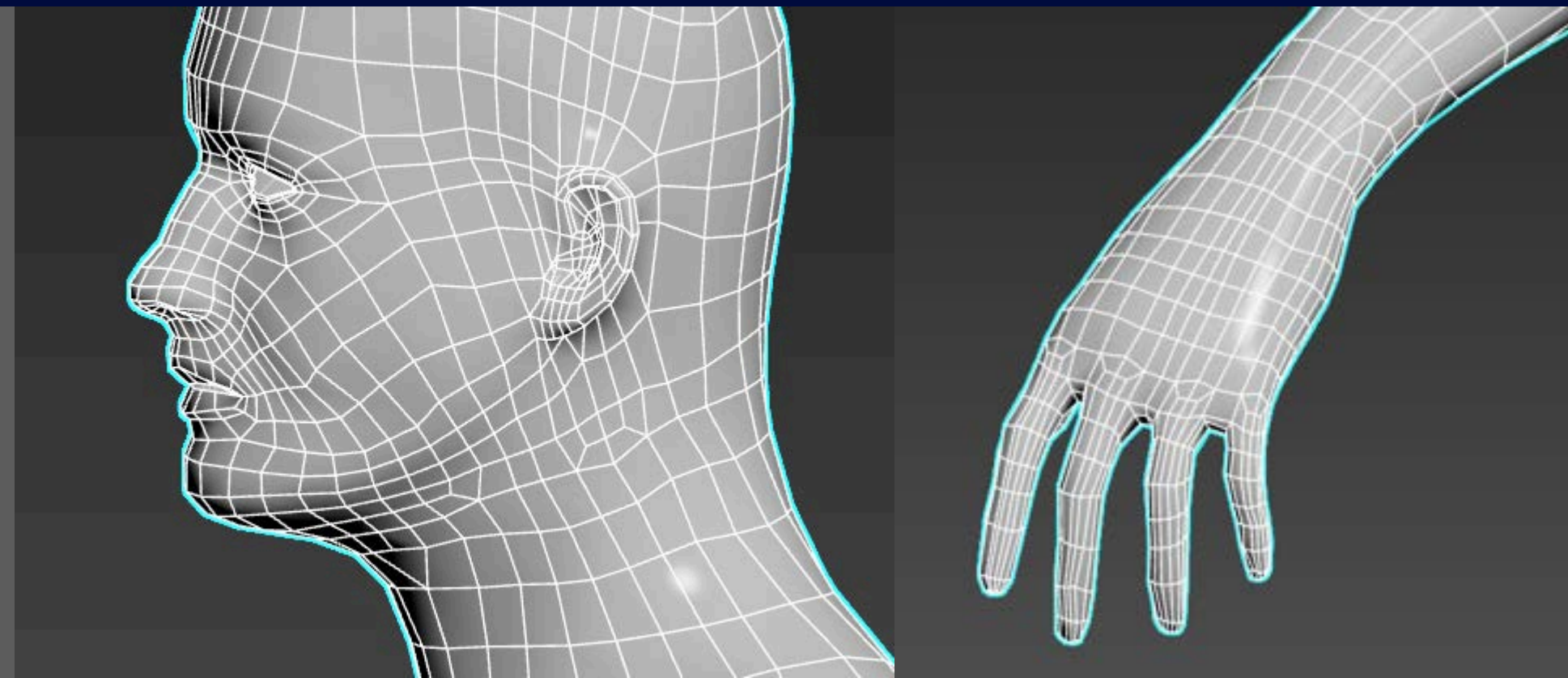
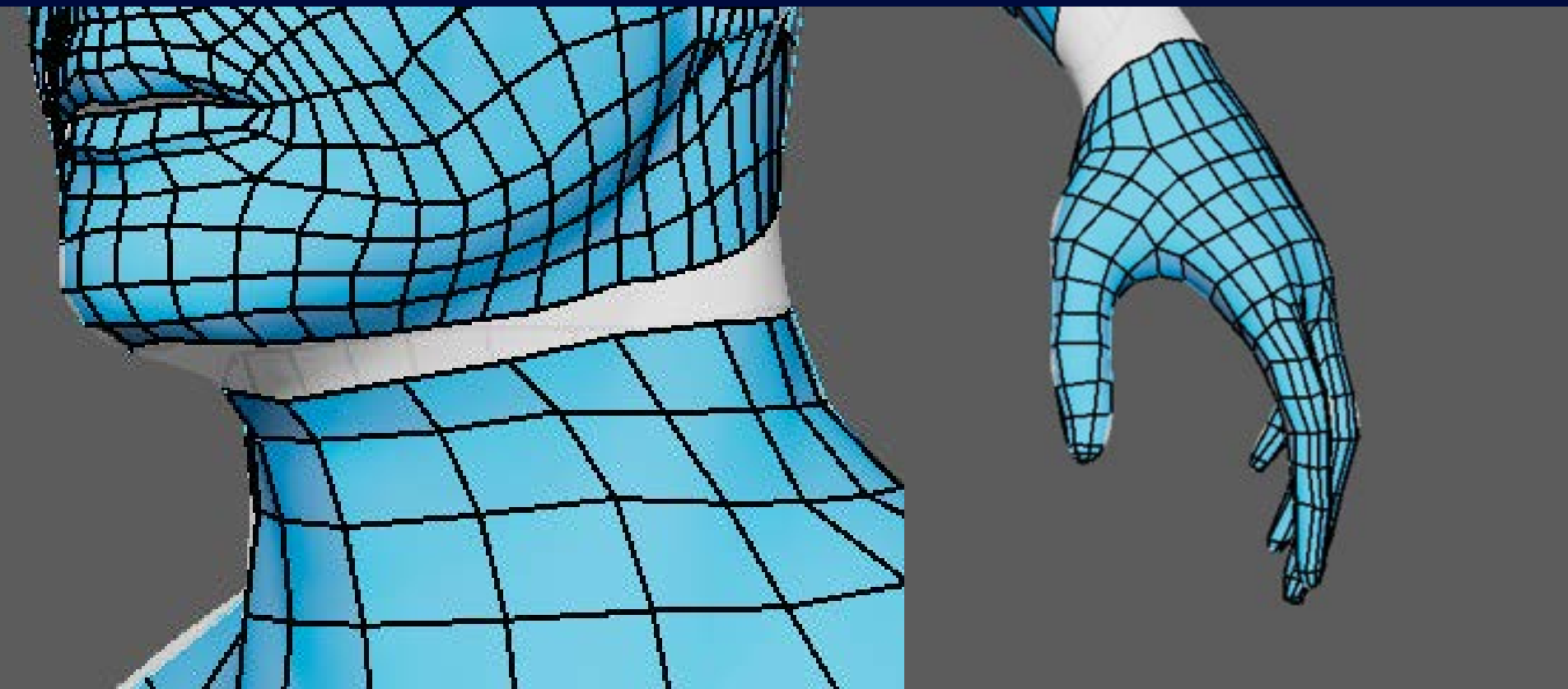
# FACE AND HANDS TOPOLOGY



I used this image as a reference for topology for the face and it creates a mask like shape around the eyes and forms also a mask shape around the nose and mouth which would then be joined together

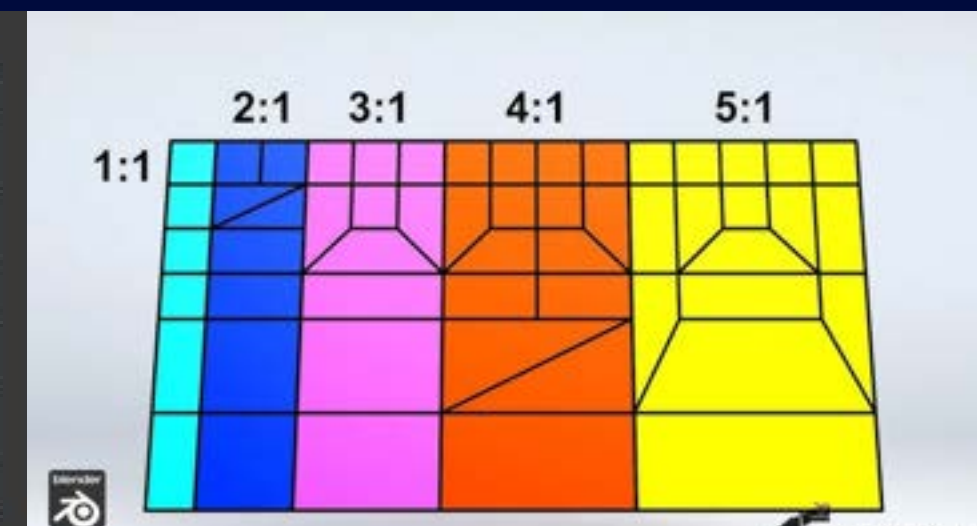
I added a loop that goes all the way around the outer edges of all fingers for unwrapping and rounded the finger tips so they could be capped off and added some supporting topology on the knuckles

# JOINING HEAD AND HANDS



I reached a point where I had to join the hands and face to the main body as I had retopologized them separately

