ANIMATION : GAMES ART

Final Major Project Element 2

MARTHA HORSFIELD

20000565

m.horsfield0420211@arts.ac.uk
https://www.artstation.com/marhorsfield
https://marthahorsfield.myblog.arts.ac.uk/
https://youtu.be/B_ZjWLeKdi4

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SYNOPSIS

PROJECT 1 - DEIANIRA, BRINGER OF NIGHT

My aim is to create an original, game-ready character model for the antagonist role and present it posed within Unreal Engine 5.

The villain of a game is a pivotal character, used to drive the narrative and often form an end goal.Deianira, the Herald of Night, a striking and ruthless figure, draped in dark flowing robes, and heavy armour, with motifs reminiscent of the night sky. Her cold face is obscured by a hooded cloak. With the scythe she carries comes a duty to end mortal life.
I plan to draw design inspiration from fantasy games such as Baldur's Gate 3 and Elden Ring, following the close-to-realism art style, and focus on shape and colour language to portray the nature of the character.

PROJECT 2 - AKUJI MARKET ENVIRONMENT

I aim to have a finished and cohesive environment that can be walked through in gameplay, and successfully communicates the themes of the game setting.

A relaxed town is a common scene in many games, and serves as a base of operations for many-a protagonist. With opportunities for meeting NPCs, trading or bartering, or learning more about characters or world, the bustling environment is a key point of interest. In Akuji's world, puritan culture meets futuristic, with the town and people rooted in Tibetan culture. Through traditional colours, shapes and patterns throughout the environment, I can focus on establishing accurate references to real life, before exploring more fantastical elements.

Akuji concept art by Henrietta Kormos

PROJECT 1

DEIANIRA, HERALD OF NIGHT

INITIAL IDEA + IMAGERY

The initial idea for my character was based on the characterisation of death. Researching the Christian 'angel of death' who transported souls to the afterlife, and is sometimes synonymous with death itself. Named Azrael, his Ancient Greek counterpart, Thanatos, explore similar themes of being transported to another life after death. In Christianity, this is Heaven or Hell, but in Ancient Greek, is the Underworld, ruled by Hades, God of the Dead. In mythology, Hades is portrayed as passive rather than negatively, but is cold and stern, holding all accountable to his laws.

This idea was the basis of my character - a god-like warrior whose duty it is to take life when the time is right. She views her culling not as villainy, but simply what must be done. As for art style, I was heavily influenced by both Elden ring and Baldur's Gate 3.

Grim Reaper Imagery -

In the late 1800s, the character of Death became known as the Grim Reaper in English literature. Skeletons are symbolic of death, the robe is thought to be reminiscent of the robes that religious figures of the time wore when conducting funerary services and the scythe is an image taken from agricultural practices of the time: harvesters used scythes to reap or harvest crops that were ready to be plucked from the earth, as humans are when they die.

Hoslow - Elden Ring

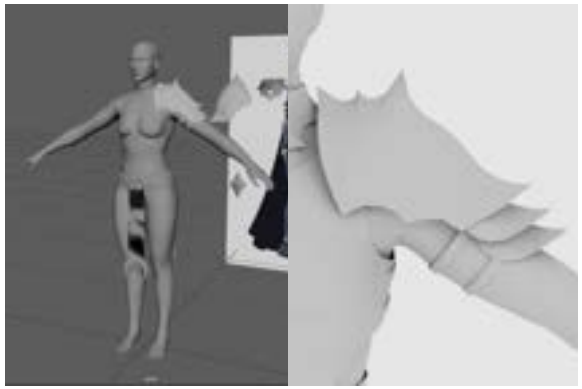
Dame Aylin - Baldur's Gate 3

INITIAL CONCEPT

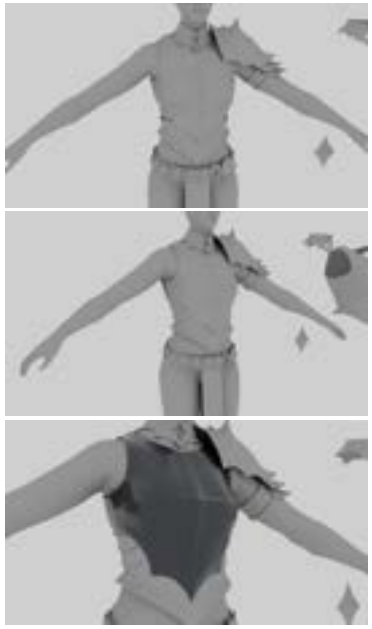
The imagery I looked at when sketching my first ideas included the symbol of Hades, God of the Underworld in Ancient Greece, as well as the skull, hood, and scythe of the traditional Grim Reaper.

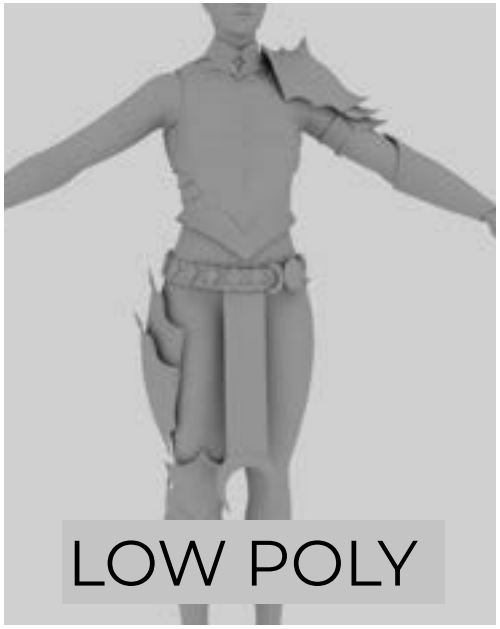
I also looked at demonic imagery, particularly Satan, or Lucifer in Christianity, who is often portrayed as a 'fallen angel', or with the horned head of a goat. Adding my own twist on this, I wanted my character to be an armoured warrior woman, who would symbolise death and the afterlife for those she had killed. The moon, similar to that in Hades' symbol, along with stars, were used throughout my design, as a connection to the idea of heaven, and ascending or leaving earth after death.

