Principles of 3D Computer Animation

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This is a render of a lighting test with the bloodied chopped up hands in the fridge

Summer Project

https://myonlineportfolio.myblog.arts.ac.uk/2023/09/24/summer-project-3d/

Three-dimensional art

I chose the statue ‘la deliverance’ because I love the symbolism of it. As a child I would see the statue and was always incredibly fascinated by it. I thought that the woman perceived in the statue looked very heroic and I loved the fact that she seemed to be praying to whatever was in the heavens, and the way she was posed on her tiptoes.

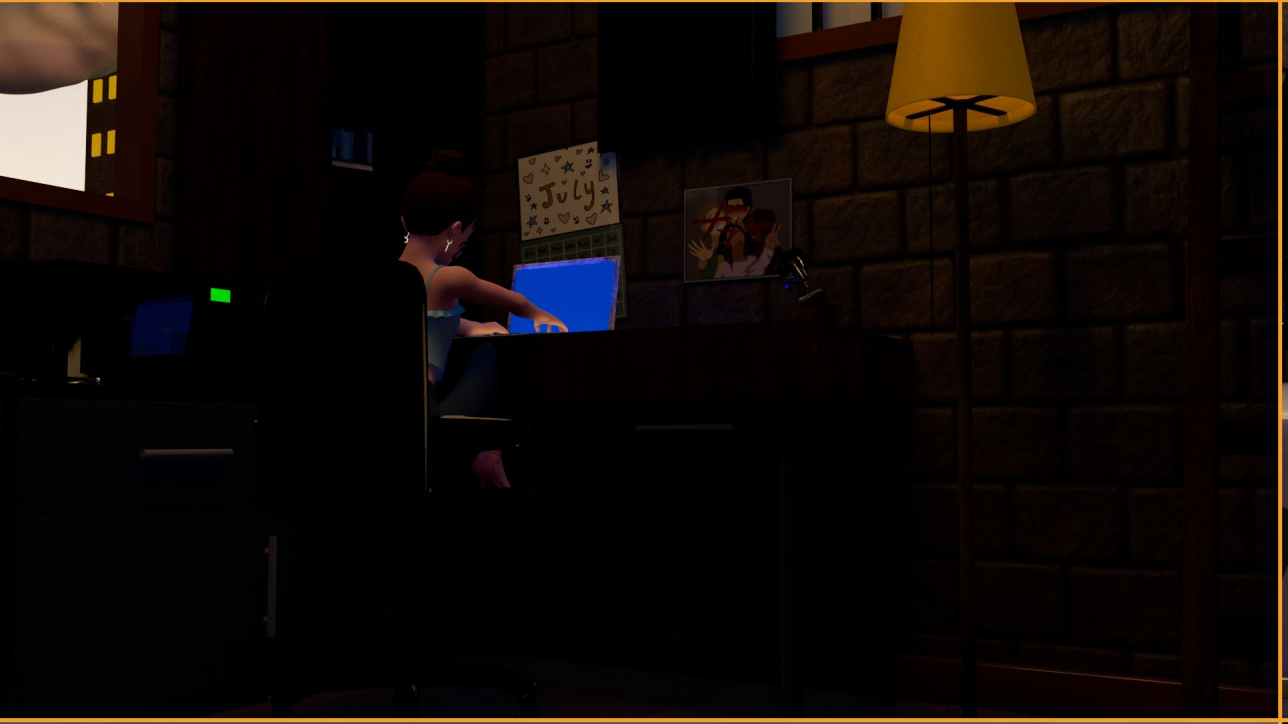
I used the concept of this statue as an inspiration for my forgotten objects project, as I loved the way the statue contrasted between the busy roads around it, and the way it seemed to be an object stuck in time, unmoving, and certain.

Forgotten Objects

Whilst researching triptychs I came across a few, where the paintings were both intertwined and telling a story by intertwining and sticking over each other. This is where I got the idea to have it partially stick over the separate pictures, as well as to have each image have a slightly separate style and colour.

I wanted to tell a story of the contrast between the ethereal and beautiful sword and natures scenery with stars and clouds and the rotting dead corpse lying beside it, taking up half of the page. I specifically made it stick above the pictures so the audience can't ignore it, as it is a part of nature. Death is beautiful and uncontrollable is the message this triptych is bringing across.

One of my favourite ways of storytelling, is using imagery and contrast to tell a tale without saying it outwrite, and this is what I tried to incorporate in my three sides animation.



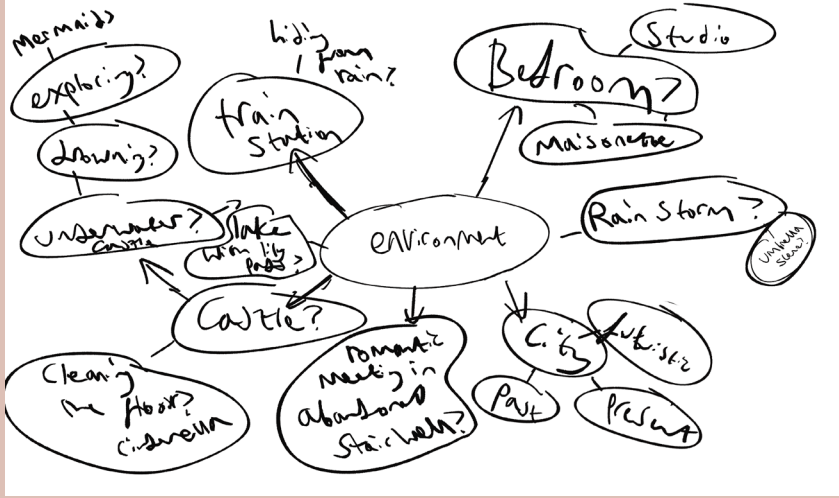
3 Sides Project

https://myonlineportfolio.myblog.arts.ac.uk/category/shellys-portfolio-2/3d-computer-animation/

BRAINSTORMING IDEAS

I had 3 different ideas. The overall concept being that I wanted to go with something a little gory/unsettling, but with a cute and comforting vibe, like the aesthetic videos of inspirations people show on the internet, where you can see its very fake. Something that tricks the viewer into some false comfort and then grabs their attention. I started brainstorming the setting for my animation.

The brainstorming map I wrote when looking for ideas



1) bedroom maisonette, studio? Depression room? Nighttime – killer hiding behind the curtain with a knife ?
1) City in the storm stairwell?? Cyberpunk futurism – romantic meeting gone wrong?
1) Pond in the forest, lily pads Mermaids in the water, talking to a little boy about to drag him in?