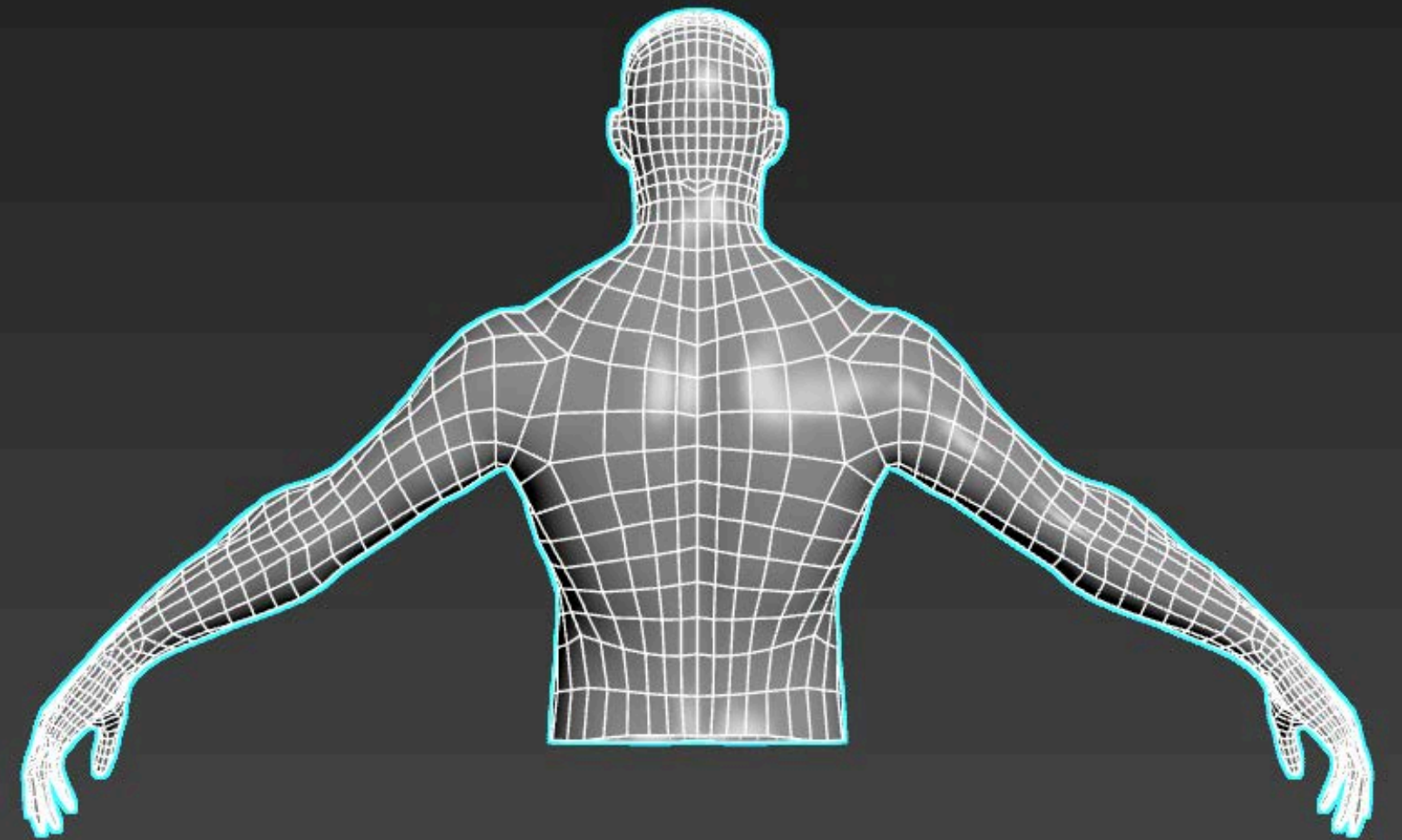
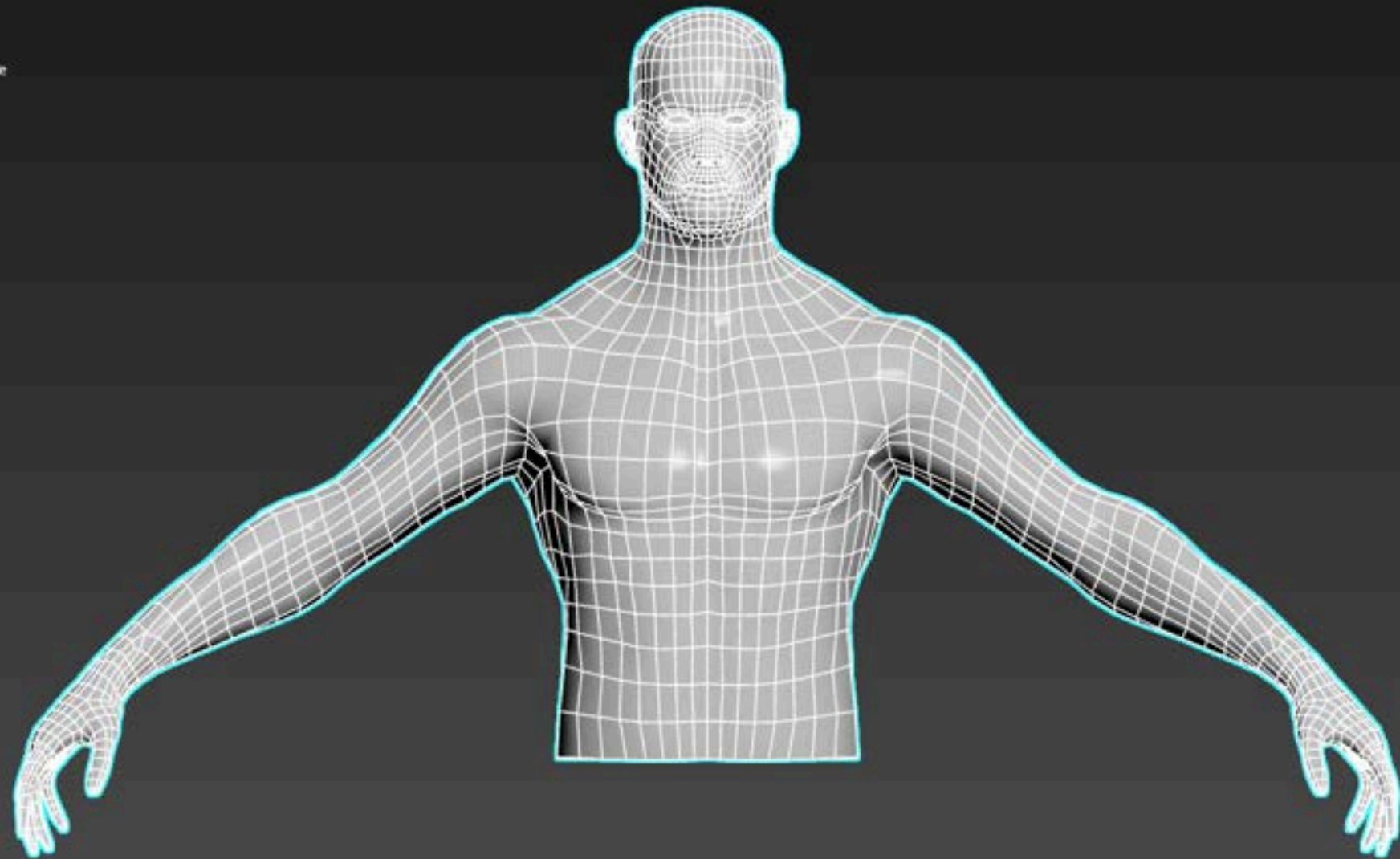
I utilized redirection and termination loops for the area around the neck and wrist, so that the number of polygons around both meeting points would match up, without needlessly adding extra polygons throughout the whole mesh



I used references like these to understand the termination and redirect loops better and is something I have used in previous characters

# FINALIZED BODY TOPOLOGY

Total  
Polys: 3,862  
Tris: 7,724  
Verts: 3,898  
FPS: Inactive

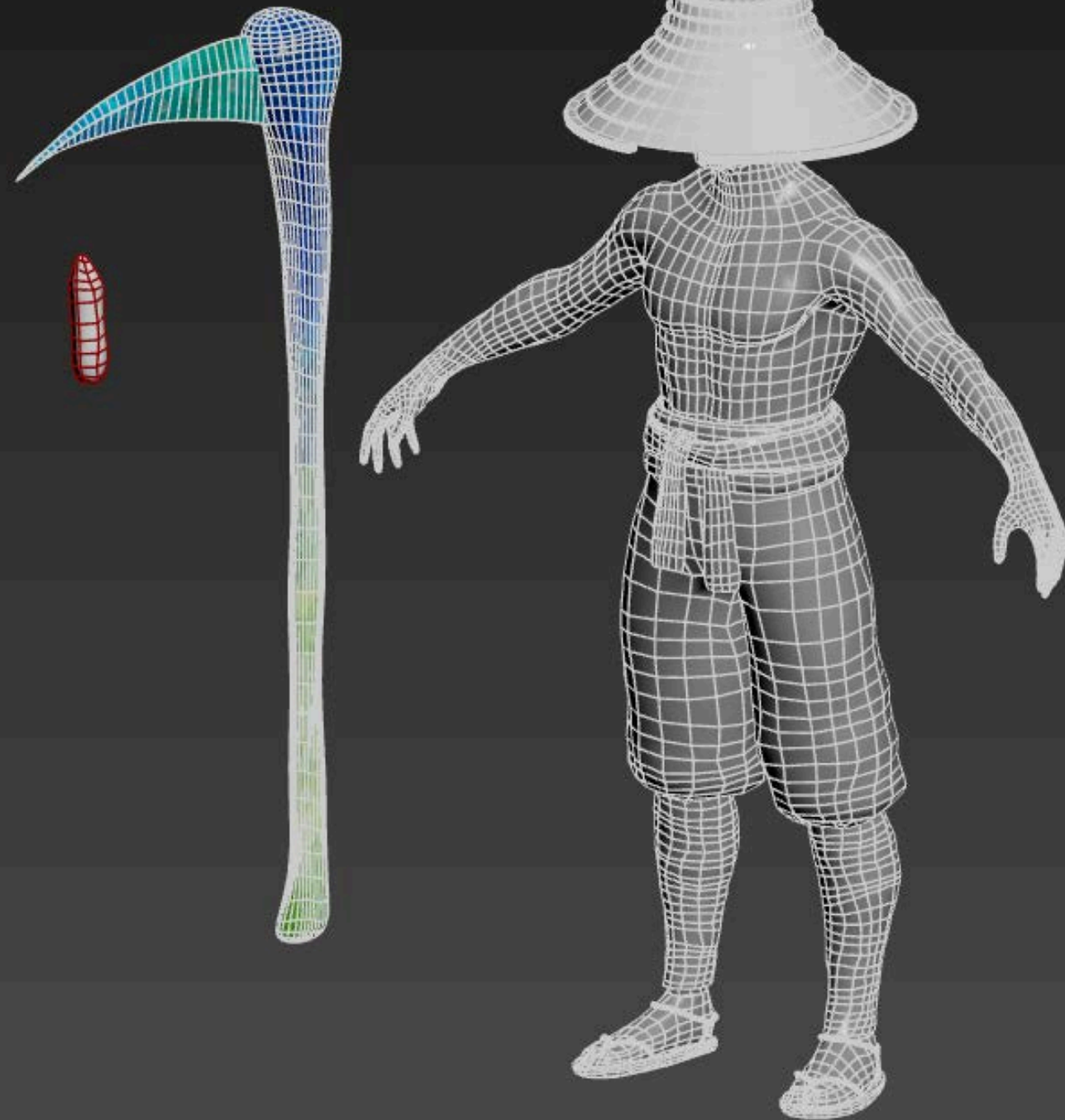


All separate parts have been joined utilizing various retopology techniques. The model maintains good quad flow and only comes out to 7,724 tris, plenty of room for more smoothing considering the 65k to 100k tri budget.

# FINALIZED TOPOLOGY

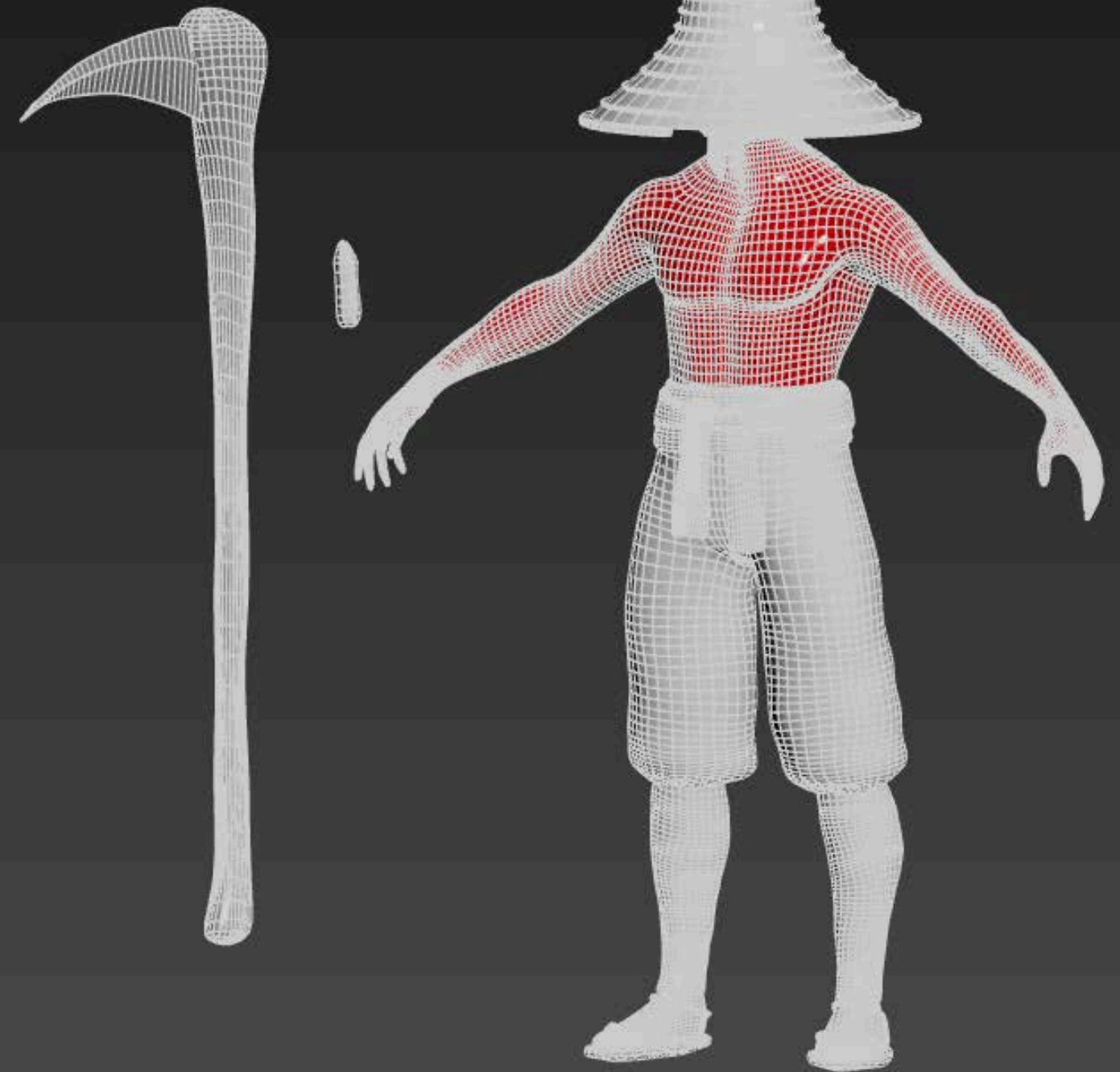
Total  
Polys: 13,939  
Tris: 27,842  
Verts: 14,596