After receiving feedback, the main things I wanted to work on were: Refining the imagery, including the grim reaper/death look, and the links to the afterlife through the symbols of Hades and the heavens/moon and stars, and the traditional cloaked look. Removing some of the makeup was also suggested, so she looked more skull-esque and less like she was wearing a mask, so I softened the blending and removed the middle to give more of a traditional makeup look. I also considered the weighting of the weapon, as I wanted the scythe shape, but still to have it match the heavy armour of a warrior type character, but decided as long as the blade was thick enough, the textures could give it the necessary weight to match the armour.



To build the low poly armour in Maya, I started by using a character that I had made previously, subdividing it and editing it to be more realistic, for the style I was going for. The body was just to be used as a base, allowing me to build clothing and armour on top of it, so would be deleted later. Using the Arnold render view allowed me to check the model as I went, as well as how some of the shapes like the pointed breastplate would look in a metal texture. Some smaller elements would be added in Zbrush, but things that I wanted to have more dimension, such as the straps and buckles, were added to the Low-Poly model.





Following the breastplate, I worked on the leg armour, and the smaller details, as well as the teeth, gums and eyes, which had not been in the original low-poly model..

I was very happy with how the armour was looking at this stage. Working with my sketches in the background had allowed me to closely replicate my concepts. At this stage I also gained feedback, and following, made the legs and leg armour longer to give her a taller and more intimidating appearance.

CLOTHING - MARVELLOUS DESIGNER

I used a basic shirt and trousers pattern and adjusted it to fit my needs. Knowing that it would need to fit inside the breastplate, bracers and boots, I made the sleeves and legs shorter, and tighter around the bottom. The sleeves also had a cuff where the bracers would start, to give the natural wrinkling of the fabric being pinched in.

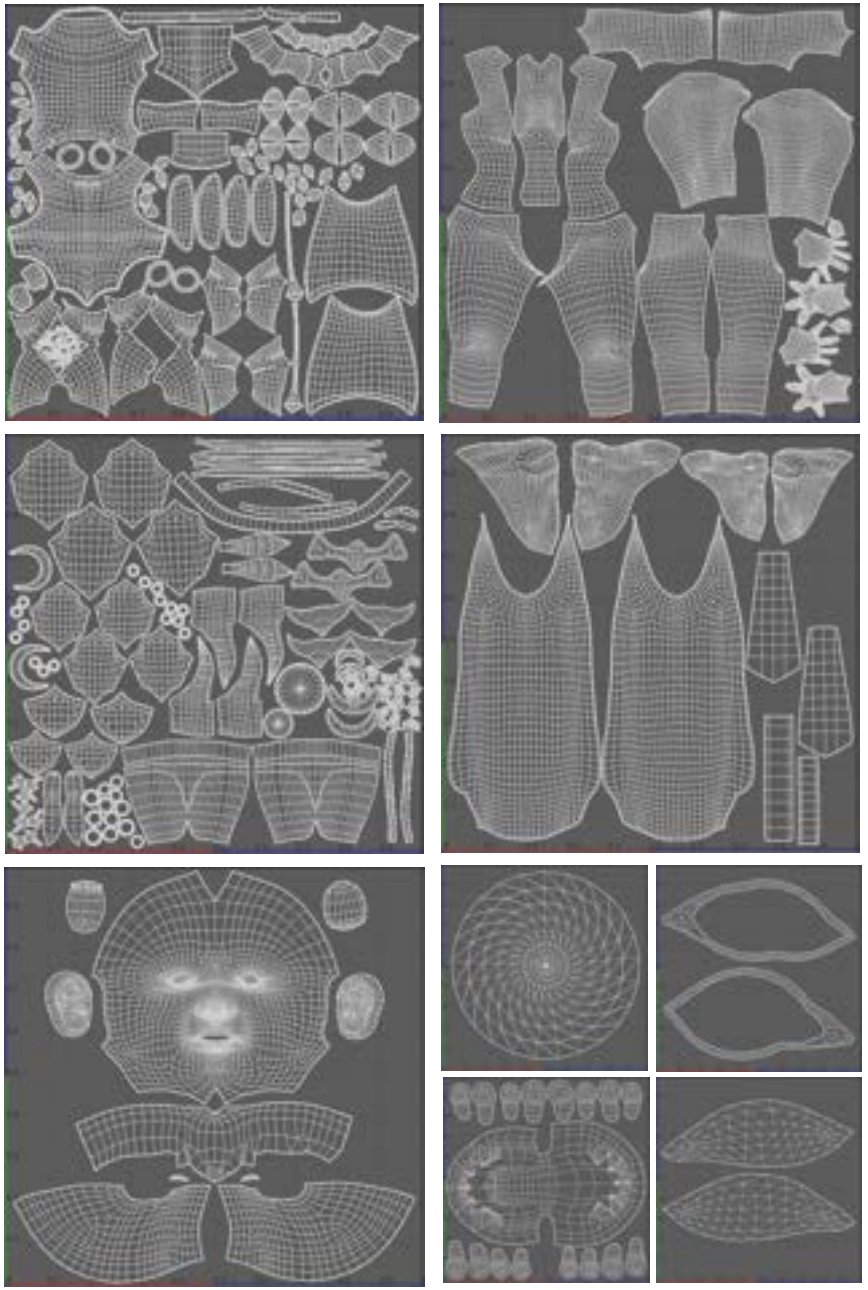
For the cloak, I used a basic half circle pattern, which i tacked to the model where I knew the pins would sit. I changed the angles of the pattern so that it folded over the shoulders underneath the armour, giving it a full appearance while being easier to rig. Having a sewing background here was helpful as it sped up the process of patterning and draping fabric, as well as knowing how to manipulate it to get the effects that I wanted.

For the clothing, I used the base mesh I had made for the body, with the high poly shirt/trousers/gloves, and used the Projection feature in ZBrush. For the hood and cloak I used the Retopology tool in Maya, which I had not used before. The hood was fairly simple, but I found the folds of the cloak trickier, and decided to build the low poly as a more solid object.