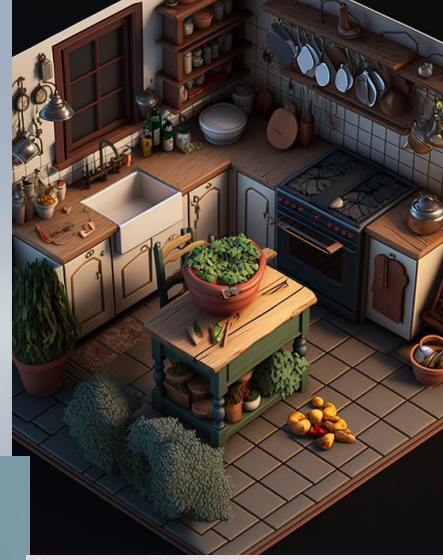
The main thing that I loved about the brief was the 3 sides concept – that you think a scene is going one way until faced with the truth – one of the puzzle pieces were missing all along, and you were blind to the truth of the matter. People are very quick to jump to conclusions, so the scene that I chose had to be one where I could show the storyline very clearly, and something that I would be capable of doing.
Because of this I chose the bedroom scene. I changed a lot of the storyline from what I originally had planned, to make it more coherent. After speaking to Sam about my idea, he helped me work on it so in could show the storyline in a way the audience could comprehend it.

My favourite idea from the settings I brainstormed on that I would love to tackle in the future would be the mermaid and pond setting. It's something I would have loved to work on, but I was a little scared to tackle it as I had never tried water physics before and was not sure I would have been able to complete it on time. This is a project I will hopefully be working on in my own time, as I think that the plot twist, while a little cliché, is a great idea, and would be great to try out in order to focus and enhance my 3D animation skills.

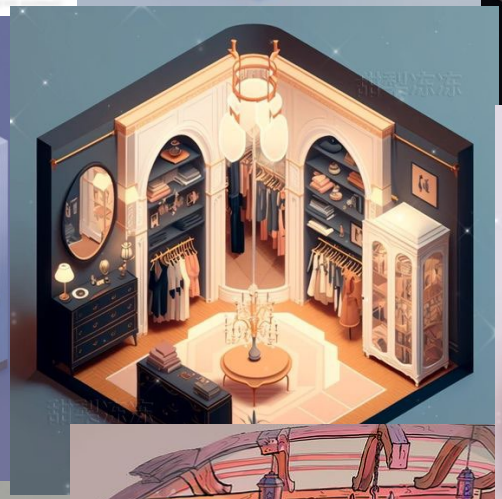
MOOD BOARD:







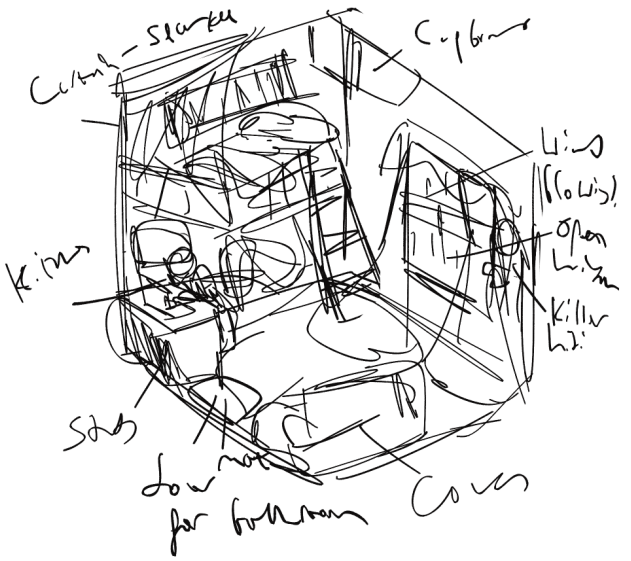





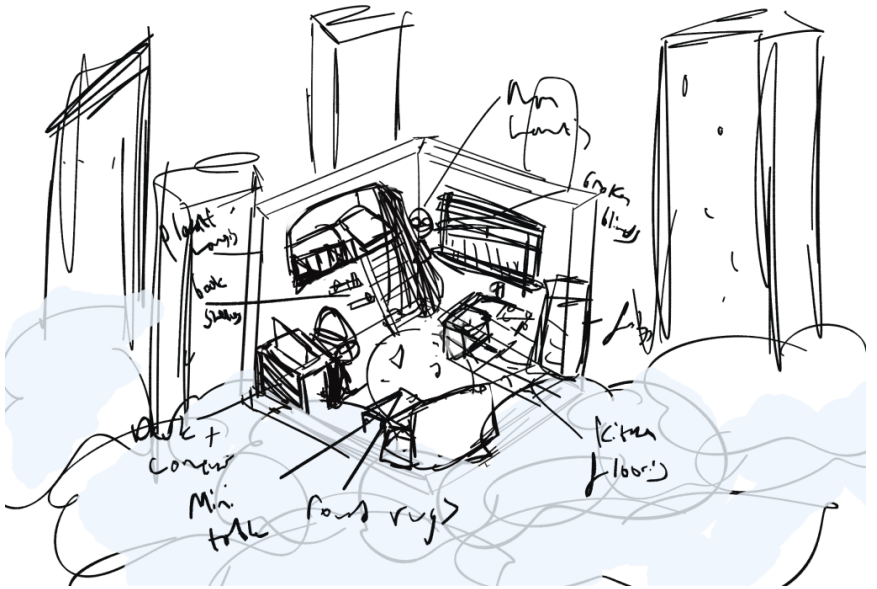

ROUGH AND FINAL SKETCHES

I started out with a few different set ups of how I wanted the studio to look like. I knew I had to consider the camera angles, and the 90-degree rule.

I settled on this set up, as it allowed me to move the camera from right to left, so that I wouldn't give too much about the storyline away, and that it would allow for the element of surprise.



For the final artwork of the setting I went for a more fustic and calm feeling, implementing some ideas I was inspired by from the artworks I added to my mood board.

