# Rumbling Randy
Art Book

FREYA
DOUGAN

Contents

Proposal

- Create a game-ready character model
- Character should be presented in Unreal Engine 5
- Character is based on old American wrestlers
- Character should be in Street Fighter art style
- Character should have a full outfit: leotard, jacket, boots, knee and elbow pads, and championship belt
- Full PBR texture set for everything
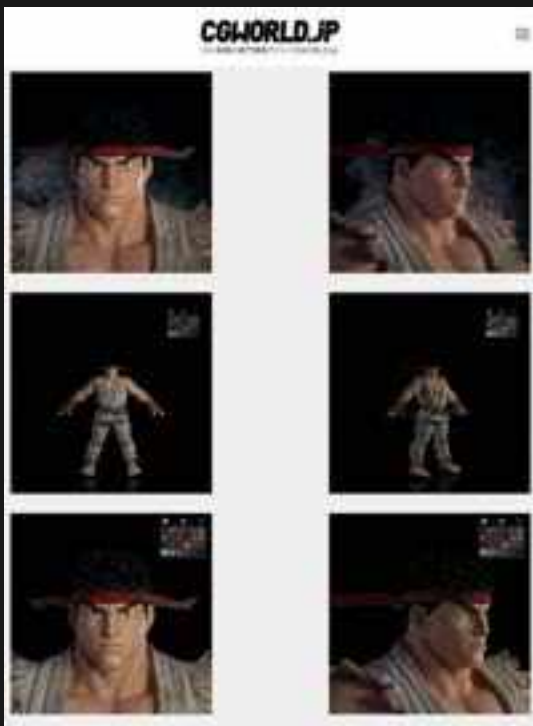- Character should be posed

Research
Art Styles & Workflow
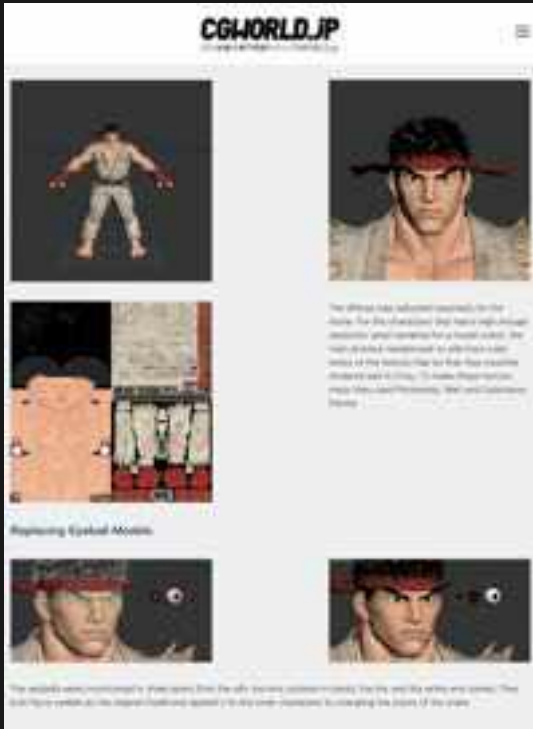
Street Fighter

After looking into various fighting games, I've decided that Street Fighter would be a good universe to slot my character into. I think the art style will go well with his design. I've gathered references of characters and also a guide released by Capcom.
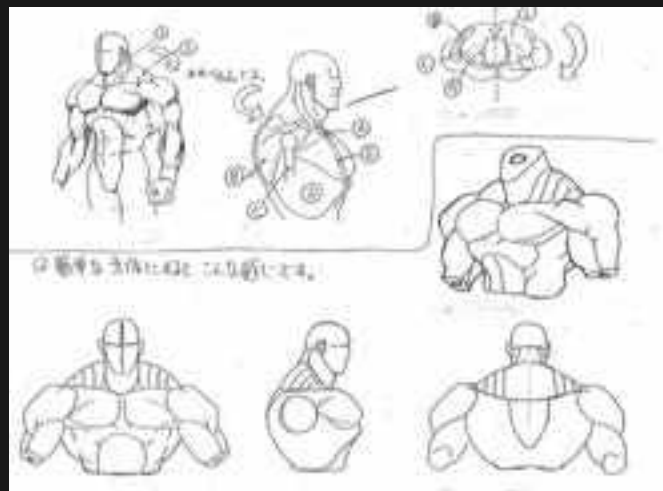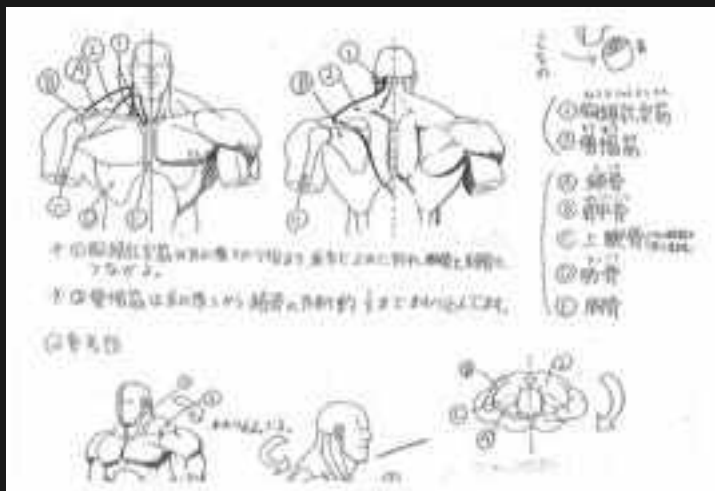

I am choosing to follow the style of a pre-existing game because it gives me a workflow to follow, and industry examples to compare my own work to. This will help me to ahieve a higher quality model.

Research
Art Styles & Workflow

Street Fighter

Continuing to gather visual references for my character, I found some of the design specifications used by the artists making the Street Fighter games. The guide is very useful in showing how the muscles should be exaggerated to follow the art style.

Research
Art Styles & Workflow

Street Fighter

During my research, I have been able to download the character model information for several Street Fighter characters. This means that I've been able to look at how the models are put together by Capcom to be game-ready.

It includes all of the textures and maps, so I know that when I create my character I will be using pbr materials, along with hand-painted textures.

Research
Art Styles & Workflow

Street Fighter

Polycount: 199,830

I was able to download the character model and assets for some of the Street Fighter characters. I opened them in 3DS Max and looked at all of the components, such as the texture sets, UV layouts, rig, base pose, and poly count. This gave me a more well-rounded idea of how the models are created, and what I should do moving forward.

Research
Wretlers

Real Life References

Because I have decided to make an original character, their design must capture their backstory. I am taking inspiration from a specific period in wrestling history, so I spent a lot of time collecting references of wrestlers, belts, in-ring attire, out-of-ring attire, common injuries, wrestling promotions, etc.

Having this wide range of references allowed me to develop my designs, making them more visually interesting and authentic.

Research
Wrestlers

Studies

After I built up a large collection of references, I began to break down the forms and colours. Wrestlers, particularly from that period, have a very large build. They are usually very tall, with broad shoulders and big muscles.
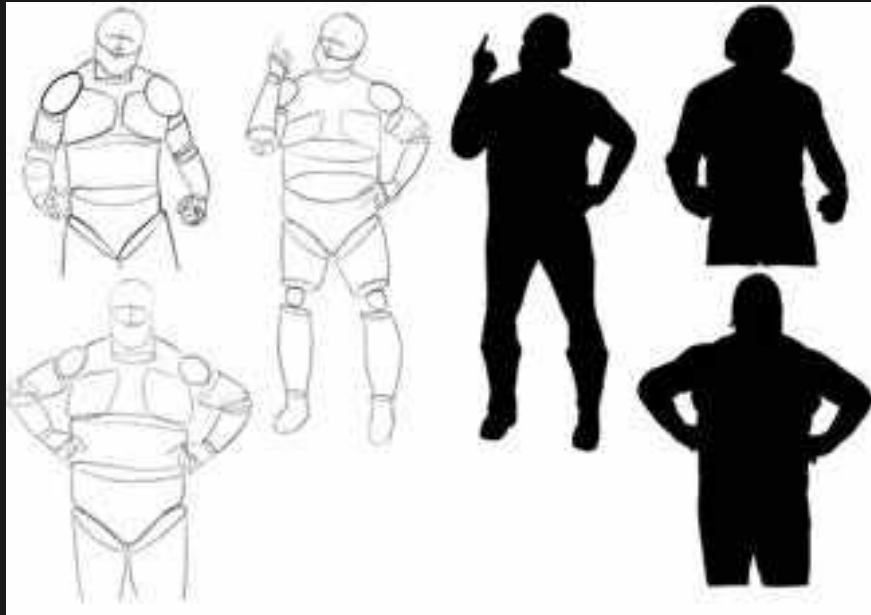Their job is to tell a story through fighting, so body language and costume are a big part of their character. I need to ensure that my character has a build and pose that helps to show their personality.

Research
Wrestlers

Studies

I began developing the design of my character. I started by going over my initial sketch, and then I decided to use real life references to help me determine the build. This helps reduce the time it takes to design the character, and will also help during the sculpting process.
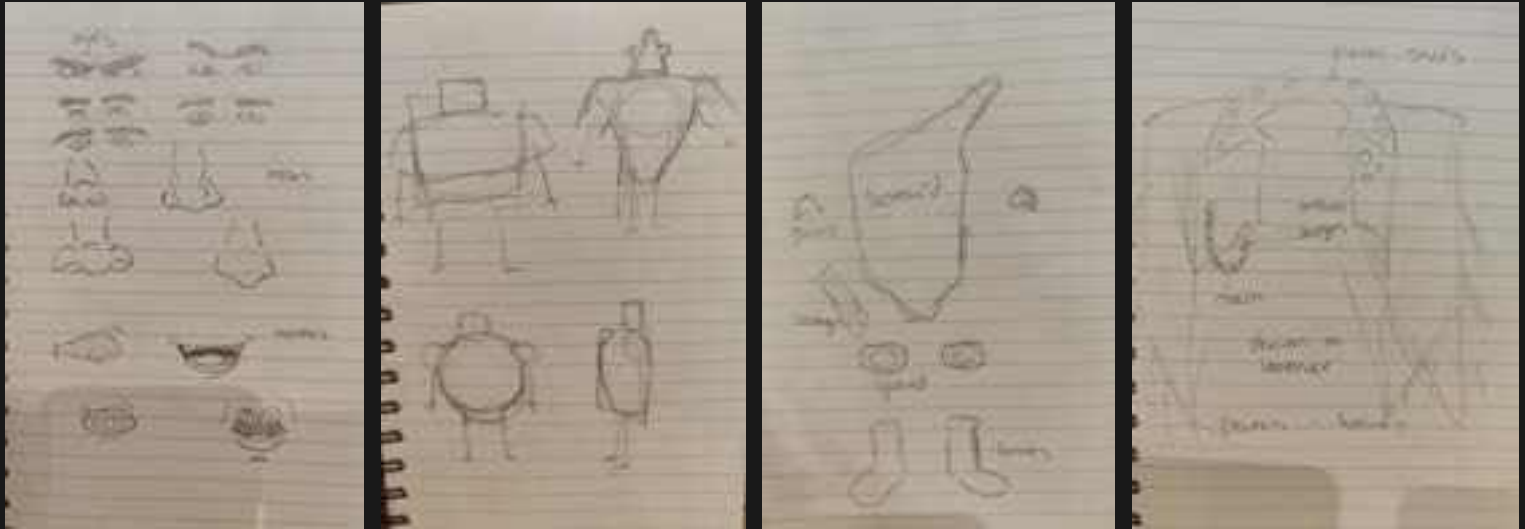
I am using Dusty Rhodes as the real life reference, he is from the era of wrestling I am looking to replicate and is close to what I imagined my character looking like. After deciding on that, I went through some photos of him, looking at the forms and silhouettes.



Published 2015
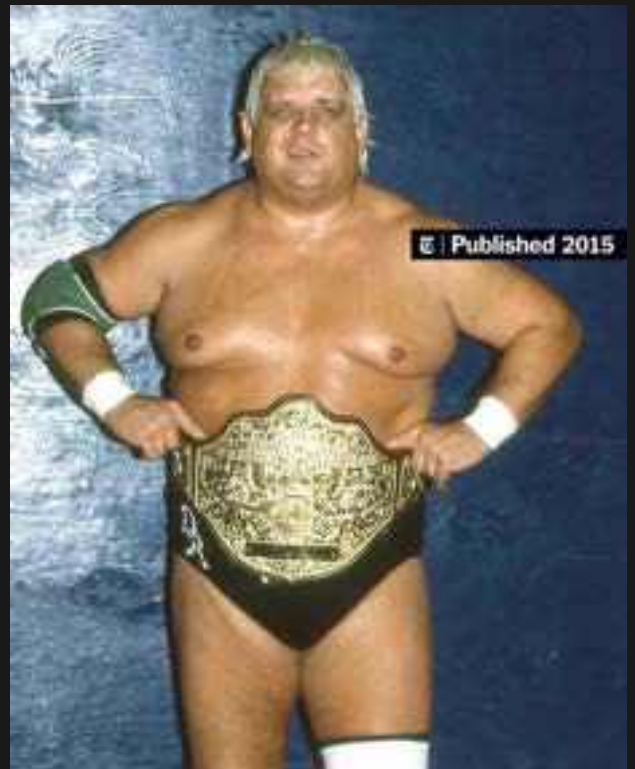
Concept

Initial Sketches

My concepts began with quick sketches, experimenting with body shape, head shape, types of eyes, noses and mouths. This allows me to envision different iterations of the designs, and choose which ones I think work best together.

Shape language is important in this part of the process, as I don't want my character to appear non-threatening as a result of their face being too soft, for example.
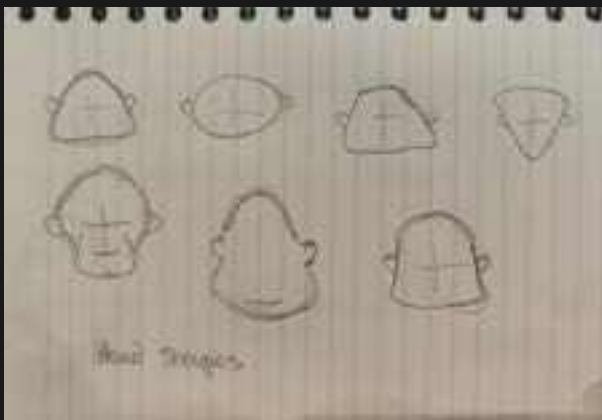
Concept

Digital
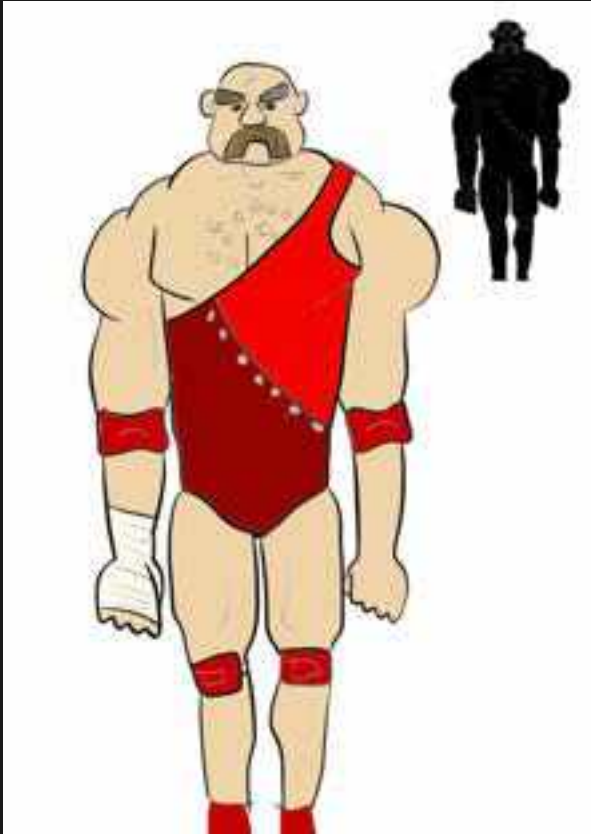
Moving on from the initial sketches, I began to digitise some of my ideas. I now have a basic idea of the appearance of my character, as well as the belt and jacket he will be wearing. I've also made two separate logos for him to have on his clothing.

Concept

Digital

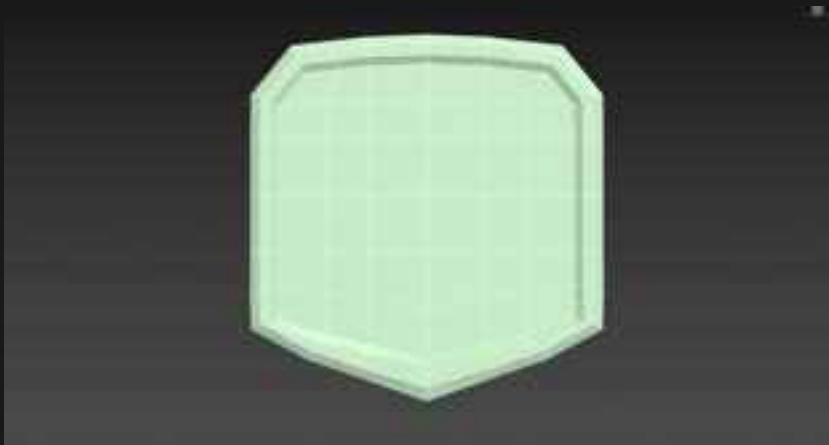The final concept art for my character is now complete.

Blockouts

3DS Max

I used 3DS Max to make the block out for the championship belt. I started with a plane and added a reference picture to work off of. Using swiftloop I added more segments to the square so that I could manipulate the vertices.


After I got the shape, I used the extrude and bevel editors on the outside polygons to bring them forward and give it some curvature before it is chamfered.
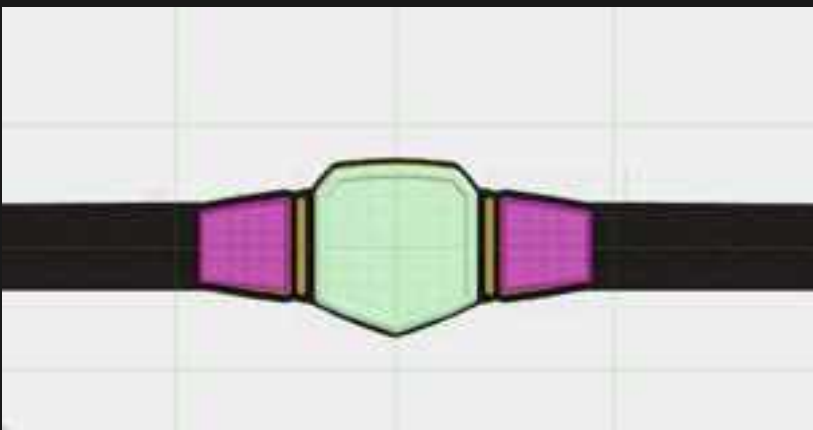
I then cloned the mesh and used the mirror modifier, then attached them and bridged the edges together. This will be the basic shape of the centre medallion for the belt. To develop it, I'll develop it further in 3DS Max, and then import it to Zbrush to add other details. I'm planning on using IMM brushes to add smaller details to the flat plate in the middle.

Blockouts

ZBrush
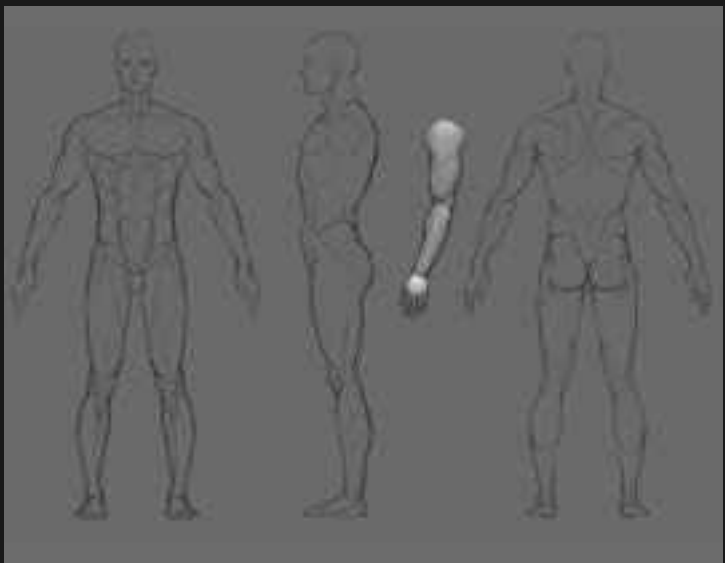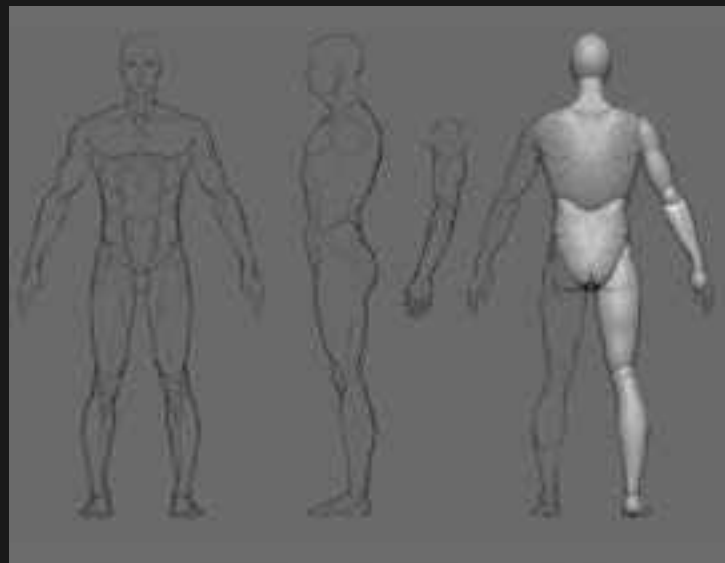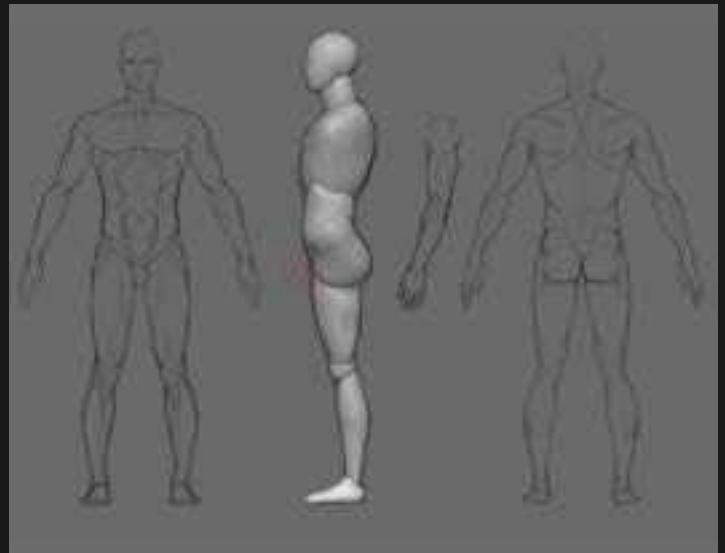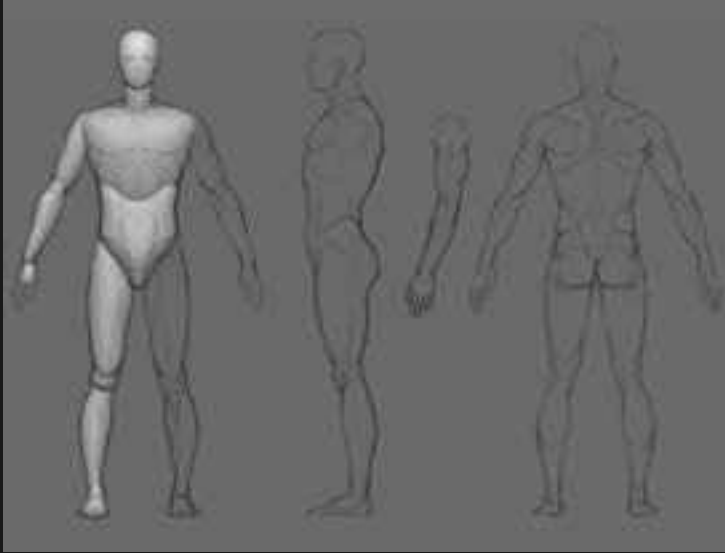
The first step to creating my model was the block out. I used a reference image in the lightbox in ZBrush to shape the basic forms of the body and make sure that the proportions were correct.

Blockouts

Marvelous Designer

I will be using Marvelous Designer to create the clothing for my character, so I developed basic versions of the garments on a standard avatar.

I began with a sewing pattern for an average leotard, then removed one of the straps and adjusted the measurements.

I now have a better plan for how I want to make the clothing for my character.