Before smoothing



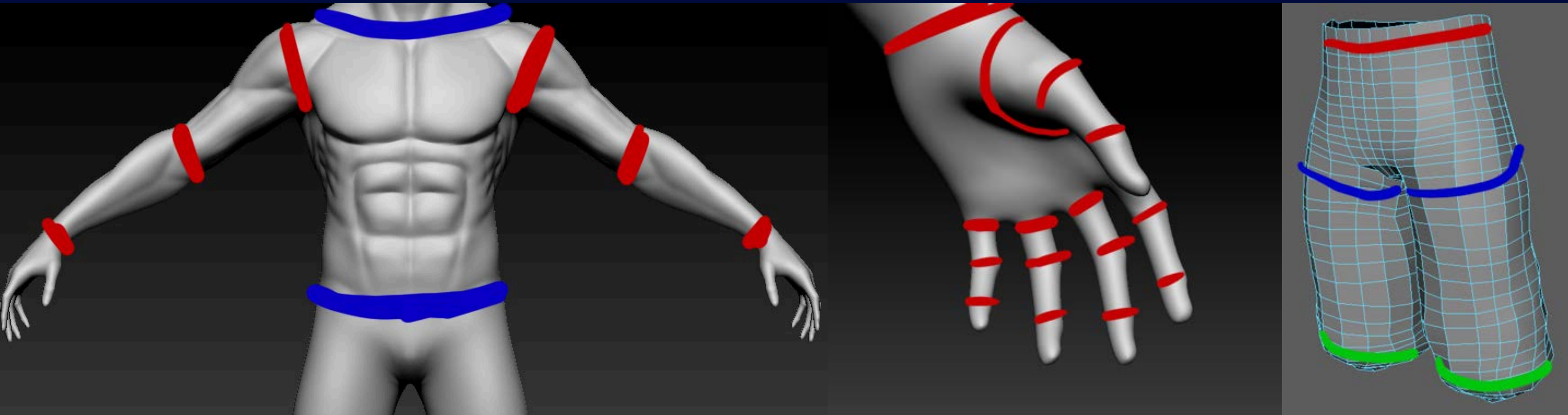
Total  
Polys: 34,268  
Tris: 68,500  
Verts: 35,716

After smoothing



The base topology without any smoothing applied is 27,842 tris. This turned out a lot lower than I expected and the silhouette holds up but there are still some visibly bumpy edges. After smoothing, It comes out to 68,500 tris which is just above the lower limit of 65k tris from the brief.

# TOPOLOGY REFLECTION



I saw a lot of my peers retopologize their models like this during their presentations and I would redo my topology like this next time with foundation loops to visualize where my topology needs to flow towards and join a certain points. It would have been especially helpful with the body as it is more complex than most of the clothing.

# REALLOCATION OF TEXTURE SETS

Initial allocation of texture sets:

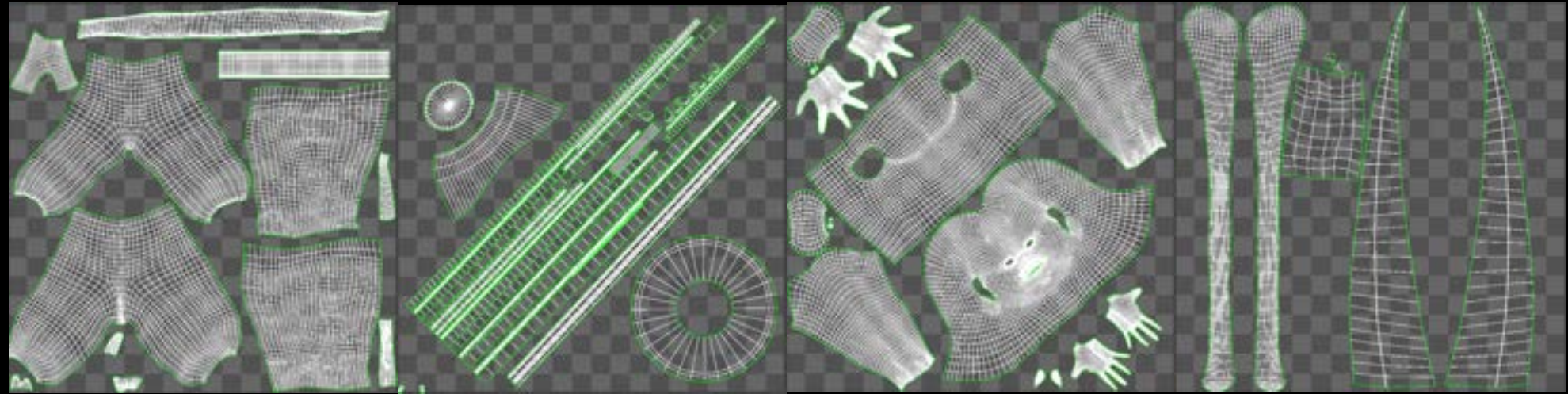
4k Body+Head

4k Weapon

4k Clothes

4K Straw hat

Forgot to factor in cards are their own texture sets



New allocation of texture sets:

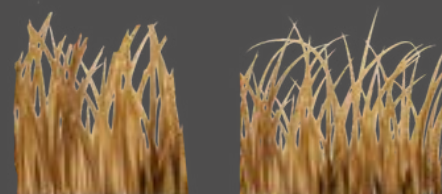
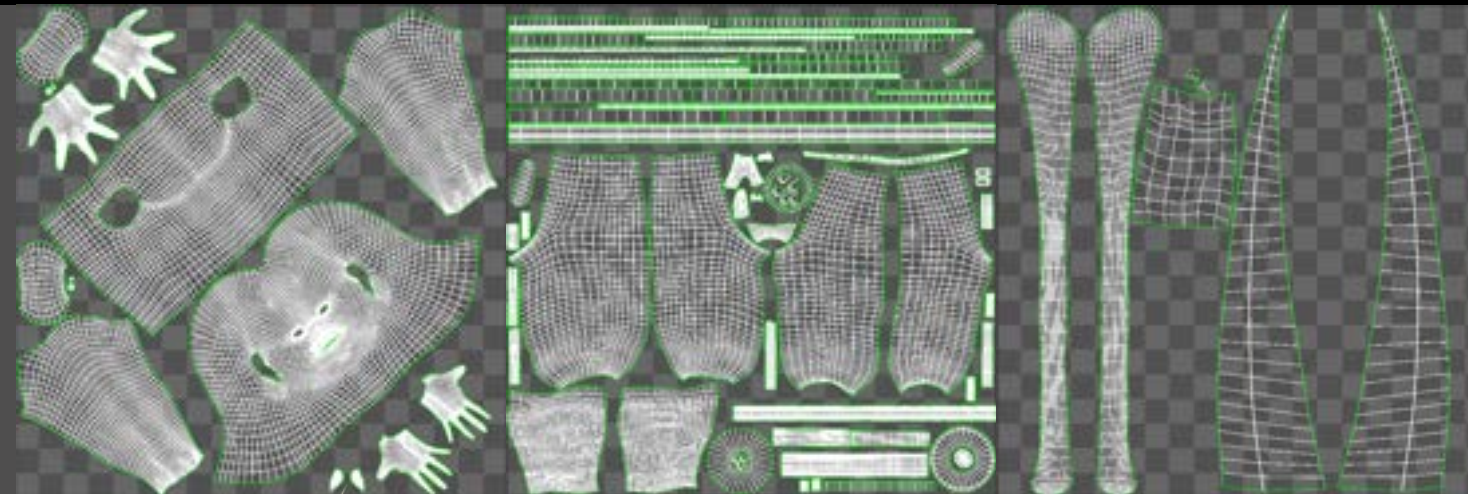
4k Body+Head