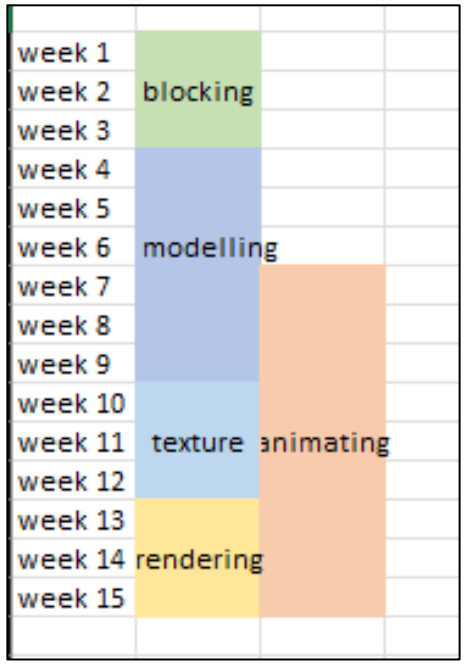


PLANNING:

ASSETS:

number	asset type	amount	textured
1	bookshelf	1	yes
2	desk	1	yes
3	handles	8	yes
4	chair	1	yes
5	chair handles	2	yes
6	wheels	4	yes
7	clock	1	yes
8	clouds	1 lot	yes
9	buildings	4	yes
10	fence metal	1	yes
11	ladder	1	yes
12	blanket	1	yes
13	pillows	4	yes
14	knife	2	yes
15	towel	2	yes
16	paintings	9	yes
17	couch	1	yes
18	books	1 x 35	yes
19	glass for windows	3	yes
20	far away windows	106	yes
21	light bulb	1	yes
22	swirl in bulb	1	yes
23	metal stand	1	yes
24	lamp shade	1	yes
25	laptop	1	yes
26	microwave	1	yes
27	fridge door	2	yes
28	fridge	1	yes
29	plant pot	1	yes
30	plant	1	yes
31	curtains	5	yes
32	curtain poles	3	yes
33	severed arm	2	yes
34	hand	1	yes
35	door	2	yes
36	door Handles	2	yes
37	block in between walls	3	yes
38	shelf	1	yes
39	mini lamp	1	yes
40	rug	1	yes
41	model	1	yes
42	ghost sheets	2	yes
43	skeletons for ghosts	2	yes
44	magnets for fridge	3	yes
45	skydome light	1	yes
46	area light	3	yes

TIMELINE:



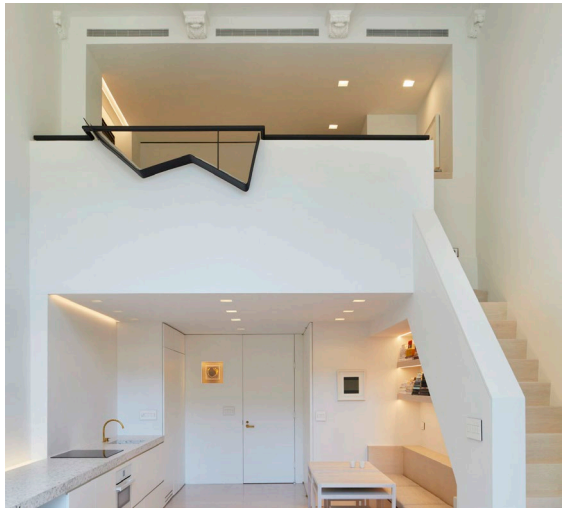
I tried to simplify things as much as possible – and planned to get as much of it done ASAP so I would not be rushing to finish things on time – as I have done in the past. While I ended up having my blocking, modelling, and texturing done on schedule - the animating and rendering proved to be more of an issue.

I had a lot of assets that needed creating. I love adding little details, so it was not a problem – but some, such as the pillows and clouds, I downloaded from online, as they were more background assets, so I didn't want to spend a lot of time working on them. If I would start over, I would choose to challenge myself a bit more and spend time on trying to make every single asset, so that I could enhance my skill sets.

RESEARCH:

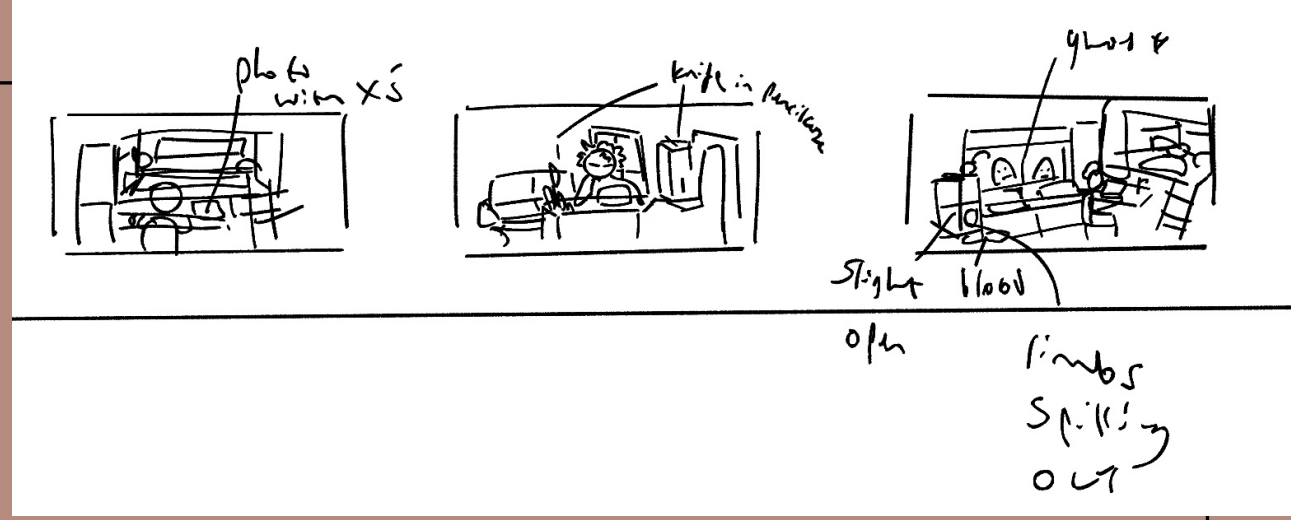
I did some research on camera angles, shot scenes, life drawing to draw realistic models and positionings, and house types – to which I figured out that the house type I was trying to model was called a maisonette.