Blockouts

Marvelous Designer

For the jacket, I began by following a tutorial from the Marvelous Designer Youtube page. This showed me the shapes of the fabric I will need and how to sew them. I can now use this as a template for the developed design I have made for my character.
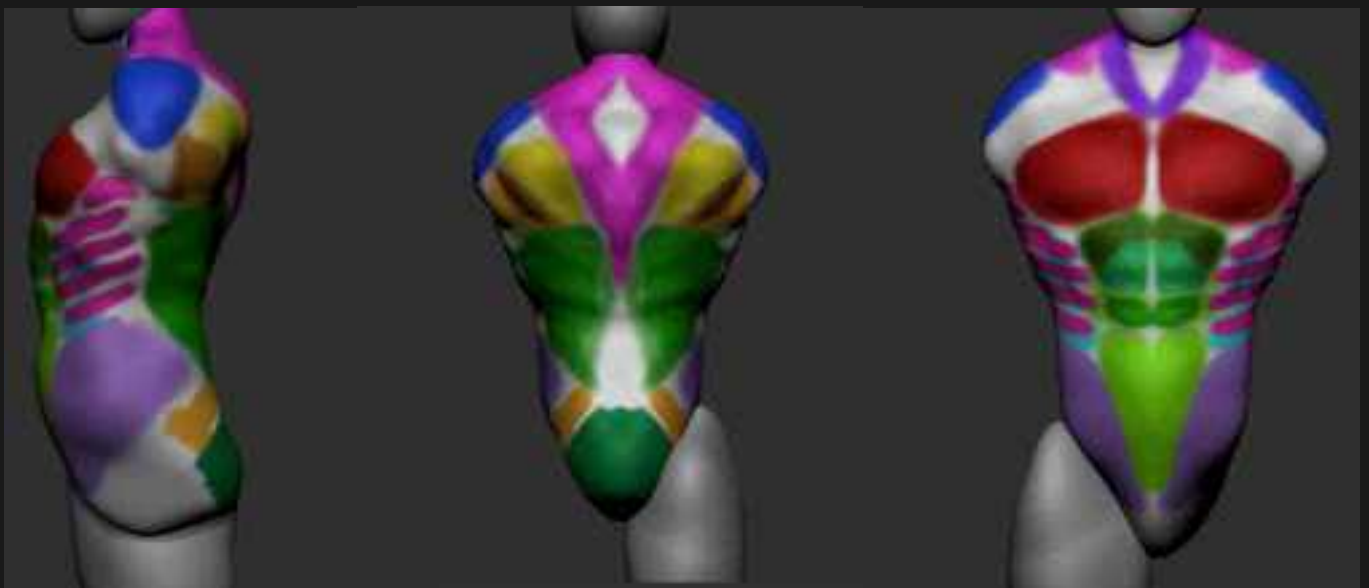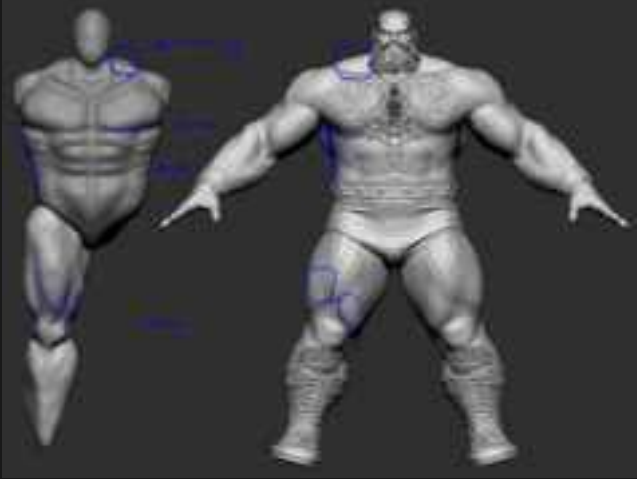
Sculpt

Body

I began developing the primary forms of the body. I imported the Zangief model into my scene so that I could easily make comparisons between the characters, and adjust my sculpt where necessary.
I used polypaint to draw the different muscle groups onto the body of the character, making it easier for me to know where to add the forms.

Sculpt

Body

Comparing my model to the Zangief model, it was lumpy and too straight. Zangief is designed with more rounded forms, with very thick arms and legs. This makes the character look stronger and more intimidating, and I want my character to have the same qualities. I smoothed down the lumpiness and corrected the forms. The thighs are more developed than the lower legs because they will be covered by boots.

Once I was happy with the leg, I mirrored it and dynameshed it to my model's torso. I also adjusted the forms in the torso, making the shapes more similar to the shapes on Zangief's body.

I developed the arms, and then mirrored and dynameshed. I am continuing to refine the muscle forms so that while exaggerated in size, they're still anatomically correct. To do this I'm using both diagrams of the muscles, and comparing the arm muscles of my model compared to Zangief.

Sculpt

Body

With the arms connected I could continue to develop the back and shoulder muscles. Using the dam standard and clay brushes, I lightly defined the muscles.


To start modelling the head, I first used the move brush to adjust the basic shapes of the face. After that, I added shapes of the skull, e.g. cheekbones, mandible.

Using the clay brush, I added the fatty forms of the face around the cheeks. Using the dam standard brush, I outlined the lips. I used move to adjust how far they protruded. Looking at Zangief's face his mouth is large and downturned, adding to his intimidating character. Similarly, his chin is very broad, almost square, which gives it a feeling of strength and sturdyness. This is a characteristic I want my model to have, and so I broadened his chin.

Sculpt

Body
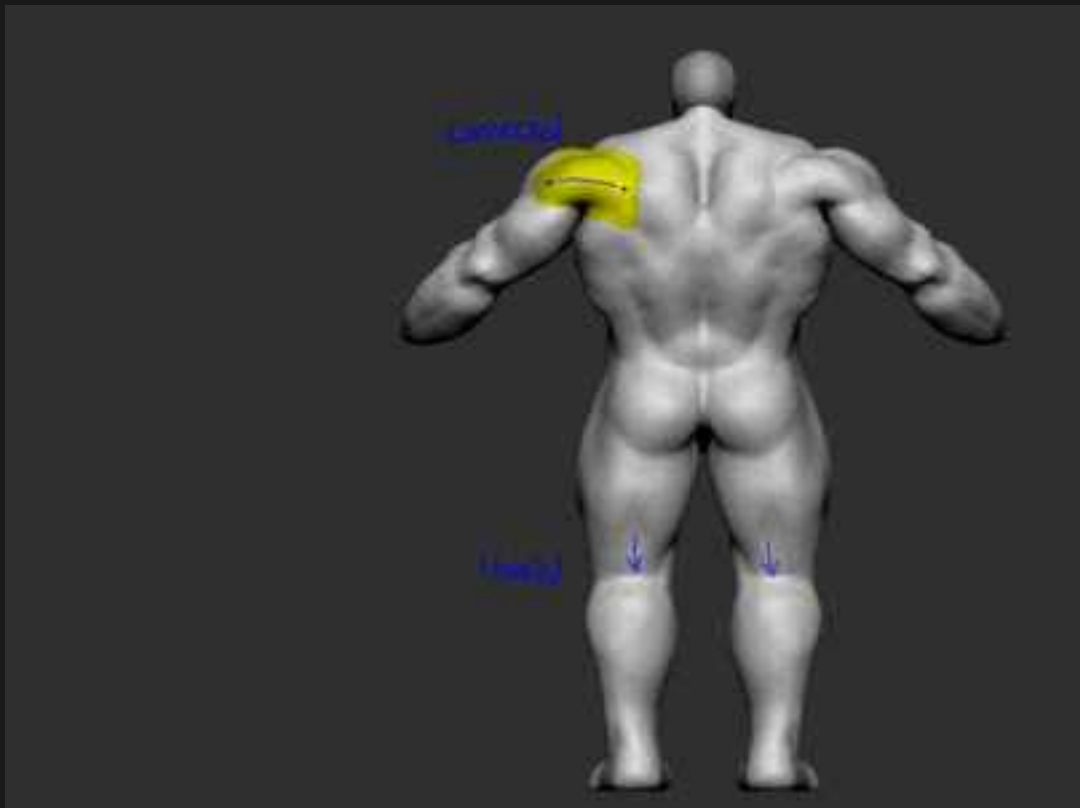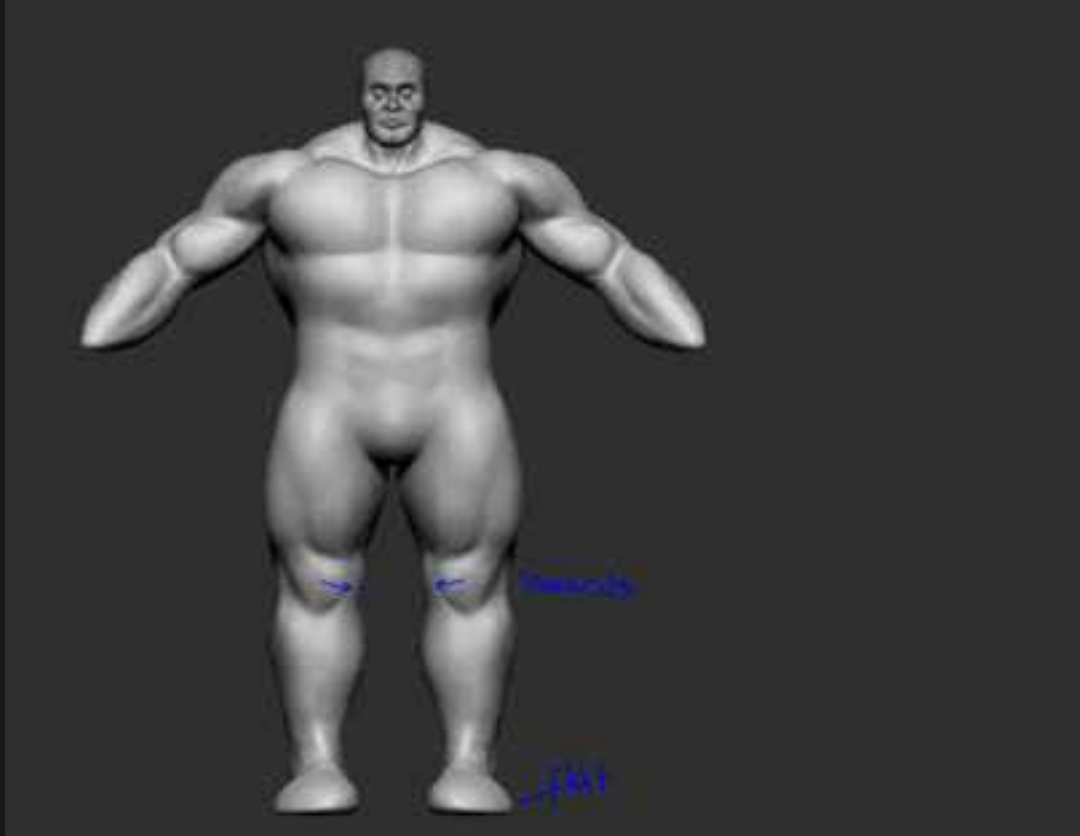
Sculpt

Body

For the hands, I used the hands from the base male body available in ZBrush. I deleted the rest of the body, then merged the subtool to my character. I then used dynamesh and the smooth brush to smooth out the wrist.

Sculpt

Body

I began to develop the shape of the hands. During my research I discovered that the hands of the characters are purposefulyl oversized, because it makes them more visible during gameplay. I refined the hand suntil they were a suitable size.

Once the hands were an acceptable size, I sculpted in the finer details, like the knuckles, tendons, and palms.

Sculpt

Body

Using a side-profile image of a man I compared the proportions of my character's face. I made the necessary adjustments so that his side profile looked correct.


The changes I made changed the appearance of the face significantly, meaning I need to go back and re-develop the characteristics.

Sculpt

Body

To re-develop the face, I wanted to make him look more threatening and mean. I enlarged his brow bone and brought it further down to make him appear as if he is frowning. I broadened the face by enlarging the cheekbones and chin. When I was happy with the result, I merged the eyelids with the head subtool, and used dynamesh to smooth the area.
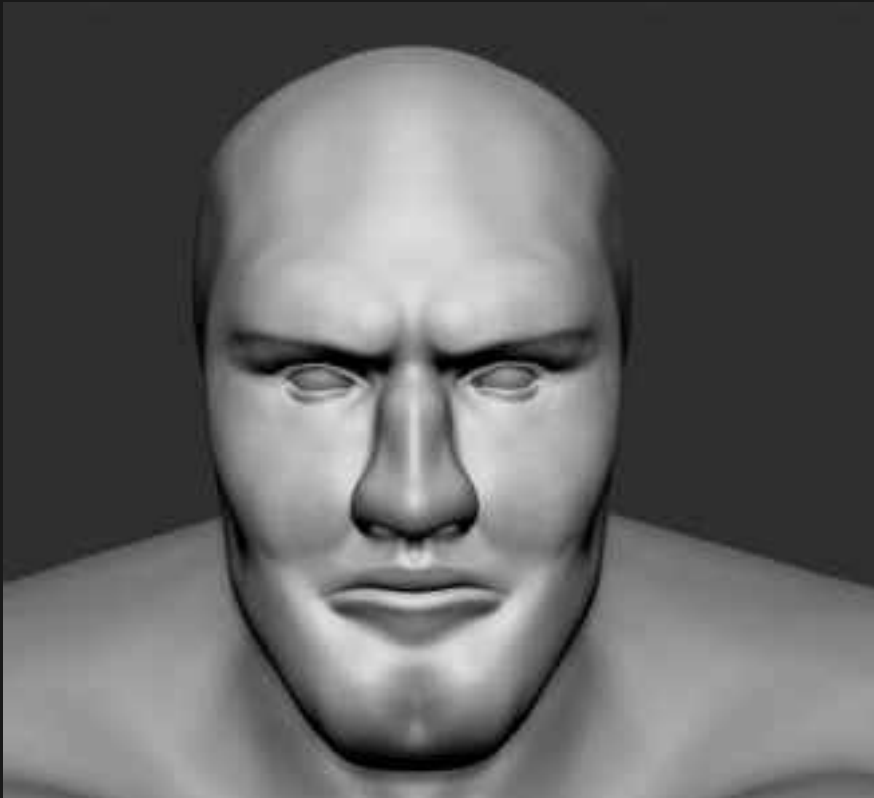
Sculpt

Body

To create the ears, I first made a new sphere subtool. I used the move brush to manipulate it into the shape of an ear, then used zremesh to ensure the topology was good for sculpting. I used the clay brush to add the basic forms of the ear, then subdivided and smoothed. I then merged the ears with the head and used dynamesh to connect the two.

Sculpt

Body

Like I did with the hands, I used the feet from the base Zbrush male model. I removed the feet from the model and scaled them to fit my model. I then merged the subtools and used dynamesh to connect them. I did not add detail to the feet because they will be covered by the boots, but they must be the correct shape.

Sculpt

Face

In my concept, I designed my character to have a mutton chops-style beard. using layers in ZBrush, I experimented with different shapes of beard, differing in volume and density.

To sculpt the hair, I first used the clay brush to add the shape of the hair. I then used the brush pack shown below to add the strands of hair.

Because I utilised layers I was able to change the intensity, allowing me to refine how bold the strands of hair were.

Sculpt

Face

When I was happy with the facial hair design, I removed the layers and used the mask tool to mask out the shape of the beard and eyebrows. I extracted the masked area to create the beard and eyebrows as a separate subtool.

I wanted my character's face to show more narrative elements, so I decided to add some scars. The scars on his forehead are known as blading scars. Blading is the practice of using a small razor blade to cut your forehead mid-fight, to make it look as if your opponent had struck so hard they drew blood.
Many wrestlers from the era have similar scars (pictured above) and so I think they add to the authenticity of my character.

Sculpt

Face

For my character to be able to open their mouth, change the polygroups in the face, having one for the upper face, and one for the lower jaw. This made it easy for me to open and close the mouth.

I used the mouth bag model available in ZBrush for my character, importing it into the scene and scaling it to the correct size.

I decided to remove some of the teeth because it fits well with his backstory of being a fighter. I also believe it gives him more character.

Modelling & Sculpt

Belt

By placing this image on a plane in 3DS Max, I could trace the text by creating lines. I then converted the lines to editable splines and added an extrude modifier.

I added a globe using the same method I used for making the text: creating an editable spline and adding the extrude modifiers to create a mesh.

After that, I added support loops to the main belt and organised smoothing groups, then used the turbosmooth modifier.

Modelling & Sculpt

Belt

I then added support loops, smoothing groups and turbosmooth to the rest of the belt (excluding text and earth). In an attempt to approve the topology, I added a tesselate modifier to earth and word meshes.

The topology after tesselation was not suitable to use, I had hoped I'd be able to remesh them in ZBrush, unfortunately, that didn't work. I decided to import the mesh into Maya where I will re-do the topology of the earth and text meshes, by making the original mesh a live surface and using the quad-draw tool.

Once done, I will add all necessary support loops and re-import into ZBrush. I want to ensure the topology is good because the belt is such a bold item, if the surface looks wrong it will throw off the quality of the entire model.

Modelling & Sculpt

Belt   32
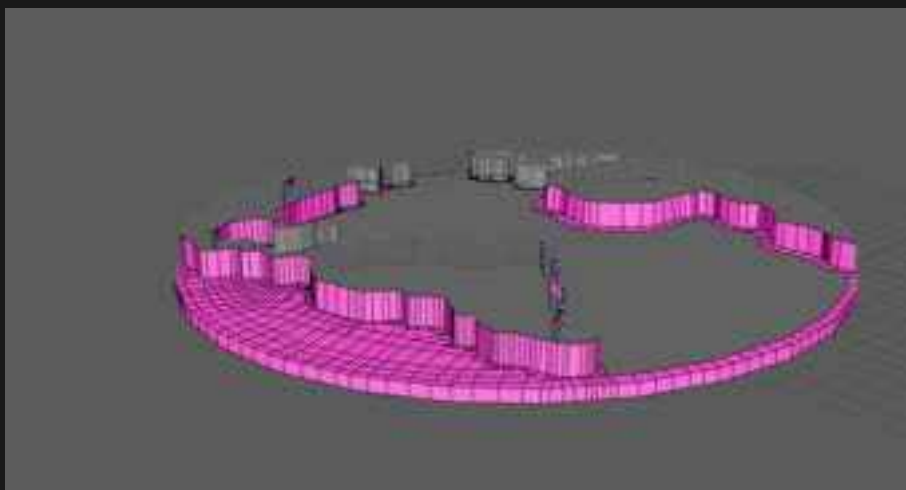
I imported the middle section of the belt into ZBrush as its own subtool. This made it easier for me to adjust the curve to fit flush to the belt. I experimented with a bend modifier in 3DS Max, but using the move brush with symmetry in ZBrush gave a better result.

I then imported the other belt parts and adjusted them. To add details to the belt, I used an IMM brush pack (pictured above) to add gemstones around the belt.

Modelling & Sculpt

Belt

On the back of the belt, I used the dam standard brush to create the seperation between the two ends. I then used some IMM brushes available in ZBrush to create the buttons.

I wanted the belt to have very thick stitches because I think they add more vibrance. I used a brush (pictured on the left) to add the connecting seams and stiches around the edges of the belt.

Sculpt

Boots

To create the boots, I first masked the area on the body. I did this from the side view using the selection box to ensure the lines were smooth. I extraced the mask, and seperated the polygroups for the main shoe and the sole of the foot. I eculpted the soles, using wrestling boots as a reference. I subdivided the model and used dam standard to continue adding detail.

I continued to add detail to the fabric of the shoes using an alpha brush (middle left) and the orb cracks brush (bottom left) to add creases and heavier wrinkles. I then used an IMM brush (top left) to add the eyelets for the shoelaces.

I used zspheres to create the shoelaces, starting at the bottom and working my way up to the top. I did each side of the shoe separately, with the zspheres meeting in the middle to create a more curved appearance.

Sculpt

Boots

After I finished the shoelaces for one shoe, I used the mirror and weld tool to make the laces for the other shoe. I added an adaptive skin to the zspheres, turning them into regular subtools.

Each section had its own polygroup, making them easy to manipulate where necessary. I then subdivided the subtool until they appeared smooth.

After adding the laces, I used an IMM brush (pictured above) to add zips up the sides of the boots.

Finally, I used a brush (pictured below) to add stitches to the boots to show where the fabric would be sewn together.

seam_3.ZBP

Sculpt
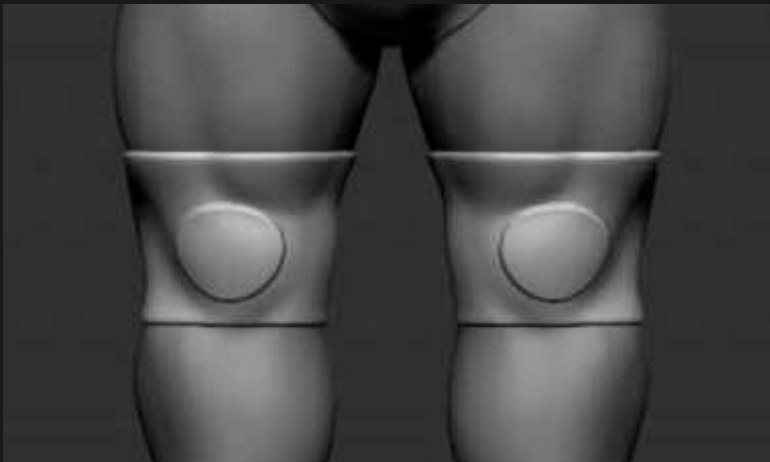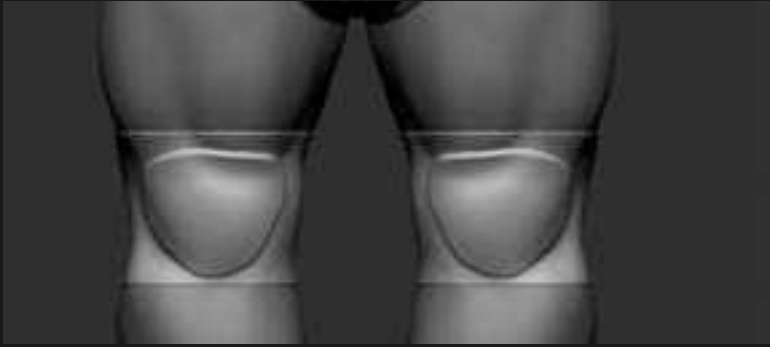
Pads

To make the knee pads, I used the same method of masking and extracting I did when making the boots. I masked the knee, extracted, and then masked a smaller area for the actual padding, and extracted again. I then merged the two extractions and used dynamesh to smooth it out.

I went through several iterations of the kneepads, and listening to feedback given during my mid-point review I decided to experiment with the thickness of the material.

I started with thin material, not sticking out much from the body. I then moved onto a thicker material, but with smaller pads to make my character look bigger.

Ultimately I decided that the pads should be made much bigger, and the material should be thicker.

Sculpt

Pads

Similarly to the knee pads, I went through several design options for the elbow pads.

I used the same mask-extract method to create the padding, and like with the knee pads, I decided the padding should be large and the material should be thick.