4k Weapon

4k Clothes and straw hat

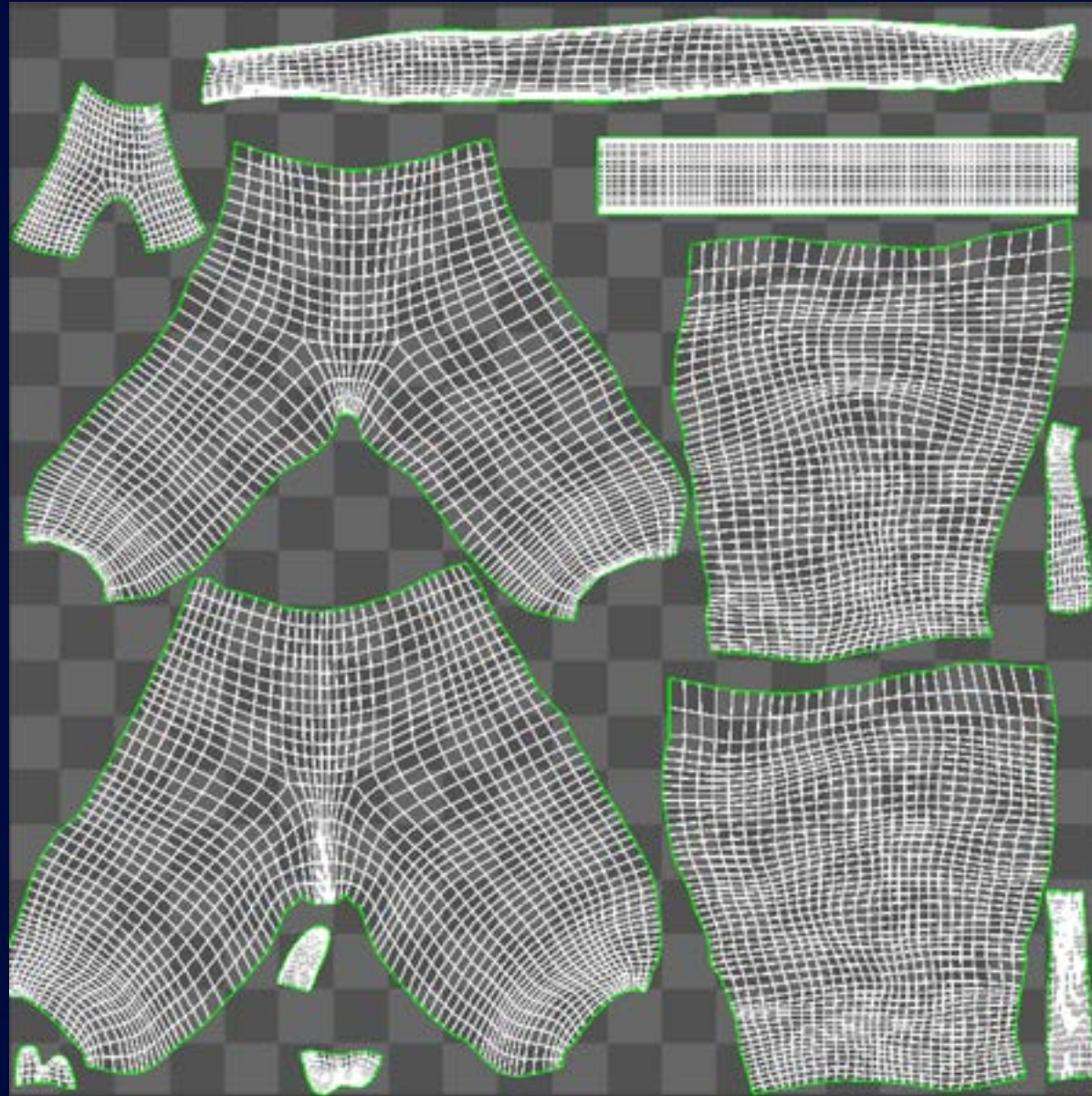
2k straw cards

2k hair cards



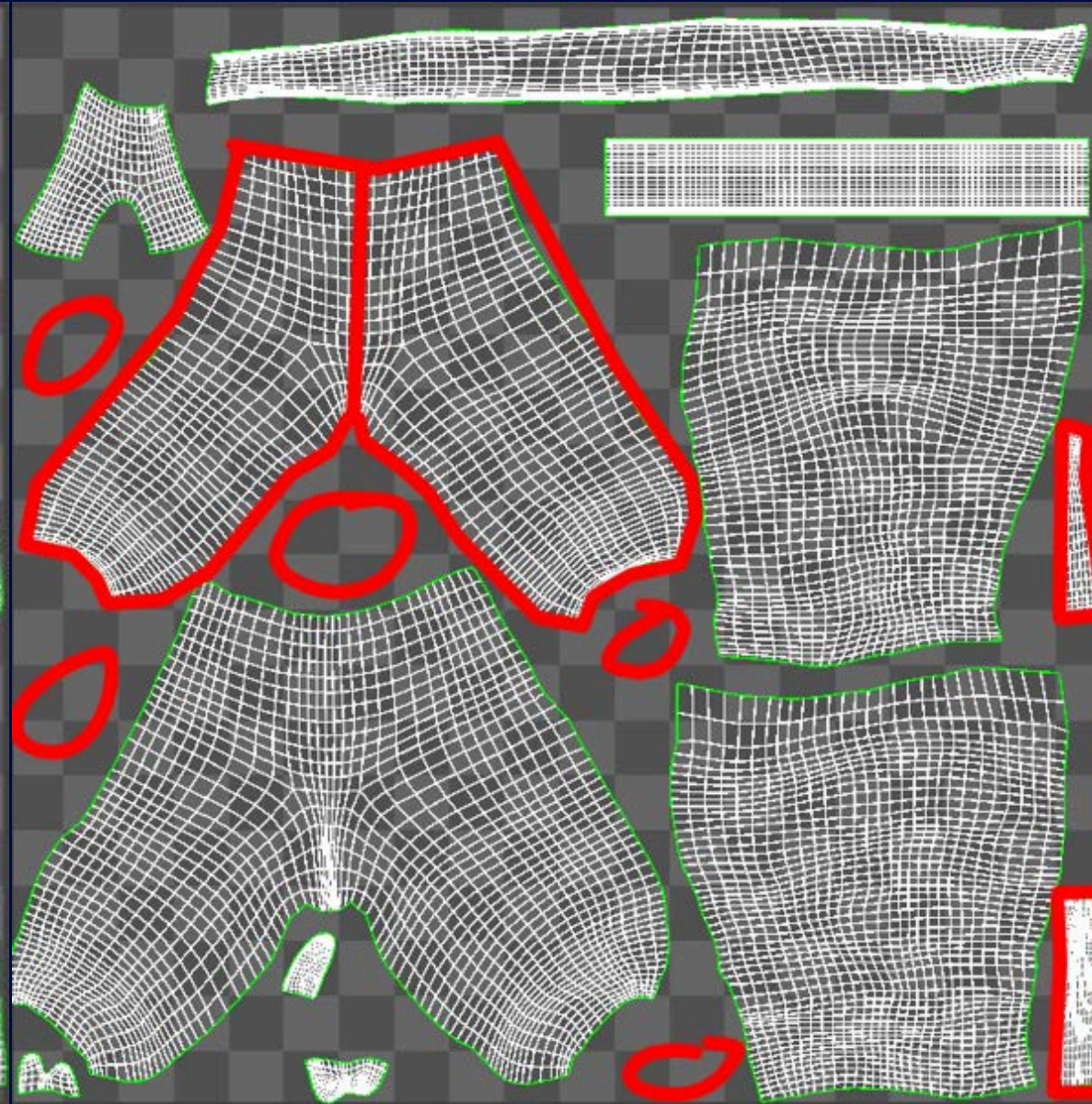
# CLOTHING AND STRAW HAT UNWRAP

## Initial UVs



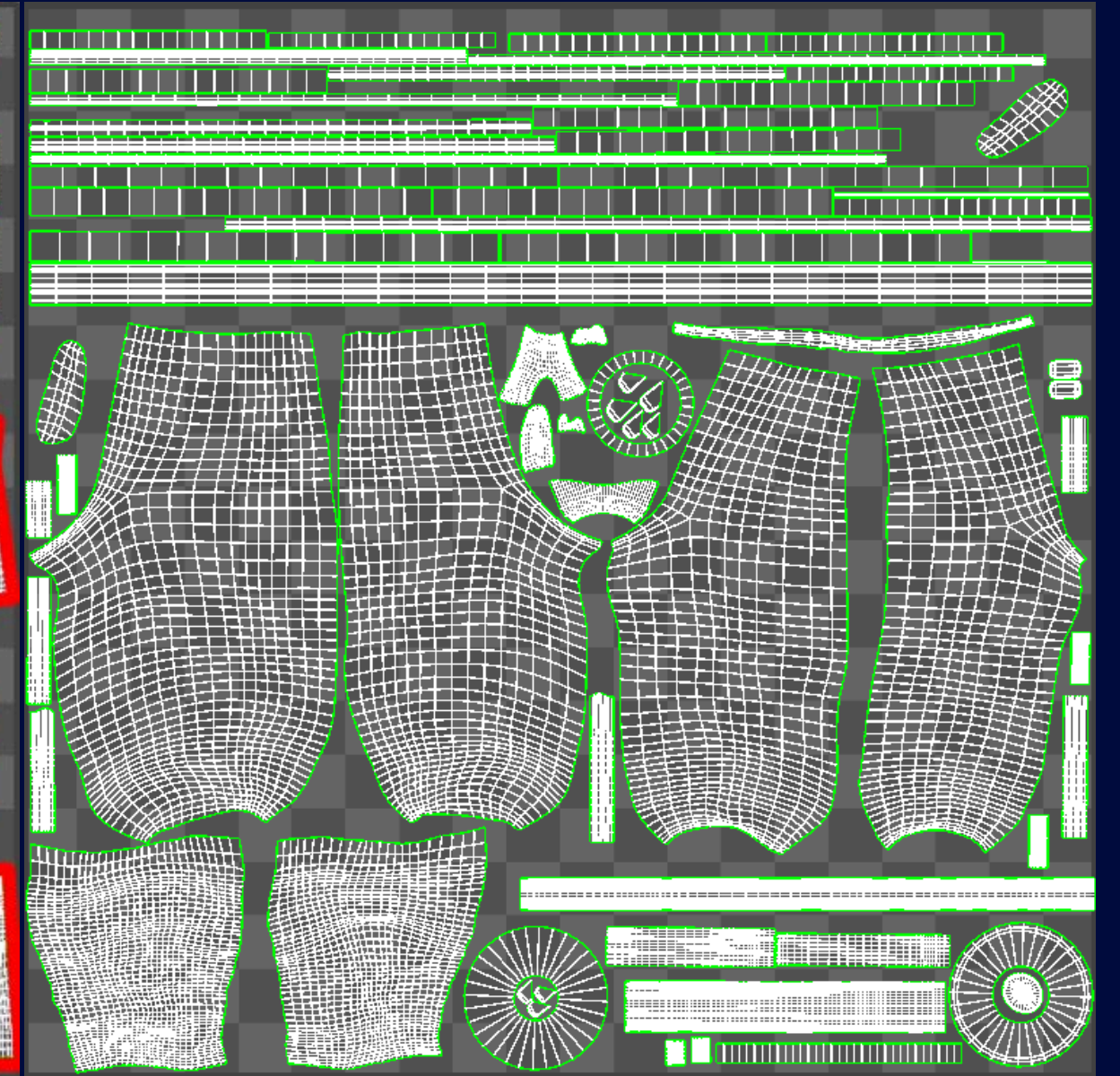
- Straw hat UVs not present as unwrapped before reallocating texture sets

## Feedback



- Add straw hat cards to texture set
- Straighten major elements like trouser legs and belt flaps to optimize space and texture flow