Examples of maisonettes. (A house with an open plan second floor)

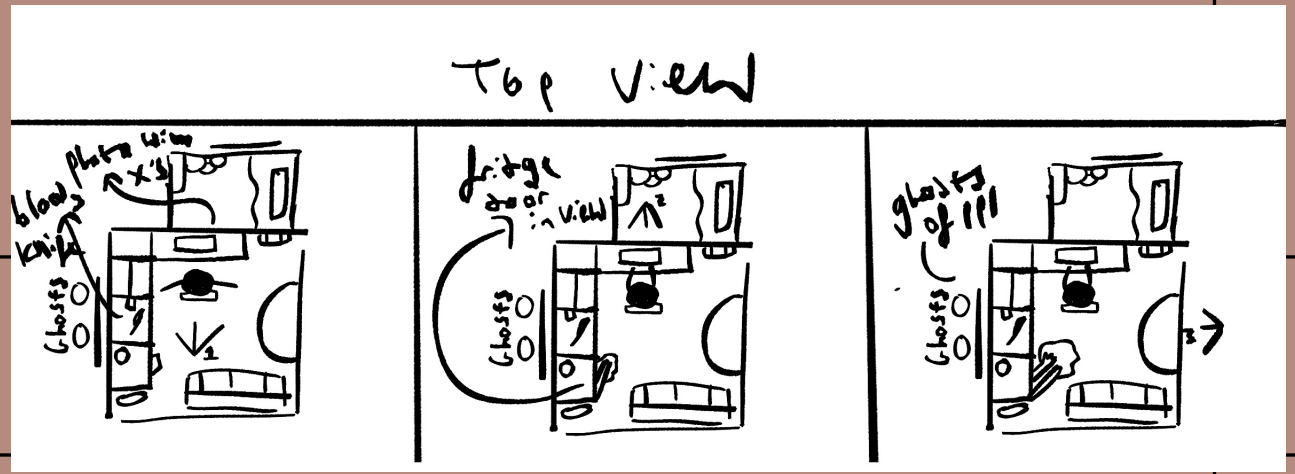


STORYBOARDS

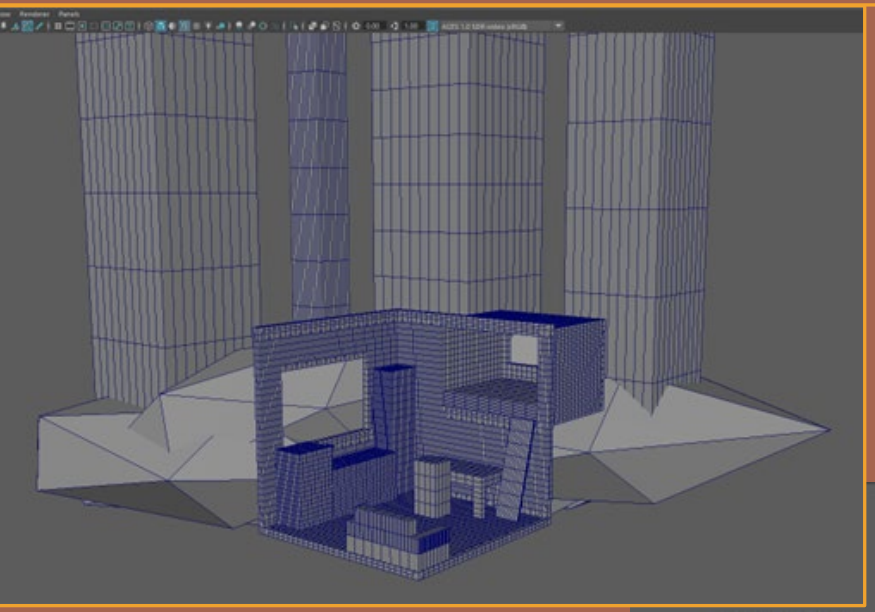
When it came to the storyboarding, I knew I would only need to create storyboards for two of my shots, as the animation in the second shot would be a simulation. I acted out the scene myself, on a wheely chair by a desk so I would get an idea of how to move the mode, and then I created a basic storyboard to look at as I animated. For the fridge scene, I drew a small change for the positioning of the hand in the blood for the particle simulation.

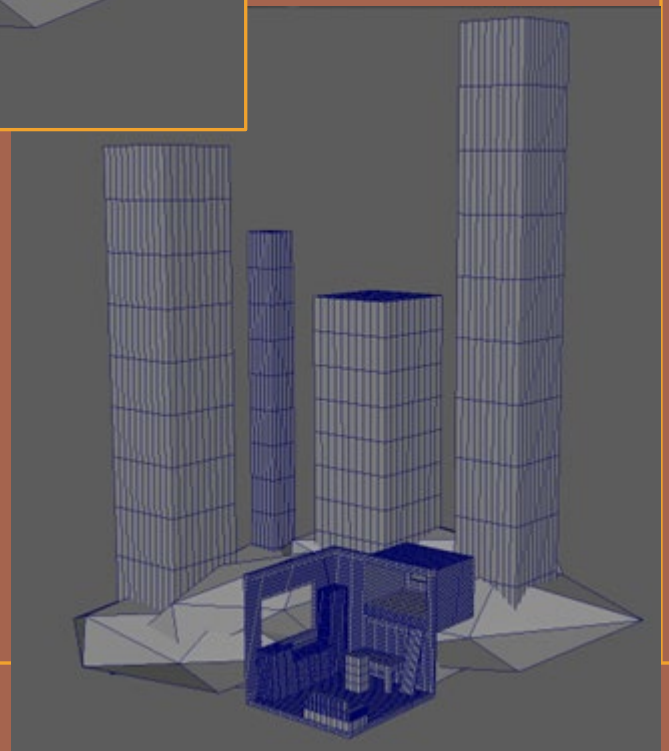


I started by planning out the camera angles I wanted to encapsulate, and then by drawing the scene from a top view so I could get an idea of where to place the cameras. While this gave me an overall idea, I did end up changing the second camera as it didn't flow very nicely, and I wanted to have a believable transition from one camera to the next in a way that the audience viewing this animation could understand the story easily.



Blocking out the environment



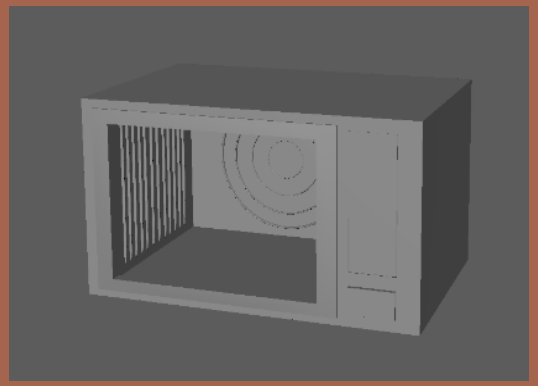


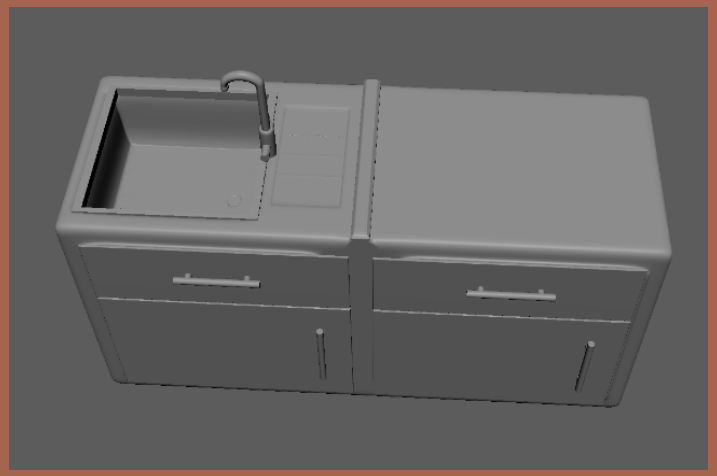
My blocking scenes – a closeup and an overall setting example.