Making the Clothes

Leotard
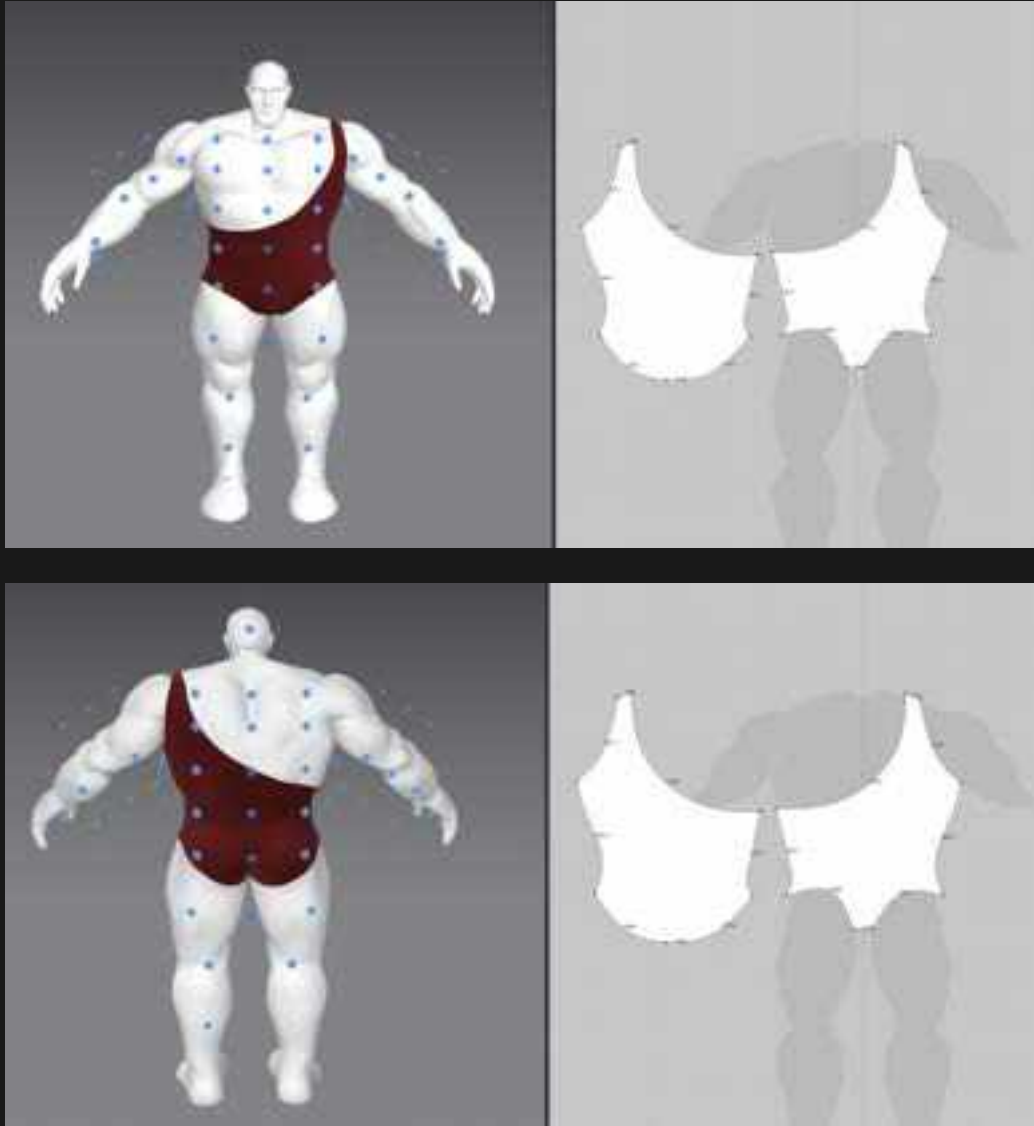
Using the basic template I had already created, I added my character to a new Marvelous Designer Project. I adjusted the arrangement points to make it easier to set up the 3D viewport.

After making the template, I decided that I would use two pieces of fabric rather than four, avoiding the seam going down the middle. I altered the measurements to fit the body of my character and added more curve points to smooth the edges.

Making the Clothes

Leotard

Once finished in Marvelous Designer, I exported my garment as a .obj and imported it into my ZBrush scene.

The first thing I did was zremesh the subtool because the topology from Marvelous Designer is not suitable for sculpting. I then used dynamesh.

Once happy with the topology, I addressed small issues in the garment, and adjusted areas with the move brush.

After the model was dynameshed, there were some areas where the mesh was not meeting properly.

I decided that I would develop those areas into wear and tear.

Making the Clothes
Leotard

After optimising the mesh for ZBrush, I subdivided the subtool and began to sculpt further details.
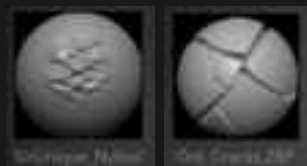
I developed the rips in the leotard by using the dam standard and pinch brushes. I first made the cut in the material, and oinched the edges to make it look more like an organic rip.
I then used the brushes (left) to add wrinkles and fabric seams.

Making the Clothes

Jacket

To begin the jacket, I created a new project, importing my model as the avatar, and the block-out garment. I made some adjustments to the size, but it doesn't fit very well.

From here I can make a new garment, using the block-out design as a rough template.

Making the Clothes
Jacket
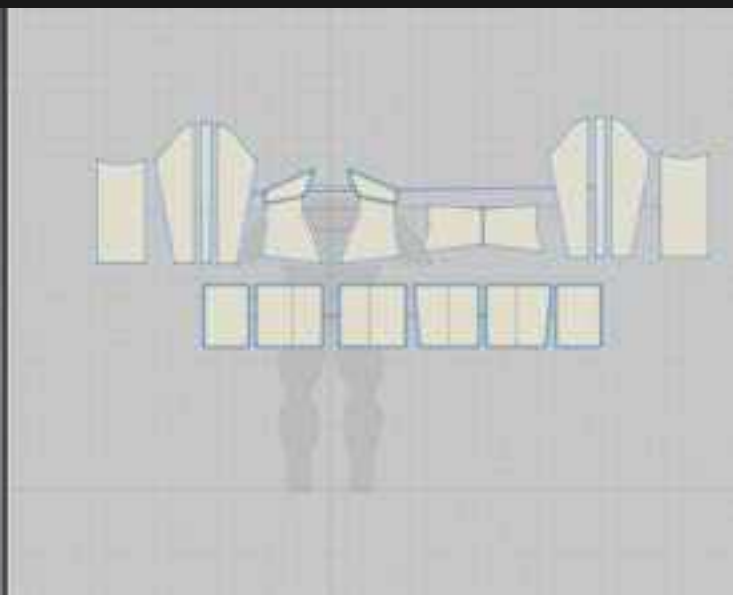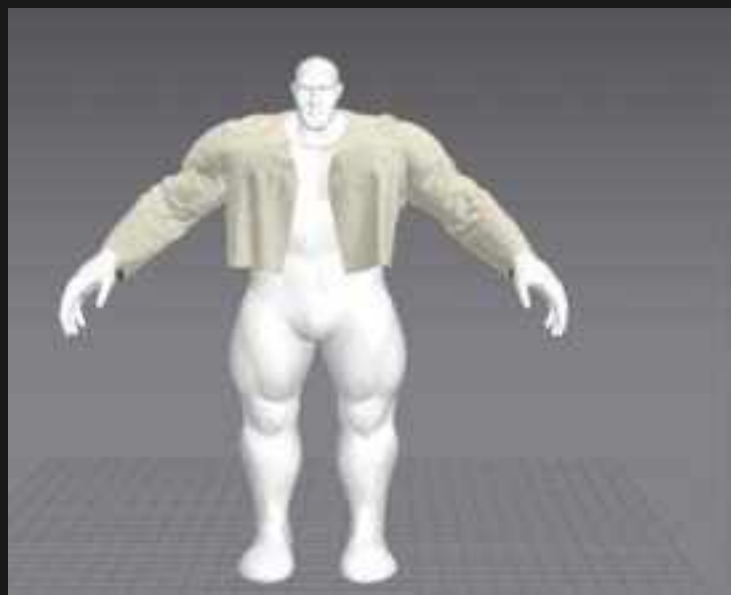
To begin making the jacket I added the pattern segments. Unlike my previous attempt, I decided to split the segments into more pieces. This helped me to fit the fabric to the character and add structure to the garment.

From the back, you can see that there is less tension around the arms. The bottom of the jacket comes in at his waist, strengthening his silhouette and emphasizing his large shoulders.

Making the Clothes
Jacket
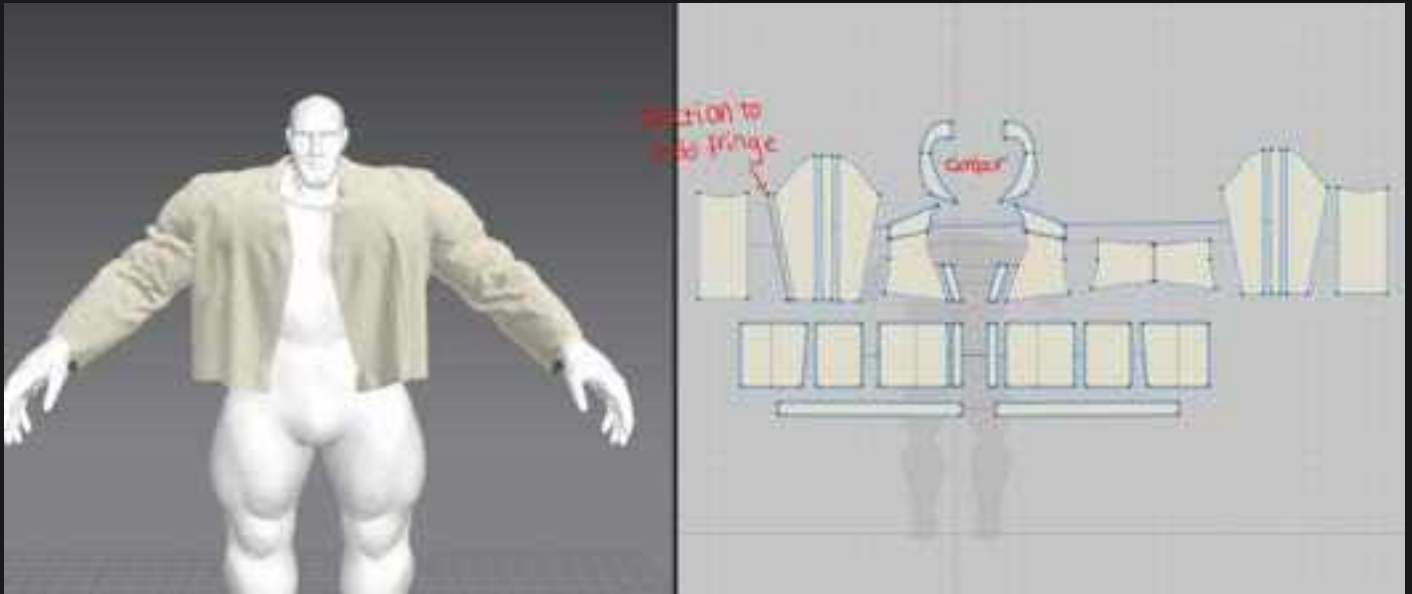
The design of this jacket is supposed to be similar to a leather or denim jacket in the way that it is sewn together. After studying more references I added a trim around all of the unfinished edges.

I added a thin strip of fabric going down each arm, ready to sew the fringe onto.

Making the Clothes
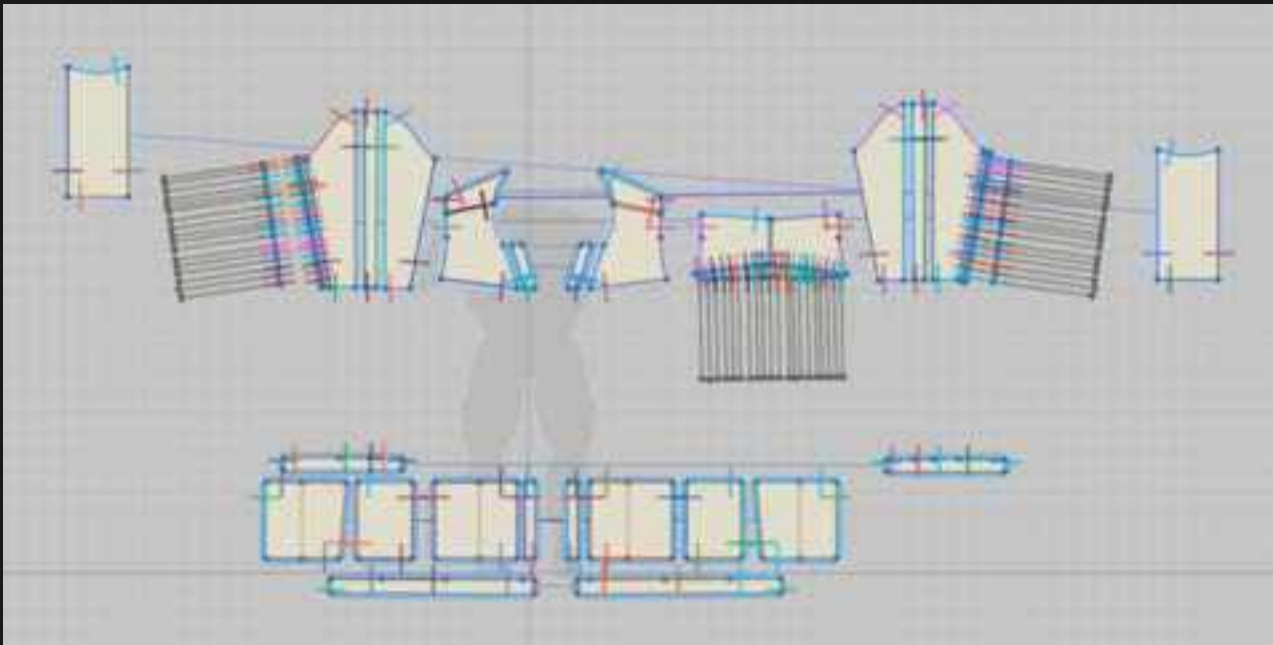
Jacket

Following the idea laid out in the sketch above, I used free sewing to connect the individual fringes to the sleeve.

Making the Clothes

Jacket
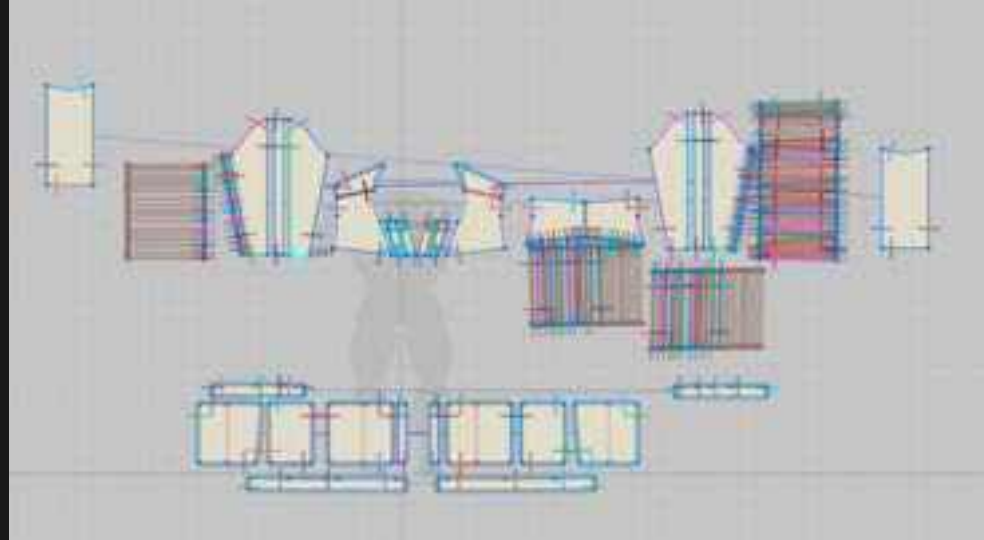
I decided to add more fringes to the sleeves because it looked quite sparse. I then had to duplicate the pattern for the fringe, flip the normal and then sew it to the corresponding strip of fabric, because as you can see in the photo above, the fabric is not two-sided.

I then repeated this method to add the fringes along the back.
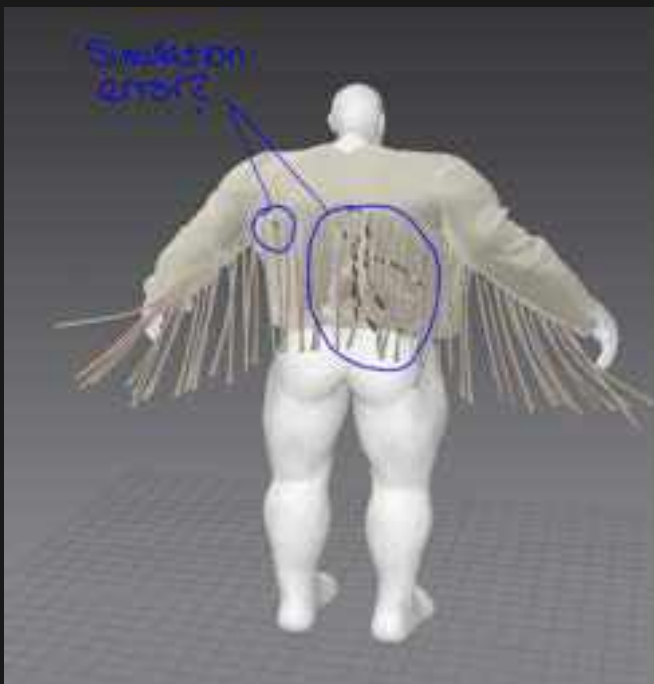
During simulation, some of the fringes would clash and tangle, creating the error in the picture (on the left). After changing the particle distance and fabric properties, the error persisted.

I am able to fix it in ZBrush, so I exported the jacket as an .obj.

Making the Clothes

Jacket

After importing the jacket into ZBrush, I used zremesh and dynamesh to prepare the topology for sculpting.

The seams from Marvelous Designer are not visible on the model, though the way the fabric falls indicates where they used to be. Using a stitches brush (pictured left), I added the details of the seams back to the model, while adding stitching at the same time.

I masked and deleted the fringes that were causing issues.

Making the Clothes

Jacket

I used the dam standard brush to add small holes where the fringes would have been to make it appear as if they had been ripped off. After receiving feedback on the jacket design, I decided to remove more fringes from the arms to make it more cohesive.

I decided that using an IM brush would be the best way to add the studs to the jacket. I made a low-poly stud in 3DS Max, then imported it to my ZBrush scene. I made the mesh into an IM brush, placing all of the studs individually. I duplicated the studs subtool and subdivided, giving me a high and low poly version.

Making the Clothes
Jacket

Using Nomad Sculpt for iPad, I made three small models of old wrestling promotion logos. ECW (Extreme Championship Wrestling), WCCW (World Class Championship Wrestling), and CWA (Continental Wrestling Association) are all promotions that were running from the 1970's - 1990's, and I want to use them as patches on the jacket.

I am using real wrestling promotions because it helps relate the character to the backstory I have given them.

After importing the logos into ZBrush, I used the move brush to position them into place against the fabric of the jacket.

Finished High Poly
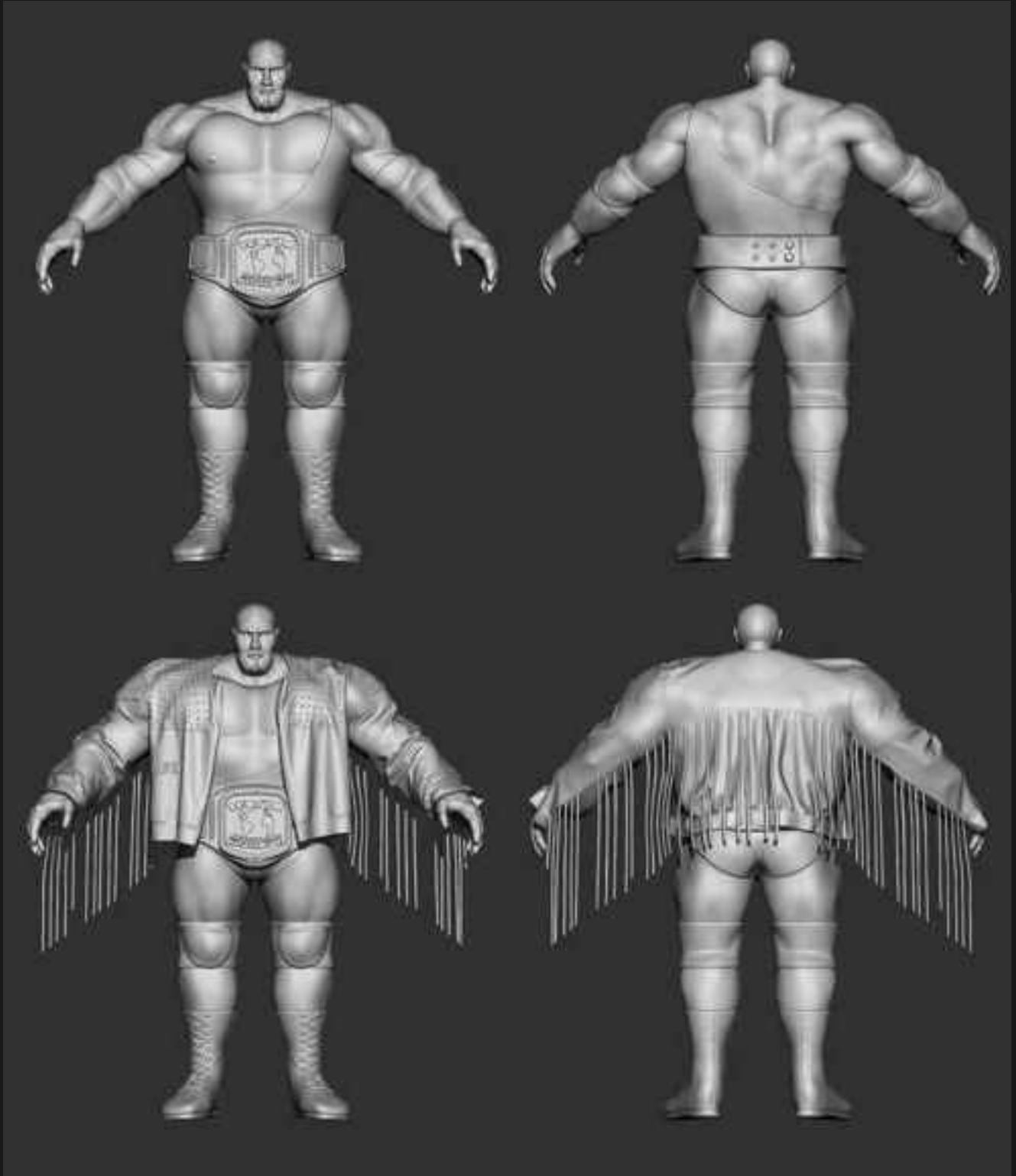
Retopology

Body
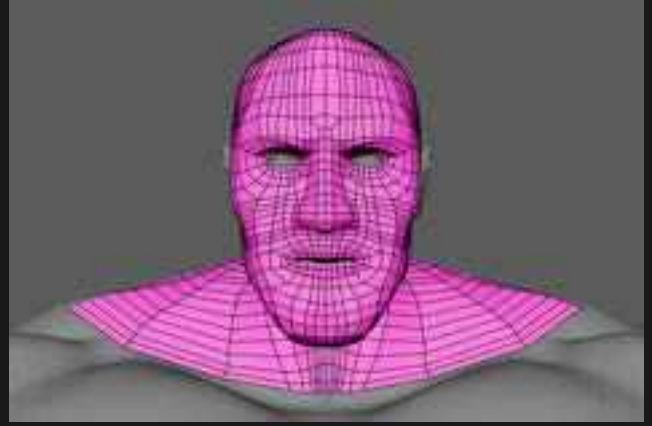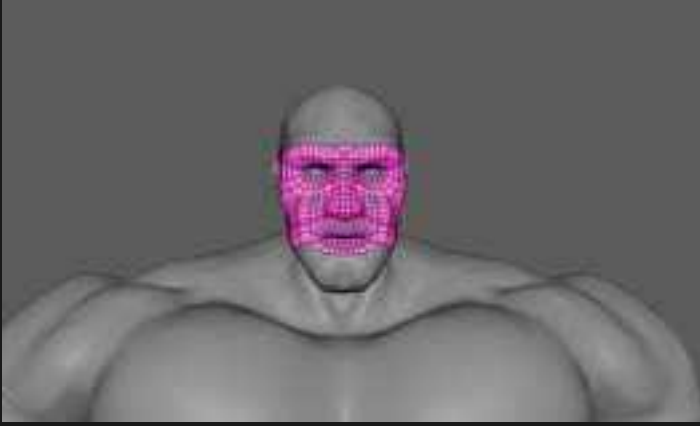
I chose Maya to complete the retopology of my model. I prefer the UI and workflow of Maya's retopology to toher programs I have tried, like 3D Coat or 3DS Max.

I began by adding the important animation loops to the face (around the eyes, nose, mmouth, jaw, etc.), then filled in the space between. My character is bald, so the top of his head requires a higher concentration of polys than a character with hair would.
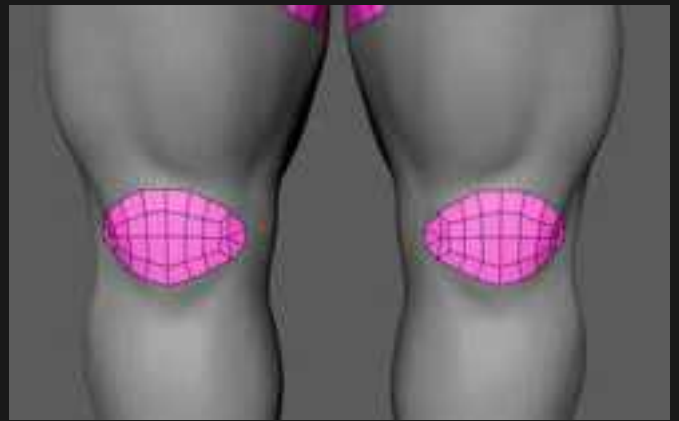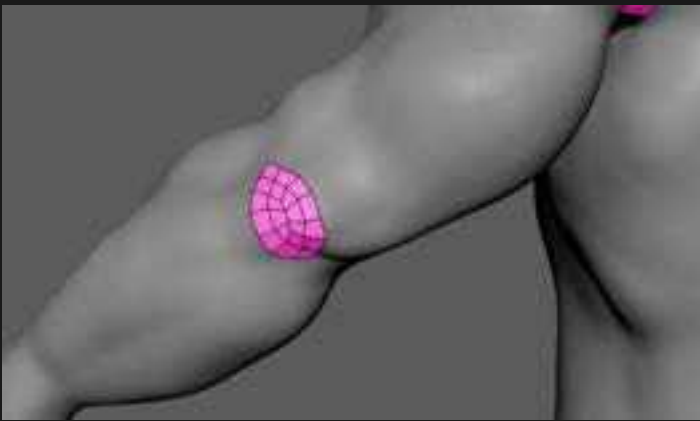
After the face, I added the first loops aroumd the arms and legs, and added the joints in the knees and elbows.