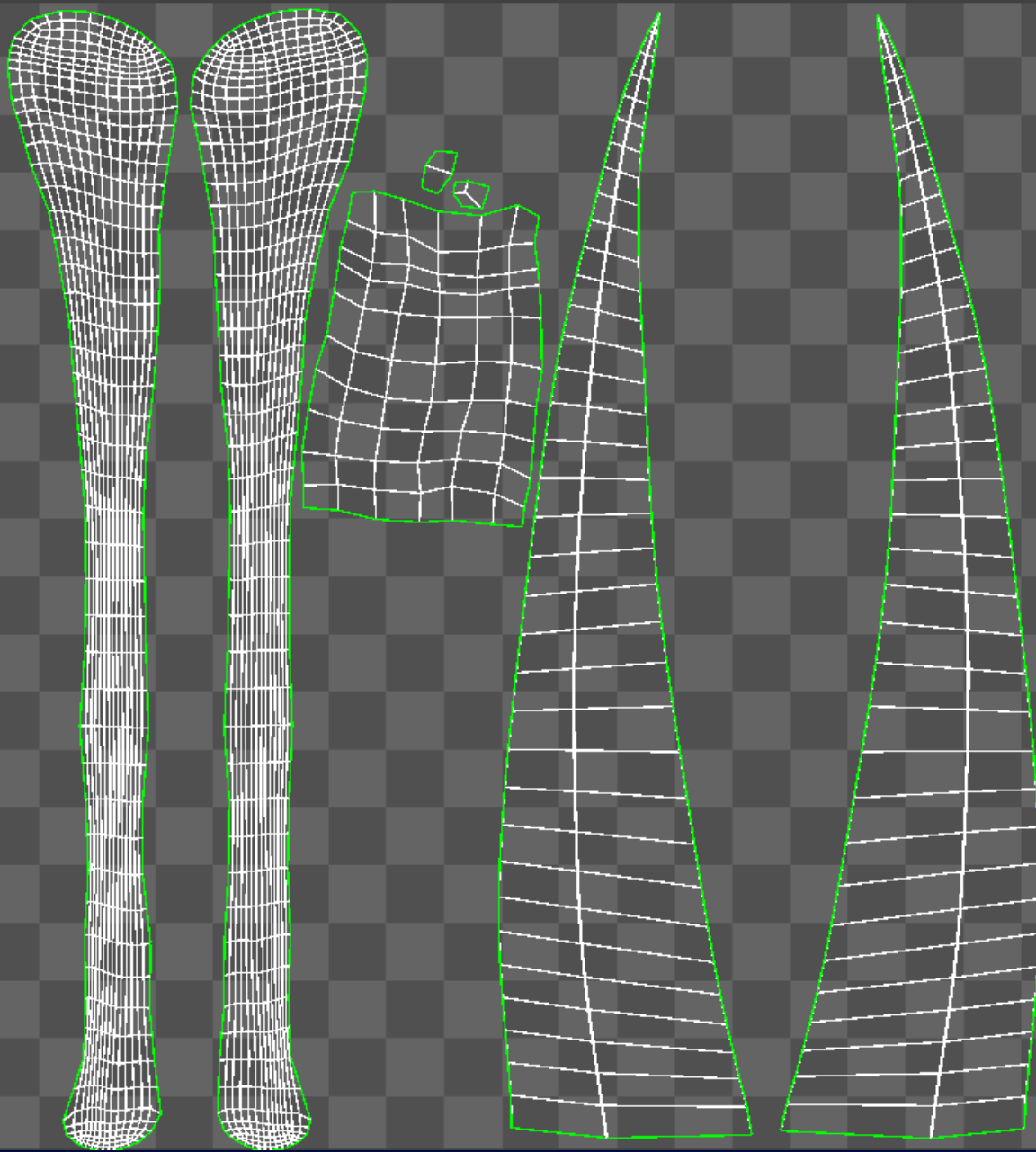
## Fix



- Straw Hat UVs added to set
- Seams added where seams are on trousers as created in Marvelous Designer to straighten out more and optimize UV space
- Most elements straightened out for good texture flow

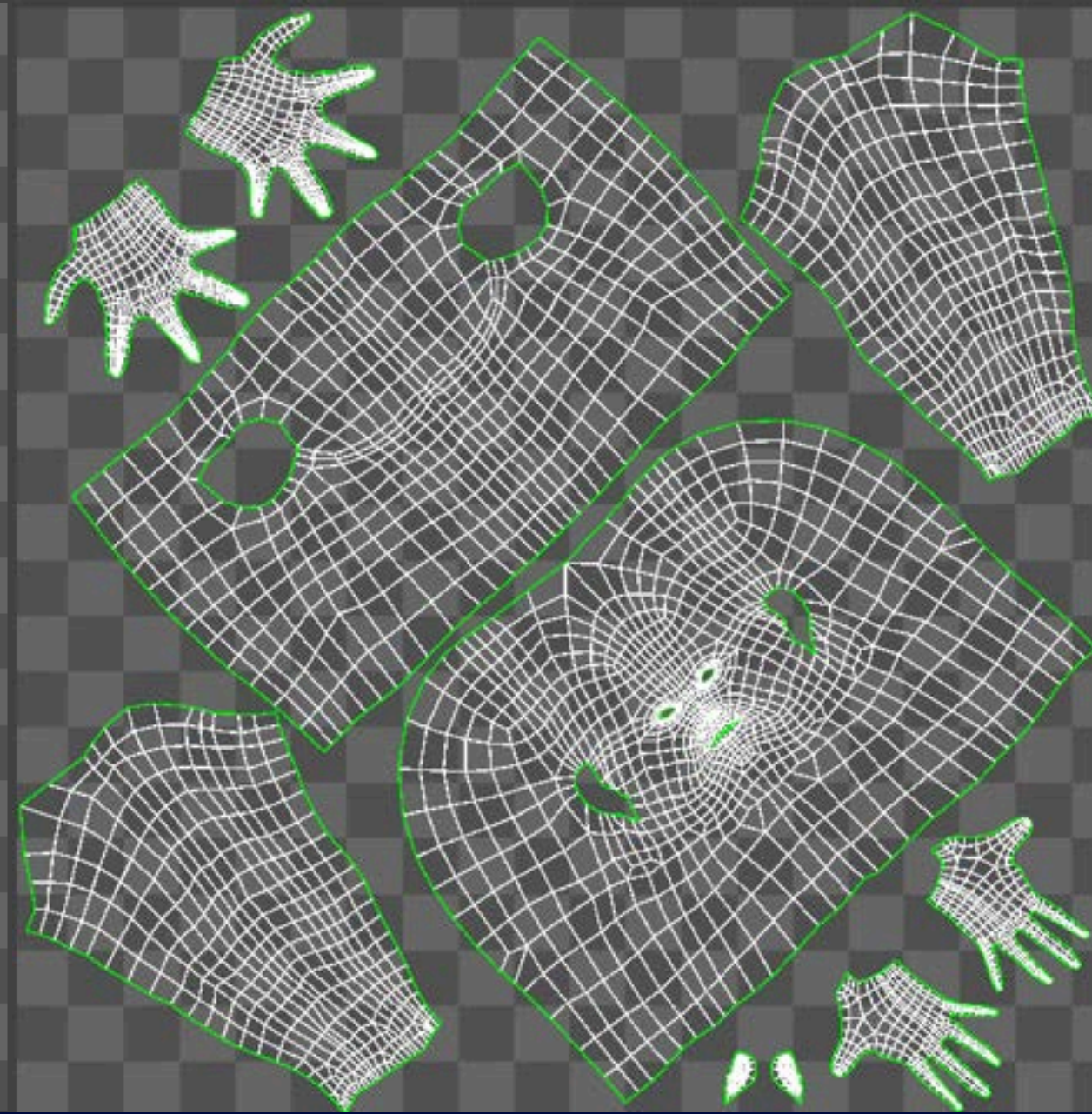
# UNWRAPPING

## Weapon UVs



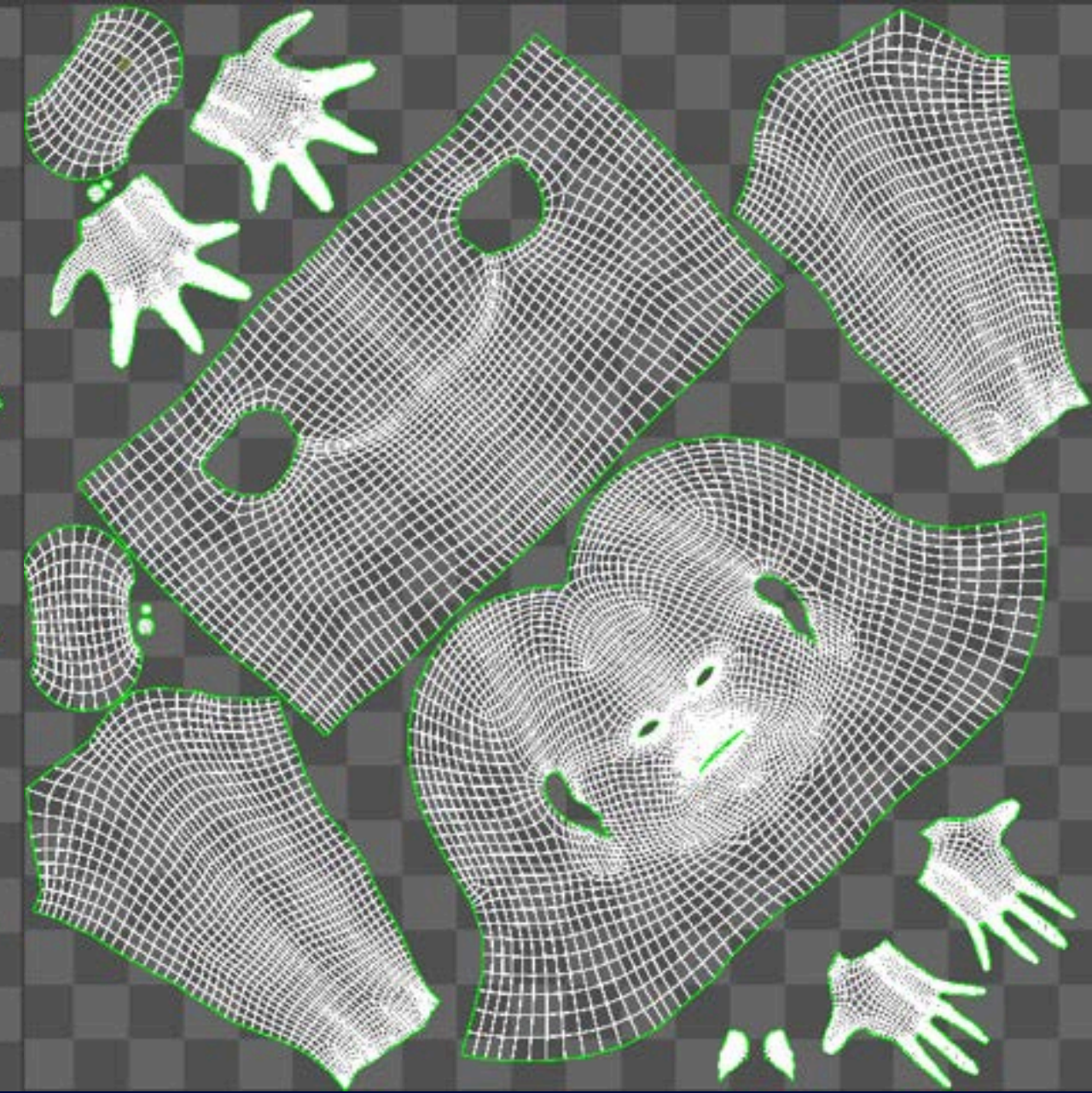
The weapon unwrap was very straightforward and I expanded the handle and blade as much as I could on the UV space and squeezed the crystal UVs in right between the, as that was the spot where it could be scaled up the most for more resolution

## Initial Body and Face Unwrap



The initial unwrap I had for the body and face looked like this, where I tried to flatten most pieces but upon running texture tests the face had very inconsistent texel density.

## Final Body and Face Unwrap



Final body and face unwrap with eyes included. I have left the head in a more simplified form which could definitely be better by being straightened and straightening elements is something I need to work on when it comes to UVs.

# BAKING



BAKING PROCESS	HIGH POLY PARAMETERS	MATCHING BY NAME
LOW POLY MESH [_LP]	HIGH POLY MESH [_HP]	
Ronin_LP	Ronin_HP	

All of the bakes turned out very well and I separated most of them to avoid bad AO effects when pieces are too close together. I also used match by name for my meshes for better bakes.