Blocking was very useful as it showed me what would and would not make sense in the scene. It also allowed me to see if I should add new objects to make the scene warmer and more homely, for example, I had originally not planned for a rug, or for all four walls, and decorations, such as a plant pot, or a painting. Planning the scene out helped me see if it was coherent.

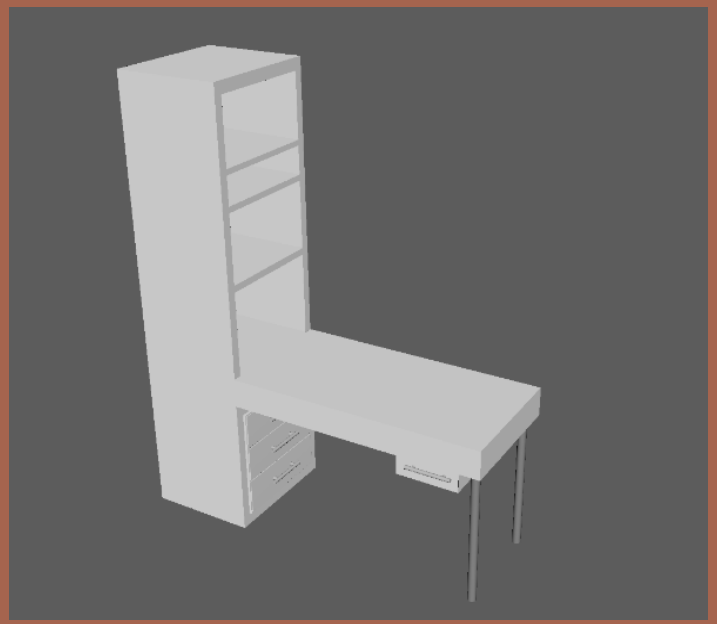
I struggled a lot with not rushing to immediately model everything, as I was a bit overexcited to start with. After I had done the base blocking, I asked some of my peers, as well as Sam, my tutor, if I should change or add anything. I knew that this was very necessary as sometimes when you're focusing on a specific task you can be blinded to some faults. By getting a fresh perspective I was able to accept criticism and change what I could according to what would make the most sense to the audience.

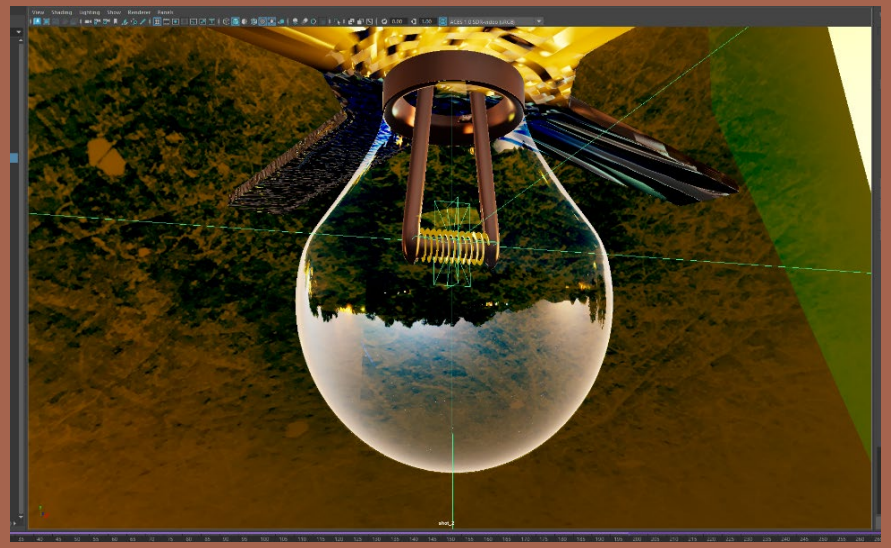
Modelling



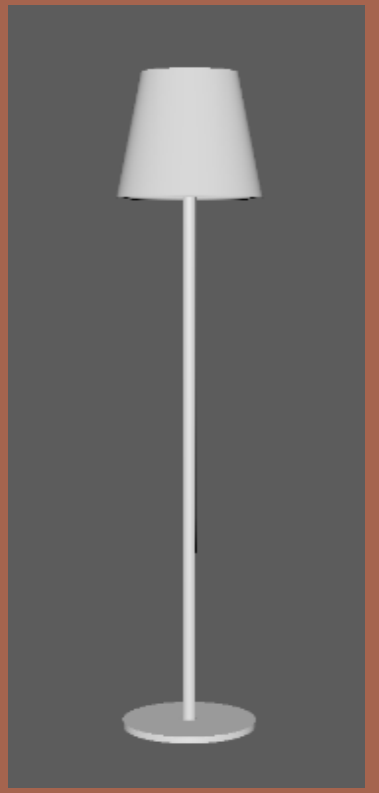


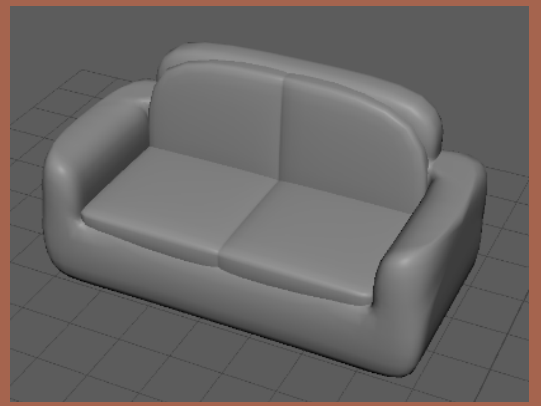
The pictures are some examples of the models I created. Modeling was my favorite aspect of this unit. I loved creating little details to put inside my animation, such as the detail on the microwave, and the sink. Out of all these models the cupboard was the most difficult, as I didn't want the mesh to be too complicate. I ended up recreating it three times in order to get it exactly how I wanted it to be.