HIGH POLY

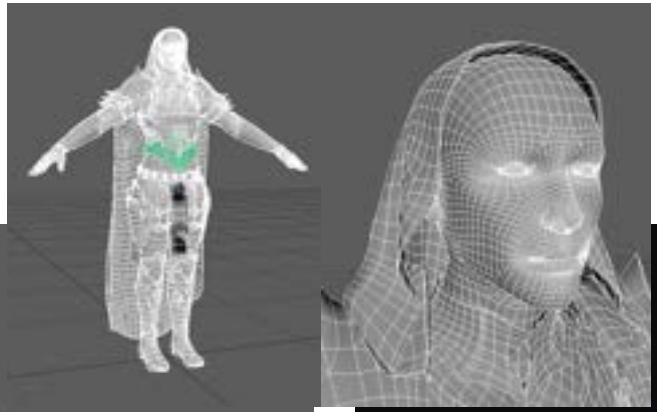
For the face I used reference of both human skin and the detailed skin of realistic characters in other games. I used noise masks in ZBrush to create the smaller detailed pores, and hand modelled larger dots, texture and wrinkles. In hindsight I could have worked on some of this texture in substance painter, but I did enjoy the process of learning to sculpt it.

Working on the high-poly of the armour, I wanted to create the rough texture of hammered metal along the bulk of the large pieces, while preserving the smooth edge on the trims. I created a noise layer for each piece of armour, and masked off all the edges I wanted to keep smooth. Being able to fully manipulate the fabric from Marvellous, I also used ZBrush to correct any folds in the clothing I didn't like, and make sure that it fit underneath the armour, which meant using the move tool to tuck the edges into the armour pieces. This worked well as it left the rest of the fabric overflowing the armour, as it would fold in real life. After completing the High and Low poly versions of the model I UV'd the entire character, which meant that I didn't need to worry about editing the UVs if anything was changed in the detailing process.



Final tri count: 95578 Without Cloak: 83832
Without Hair: 82722 Hair Only: 12856

My aim was to keep the model under 100K tris, which I managed successfully, though there are some areas in the face, and torso where I think I could have optimised further.

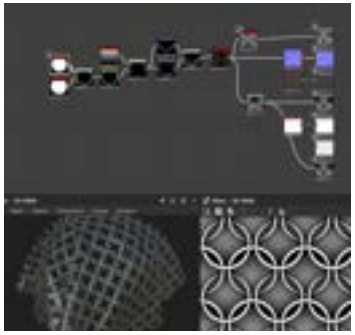


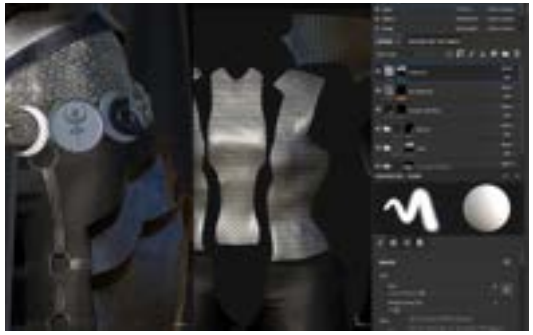
During the Baking process, the only issue I had was in the cloak bake, because the fabric had a lot of deep folds, the baker had difficulty projecting them onto the low poly properly. This took a few trials and adjustments of the low poly model to work correctly.

TEXTURING

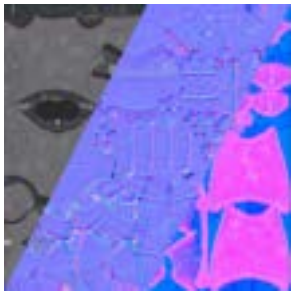
All of the base fabrics were a base layer with different roughness and texture masks, to give their respective fabric textures. The detail stitching on the trousers was done with an alpha mask, while those on the shirt sleeve, cloak, and edges of the tabard were using the stitch brush and a colour/height map.
The embroidery on the tabard was drawn in Procreate, imported as an alpha, and the shape was then used as a mask on a height map for the embroidery texture, and I hand drew the stitching.

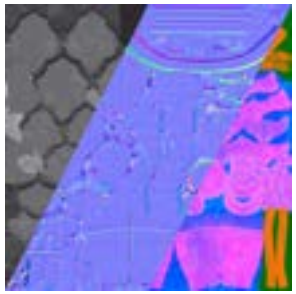
For the chainmail overlay, I made a texture in Substance Designer, I wanted to make sure that the star shape between the rings was clearly visible, to follow themes throughout the armour. For my first time making materials I was very happy with the outcome.

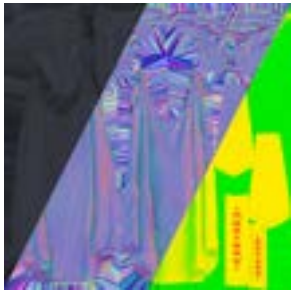


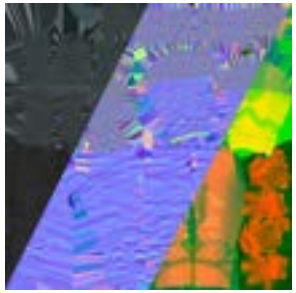


Texturing the metallic armour, I used three main base colours. I added a roughness layer to each, and then several colours of grime layers, with a grime texture in the mask.I was also able to add some extra details, such as smaller scratches, the belt detail, and the damage around the edges of the armour. This was hand painted with a height brush, as well as some added with textures.
After feedback, I also added detailing to the darker trim, which was painted in Procreate and imported onto the textures as alphas. Making the chainmail appear separate from the undershirt was a challenge, but I painted in a little more ambient occlusion to give the illusion of depth. I did find that this dulled the metal so I had to find balance.