Retopology
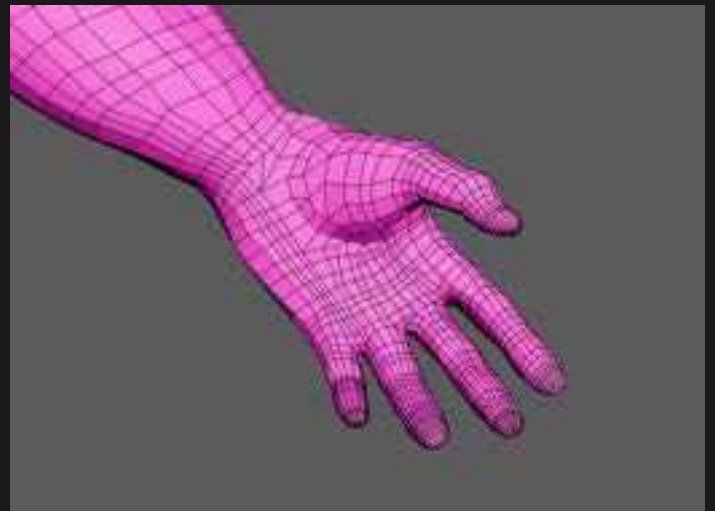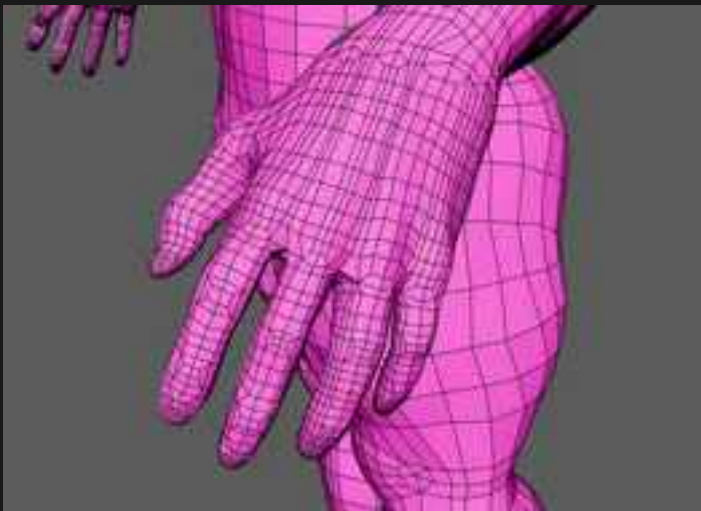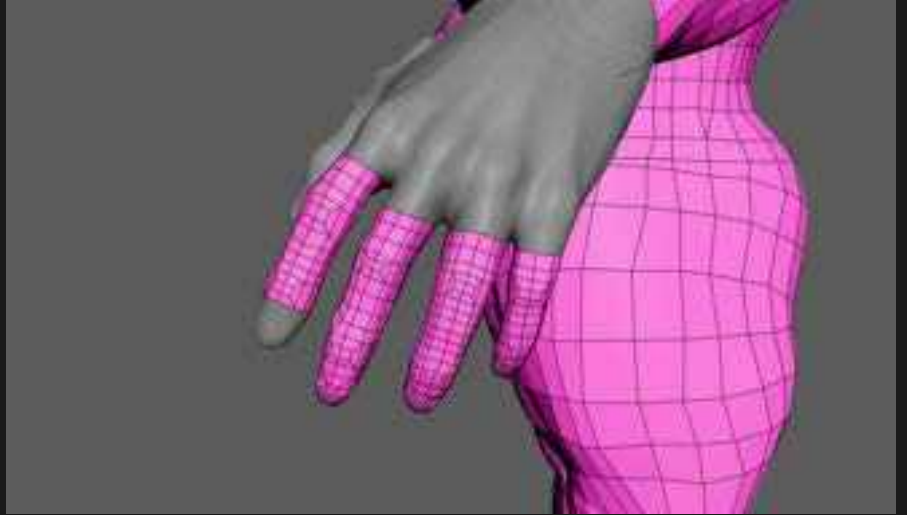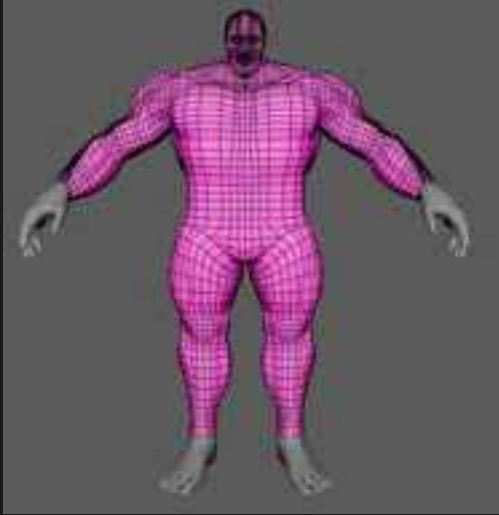
After filling the space between the loops I had created, I moved onto the hands. I added the joint topology and loops around the fingers before connecting the hand to the wrist.

Retopology

Body
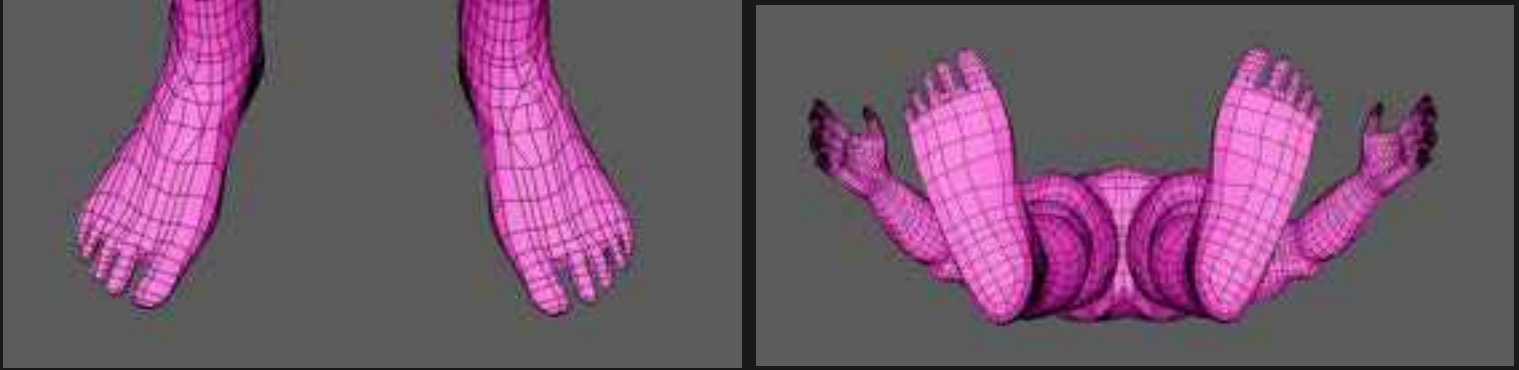
Like I did with the fingers, I added loops around the toes before completing the rest of the foot.
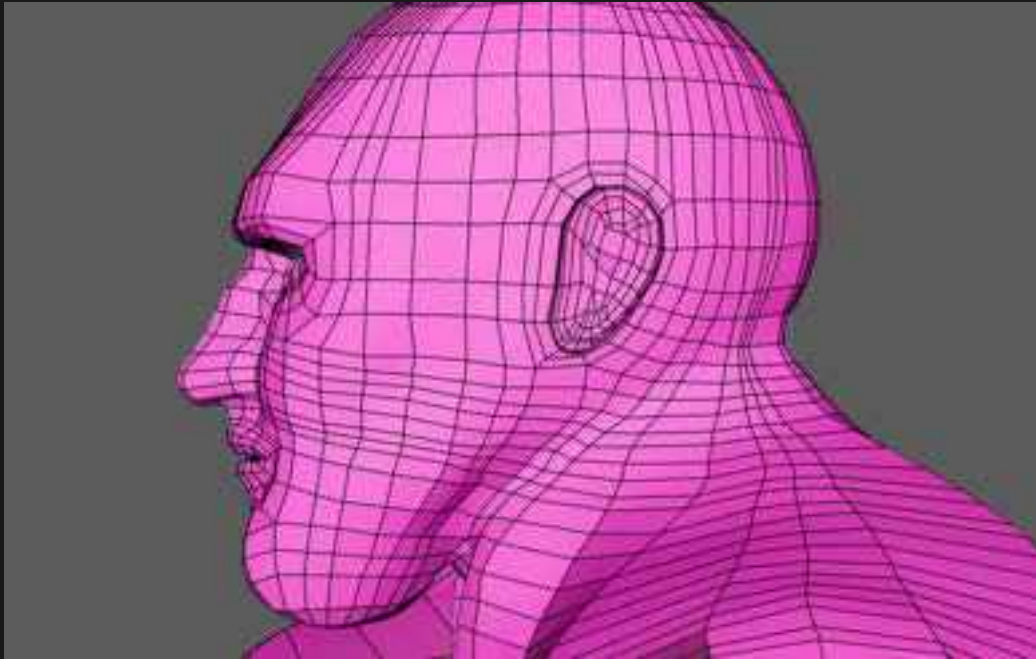
I added topology around the ear, keeping the loops clean and simple.

Retopology

Boots
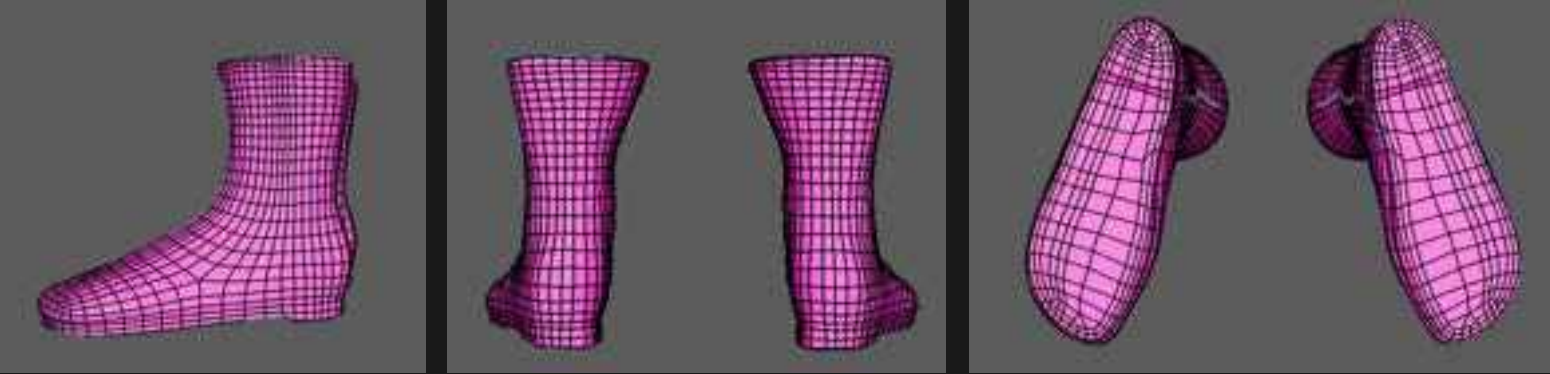
For the boots, I started with the first loop around the top. I then contionued to extrude it down until I reached the foot. I then went around the base of the shoe, connecting it to the existing topology.
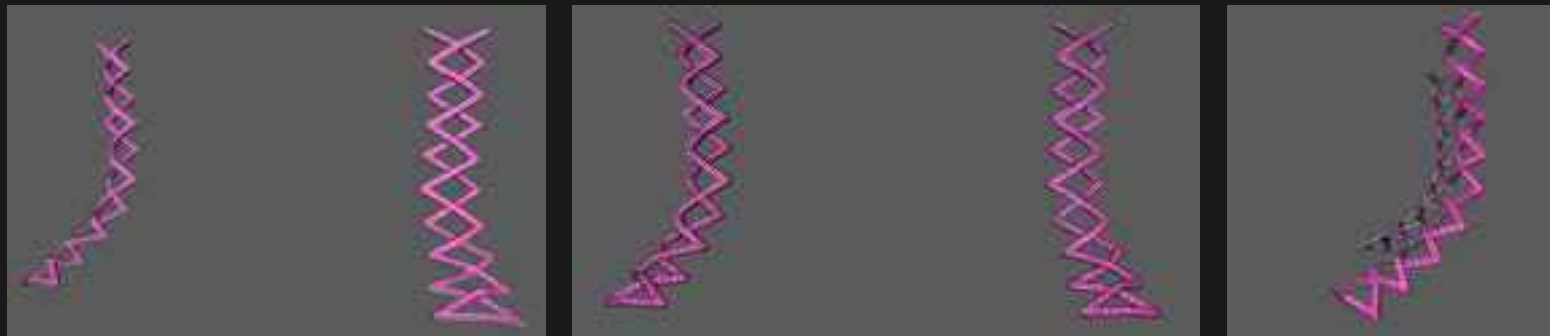
For the laces, I placed rows of polygons along the directional flow. I then extruded again to cover the edges, not worrying about the underneath, because it will be hidded by the shoe.

The eyelets I used in ZBrush have a low subdivision level with good topology, meaning I can export them from ZBrush and immedietly unwrap.

Retopology

Knee Pads
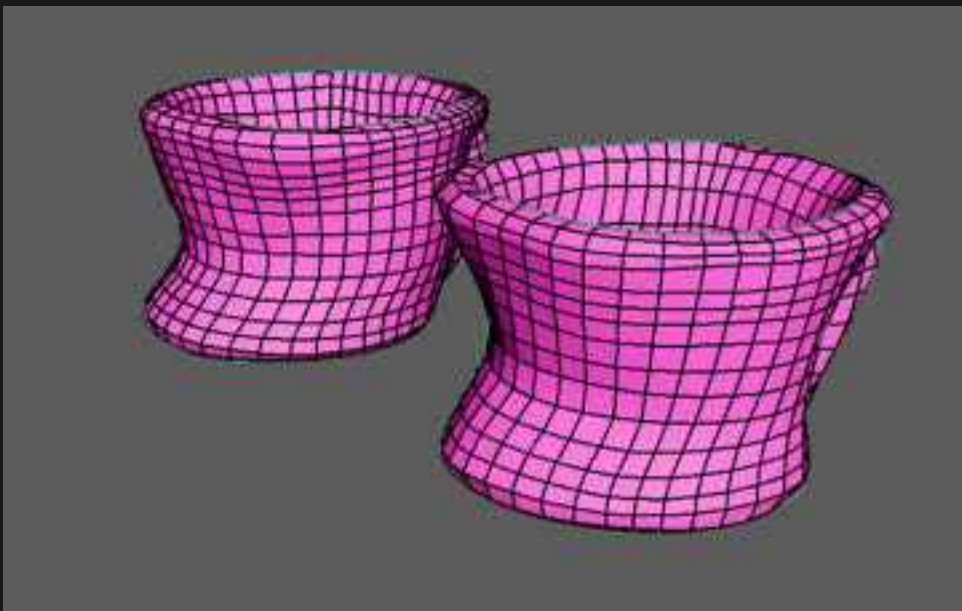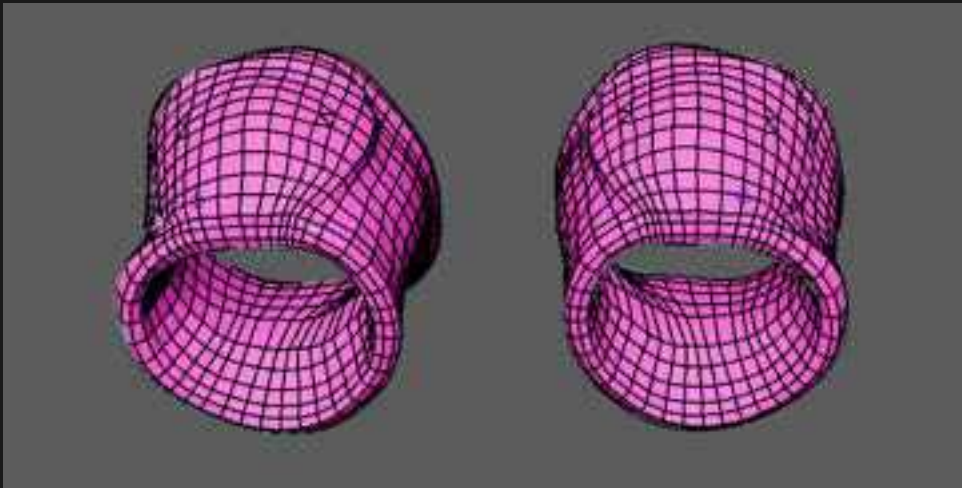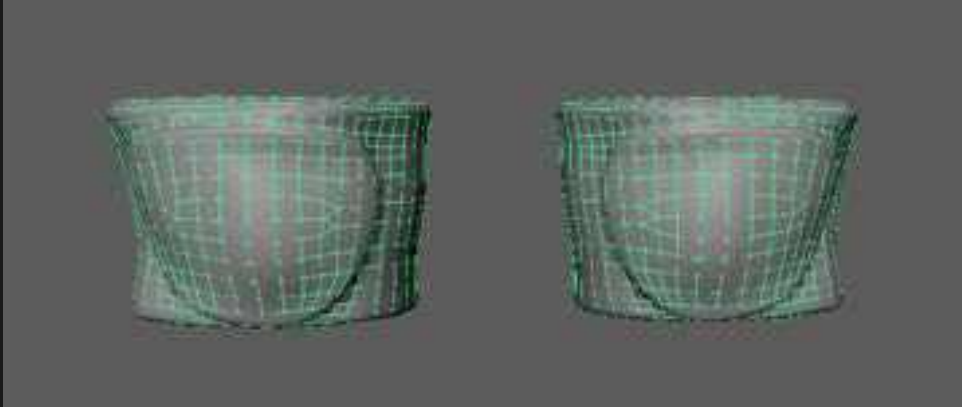
To Begin with the knee pads, I make the first loop around the top. I extrude that down until I get to the padding, where I have to go around the edge to keep the shape.

After the outside is covered, the inside can be quickly covered by extruding loops and welding them together where they meet.

Retopology
Elbow Pads

The elbow pads followed the same method as the knee pads, starting with a loop at the top, outlining the padding, and connecting together in the middle.

Retopology

Leotard
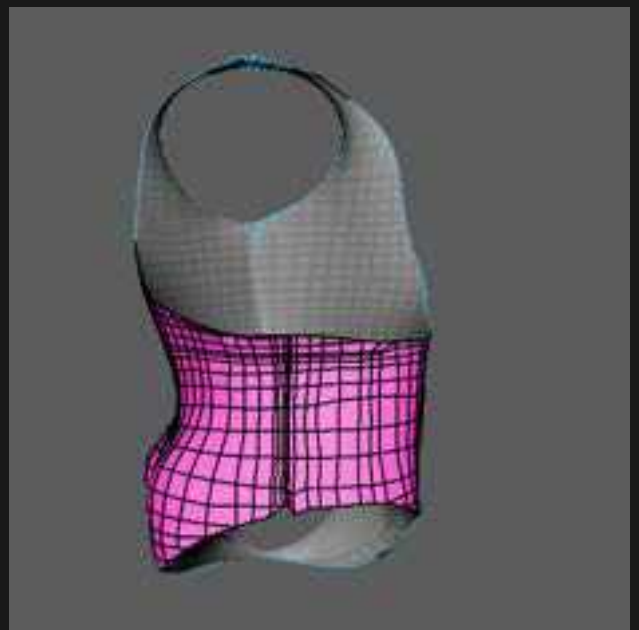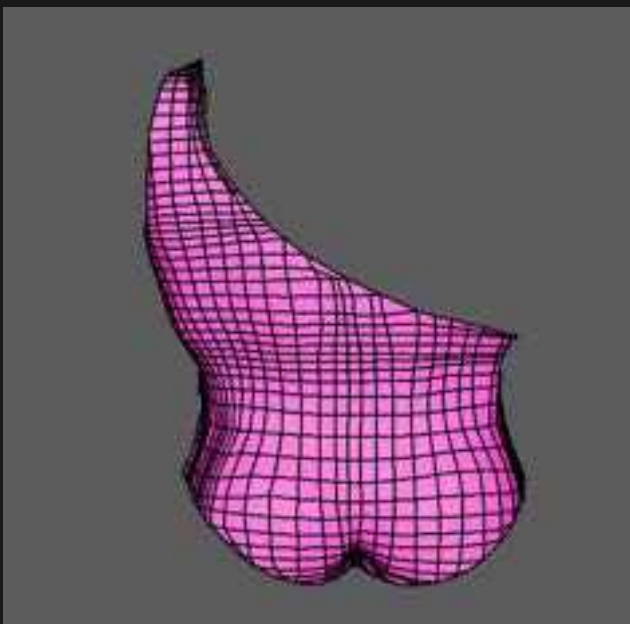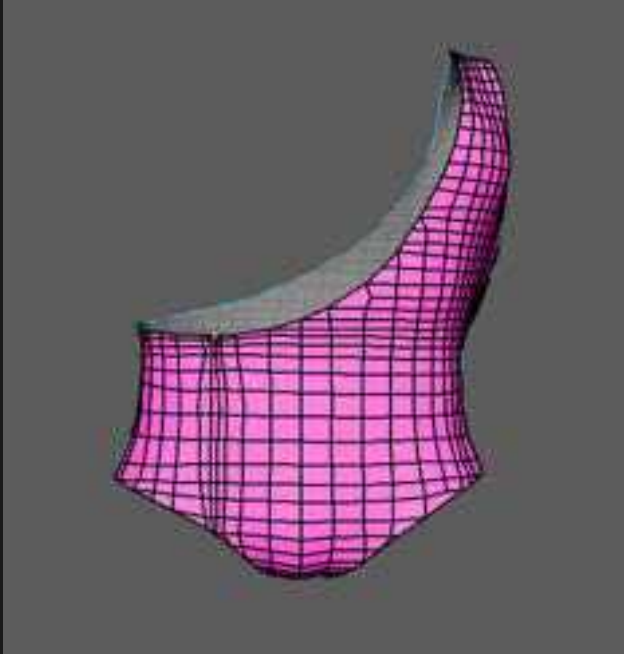
I started making a loop around the middle of the model, before extruding it upwards and downwards until it got close to the edge. After that, I used the quad draw tool to make sure that the polygons were sitting accurately to the high-poly.