# BODY AND FACE TEXTURING



I started off by building the skin from subdermal layers. Red for the blood and dark blueish purple for the shaded areas to further accentuate those areas

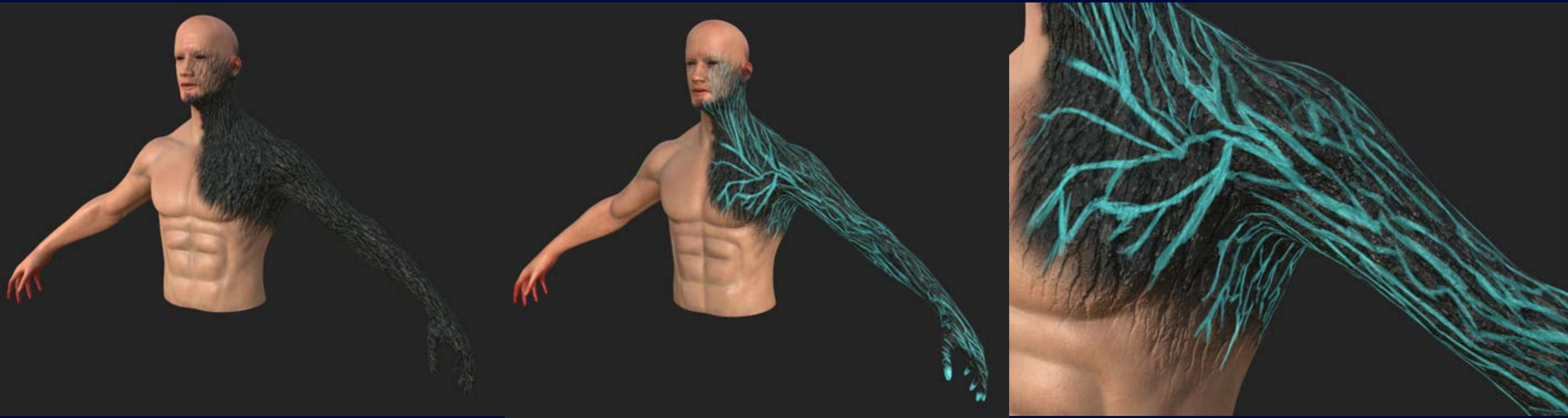


Next, I used substance painter's skin texture with a dirt spot brush on low opacity and slowly went over the whole body. It is still early stage at this point and I am gauging which parts need more or less opacity



It is looking quite clean on the body as well with the shading beneath the skin layer

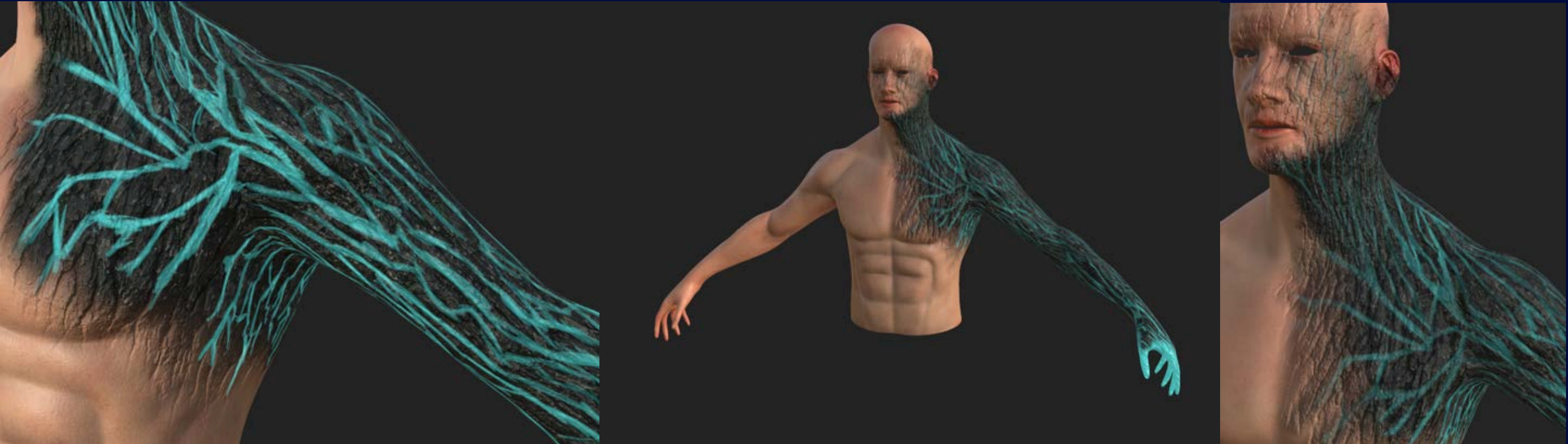
# BODY AND FACE TEXTURING



My concept has a decay and glowing effect and I found that tree bark texture worked very well for it and even gave me a template for where to draw the glowing veins

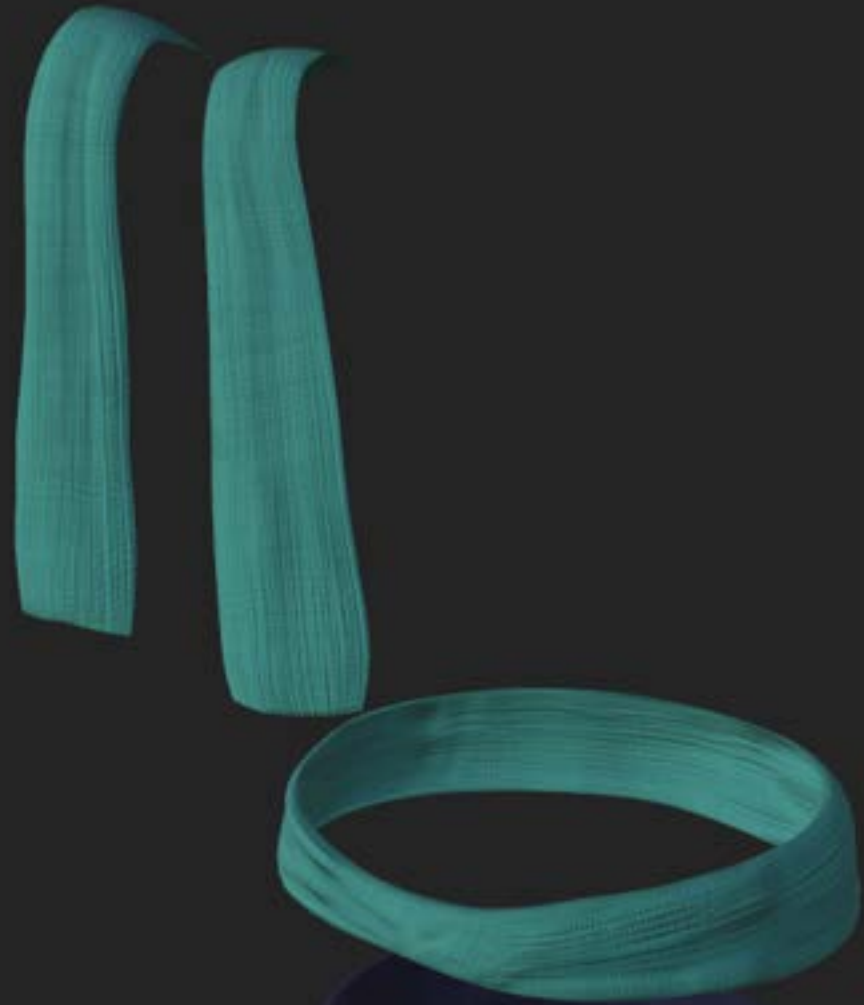
I hand painted all the vein effects and at this stage it still needs cleanup and better blending which I will be utilizing opacity values and the smudge tool for.

# BODY AND FACE TEXTURING



The veins needed to be blended a little better as they looked very painted on and I also went ahead and softened the opacity leaving the most intensity at the hands and getting less prominent as it goes towards the face. I used the smudge tool and then manually went over the whole arm gradually changing the opacity.

# CLOTHING TEXTURING



I wanted to go for a colour palette similar to the dark colour and blue glow on the arm for visual cohesiveness and for a cleaner aesthetic



The trousers and waistband are textured dark blue to create contrast between the belt and the leg wraps



The leg wraps I used Fabric Linen in painter for the gauze texture and it works very well especially with the tiling turned up very high



Due to less visibility I have decided to go for a simple cotton texture for the socks and will dirty it up with blood and dirt in later stages

# CLOTHING TEXTURING



I changed the colour of the belt as I thought it looked a bit too cartoonish and stylized and changed it to dark grey but added glowing highlights to also accomplish what I wanted before which was similar colours to his arm glowing veins

I broke up the roughness and added some more detail to the hakama trousers, leg wraps and socks by adding blood and dirt effects and carefully painting them on in necessary areas. For example, the lower parts of the trousers as it makes sense that dirt would gather more at the bottom being closer to the ground during combat and travel.

# CUSTOM MATERIALS 3D SAMPLER

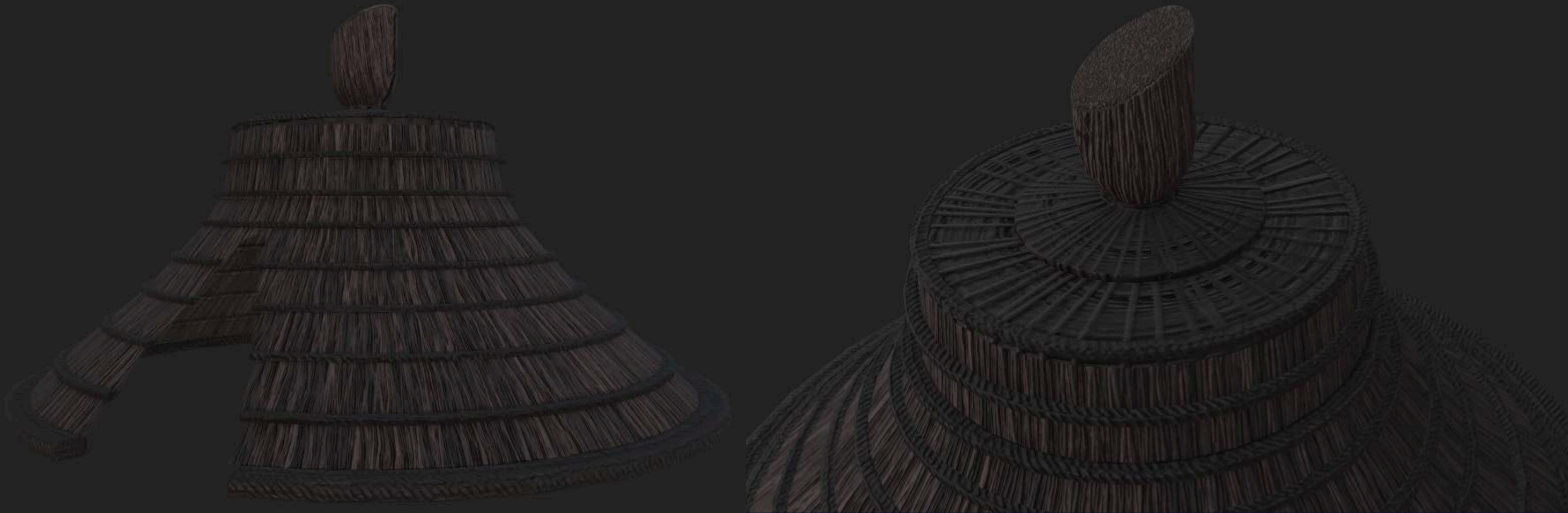


I found images online of straw textures and took them into sampler so it could turn it into a material for me. The image was already just about tileable so I didn't need to adjust anything except the colour

Much like the straw texture, I found another straw pattern but this time in a radial pattern for the top part of the hat.