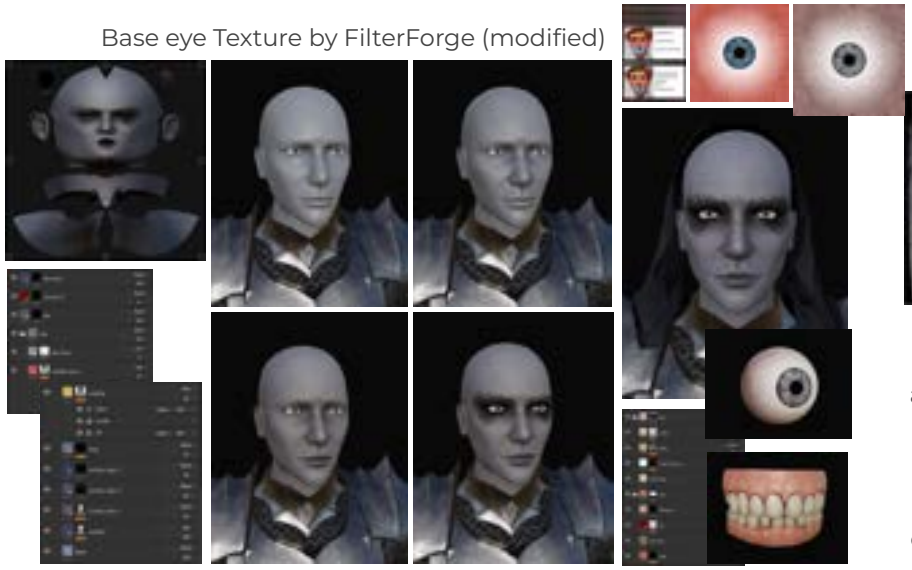






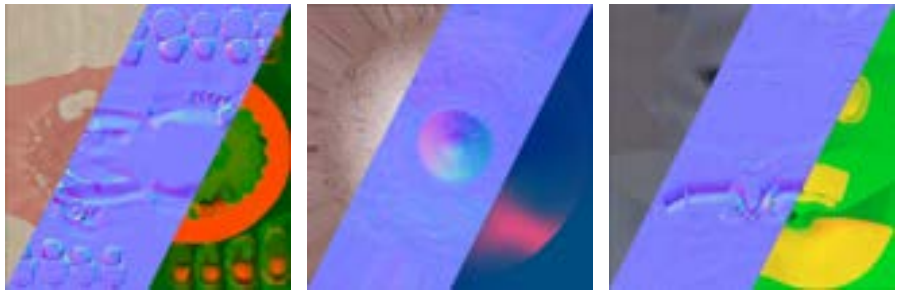


Base eye Texture by FilterForge (modified)

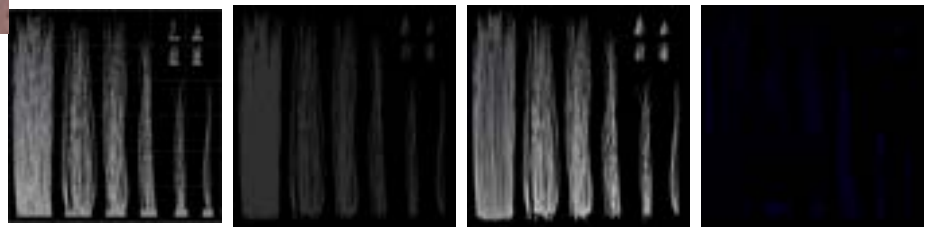


Texturing the face, I used the colour guide based in art for the yellow/red/blue hues of the skin. Changing this to fit the fantasy grey-blue skin tone was a challenge, as I did not want to take away from her skin colour, but also needed the colour to make her feel more real and alive. I specifically focused the colours in smaller areas, so that I could make them more saturated without losing all of the blue tone - the yellow above the brow bone, and red tone under the cheekbones and the eyes.

I also used texture masks to give the skin and gums a mottled texture, with a red tint to further bring life into her skin, as well as hand painted shading in the shadows and highlights of her face. This combined with the makeup, and the metallic sheen on her eyeshadow and lips, I felt brought out more depth and visual interest in the face overall.



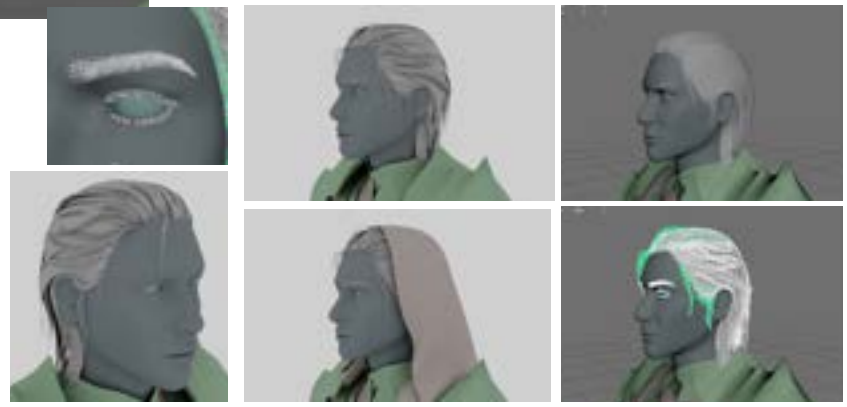
GROOM



Before starting the hair card creation, I made a quick blockout of the shape I wanted in Zbrush. This allowed me to see what I was aiming for as I went. I also had to be mindful that the hair wasn't passing through the hood, but still looked correct when the hood was toggled off.

Once my hair cards were created, I imported the card's opacity map into a new file with my model, and used it to create my hair card UVs. I could then lay the solid base of my hair, before building more layers and flyaway details on top. The process took me a few tries, and I came back after the model was imported into Unreal Engine to change how the model looked based on the render, after I had a clearer idea of changes that needed to be made.