Retopology

Belt
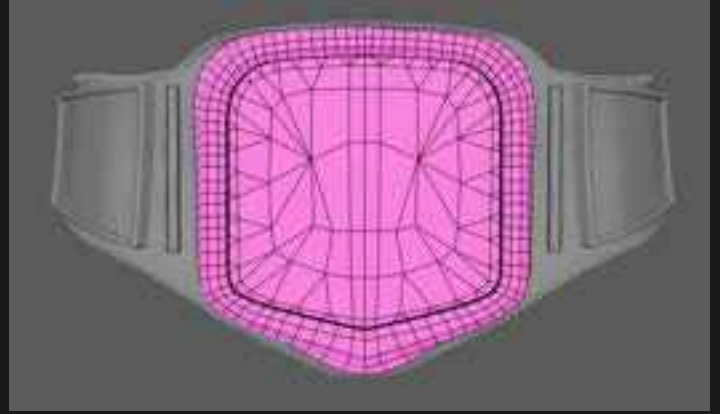
I decided to remove the design from the middle of the belt before bringing it into Maya because the live surface was not allowing the polys to sit flat, as they were trying to sit on top of the design.
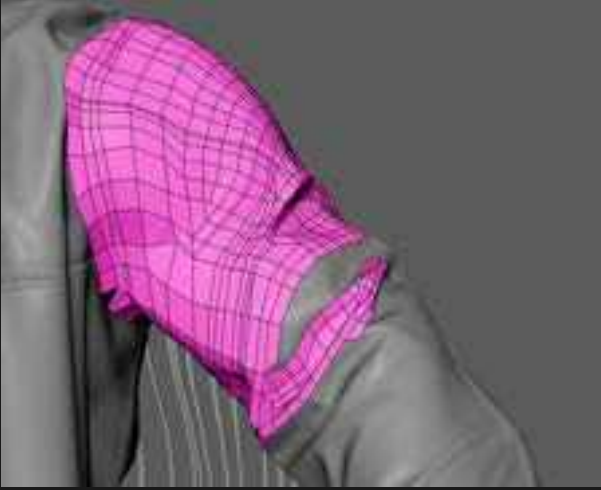I went around the border of the centre piece, then spread the polys out onto the main part of the belt.
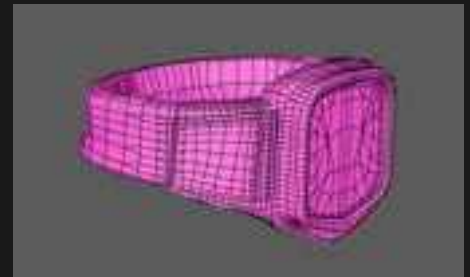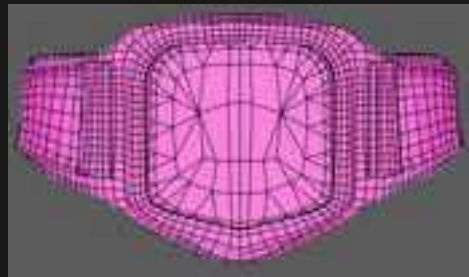
I continued to go around the belt, placing support loops around the hard edges before relaxing the mesh.
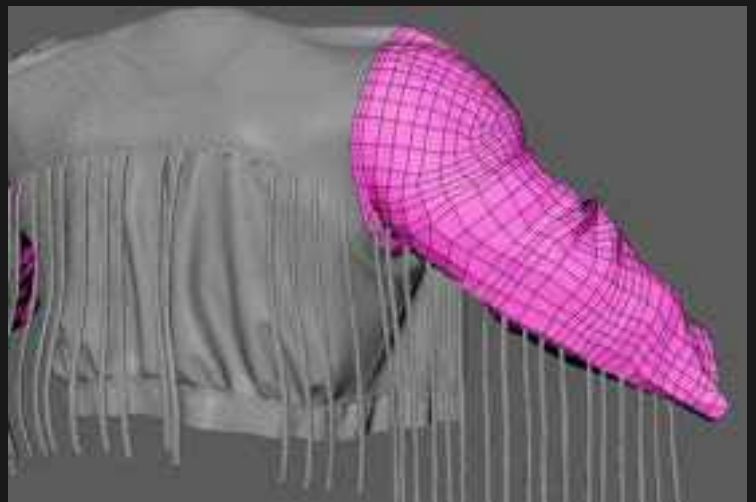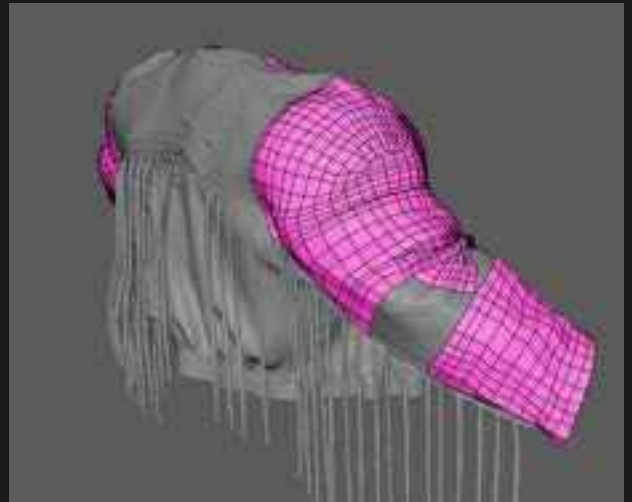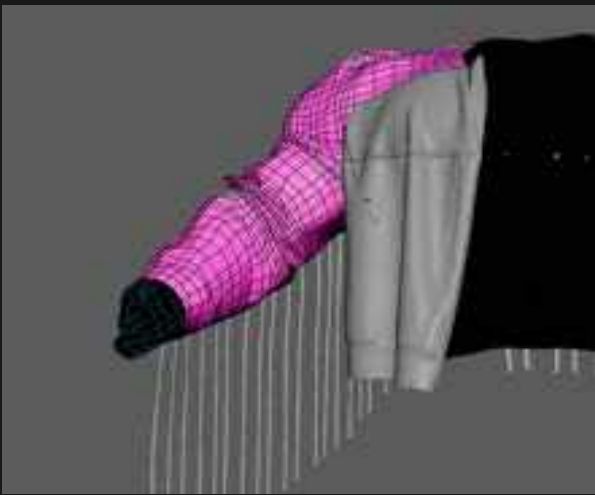
Retopology

Jacket
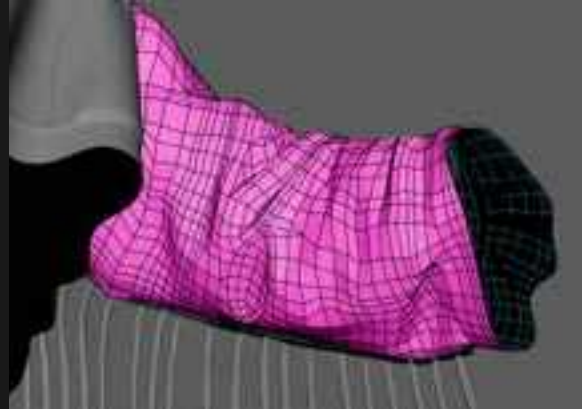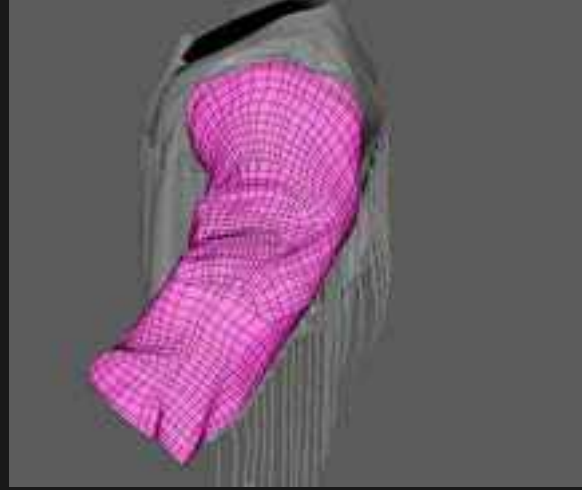
The jacket has a lot of creases and wrinkles that I want to look good in the low poly version. To do this, I need to model the topology along the flow of the creases, rather than having it flat on top. Most of the creases are on the arms, so I begin by placing the topology around every crease.
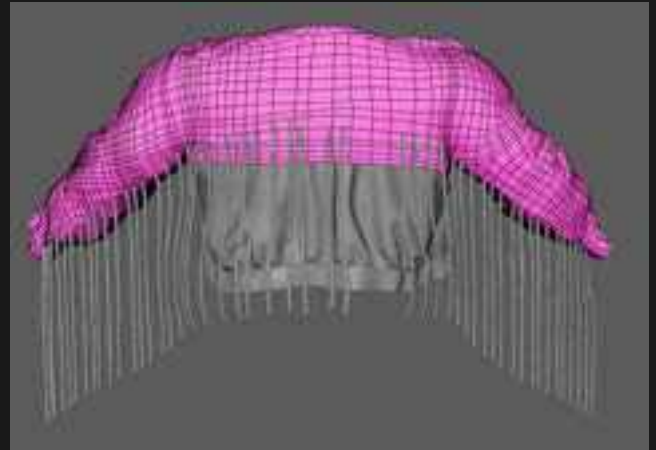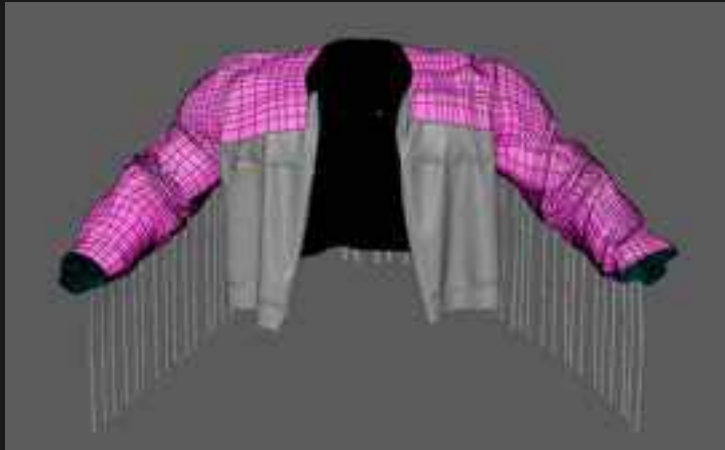
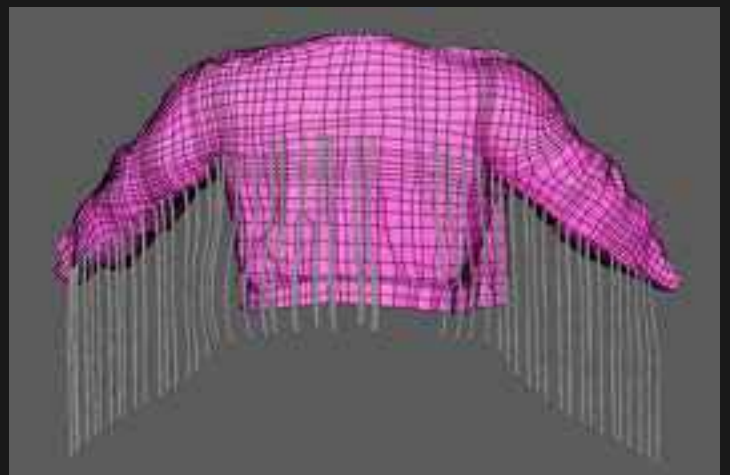# Retopology

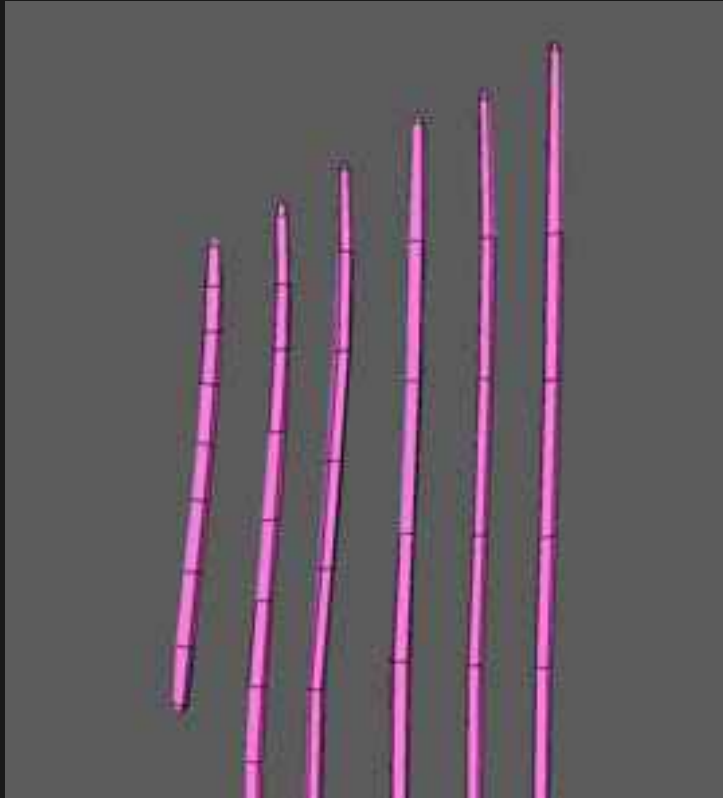## Jacket

Retopology
Jacket

Once the arms were finished, I focused on the rest of the jacket. Because of the live surface function in Maya, I was struggling to accurately place polys onto the fringe. I decided that I would just finish the jacket, and then complete the fringe separately.
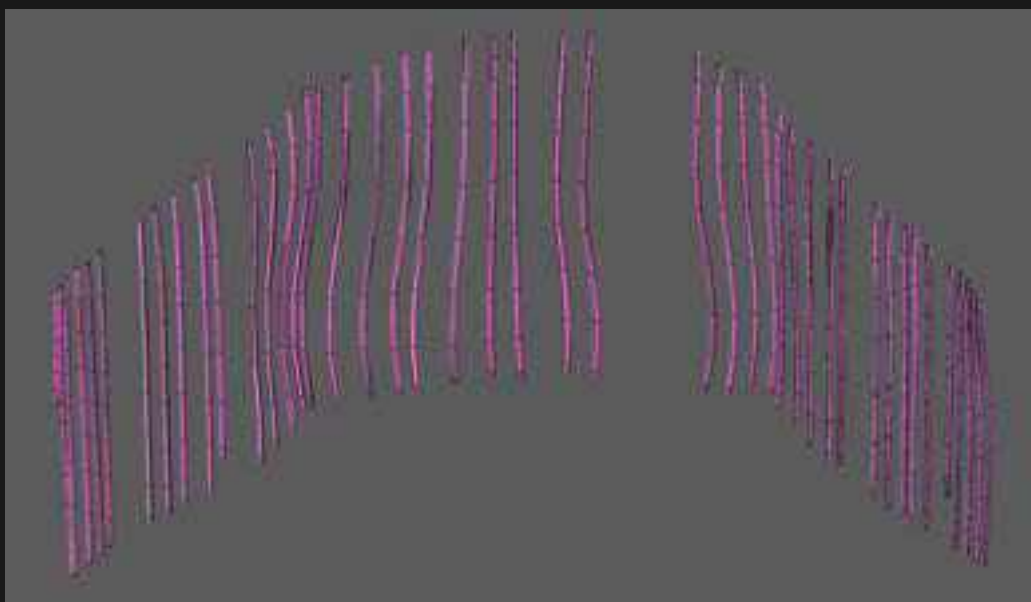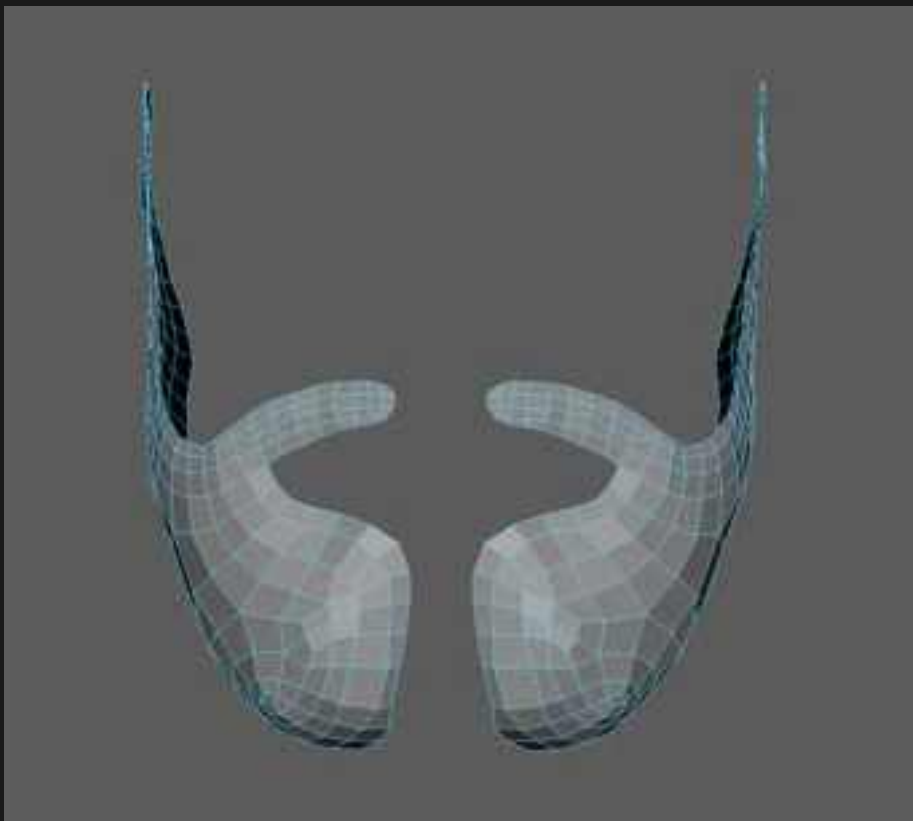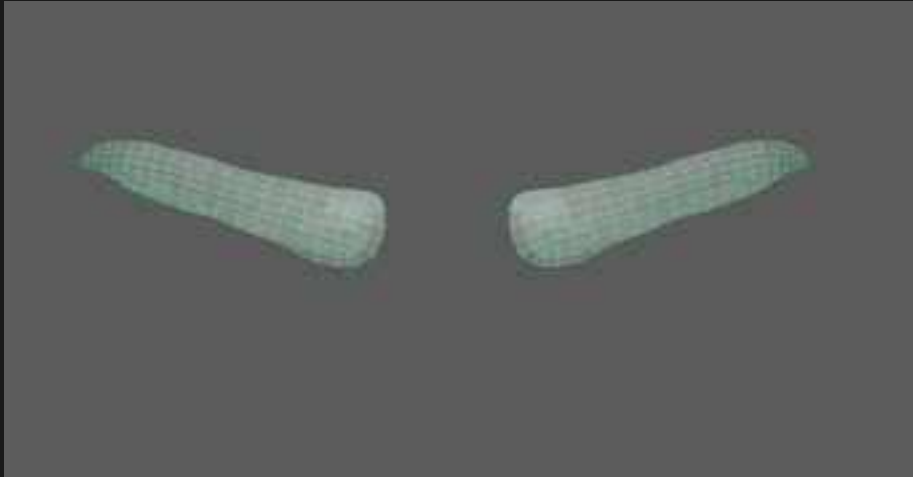
Retopology

Jacket

For the fringe, I first made a loop around the top of the strand. I then extruded it several times down to the bottom, then added the cap at either end.

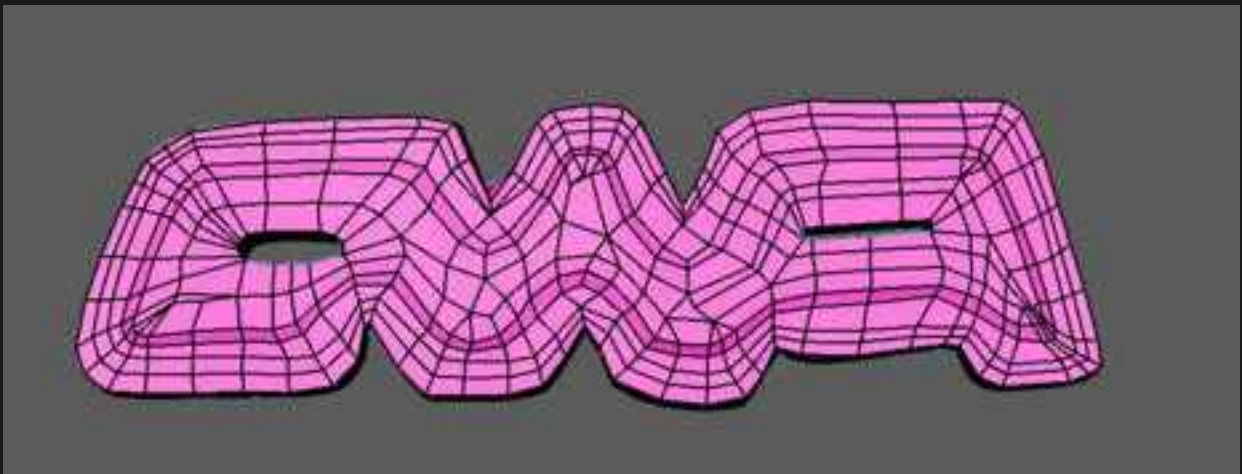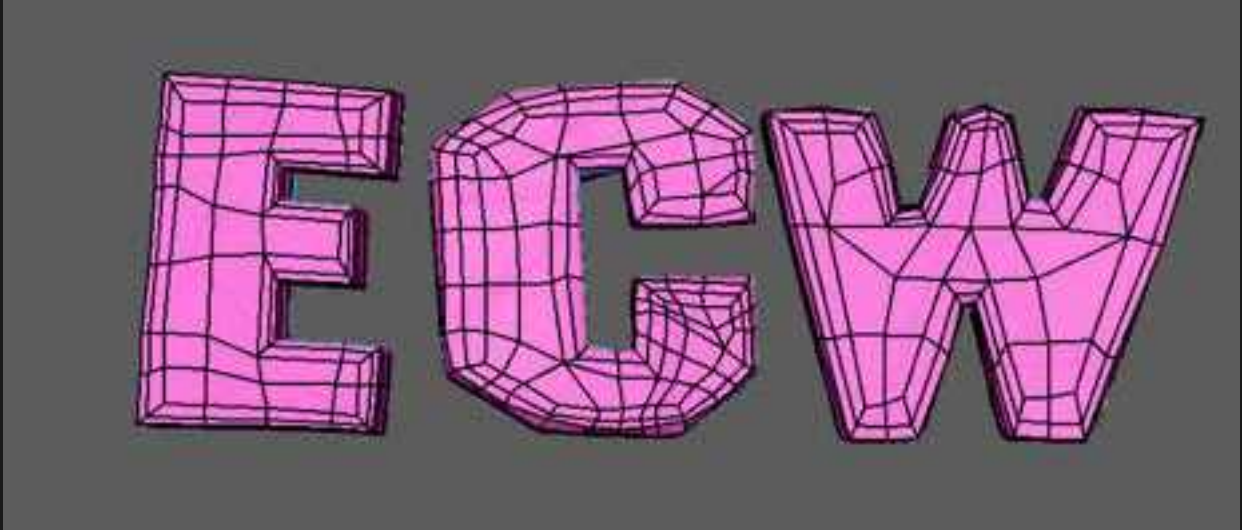I repeated this for each fringe.

Retopology
Beard & Eyebrows

The topology for the beard and eyebrows is very
simple, I placed polys around the edges and then filled
in the space.

Retopology
Jacket Accessories

For the logos, I made sure to follow the flow of the text. I added plenty of support loops before relaxing the mesh.

Unfortunately, as I was completing the WCCW logo, I decided that it would take too long for how small a component it was. Each small letter needed retopology, and I needed to focus my time on more important issues.

Retopology

Low Poly Model

Total polycount: 76,929
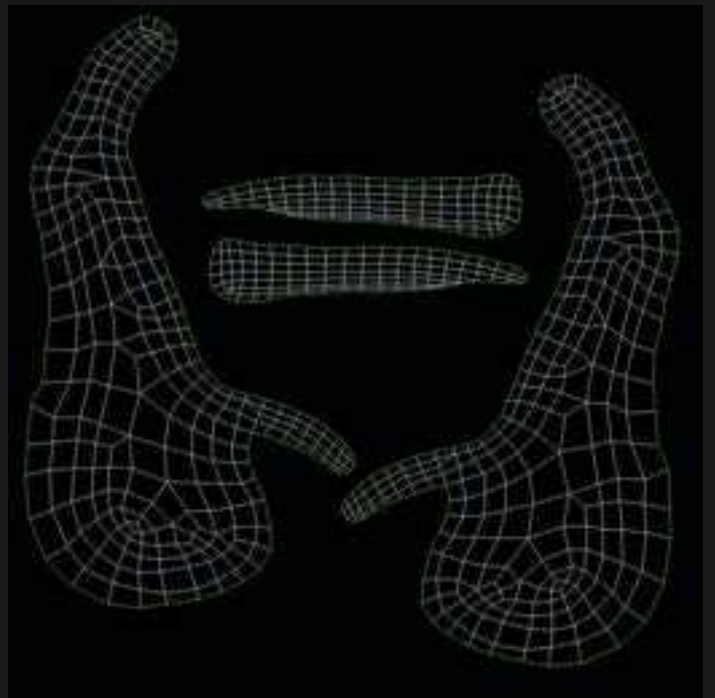
The mouth and studs did not need to be retopologized, as the mouth had low subdivision levels that would be easily unwrapped, and I already had a low poly version of the studs on the jacket because the original stud I made was low poly with suitable topology for unwrapping.