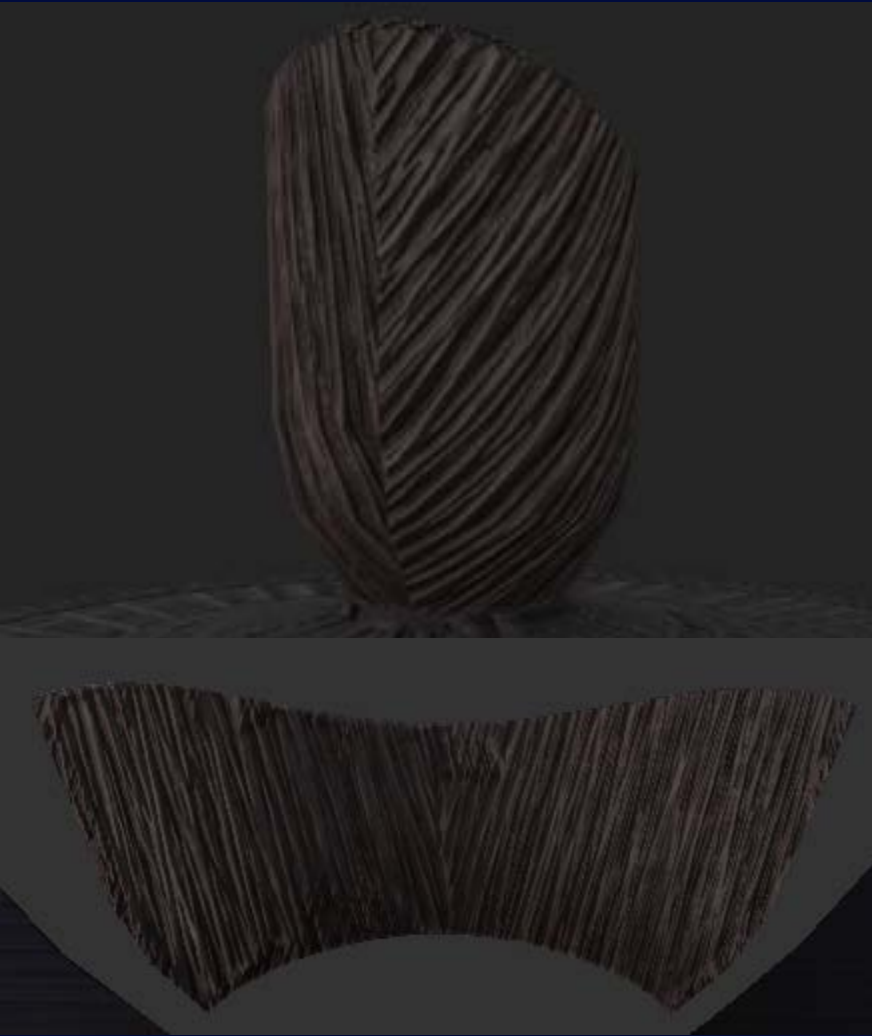
The rope texture was a bit more tricky as most images were of very intense patterns and poor tiling but I managed to make it work and will be using this for the rims of my hat as they have a bit of a more rope-like surface detail and pattern, but it is still made of straw

# STRAW HAT TEXTURE



Applied the texture for all parts and adjusted tiling and offset as needed. The result is quite good and there are already a lot of colour variations. Next, I need some roughness variations and I have also applied a fast noise map on the top of the bunched straws to mimic the effect of the top view of bunched straws

# TEXTURE ISSUE



The texture doesn't flow very well for the top part of the hat because I unwrapped that part poorly and didn't straighten it out enough



I used another layer with the same texture and painted over the broken parts and rotated the tiling to point straight down. The result isn't perfect but it's the best fix for what I have at this point in my process. I am also going to add a band around this part to bunch the straw together and hide the texture issue

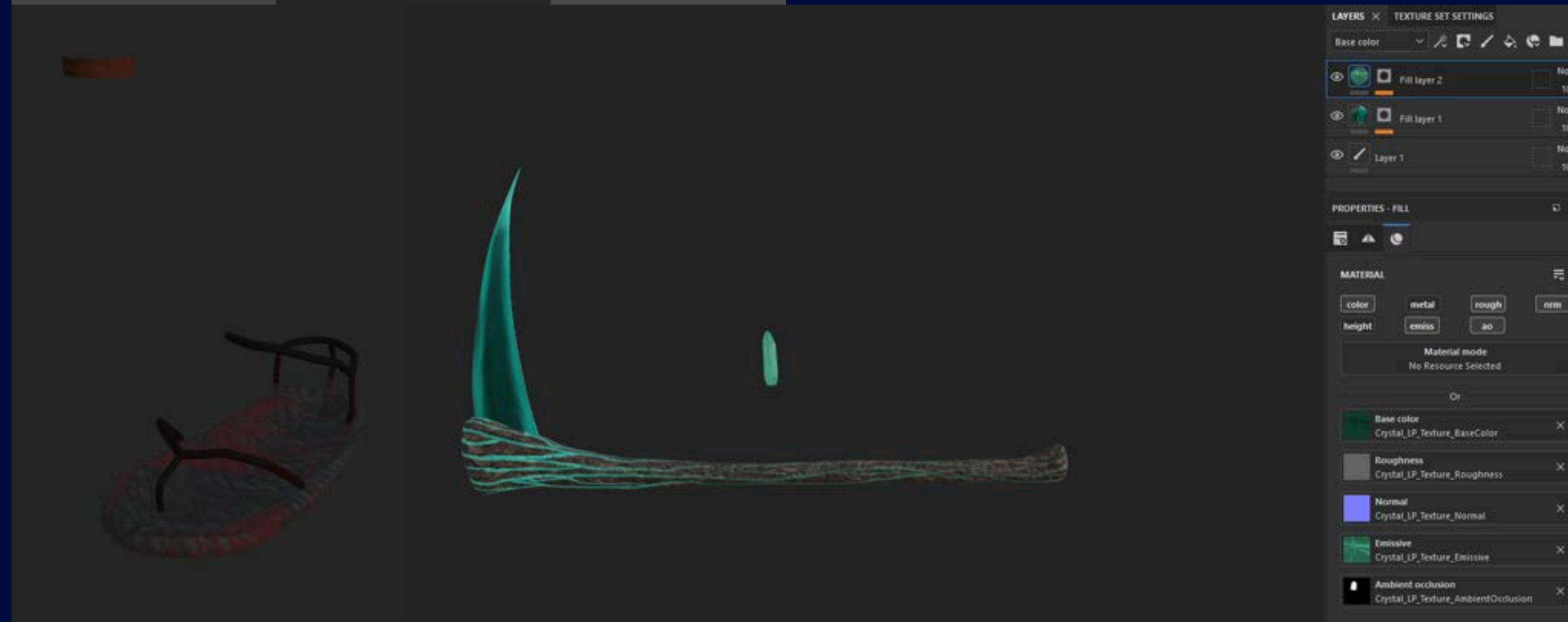
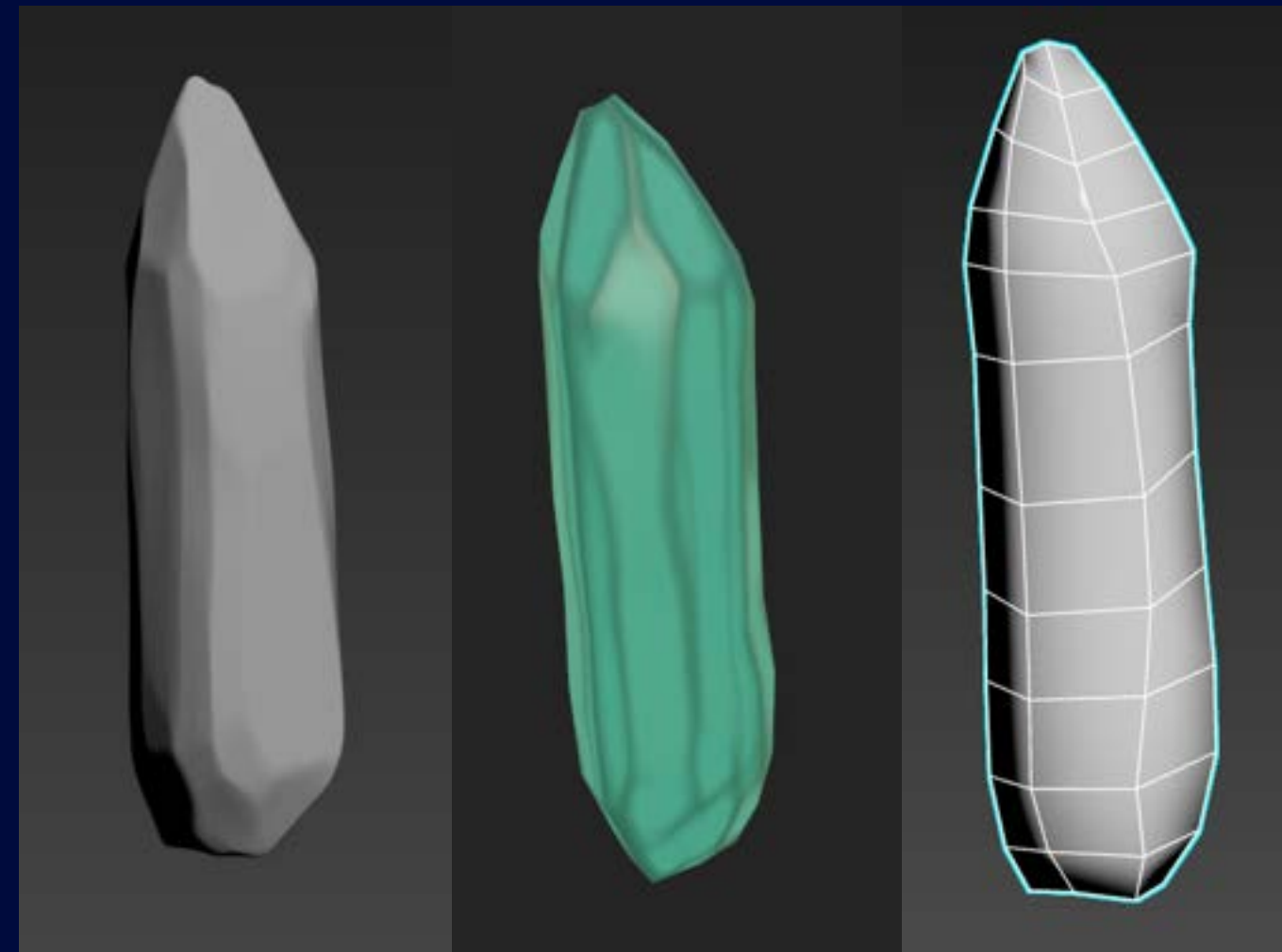
# SCYTHER



The scythe was originally just going to be a basic metal and wood material, but I decided to make it emissive in a similar way to his arm and the result is much better and cohesive with his aesthetic

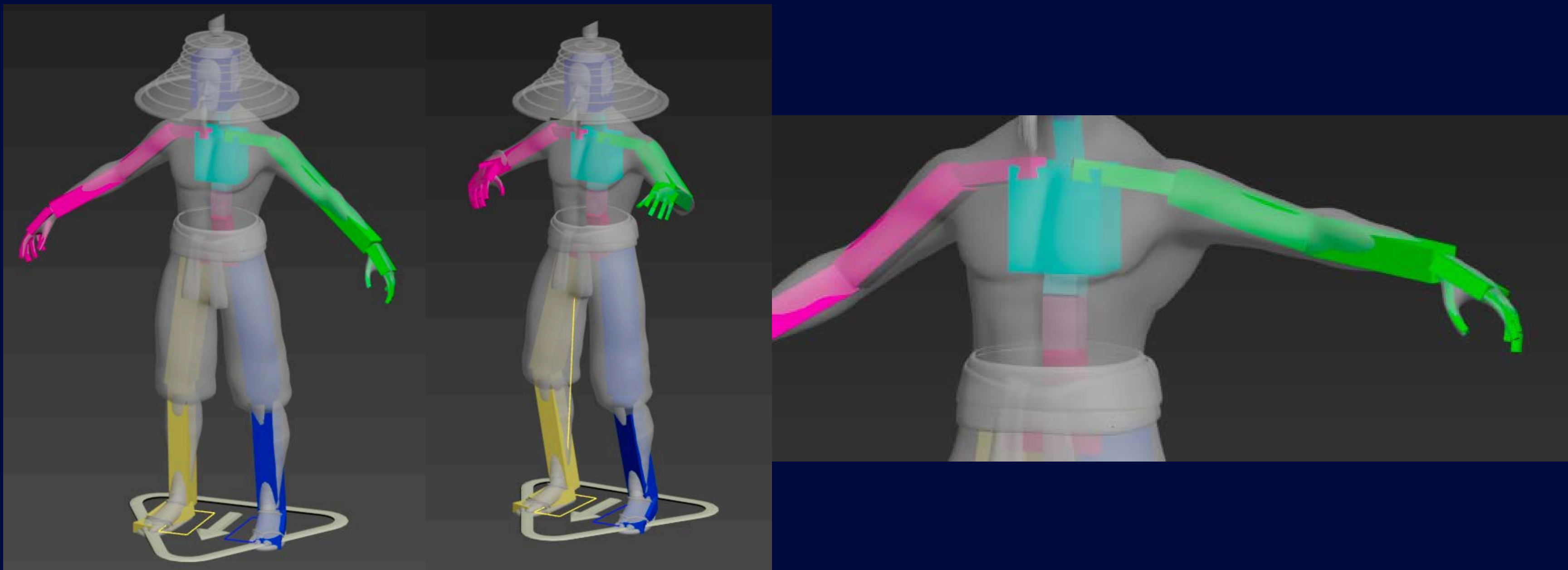
## TEXTURE COMBINATION

I modelled a quick crystal in zbrush and brought it all the way to texturing phase to combine with the scythe texture set. The idea is that he will use these crystals as his ranged weapon when the player is far away from him.