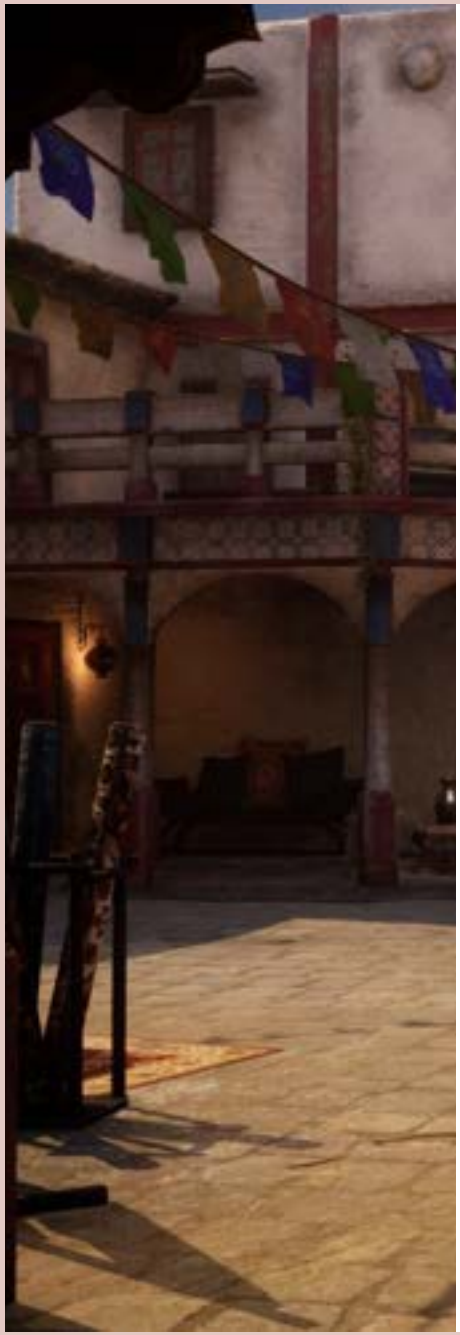
I found this quite challenging since it was my first time doing this process, but having reference both of real hair, and other game models, definitely made it easier. One problem I ran into at the end was rendering the hair to look smooth and natural, as I did not have a lot of knowledge on shaders, and plan to further develop this.



FINAL RENDERS - UNREAL ENGINE

https://www.artstation.com/artwork/aoxe6J

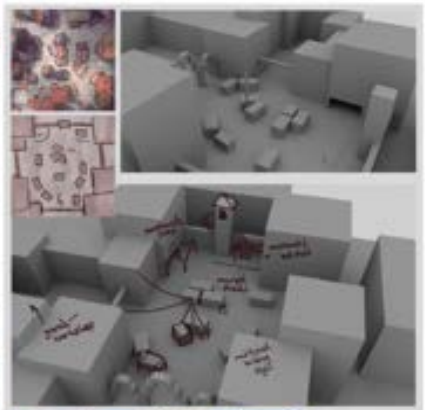
FINAL RENDERS - UNREAL ENGINE



PROJECT 2

AKUJI MARKET ENVIRONMENT

RESEARCH AND INSPIRATIONS

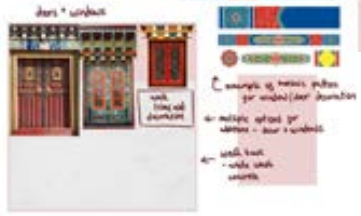


The Cultural, Architectural and Environmental inspirations for this project were taken from Tibet, so to bring the scene to life, I researched into each of these areas. The region's remoteness from its neighbouring cultures of China, India, and Nepal, means that local influences and its own distinct culture have been preserved for many years.
Tibetan Buddhism has held a strong influence over Tibetan Culture since its introduction, which brought arts and customs from India and China, including art, literature, and music.

Tibet's geographic and climatic conditions have encouraged pastoralism, as well as development of its own unique cuisine, which fulfills the needs of people living at higher altitudes. SInce this group project is not set in Tibet itself, but a futuristic town with the same inspirations, I will need to carefully balance the the original cultural traditions while still creating a unique and believable environment.

To keep my scene consistent in its themes, I dissected images of Tibetan towns and architecture, as well as similar styles, to work out what elements I would bring into my own work. I also worked alongside my team when concepting the world and landscape. The project being pitched to me with an initial idea already formed was especially helpful as it gave me a strong foundation and starting point, as well as a frame of reference for what works or doesn't work within the game world.

For this project, it was important to maintain a consistent art style throughout the environment, so I wanted to decide on specific artistic inspirations to use throughout. The main game I focused on was Horizon: Zero Dawn, and the town of Meridian. The game explores a diverse range of cultures and landscapes, each carefully crafted alongside their real world inspirations, to be unique and self contained. The inspiration for Meridian primarily comes from Indian, and eastern European cultures, blended and evolved to create a unique immersive visual.
My other point of inspiration was Assassin's Creed: Mirage, which has a different style of Iraqi architecture, and it's own presentation of culture based in the real historical world. I chose this game specifically for its strong cohesion throughout all of its environments.