Unwrap
Body, Eyes, Facial Hair
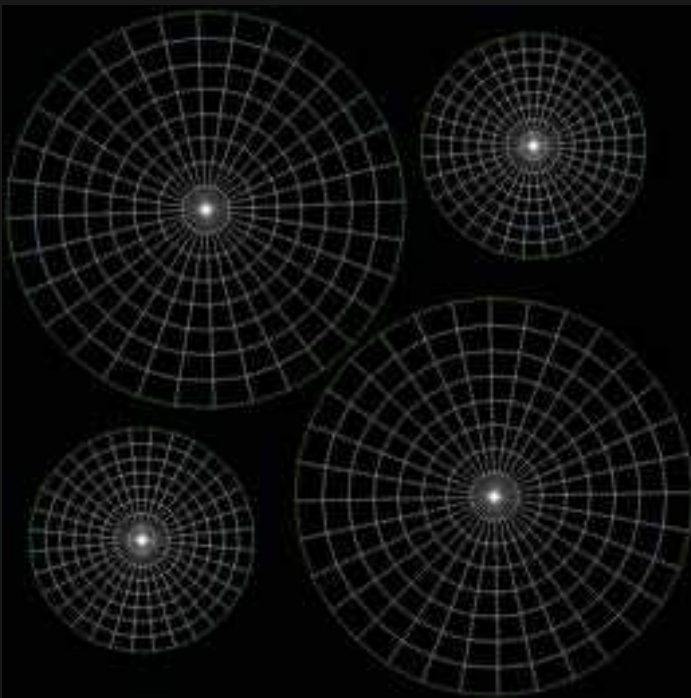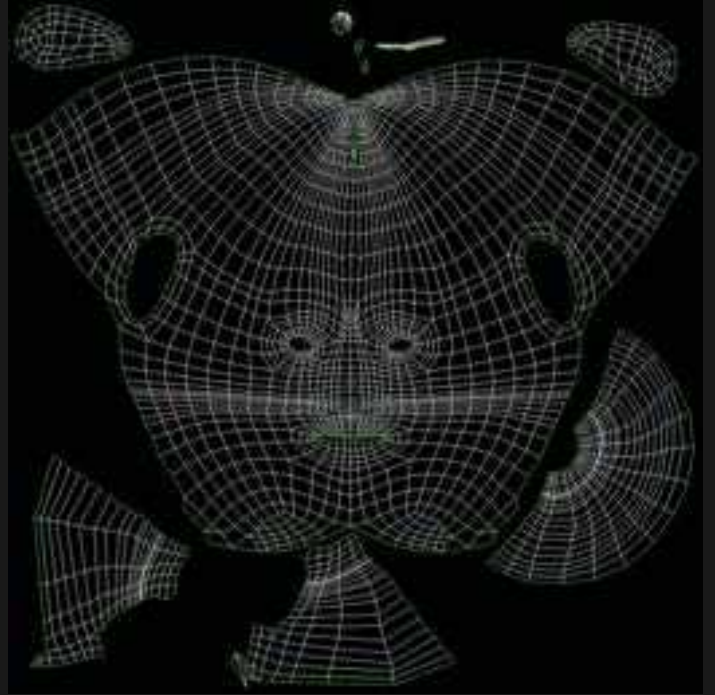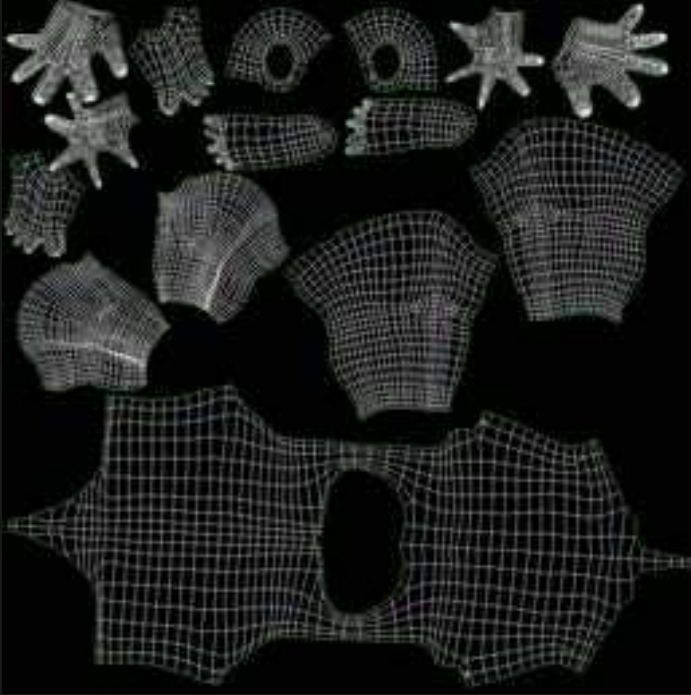
Unwrap
Mouth
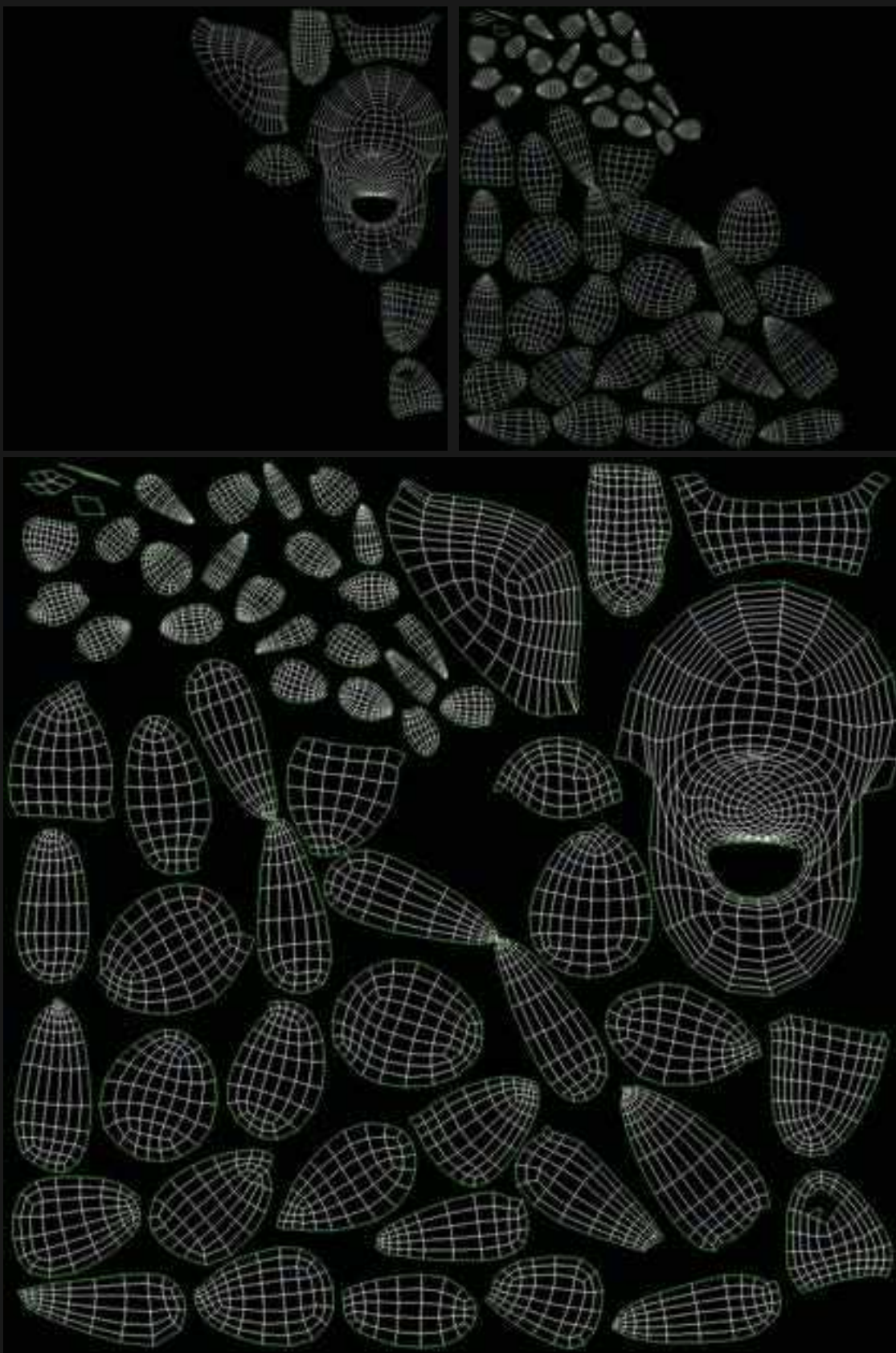
Unwrap

Jacket
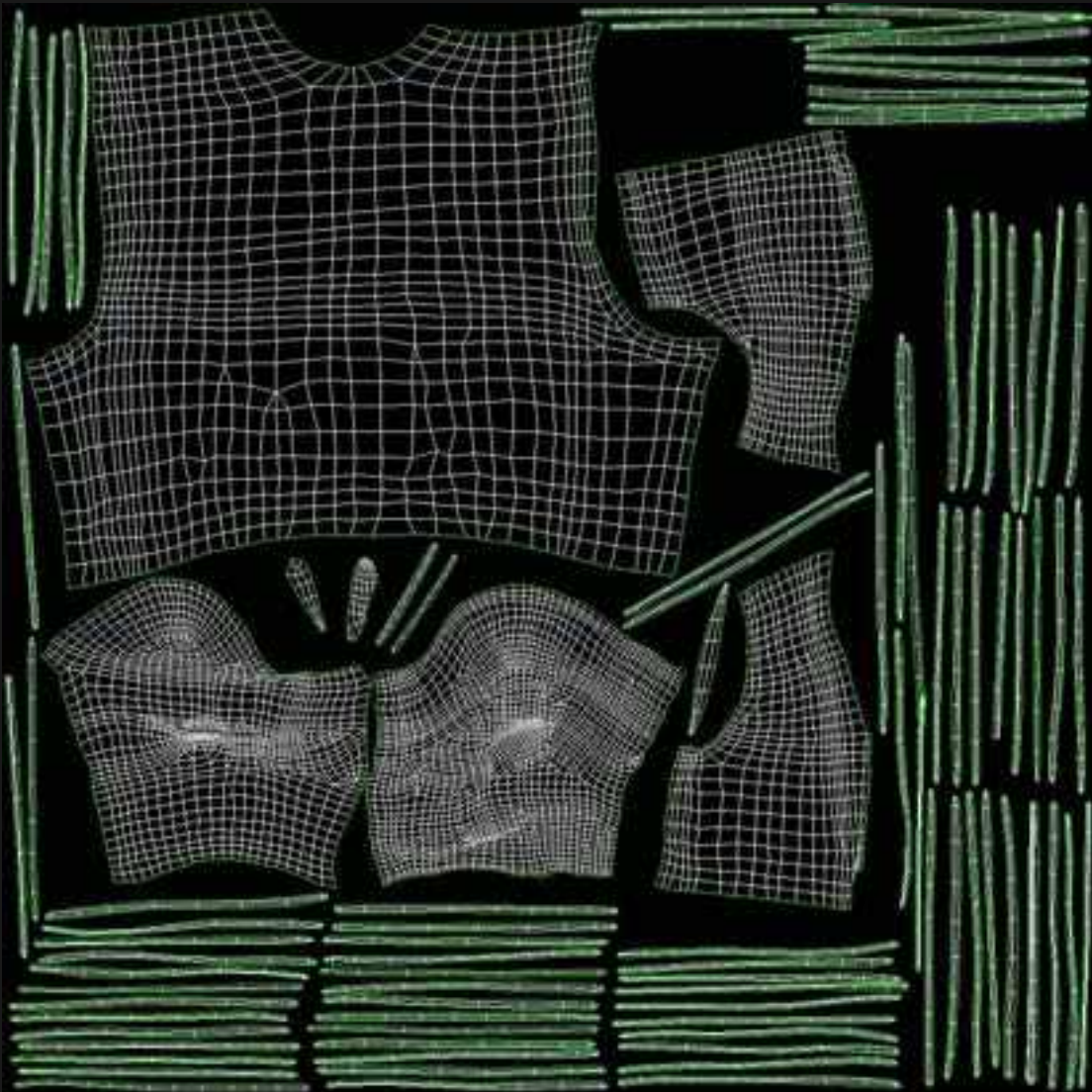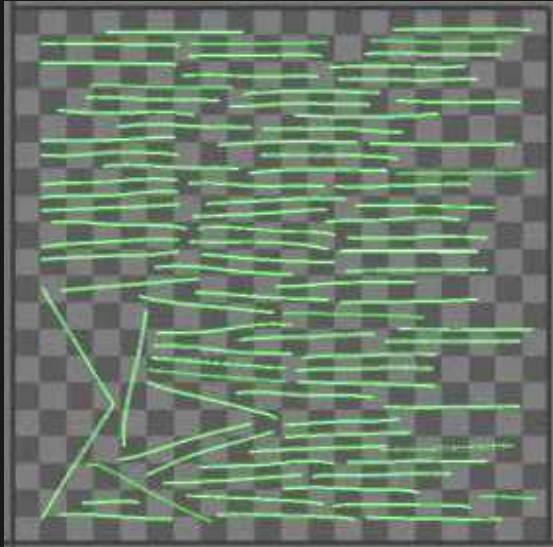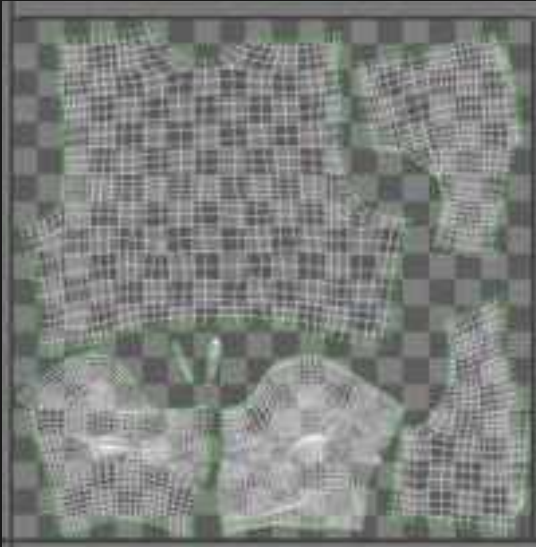
Unwrap

Logos
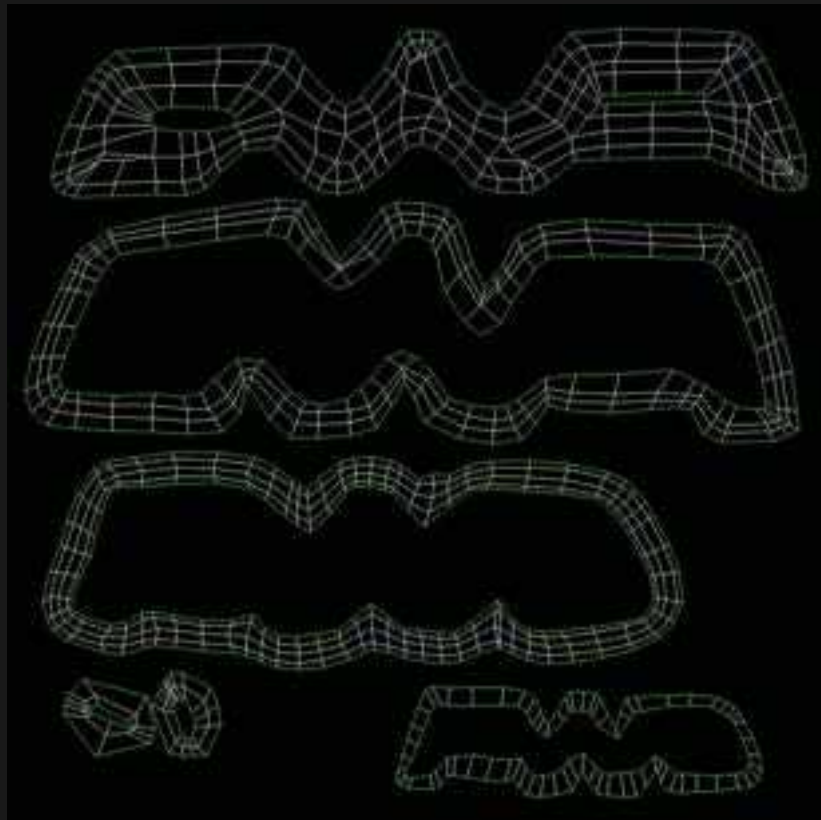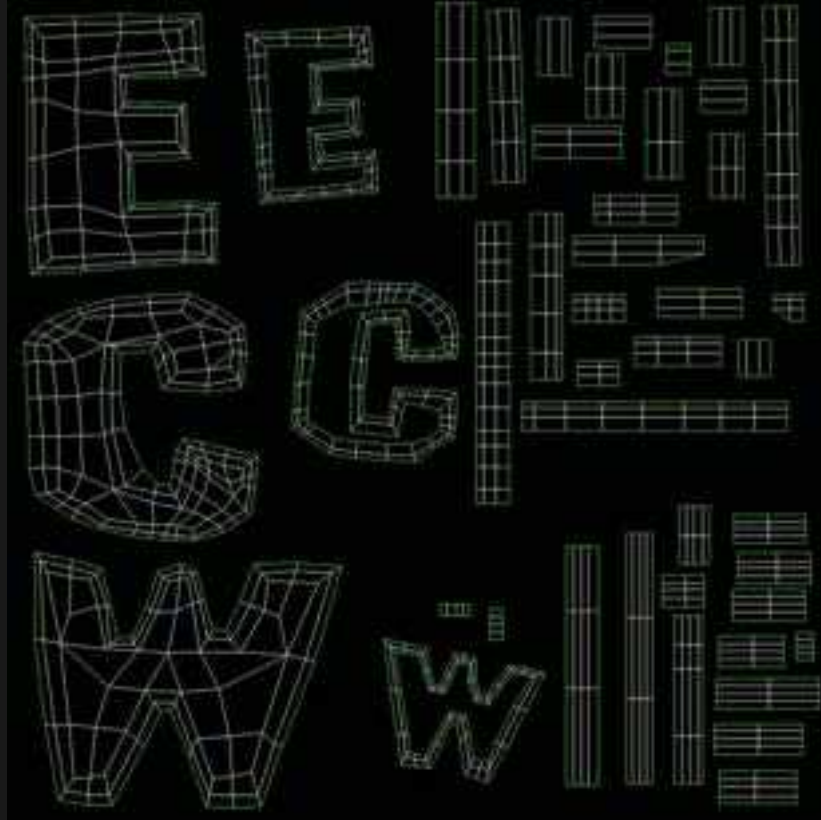
Unwrap

Belt
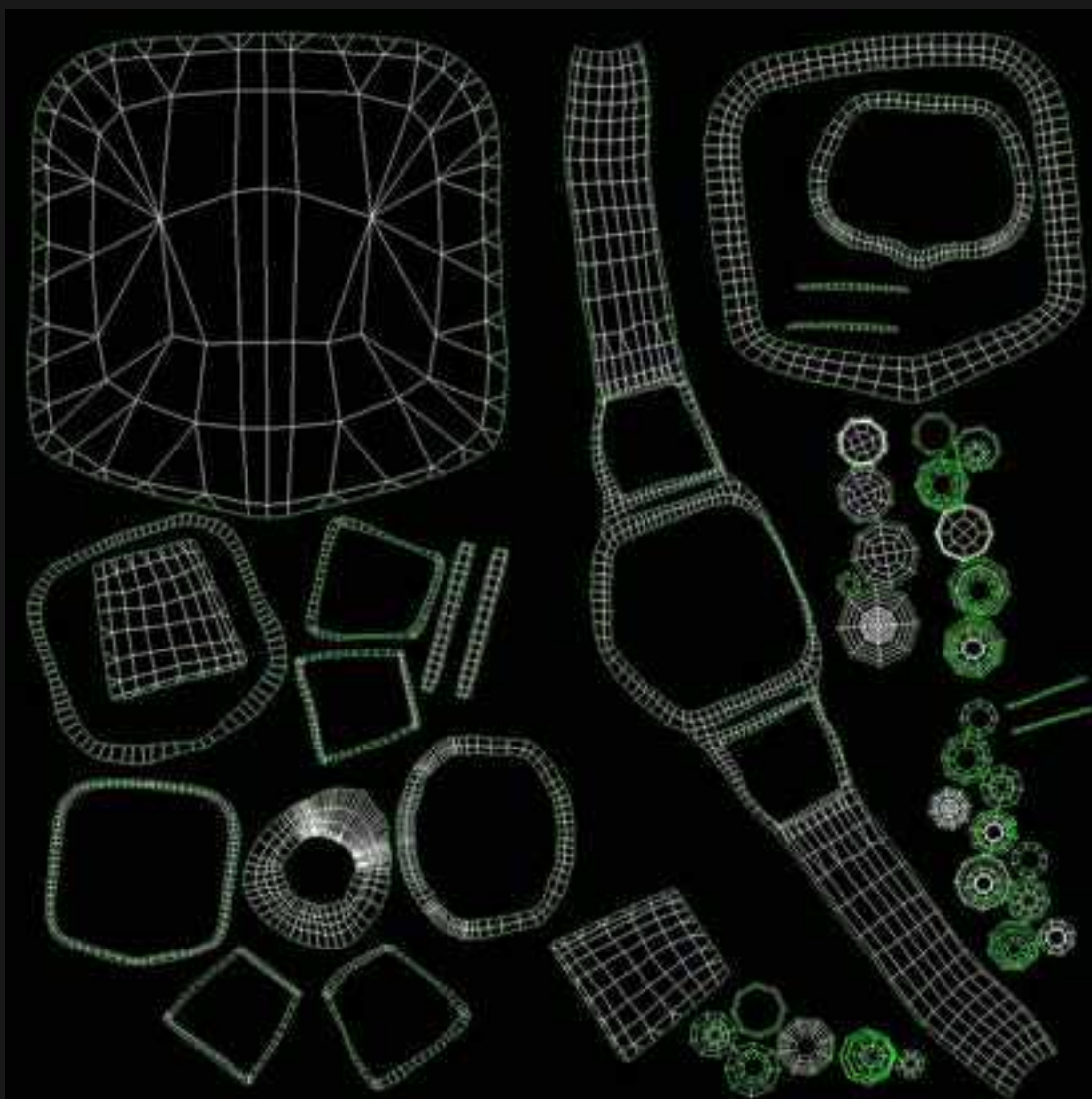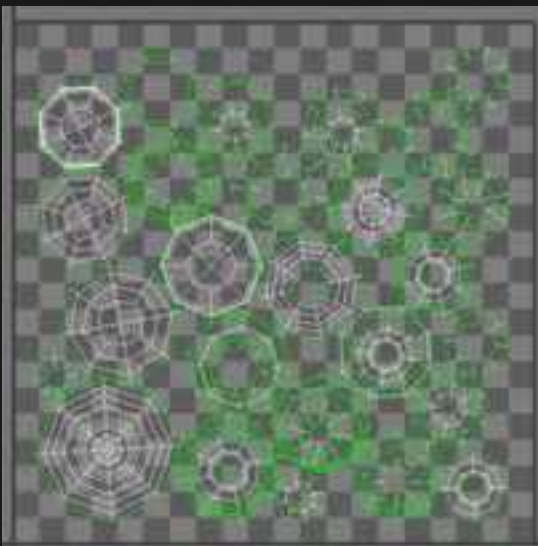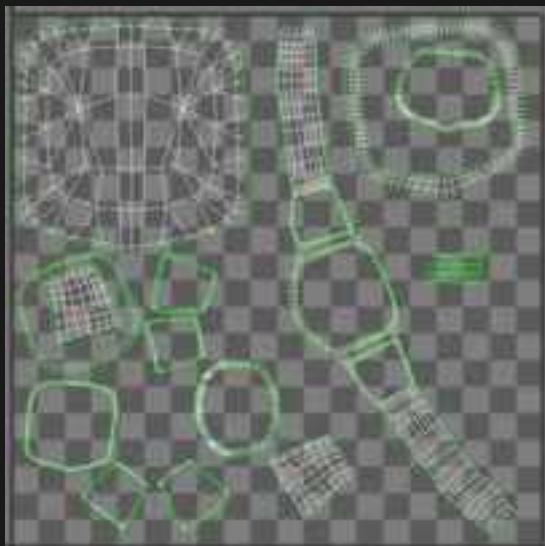
Unwrap