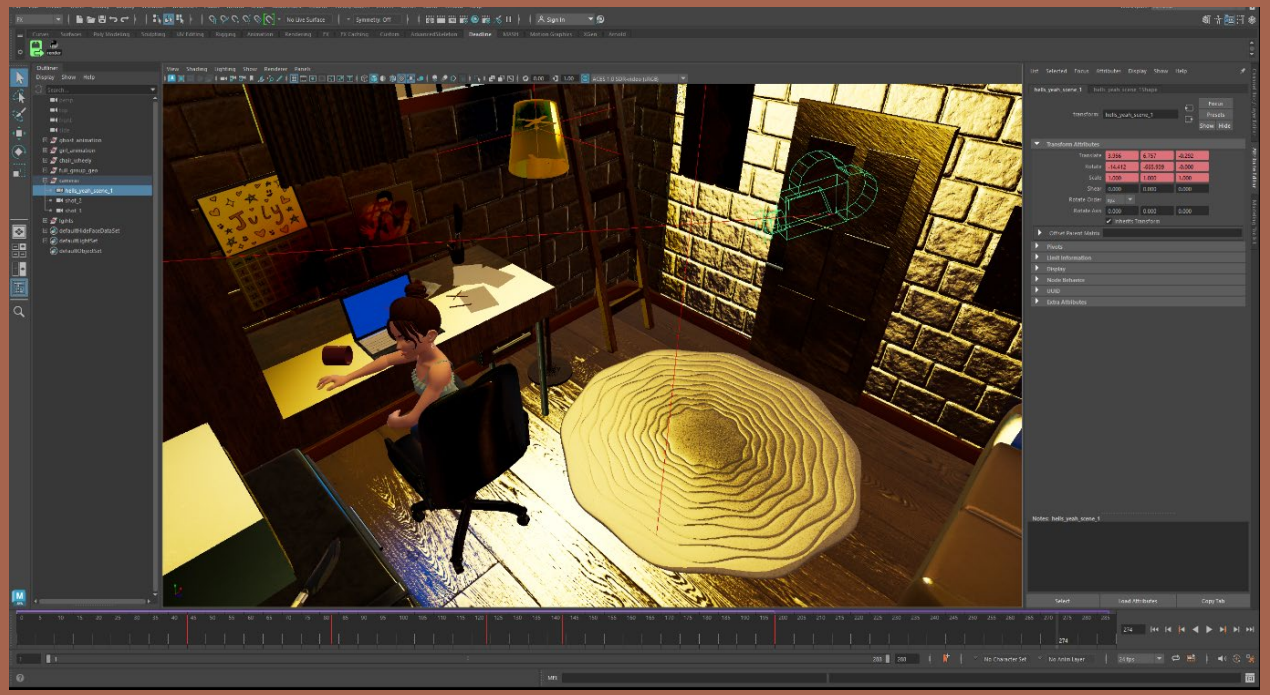
My favorite object to model was the lamp. I loved creating tiny details such as the light bulbs and the mechanics of inside of it. While the lamp itself was quite plain, I textured it to allow the light inside it to shine through. If I could work on it further, I would have tried to add some details to make the lamp more interesting on the outside, as well as the inside.





Modelling the couch was quite difficult. When I would smooth out the mesh it wasn't working as I wanted it to. I had to redo it a few times to get the mesh right, and I had to add a few more shapes to create the couch pillows, and the base for it to stand on. Now that I've honed most of my modeling skills, if I would remake it, I would add more detail and make it a lot more unique.

Cameras



An example of one of the cameras I created.

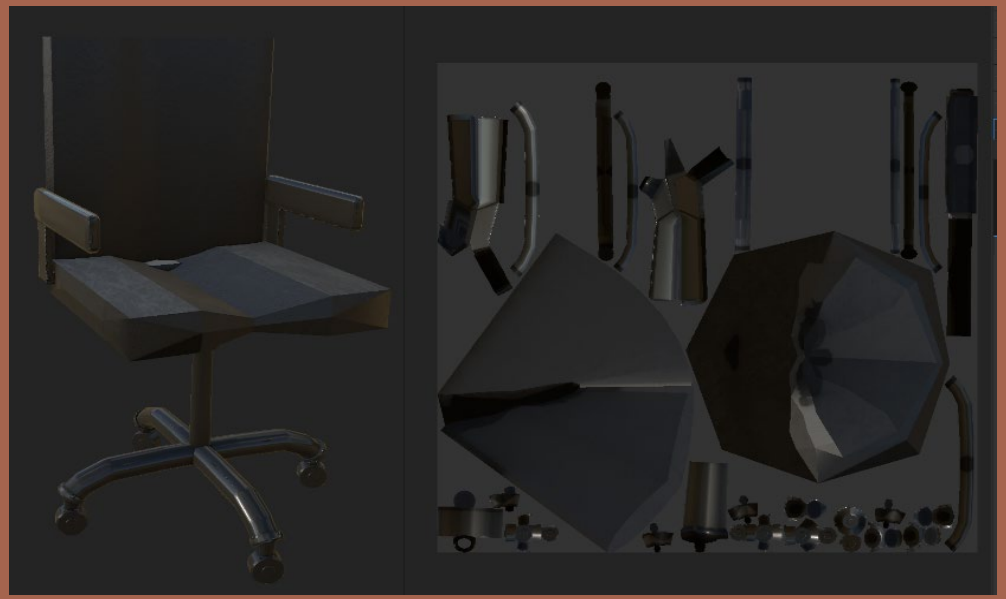
I struggled a lot with the camera positions. One of the classes we had were discussing cameras and I could not understand the idea of which cameras were which and how they worked on emitting a certain emotion.

I decided to go with a slow zoom for all the shots in order to give off the atmosphere of suspension and mystery.