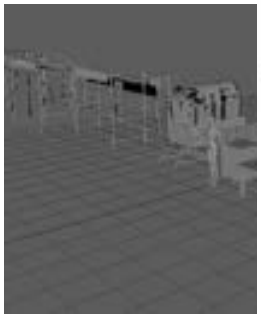


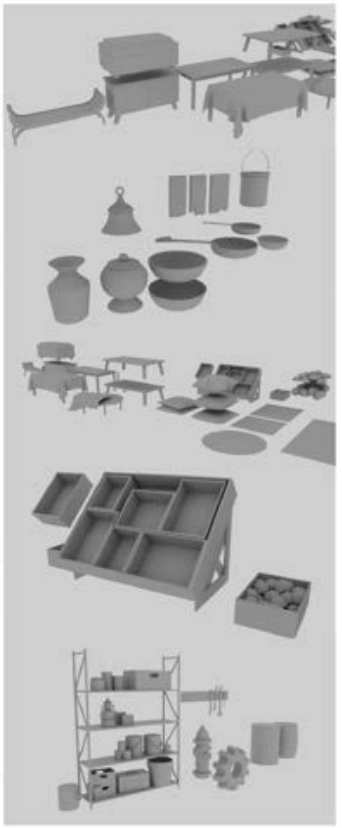
LOW POLY MODELLING

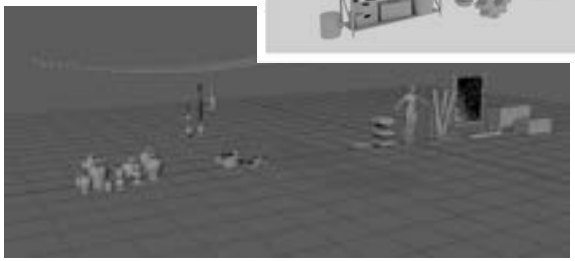
Progressing from my research and tests, I created an asset list using a spreadsheet, which meant I could track my progress over the whole project. I also used a gantt chart in the early stages to outline my entire project from start to finish. From my list, I began to sculpt low poly assets, which I could import into the scene to make small dioramas. This allowed me to assess the scale of my project, and make sure that the number of assets I had planned was feasible. While making assets, I frequently checked in with my team to make sure that it fit our shared vision for the project.

I also created a basic blockout, which I could then bring into UnrealEngine and add a player character, which meant I could get a better feel for the spacing of the scene. In this early stage I was still planning the layout and atmosphere, which these tests helped hugely.

Gantt chart

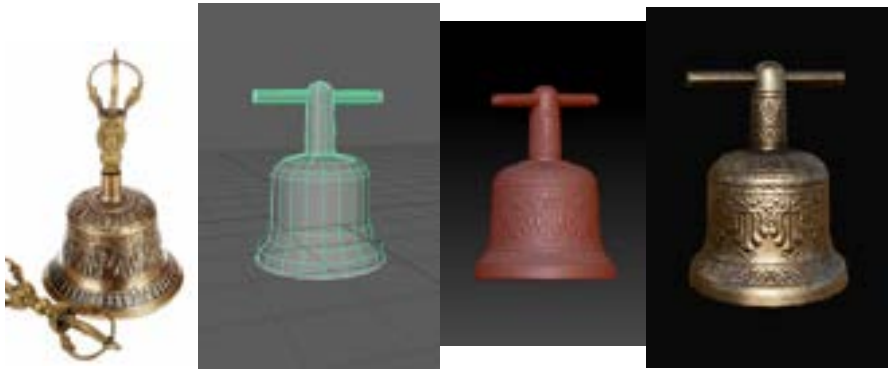






TEXTURING PT 1

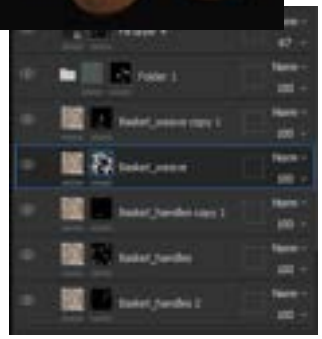
My process for each model was roughly the same; starting from my references, and making a low poly in Maya, which I could use to check scale and how it would fit in the scene before proceeding. I would then, where needed, sculpt a high poly in ZBrush, which was then baked and textured in Substance Painter. Since this process was familiar to me I was fairly confident in these stages.



When texturing, I sectioned my project into smaller categories, such as market stalls, the kitchen, architecture etc, so I could focus on one area at a time. I then worked on the textures for each type of asset at once, for example doing all the decorative pots at the same time, so the colours and patterns would be consistent across all of them. For many of the decorative elements, I made multiple texture sets, so I could reuse the assets in multiple scenarios. This saved me time and also helped to optimise my UnrealEngine file when putting my scene together.

Throughout my project I collected references for specific assets and scenery from real life, both for modelling and texturing, as well as putting the scene together. This helped a lot as I could visualise what it would look like when it came together, and adjust accordingly. I also checked each set of assets with my team as I went, to ensure they worked with the full project.

To get consistent textures across multiple assets I made use of layers, which I could use for multiple texture sets, but this also allowed me to make small changes easily at a later stage. Many of my textures had a first pass, which I checked in the Unreal scene and lighting, before adjusting colours and normal maps to perfect the look, and re-importing them. This meant I could add details only when I knew I was ready.

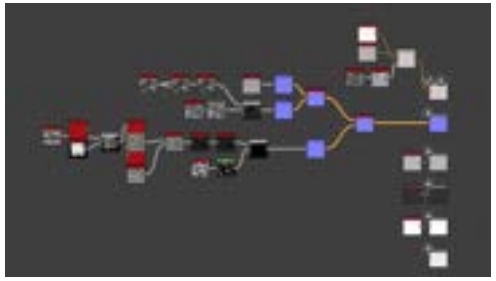


TEXTURING PT 2

SInce I wanted to make sure that all my patterns and textures were well detailed, I made use of an alpha bank. This meant that I could use the same pattern easily in multiple places and add consistency throughout the scene. I also used AI image generators to create the patterns on fabrics, for rugs, cushions, drapery etc. and for a lot of my posters. I found this to be very successful, once I had tried several different prompts to get the best output.

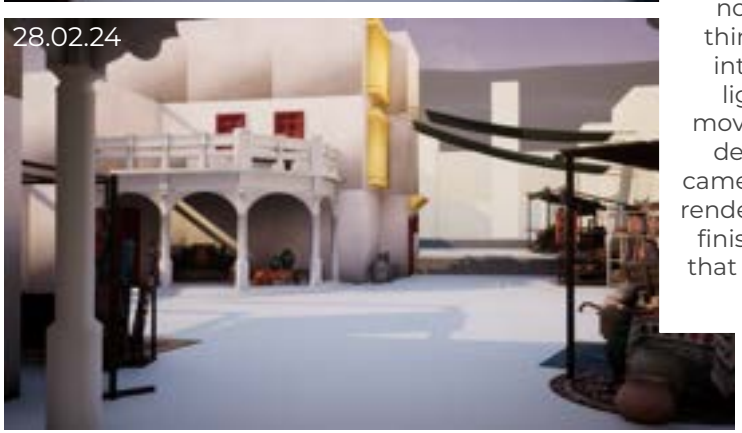
Once completing the textures for each group of assets, I brought them into UE5, where I made each set a material parameter from a base material. This way I could easily import and change the textures if something needed to be edited, as well as selecting which texture set I wanted to use. I also wanted to ensure that the textures across all assets worked well together and complement each other.