Boots
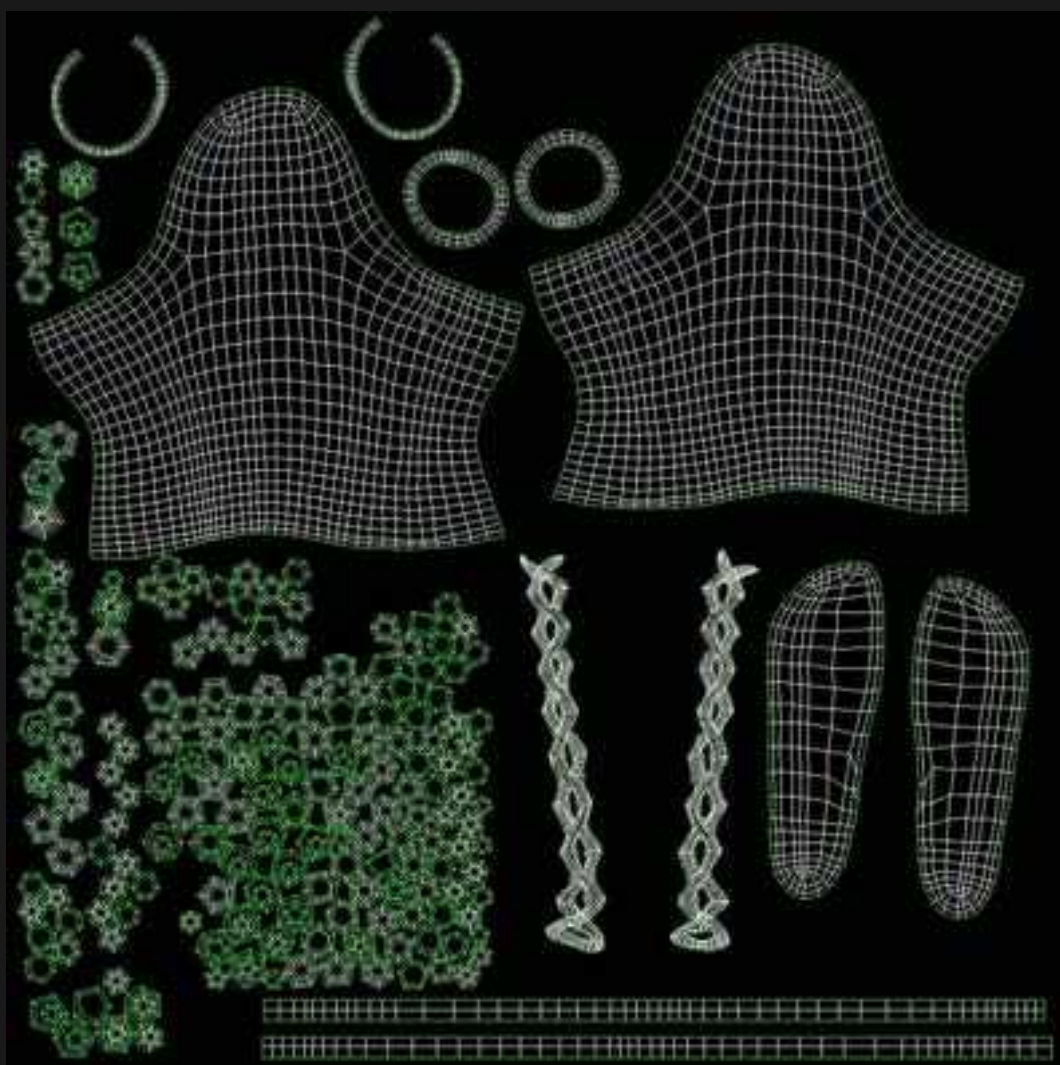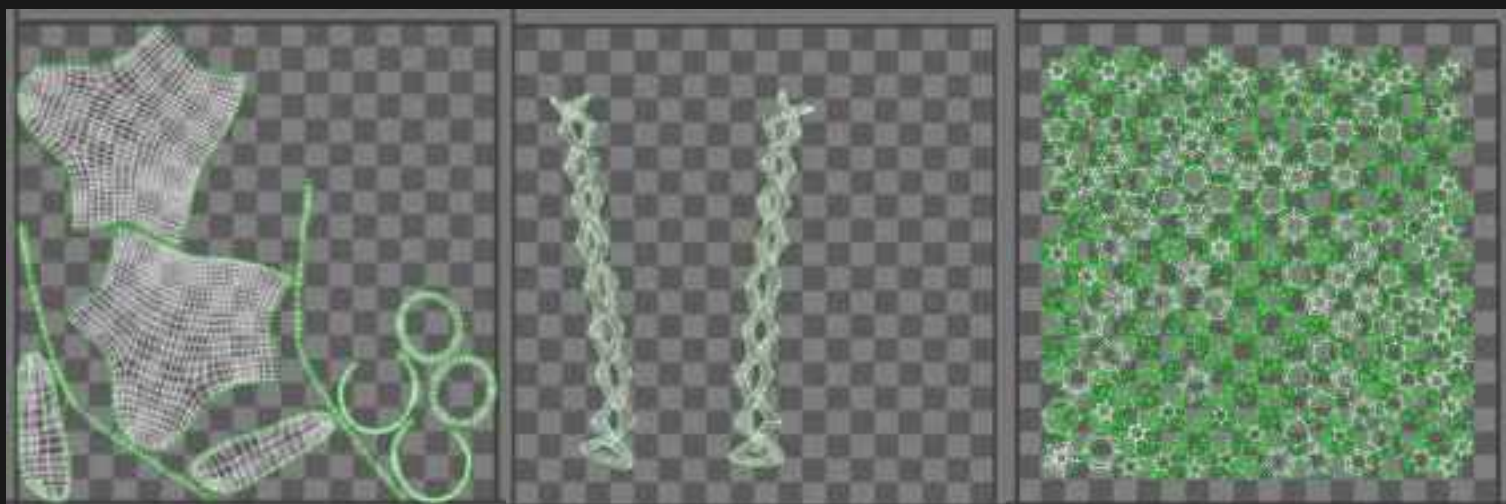
Unwrap
Elbow & KneePads
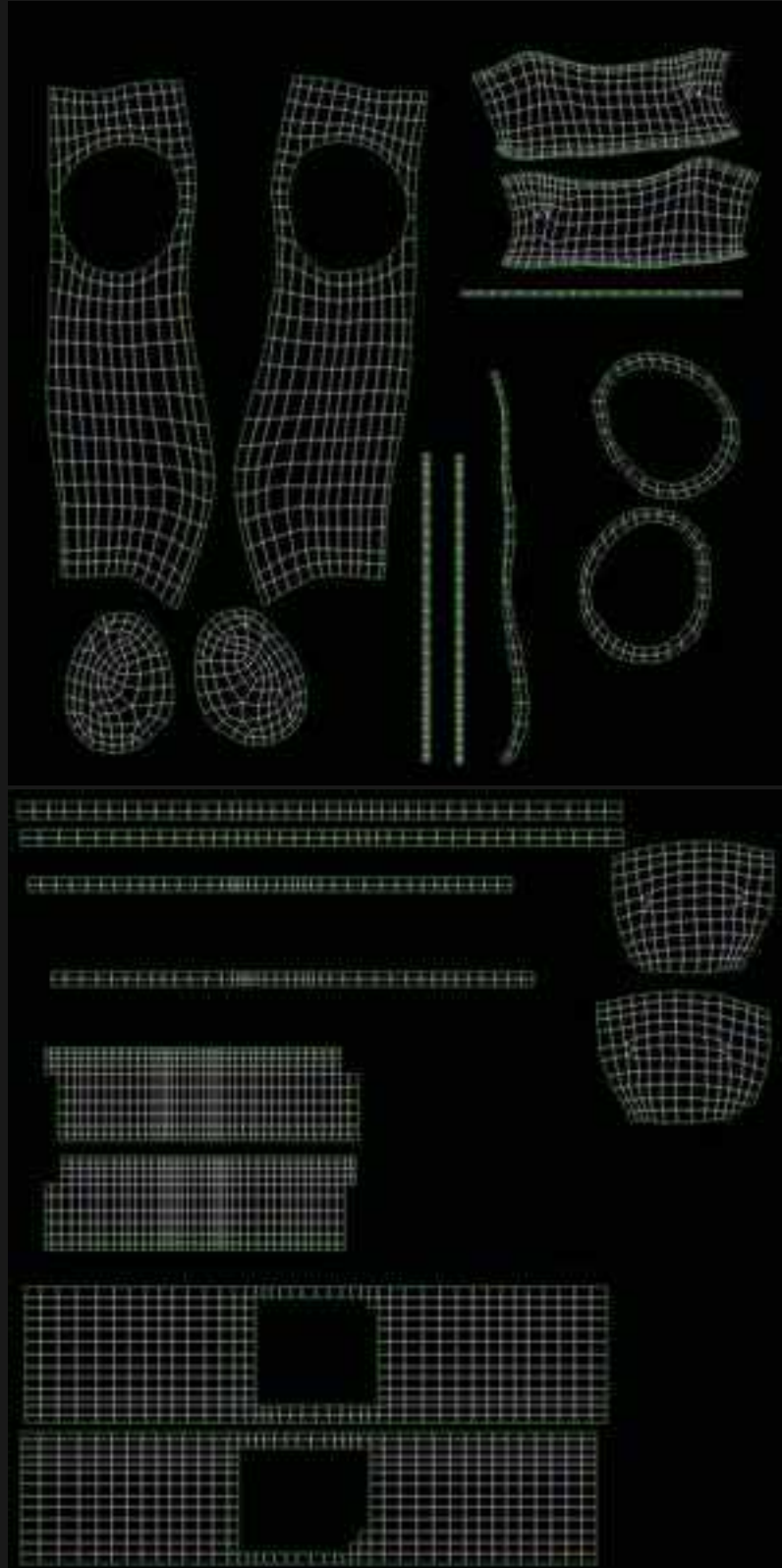
Texture
Body & Face
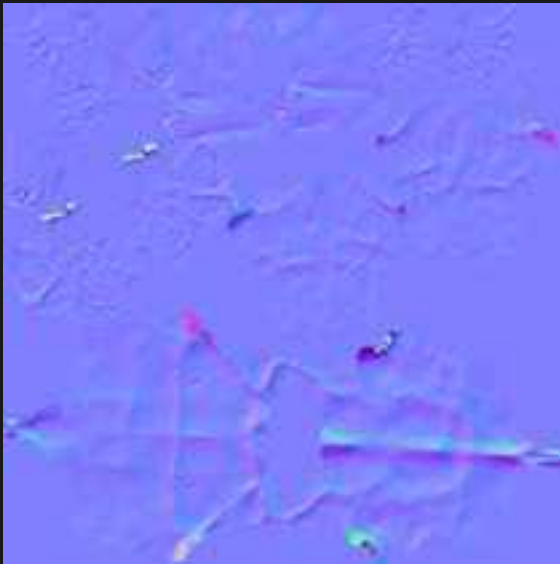
Texture

Body
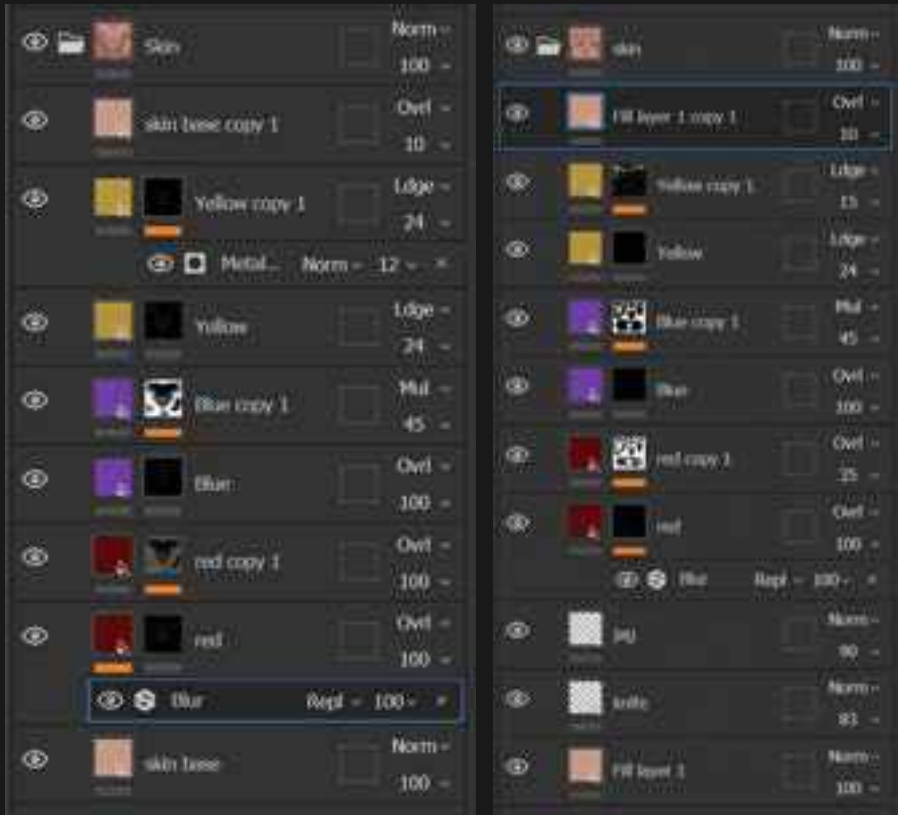
Tattoos

Base Colour

Material

Texture
Body

Texture
Eyeballs

Materials

Human Eye   Human Sclera

				Norm ˅
👁		Fill layer 2 copy 1		100 ˅
👁		Fill layer 2		Norm ˅ / 100 ˅
👁		Fill layer 1 copy 1		Norm ˅ / 100 ˅
👁		Fill layer 1		Norm ˅ / 100 ˅
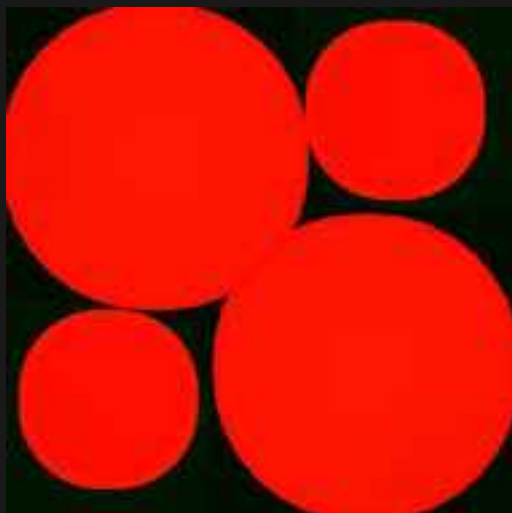
Texture
Facial Hair
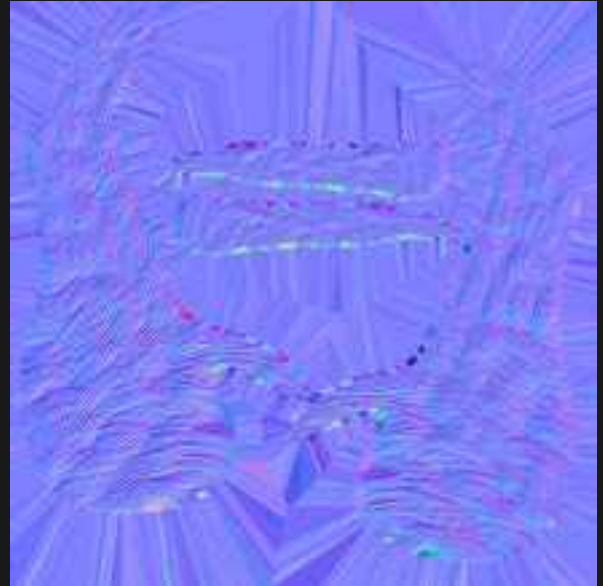
Texture
Facial Hair

Masks

Cavity Rust

Texture

Gums

Materials

Tongue Taste Buds

Masks

Gaussian Noise
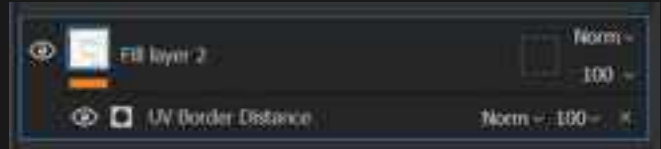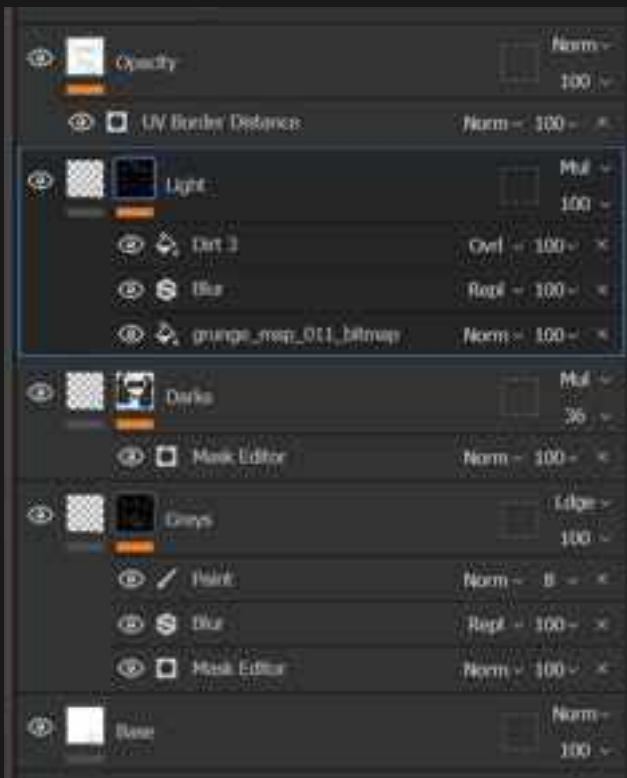
Texture
Teeth

Materials

Tooth Tartar   Metal Polished

			Norm ⌄
👁	Fill layer 1		100 ⌄
👁 ◇	Tooth Tartar	Norm ⌄ 100 ⌄	✕
👁	Metal Polished		Norm ⌄
			100 ⌄

Texture
Jacket

FREYA
DOUGAN
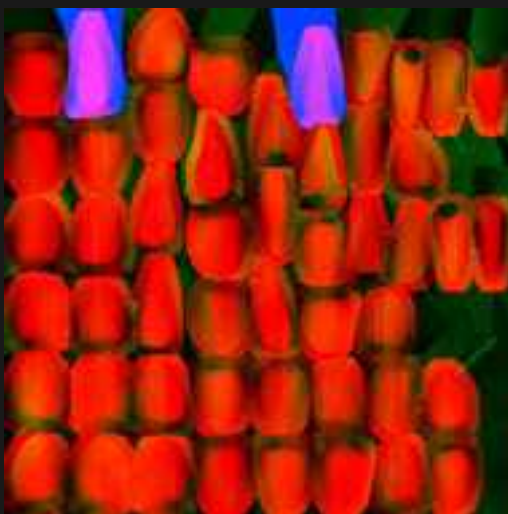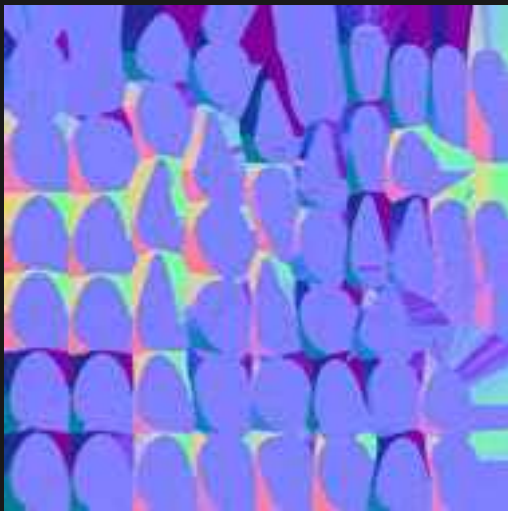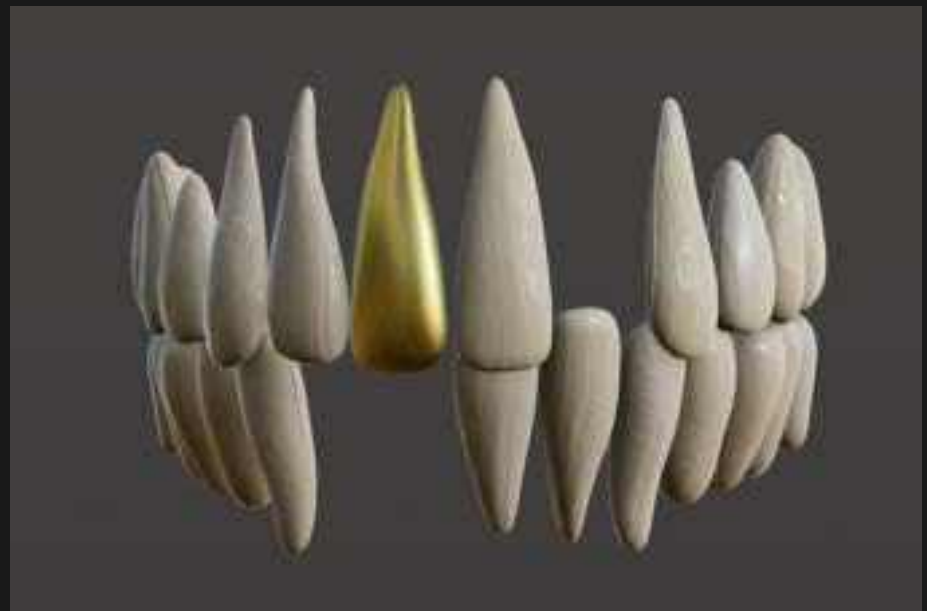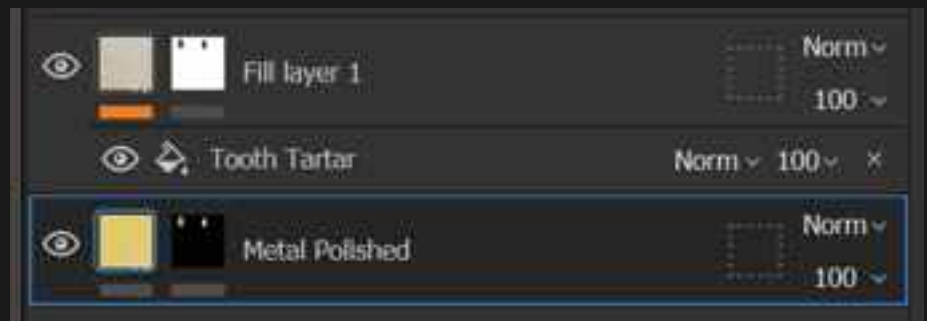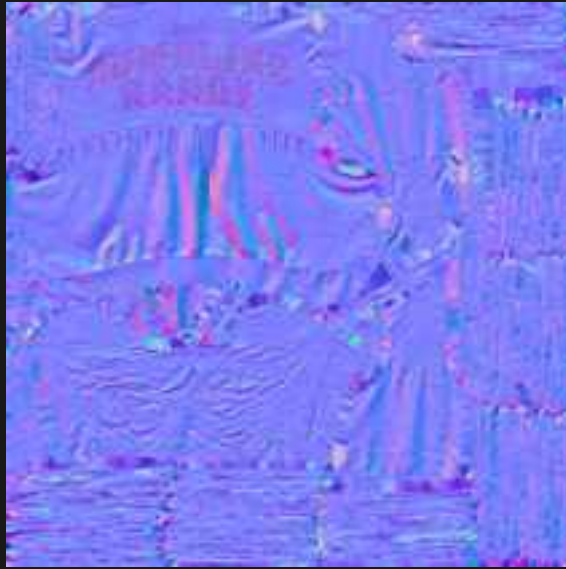
Texture
Jacket