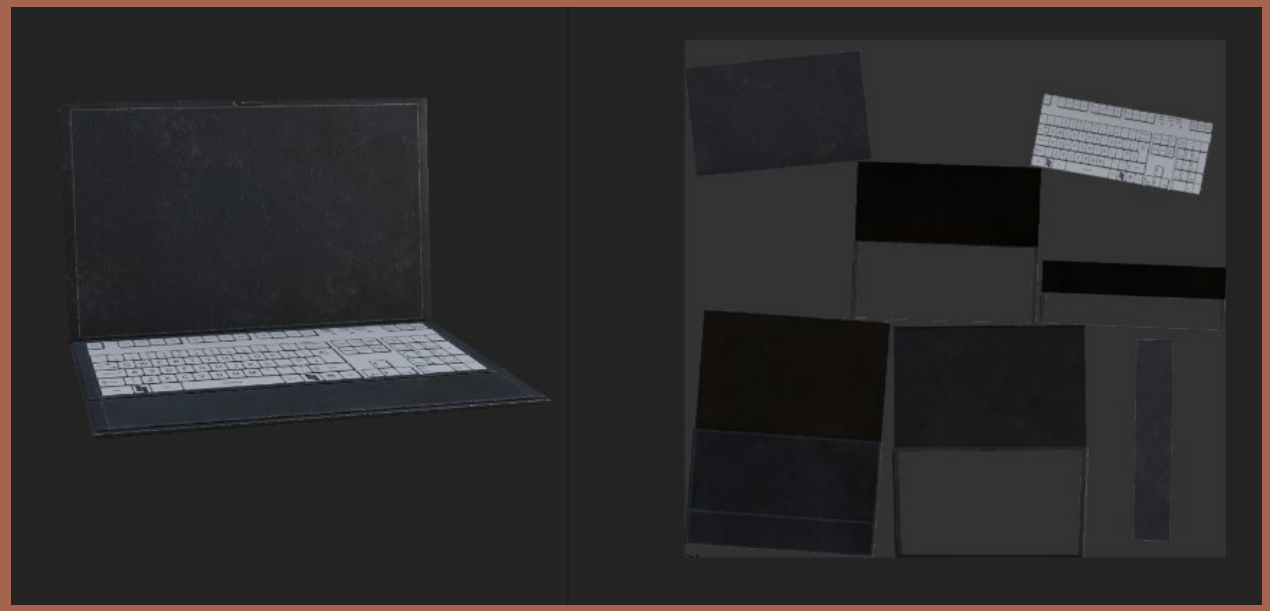
I almost went with a slow zoom and 270-degree turn for the first camera but decided not to as it felt too out of place with the other cameras.

Texturing

Texturing took some time, but it was a task I really enjoyed. I was very proud of how the bloodied knife turned out. Once I sorted out the UV maps it was very straightforward. I downloaded a PNG of blood dripping and added it to the knife to give the illusion that it was a murder weapon.



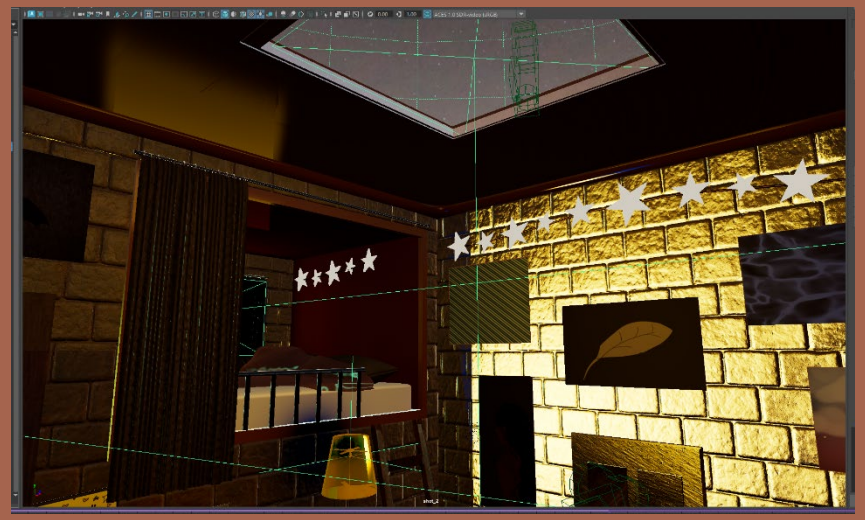
I disliked that when I would export my models to substance painter, they wouldn't be smoothed out, so I had to redo a few textures, including this one, so that it would appear coherent once fully rendered.



When texturing the laptop, I wanted to give off the impression that it was well used – I created the outline and then mixed a few premade textures in substance painter to get the texture up to how I imagined. I downloaded a PNG of a keyboard and uploaded it on the UV map for the keypad, so that it would look realistic. For the lights I just used some color emitters in maya.

One of my criticisms of the outcome of my textures is that I I should have added more detail on making it a murder scene. If I would add anything it would be more blood splatters – for example, on the floors, and surfaces.

Lighting



Lighting took a lot of time, and involved me even creating new models, such as lamps, to make the scene a little bit brighter in a way that would make logical sense.

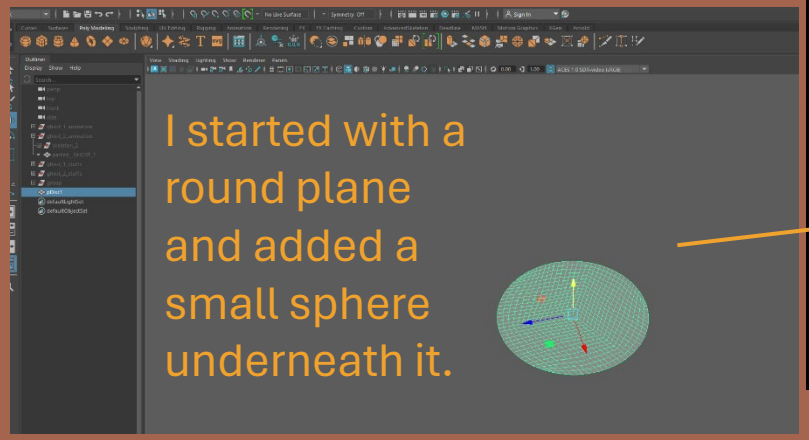
When I first added all my lights and was satisfied with the result, I pressed render and found that all the lighting I added was not showing up in the render, resulting in a very dim scene – the opposite of what I wanted. Eventually after speaking to some of my peers, we realized that the problem wasn't with the lighting, it was that the cameras exposure was on 0 and therefore they weren't letting any light in. I fixed the problem and was happy with the render

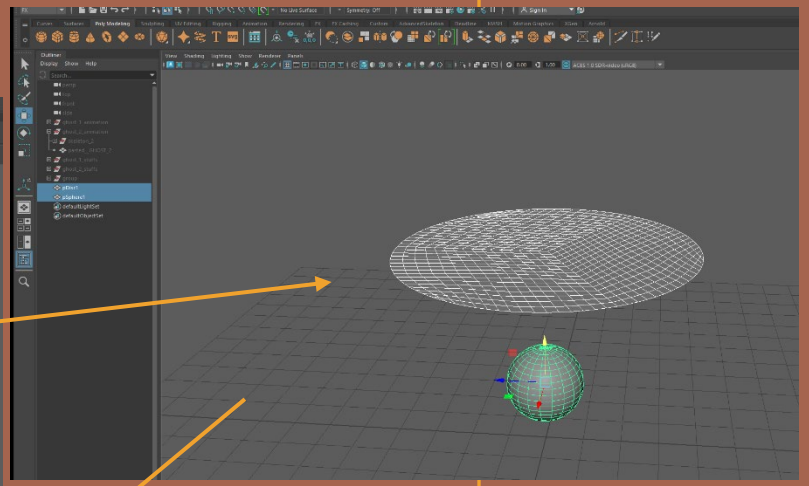
If I would change anything about the result, I would have spent more time on the lighting to get it to an even better place. I'm not completely happy with the outcome and will spend more time in the future tweaking it to get it to the place I want it to.