For my buildings, I wanted the whole scene to have similar imagery, so decided to make it from modular pieces. To speed up this process, I made a selection of materials that I could use on all of the assets. The dark wood could be used for all of the market woods, stalls, tables and carts, and the red wood for the doors and windows. The stucco was the base for all of the walls, and I planned to make a dirt and depth map that could be used throughout the scene. Some of the more detailed materials were a decorative tile that I could use in the kitchen, and the basket woven texture, which I made several versions of for different colours of baskets.
Every material was created in Substance Designer using nodes, and could be modified in Painter with levels and filters as needed. I was happy with all of my output materials and their versatility within the environment, though I found more complex or realistic designs to be quite difficult.



As I worked through building up the scene from my finished assets, I focused on one particular viewpoint, of the entry to the town. This made it easier for me to focus my efforts and attention on the finished product as I worked. As the scene developed, I moved several major set pieces around, as well as changing the camera angle and depth of field to change the overall shapes of the scene. I also built a basic lighting setup, to experiment with the main directional and sky light, which I planned to further develop later.
Since I had not build the full environment in Maya, this stage involved a lot of trial and error, helped by external feedback.
For the buildings and floor I used my pre-made materials, and also experimented with floor textures and decals, to perfect the final look.

At this stage I also was seeking feedback from my team, and making note to edit as I progressed. Such things as; adding more texture and interest to the floor, changing the lighting to be warmer, as well as moving some elements to add to the depth of the scene. Changing the camera settings in preparation for final renders also allowed me to visualise the finished scene. I also grouped assets that I was happy with to make editing larger changes easier overall.

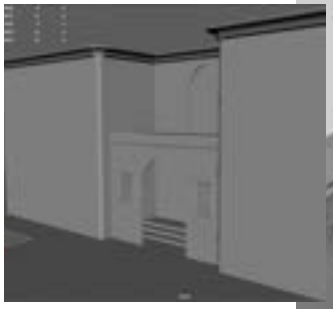


BUILDINGS REWORK

I had initially decided to work on the architecture as modular pieces, however I was unhappy with how these blended together within the environment, as they did not look natural. Because of this I decided to pivot my plan and, after further research, construct each building individually to fit specific needs within the town, with the modular pieces filling the gaps. I found this was how the environment was built in Assassin's Creed: Mirage, one of my earlier style influences. I could also use the modular pieces which had already been placed to work out exactly the scale that I needed for these buildings, as well as elements like doors and windows on my new buildings, as they had already been modelled.

Going further, I aimed to create unique buildings but with similar elements and colours. I also retained use of my premade textures; the stucco and flooring, which could be used throughout.

While I knew this would set me back a little close to the deadline, after testing one building and confirming with my team, I made the decision that it would mean a significant improvement to the overall look of the environment.



To keep all of my new buildings consistent, I used the same colours and brushes on almost every asset, starting with the base of my stucco material. I then hand painted dirt layers, some with height maps to add the natural damage to edges and around any extra features, as well as Smart Masks to add details in crevices. I also the normal map from a brick material to make it appear as if some areas had been painted or plastered over a brick building. I frequently referenced my earlier research into architecture and building materials as I went along.

Adding interest to my scene, I added more layers of rock and stone, to give the look of more intense damage to old buildings, as well as painted details. This also broke up the visuals of the environment, making sure that all of the buildings did not look identical.

Brick by Tylan Smith

It was at this stage I realised I had and issue with the shading on some of my assets, where when the texture was applied, the shader settings meant that some hard edges were smoothed out. To combat this I had to re-import some of my assets, and make sure that the normals were not recomputed from Maya. I did find that the automatic smoothing was helpful in the case of round objects, such as pots, so those were left as the original mesh.

EFFECTS

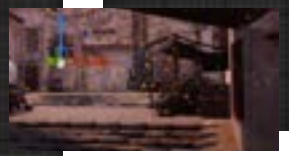
On some assets, specifically the Lanterns and many of the material canopies, I added an opacity mask within the material, to allow light to pass through. This gave the fabrics a more realistic look, and allowed me to add light details by putting point lights within any lanterns, which would cast shadows and light shapes on walls nearby.





To make my the lights in my scene flicker like candles, I used a material to control how much and often the lights flickered, and then could plugged it into the Light Function Material. Having multiple materials allowed me to change the values for different kinds or light.





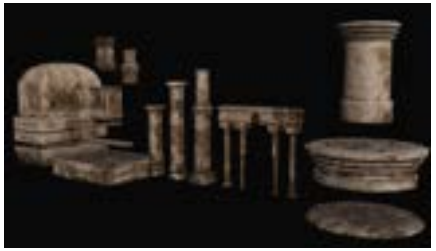
I also wanted a light dust hanging in the air, so I used the Niagara systems 'hanging particulates', so I was able to change the size, shape, and colour of the dust, as well as controlling how it moved. I added a light wind direction to match the direction of the wind in my flags, so it was consistent throughout the environment.

For the bunting throughout my marketplace, I made a base mesh in Maya, and attached a simple rig, which allowed me to add a physics asset when imported to Unreal. I then used a cloth simulator on each piece of 'material', and added a wind generator for the movement. I decided to leave the rope as static, and a seperate, so it would not move the same way as fabric, which also meant that I could use it as an anchor point to stop the fabric pieces from falling, as they remained static along the top row of faces.



SELECTION SCREEN

In addition to my own environment I also textured some assets for our selection screen. I used multiple layers of different materials and height maps to achieve the look of the layers of rock and building falling away or being damaged. I also used my previously made assets as reference to make sure the style was consistent throughout the game. I also made several versions of these textures based on the decisions of my team, as the originals did not fit the desert setting as well.