Materials

Plain Leather

Circle Patch

Patch Textures

Texture
Studs

Materials

Masks

Steel Bright Layered

Dirt Splashes

Rust

👁			Fill layer 2		Norm	100
👁			Fill layer 1		Norm	100
👁	📁		Steel Bright Layered		Norm	100
👁			Bright edges		Norm	100
👁			Scratches		Mul	40
👁			Stain		Mul	25
👁			Base color		Norm	100
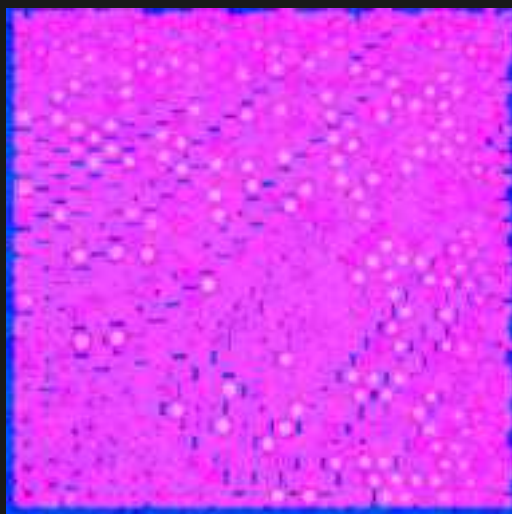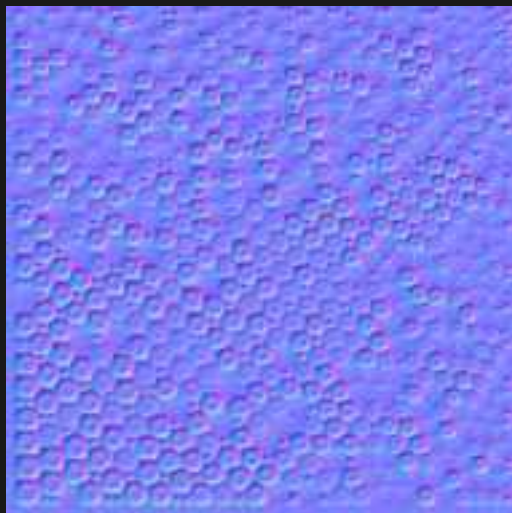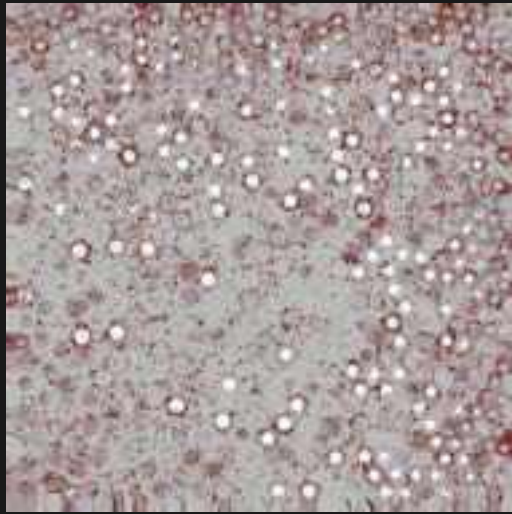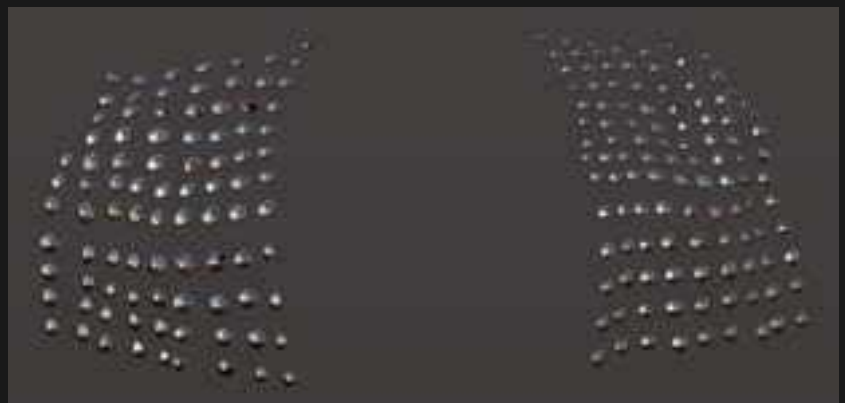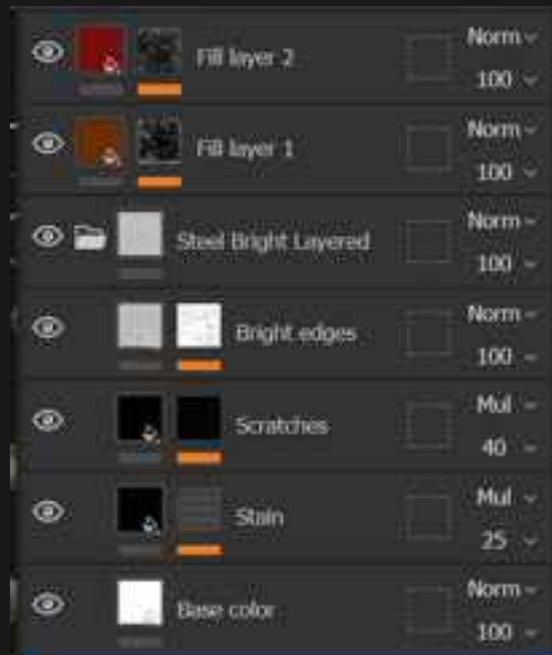
Texture
CWA

Materials

Masks

Chrome Blue Tint

Subtle Scratches

Cavity Rust

			Mul
👁	Fill layer 1		100
👁	Fill Layer		Norm 100
👁	Sharpen		Repl 100 ×
👁	Metal Edge Wear		Norm 100 ×
👁	Fill Layer		Mul 100
👁	Blur		Repl 100 ×
👁	Mask Editor		Norm 100 ×
👁	Chrome Blue Tint		Norm 100
👁	Purple Surface		Norm 80
👁	Gradient		Repl 100 ×
👁	Green Surface		Norm 90
👁	Base Metal		Norm 100
👁	Gradient		Repl 100 ×
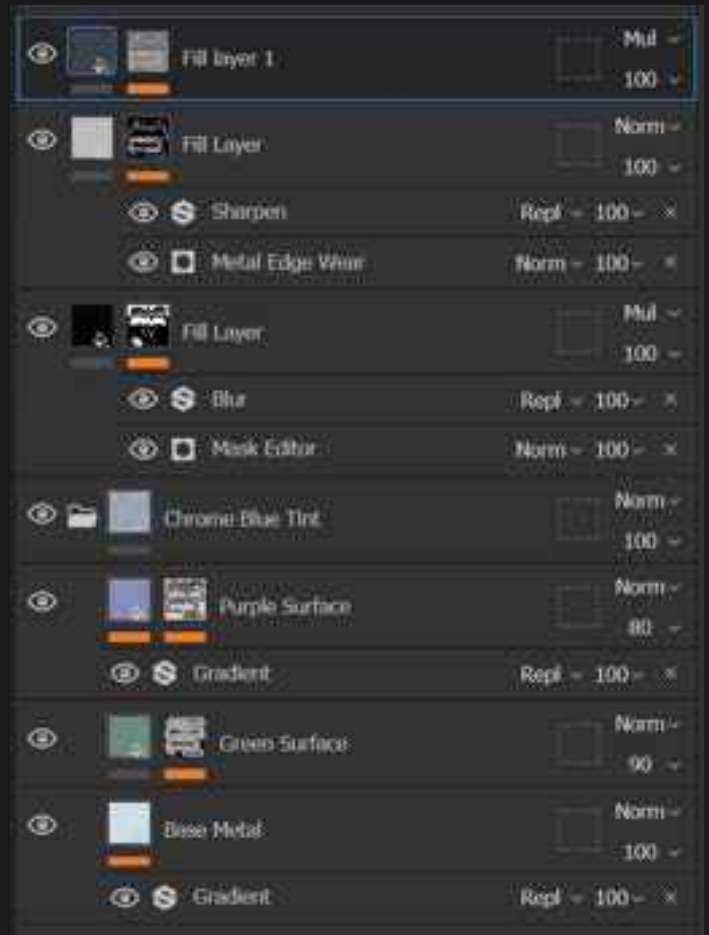
Texture

ECW

Materials

Masks

Metal Galvanized

Cavity Rust
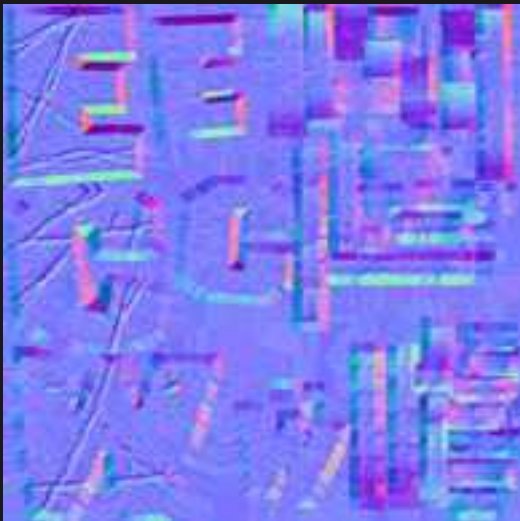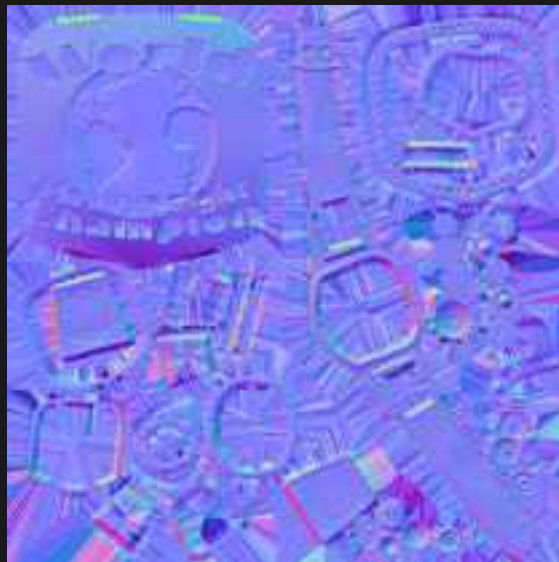
Texture

Belt

Texture
Belt
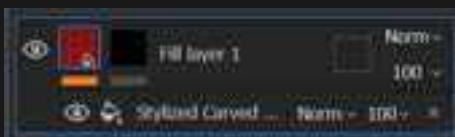
Masks

Materials

Compare gold

Increase saturation

Texture
Boots
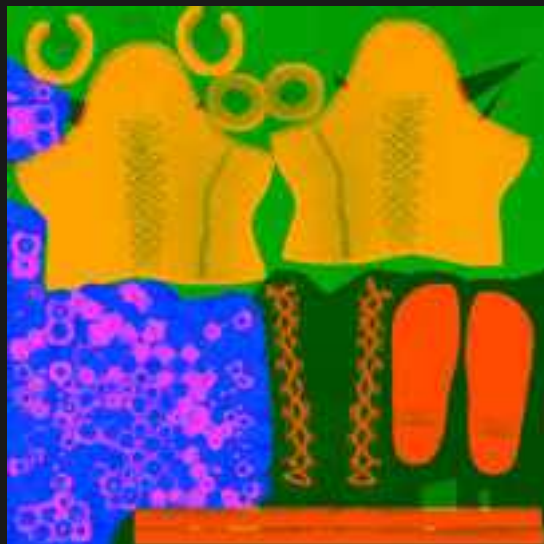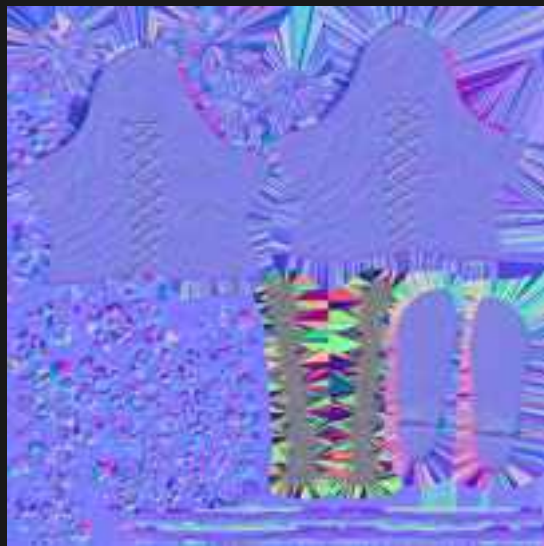
Texture
Boots

Materials

Metal Polished

Masks

Dirt

Grunge Leather
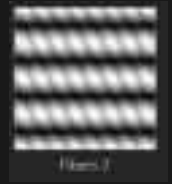
Fibers 2

Texture
Leotard

Texture
Leotard

Materials

Elastane Fabric Stretch
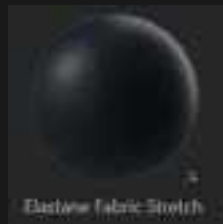
Masks
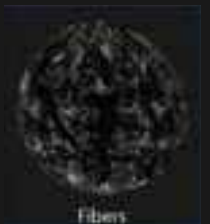
Cavity Rust

Fibers

Texture
Elbow Pads

Materials

Masks

Fabric Nylon

Cavity Rust

fibers

			Mul
Fill layer 2			100
Fill		Norm	100
Fill layer 1			Mul
			100
Blur		Repl	100
Mask Editor		Norm	100
Fabric Cotton Jersey			Norm
			100
Layer 1			Norm
			100
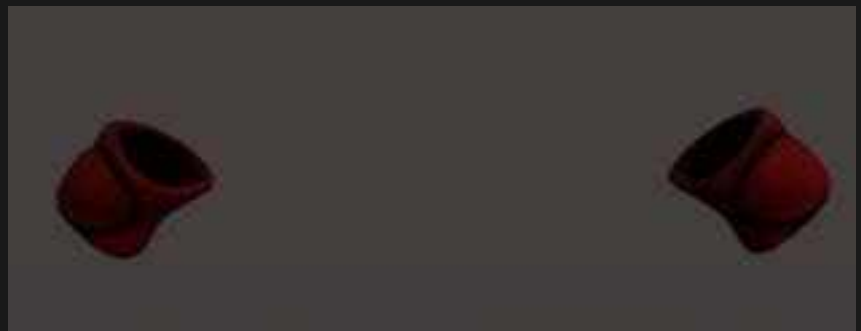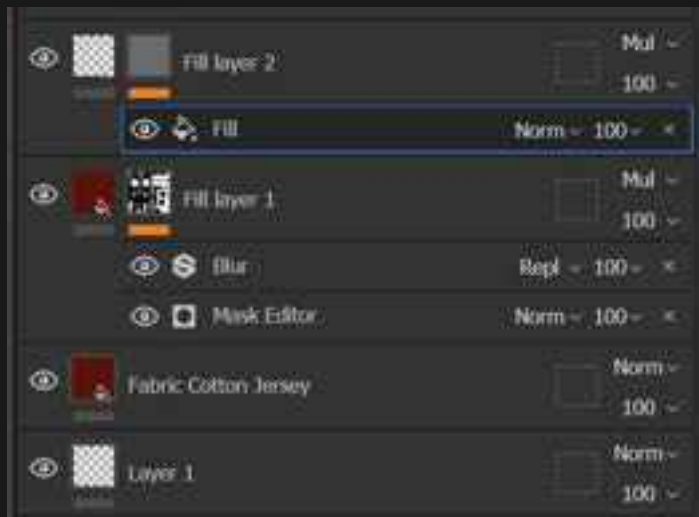
Texture
Knee Pads

Materials

Masks

Fabric Nylon

Cavity Rust

fibers

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	👁	🔖	Fill		Norm ~ 100 ~ ✕
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	👁	⚙	Blur		Repl ~ 100 ~ ✕
	👁	▢	Mask Editor		Norm ~ 100 ~ ✕
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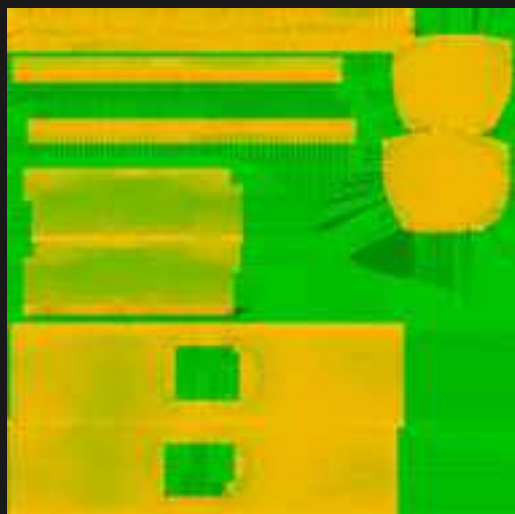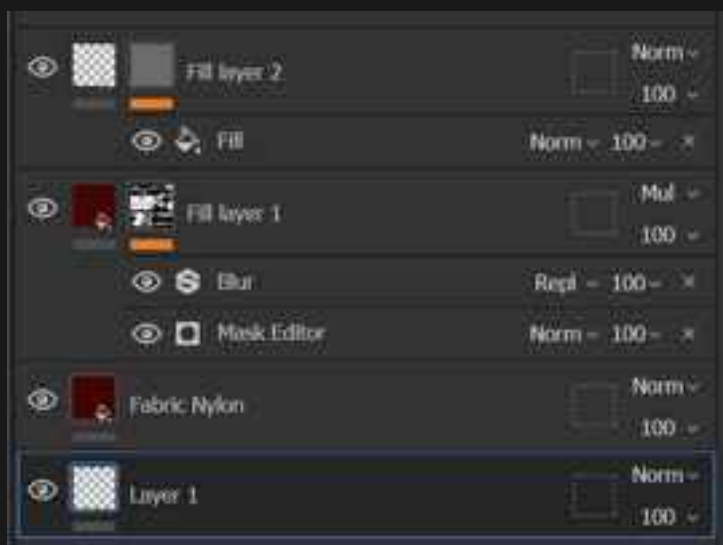
Posing

I am using Blender to add the skeleton to my model so that I can create a rig.

Unfortunately, there are some clipping issues with the jacket, meaning I cannot pose the character with his jacket on.

I imported my low-poly model into ZBrush so that I could pose it. I masked off areas, such as the arms, moved the pivot point to where the joint would be, and then moved it like that. I also used the move brush to change the face, making it look as if he is snarling

Render Setup

I decided to use a HDRI environment as the base for my render scene. I chose this particular image because it is a sports stadium, and I want the scene to look like a wrestling match.

I downloaded a model of a wrestling ring to add to the scene.

Render Setup

The HDRI added lights to the scene, but it was too intense. I lowered the intensity of the HDRI and added three rectangle lights. I positioned one in front of the model, one to the side, and one facing the back, to make three-point lighting.

I lowered the intensity and changed the colour of each light, only leaving one of them to cast shadows. I changed the colours of the lights because I liked the effect the colours had when reflecting from the character.

I added a post-processing volume and camera to the scene so that I could further control the environment.

I imported my posed models and set up the materials, then positioned them before switching to the camera view and taking high-resolution screenshots.

Final Renders

Final Renders

Final Renders

Evaluation

The deliverables of my project proposal are:
·A game-ready character model, based on an original character, in the Street Fighter series art style.
·Full PBR texture set for character.
·HD screenshots of posed character presented in Unreal Engine 5

Artistic Concept

The original character is a middle-aged wrestler from the USA. His career was during the period when wrestling territories were separate, between the 1970s – early 1990s. He is known as Rumbling Randy.
The character design is interesting and communicates his traits and backstory. Strong visual cues are used to show his occupation, such as the championship belt and fighting gear. There are also smaller details to show the specific period, such as blading scars and mentions of old wrestling promotions in his costume (patches and badges on the jacket).
Visual language and colour theory were utilised in making the character appear more menacing, with his tall wide build and red colour scheme. His body shows strength and a feeling of intimidation, while red is associated with blood, danger, and strength.
The character is suitable for the Street Fighter universe, as it is believable that a wrestler would be part of the roster in a fighting game. The bright colours used in the character's clothing match the art style of Street Fighter, and his bodily proportions are cohesive with other Street Fighter characters.

Evaluation

Technical Execution

The high poly sculpt was executed well. A lot of attention was paid to the anatomy, and it is consistent with the art style of Street Fighter. The sculpt is highly detailed, and is a successful iteration of the original concept art.

The choice to use Marvelous Designer to create the clothing was suitable, and the finished garments show a good understanding of the software. The designs could be developed further to meet industry expectations, such as adding pockets to the jacket or making more intricate 2D patterns.

The use of 3DS Max for making the belt was wise, as it is more suited to hard-surface modelling. The inner design of the belt ("World Heavyweight Champion" and the picture of the Earth) would have been better suited to have been made in Nomad Sculpt, the software used to make the logo badges, as it was faster and resulted in better topology.

Street Fighter - Zangief

My Character - Rumbling Randy

The resulting topology from extruding editable splines in 3DS Max was not usable, so a lot of time had to be spent in Maya retopologizing the model. This led to a significant delay in the modelling phase, which in turn affected the time left for post-production. This could have been prevented with more research beforehand.

The retopology of the model was performed well, with the final polycount at 76,929. For reference, the Street Fighter character model I have used in my research has a polycount of 199,830, so I believe the model fits well within the allowed polycount.

Animation loops were considered and implemented well, and the model was simple to unwrap. There were areas of the body where the concentration of polys was very high, this could be improved by welding some of the vertices together while maintaining the loops.

Evaluation

The jacket's topology is considerate of the creases in the material, which gives the low poly jacket a smooth appearance. However, this does mean that deformation loops were not as highly considered, and so it does not deform as neatly as the body.

The unwraps are high quality, with careful consideration for the placing of seams. The topology is well set out, meaning the unwrap process was quite simple. The Street Fighter texture sets were used as comparisons to ensure that the UV sets corresponded with the industry standard. The head and body were split into two separate material IDs, which was an appropriate way to ensure enough UV space for the face.

The packing is mostly efficient, leaving little free space. The company logos (ECW and CWA) could have had their UVs packed together, which would have meant one less material needing to be made.

The clothing UVs could be more carefully considered. The shoes are split into two main parts, whereas it would have been better to split the UVs in the way that fabric would be. Doing so would have allowed more easy manipulation in Substance Painter.

The textures were made well, some of them to a higher level than others. The texture for the body shows an excellent understanding of Substance Painter and the use of colour. The base colour is not flat, and includes a lot of variances, as skin should. It meets the standards set by the Street Fighter skin material and does a good job of accentuating the muscles.

Street Fighter - Zangief

My Character - Rumbling Randy

Evaluation

F R E Y A
D O U G A N

The materials and masks used were appropriately selected, each adding depth to the model. Height and roughness masks were utilised often to give the model more texture, and other effect masks were used to add wear and tear to items. Changes to specular levels and opacity add more complexity to the textures, ensuring they draw attention.

Studying the Street Fighter Art style, you see they use a lot of bright colours in the character's costumes. The colours used in the textures meet this style well, with a pleasing mixture of dark and bright.

The character's rig does not meet the industry standard. As previously mentioned, having to retopologize the belt details took much longer than expected, which took the project off schedule. Unfortunately, this meant that there was not much time to complete the rig.

The weight painting of the rig needs to be revisited and adjusted, as there are several clipping issues. I believe this is because the model is a .fbx, meaning the different components are all separate. To rectify the rig, I would re-import the model as a single mesh, before adjusting the weight painting of the bones. This would help to ensure that the bones are only affecting the desired area, and no further.

A complete rig would have elevated the quality of the model, as dynamic poses and renders would bring the character to life.

Street Fighter - in-game screenshot

Unreal Engine 5 - HD Screenshot

Evaluation

The render scene is suitable, I believe that the use of an HDRI environment was a sensible choice, as it sped up the process of creating a scene to present my character in. The stadium and wrestling ring further add to the narrative of my character, and make a believable environment to be in.
However, the environment does not resemble anything from Street Fighter, so that would be something to consider to elevate it.
The lighting in the scene could be further developed, in some cases it appears very bright whereas in others it is very dark. A more consistent lighting arrangement would be best.
The use of a post-processing volume and camera effects is there, though could be given further improvements. Additions such as bokeh elements or further level controls could have helped to give more life to the images.
The character is presented well, though an improved rig and more dynamic poses would improve the overall renders, bringing them up to industry standard.

Context and Research

The research conducted was suitable and relevant to the project, successfully aiding in the workflow and production process. The research built up a diverse collection of references, which I believe led to a more well-imagined character. Further research could have been conducted before beginning certain processes, such as rigging, as this would have assisted in making a cleaner, better-suited rig for the model.
The research conducted into the historical influences was satisfactory, I believe the character looks authentic to the period and meshes well with the chosen art style.

Street Fighter - Suzaku Castle

HDRI & Orlando Stadium

Evaluation

Strengths and Weaknesses

The strengths of this project are the sculpt and textures. I believe that they are of the closest to industry standard quality and showcase both skills and knowledge of the character production process. The jacket is complex and highly detailed, doing a respectable job of portraying the character's story and personality.

The most immediate area for improvement is the rig. Currently, the rig is very simple and is not suitable for use in a game. Refining the rig would be a massive improvement to the quality of the model and would elevate the model to industry standards. The Street Fighter characters are seen doing very dynamic poses during the gameplay, and so being unable to meet this detracts from the similarity of art styles in the final renders. The render scene is simple and would benefit from further development. The use of shaders could improve the visuals of the renders, again making it more similar to Street Fighter.

Conclusion

In conclusion, I believe that my project was mostly successful. Looking back at the project proposal, I was able to create an original character and bring him to life as a game-ready model presented in Unreal Engine 5. The clothing for the character is unique and interesting, and he fits in well with the period he is meant to come from.

I have full PBR texture sets for each component of this model, and the model is presented in Unreal Engine 5, posed. It meets the requirements of the proposal.

Street Fighter - in-game screenshot

Unreal Engine 5 - HD Screenshot

Evaluation

The methods used to make the model were reasonable and backed up by research, with suitable choices for software used (e.g. ZBrush, 3DS Max, Maya, etc.)
The main detractor from this project is the rig not being fully game-ready. If the model was presented with a high-quality rig and more dynamic poses, I would say that this project has been a complete success. Unfortunately, that proponent is missing, so I can only say that the project has been mostly successful.
The planned timeline of this project was ambitious and did not allow any time for error. Along with some unexpected interruptions to the project, I did not have enough time to develop the rig to a professional standard. If I were to do another similar project, I would ensure that I better plan my time to allow for these kinds of issues.

Sources

Cloth Seam Brushes + 4K Alphas - ZBrush 4R8 - Muhammad Sohail Anwar

30 Seam & Stitche Zbrush Brushes v3 - Art Talent Studio

Anatomy of Street Fighter

Street Fighter Character Model

 Block Out Reference Image

XMD ZBrush Brushes - Gemstones 01 _ Michael Dunnam

ZBrush Sculpting Hair Brushes Pack

ZBrush - 35 Seam/Stitch Brushes - JROTools

Free Noya Scars Brush For Zbrush - Noya

Wrestling Ring 3D model - apcmods, Wakind

Orlando Stadium HDRI - Demetrios Savva & Greg Zaal

Street Fighter Backgrounds

Tutorials

Jacket

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