These two models were textured separately due to a bit of a mix up as I was unwrapping, but I combined the sandals to the clothes and the crystal to the weapon in painter once all textures were ready.

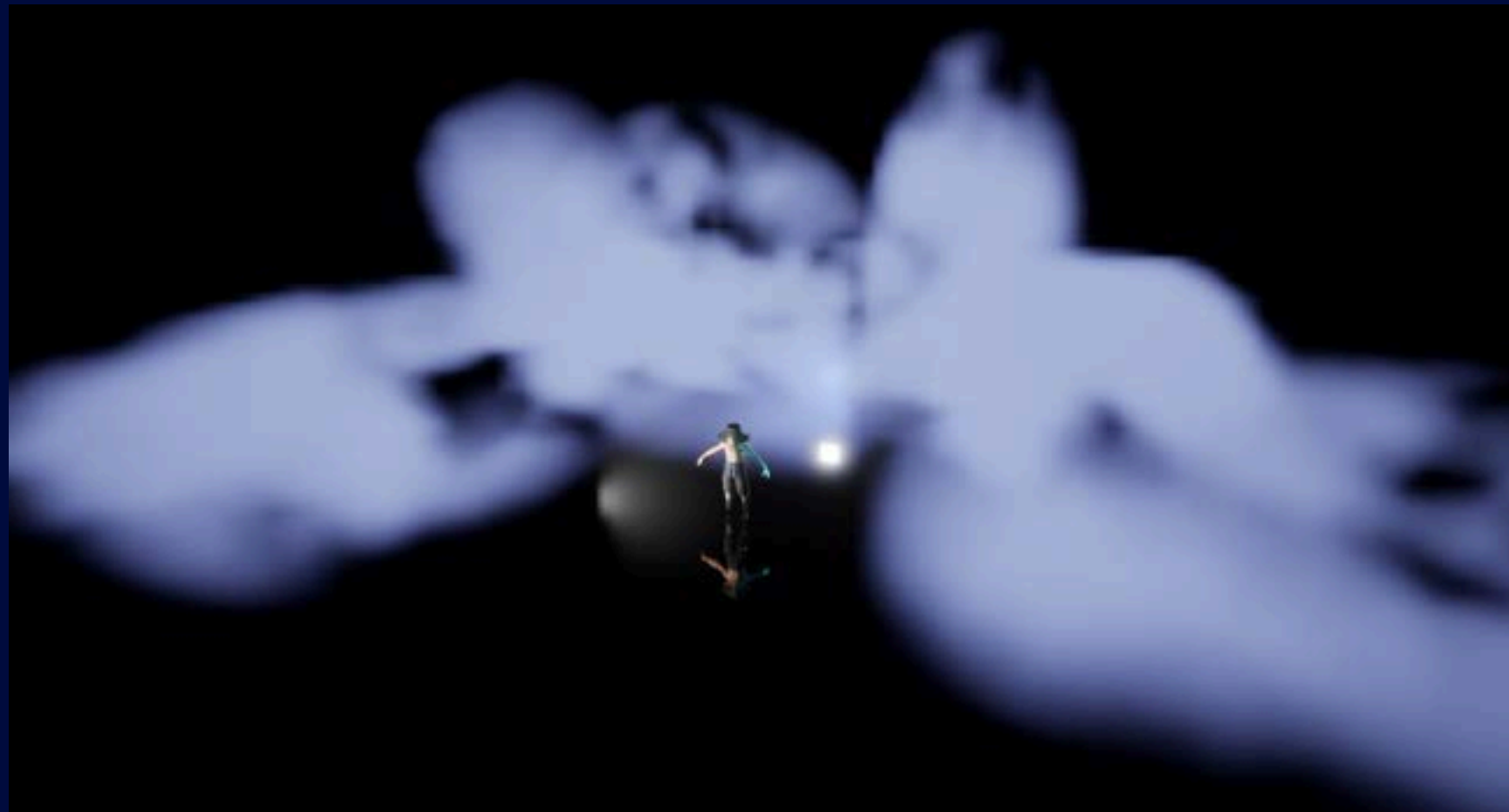
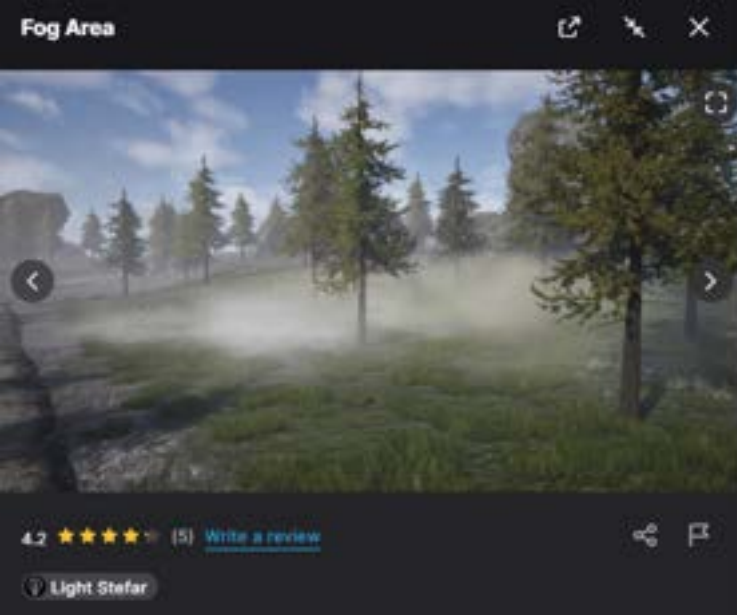
# RIGGING IN 3DSMAX



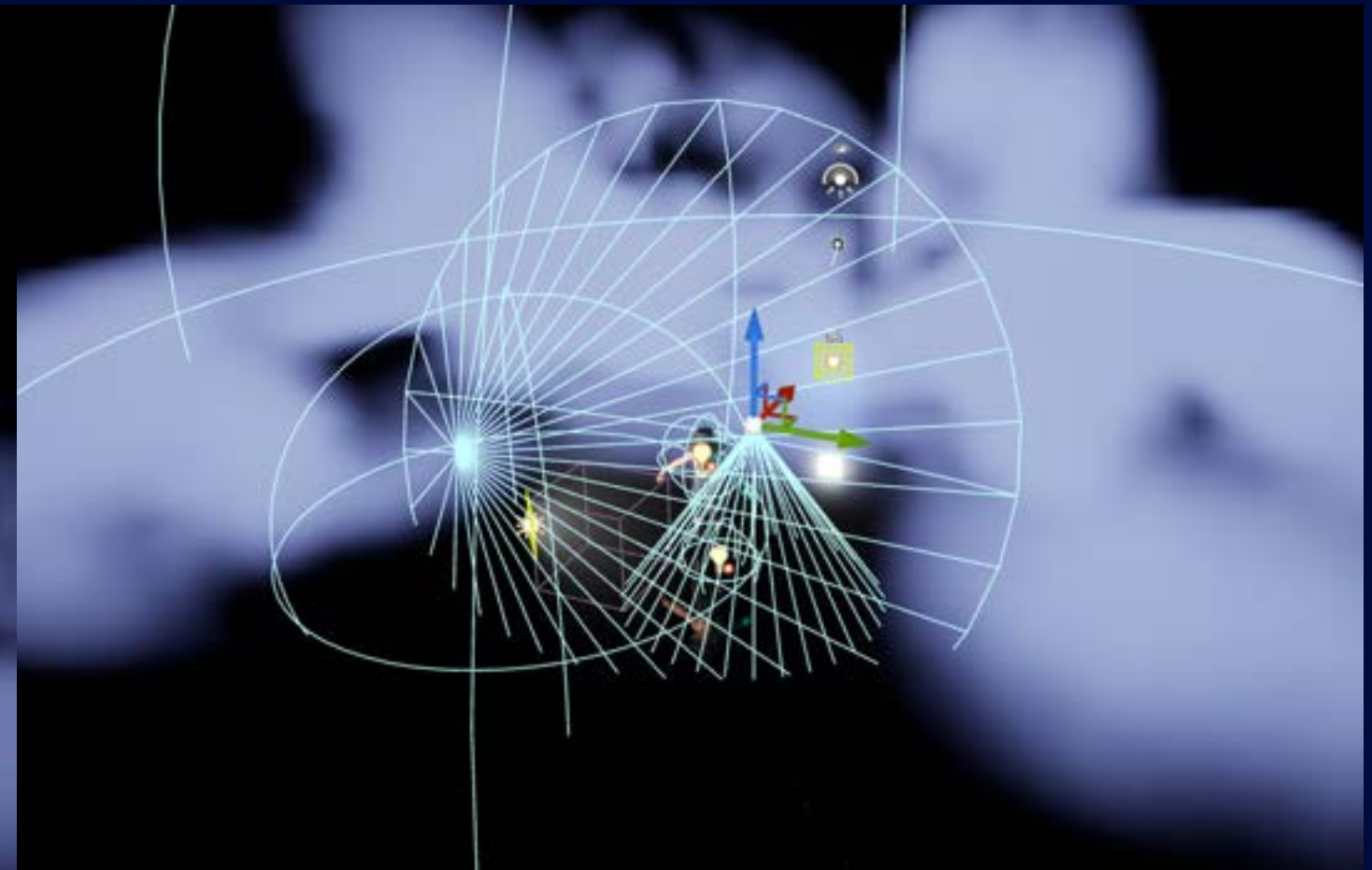
I tend to use CAT rig workflows for rigging characters but I am not very good at weight painting. I achieved this rig but there are still some artifacts and room for improvement especially how the lats react to the arms being moved up and down. Rigging is a pivotal part of character development so I would really like to improve on this so as to achieve better poses and animation and to be game ready.

# UNREAL RENDER SETUP

I found a fog system in the fab store for free and used it to build my scene as I wanted the character to contrast against a dark background but have a cool misty effect like a boss fight is about to happen.



I built the fog around the character to have him surrounded in it



I also played around with lighting for quite some time trying to get it right, experimenting with rect lights which I don't usually use and mostly spot lights and point lights

**RENDERS**