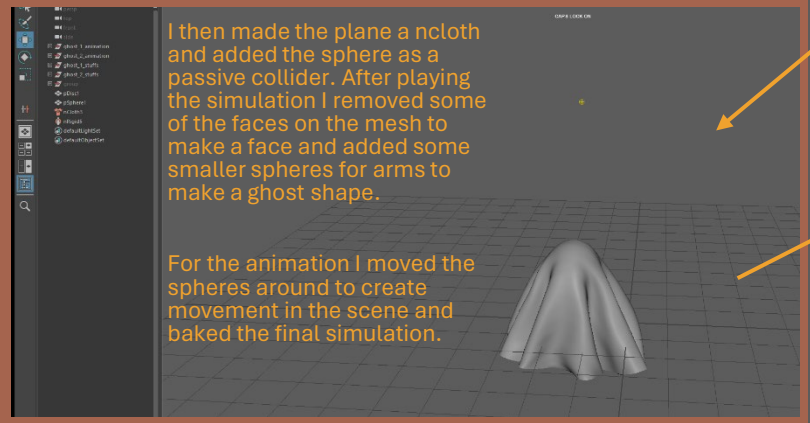
Animation

This is an example of an animation that I had to create a simulation for, and here I am showing how I achieved the result.

I went with 3 separate animations for my 3 different shots, so that I could work on enhancing my animation skills. The first was animating a rig of a human being, the second was a cloth simulation, and the third was a liquid particle simulation.







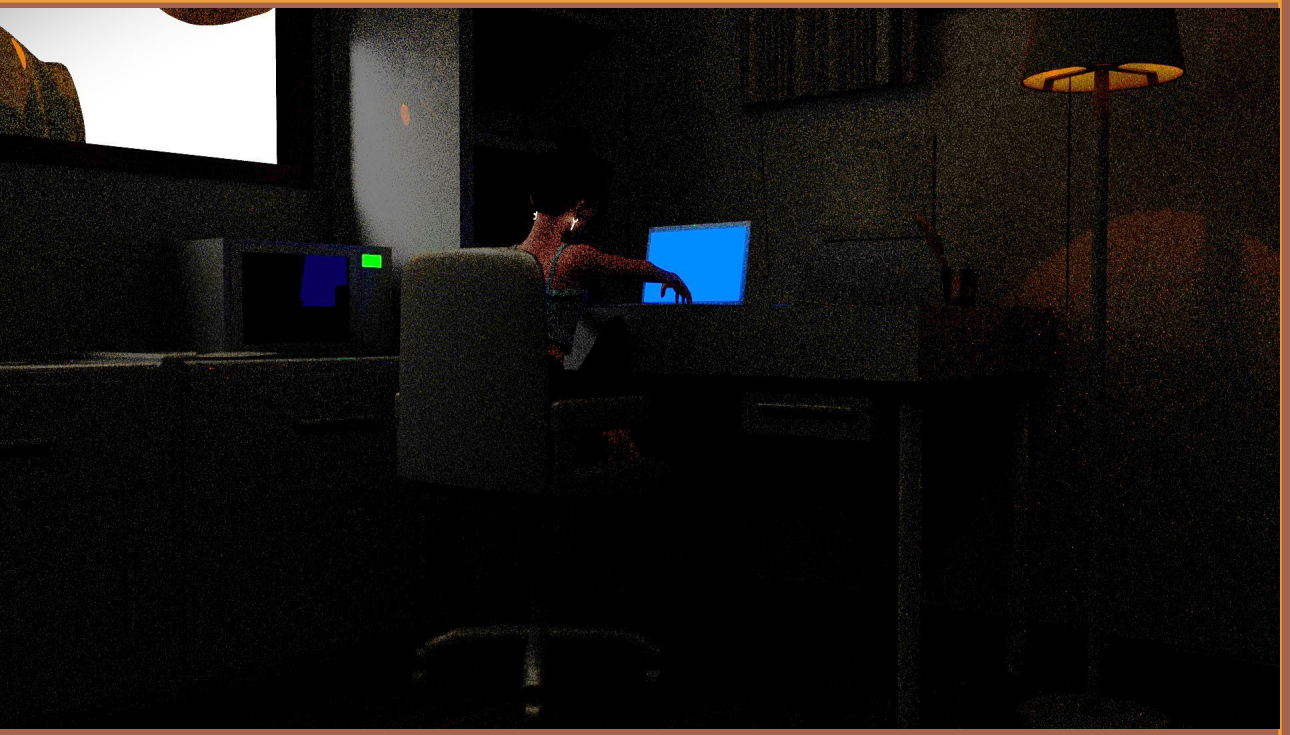
Shot 1) Animating the rig was fairly straightforward. If I would change anything about the final outcome, I would have spent more time on it so that I could make it more natural;, as it came out quite unnatural. As this animation wasn't the focus of my full scene, I was ok with that, but I would still like to work on it in the future.

Shot 2) this was the cloth simulation (as pictured left) in order to create it I watched a few YouTube videos to research how cloth simulations worked. I had already had some practice previously while creating a cloth simulation for my curtains in the scene, but as I was both animating a simulation and making the cloth work according to the ghost 'skeletons' aka the spheres for the hands and head, so it was a little more complicated, and involved me changing the mesh count a few times to find that balance of quick rendering time and good quality.

Shot 3) I looked up videos on both particle simulations, and how to use Bifrost liquids. I decided on using a particle simulation for animating the liquid scene. I practiced a particle simulation and then put it into play by modifying the particles into polygons. I then re-meshed the polygons until it flowed like a liquid would.

Thinking critically, I would have liked to work more on Bifrost, and would have maybe liked to add some rain in the background to set the scene. This is something that I would love to work on and add to the animation when I get the chance

Rendering



A practice render with a few of the textures that had not been corrupted

Rendering was the most stressful. My render kept on aborting early with no reason as to why, but with a lot of research I managed to figure out that my file names were too long, and it couldn't find them. In the end, I had to change the file names to fully render my scenes.

For future projects I will try to stay more organized, as my problem would have been fixed easily if I had been organized with my files to start with.

I wanted to give my render a grainy effect, rather than a clear shot, as I wanted the atmosphere for the audience to be slightly uneasy, and slightly uncanny. I feel that I achieved this result.

If I would change anything I would work on making the scene a little brighter than it ended up being, and slightly more of the aesthetic vibe I wanted to go for.

THANK YOU

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