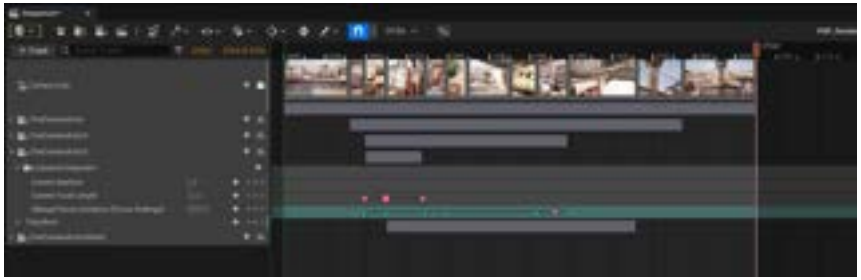
ASSEMBLY AND LIGHTING

To light my scene, I changed the directional light and sky to a peach tone, which gave the effect of warm afternoon light. My sky light was also set yellow to offset the default blue and give more neutral shadows. I used point lights where artificial light, such as lanterns and oven fires, would be, and a small number of low-intensity rectangle lights to brighten areas of detail, such as the table. I lit these smaller sections from the final render viewpoint so I could focus on the more specific shots and angles.

Before rendering my final images, I also used the Unreal settings to check the scene with flat and detail lighting, and colours without lighting. This allowed me to evaluate the lighting balance of shadows and highlights, and the colour balance of warm and cool tones.

I also used megascan assets from the Quixel Bridge for my vegetation and the mountain backdrop facade for my cinematic, as well as sculpting the landscape underneath. The vegetation is something I would like to continue to develop, as well as making my own plants in the future.

To make my cinematic, I used the UnrealEngine Cine Cameras, and a sequencer to keyframe my shots. I tried to make sure that the framing of each capture flowed into each other, in both imagery and camera movement. This made sure that the cuts between were visually smooth. Before exporting and editing the full reel, I made a low resolution version which I checked with my team and tutors to make any small final changes. The only problem I had during this process that I was unable to fix due to time, was that some of my particles and cloth effects did not render as moving properly.



My team also collaborated with sound artists to create a soundtrack that fit the environment themes. Two versions were created, one with crowd noise and one without, which I used as there were not yet any characters in the scene.

After rendering the footage, I used a video editor to adjust the clips further, and make sure it perfectly fit the music timing, as well as adding effects like the fade in and out of the sound and visuals. I could also further colour grade the footage as needed.

FINAL RENDERS - UNREAL ENGINE

https://www.artstation.com/artwork/obNamm

https://youtu.be/B_ZjWLeKdi4

Music by Richard Carter and Simone Marchiafava

FINAL RENDERS - UNREAL ENGINE

CRITICAL APPRAISAL

I was very proud of my Character project; I feel that I learned a lot, and got to experiment with techniques that I hadn't used before. Creating clothing in Marvelous Designer, retopologising in Maya, making hair cards, and using Substance Designer were all new skills that I learned for this character. I was also able to develop on my existing skills; modelling, texturing and rigging, which allowed me to create my best work as far as body sculpting and detail. I also learned a lot about how models are made specifically for games.

I was very pleased with how I managed to capture the style that I was going for, and how the initial design translated to my model. I found the pre-production research into mythology and imagery, and further development of the character to be interesting, and having a strong research baseline and references enabled me to work a lot more efficiently overall. I definitely found it helpful having the input of both my classmates, tutors and friends. The colour scheme, shapes, and textures I think worked well together, and helped to portray the dark tone of the character.

While my technical skills definitely improved, there was a few areas I would like to continue working on, and things I would have liked to have done with more time. Retopologising the shirt and trousers completely was one of these areas, which would have helped both with the shaping of the low poly and the optimisation of the model, as well as decreasing the number of polygons in the cloak, or changing the shape so that the low poly could be simulated as fabric. One issue I had, that I would have liked to fix was the shaping of the cloak, and how it baked onto the low poly - trying to catch both sides of the shape while still keeping the poly count in check was something I found difficult, and would like to research more. To develop further I would like to expand my knowledge on shaders and lighting to give a perfect finish to my final renders, specifically in the area of hair shaders, and rendering hair cards to look realistic.

Altogether I found the project both enjoyable and valuable in helping me to improve my skills and understanding of the entire process of creating characters for games, which I hope to translate and expand on for further projects.

I was also pleased with the outcome of my environment project, though I would like to continue to work on it. Because of the scale of my project, I had to develop an efficient pipeline for all of my assets, which I think I did successfully, and I found I could rely on my already existing skills in modelling and texturing. I felt myself getting more confident in these as the project went on, and getting to work more in Unreal Engine also allowed me to broaden my skills especially in effects such as the cloth simulation, and the workflow that goes into putting environments together.

This project also allowed me to develop collaborative skills, through working towards a wider project where the themes and style has to be cohesive. I found that having feedback from my team and tutors as I went was especially helpful, as it helped me to pinpoint what areas to focus on. I felt that myself and my team communicated very effectively. I also was very pleased with how my references to both real life and other games influenced my overall outcome. I found working on two projects at once to be challenging, and pushed me to manage my time carefully, but on the other hand I think having a break part way to work on a different concept helped me to come back to my environment with fresh eyes.

I would have liked to have developed my concept more at the start of the project, which may have sped up the time I spent moving larger elements and framing my final renders in Unreal. I think I slightly overestimated how much could be done in the time, causing me to have to cut back on the quantity of assets, and more detailed areas that could be added to my environment. The main area I struggled with was making the scene full enough to feel real. I think having more small props and vegetation to fill out some areas may help with this, which I would like to work on going forward. The addition of characters, as it would have in a finished game, would also help in the long run. Having to make most of my larger buildings again after not being contend with the modular workflow outcome also meant that some time was lost in the remake, though I was far more pleased with the outcome.

Overall I was happy with my environment, and would like to continue to develop it in order to perfect it for my portfolio.

CRITICAL APPRAISAL

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