3P98 Project Animation Video Write Up
Kevin Xu

Introduction/Background:

I am a computer science student who has never taken any animation courses before. I am a hobby artist who does some (poor) digital art but my main focus at university is computer science. I have very little experience with 3D animation using Autodesk Maya. I tried learning the basics many years ago when I tried to help with a fan game project, but only managed to make a couple basic animations. However I know about the principles of animation from my background in art. I have no experience with 3D modelling. For this project I have learned how to do 3D modelling and more in depth animation. This isn't a website because I don't want to pay for a domain.

For this project I have made a 3D animated video. I had a few ideas for the video over the term, the main ones are as follows:

-A story roughly based on "The Spider's Thread" (Kumo no Ito) by Ryunosuke Akutagawa, in which a spider befriends a thief and lives a daily life with him. However one day the thief dies and is damned to hell. A god like being visits the spider and offers it a chance to save the thief from hell. It brings the spider to a well which connects to the depths of hell in which the thief and countless other human souls are being tormented. The spider lets down a thread for the thief to climb but the other souls around him climb it as well. Having shared the same suffering together the thief cannot find it in himself to tell the others to stop. The weight of all the souls causes the thread to fray and the spider tries to hold it up, but is dragged down into the depths of hell by the weight. This option would require me to make a lot of backgrounds/environments which would be annoying.

-At a government facility where supernatural and phenomenon and creatures are researched (similar to settings like SCP Foundation and Lobotomy Corporation) a low level employee is applying for a more involved position in the company as an operative to help research paranormal entities. The employee becomes an apprentice to a high ranking operative who helps her learn the ropes by interacting with a black amorphous goop monster that is relatively passive. However as the employee spends more time with the goop monster and learns to communicate with it, she begins to feel sorry for it. The employee breaks out with it and tries to escape, but her superior confronts them. The goop monster takes the employee hostage but her superior engages it anyways, after shooting at it with her bloody revolver the superior takes out the monster and checks on her underling. The superior then executes the employee. I didn't go with this one since it's overly complex, would take a long time to animate, and I don't know how to do a fight scene.

-A simple animation about a girl who is a student and part time idol. Although she originally wanted to help people smile, as time went on the stress piled up and became too much to handle. She began to lose the ability to care about the things and people around her, and forgot her reason for trying so hard in the first place. After getting burnt out she lies on the roof of a building looking at the stars, and then decides to jump off and kill herself. This is not a cry for help. Although this idea is relatively simple and wouldn't be too hard to animate, I was worried that the subject matter of suicide may make me lose marks.

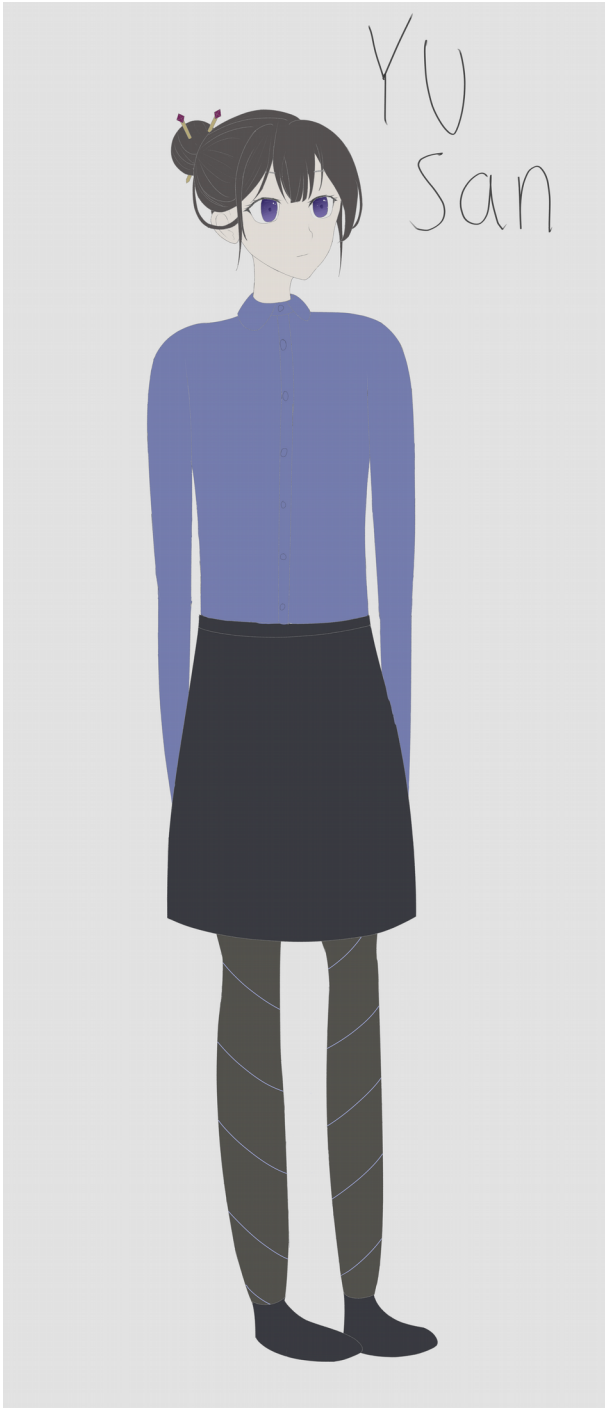
In the end I decided to go with the following premise for my animation:

-A young lady who lives in the city of a dying world goes to her day job at an asian restaurant and bar she manages. She walks down the street with her umbrella and raincoat, causing it to rain as it opens. She arrives at the restaurant, taking care of things to open shop, and then mills about until a customer arrives and prepares a meal for them.

I decided to go with this option since it is relatively safe, only requires two environments, and overall simple to make.

Character Design:

Note: Designs and story boarding kept simple for time reasons

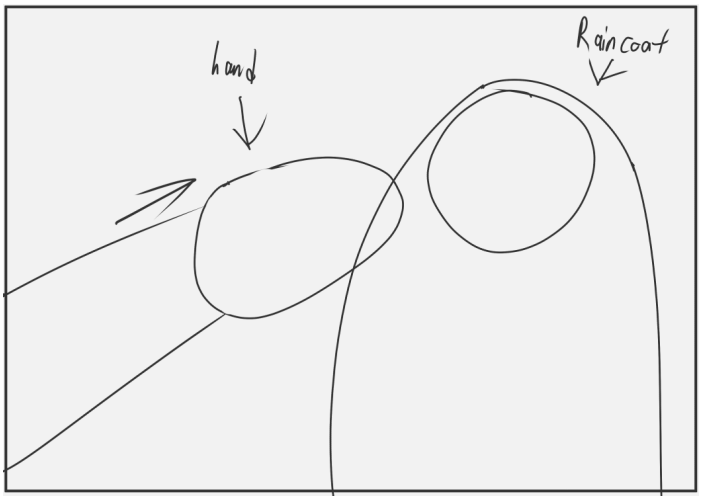


Story boarding:

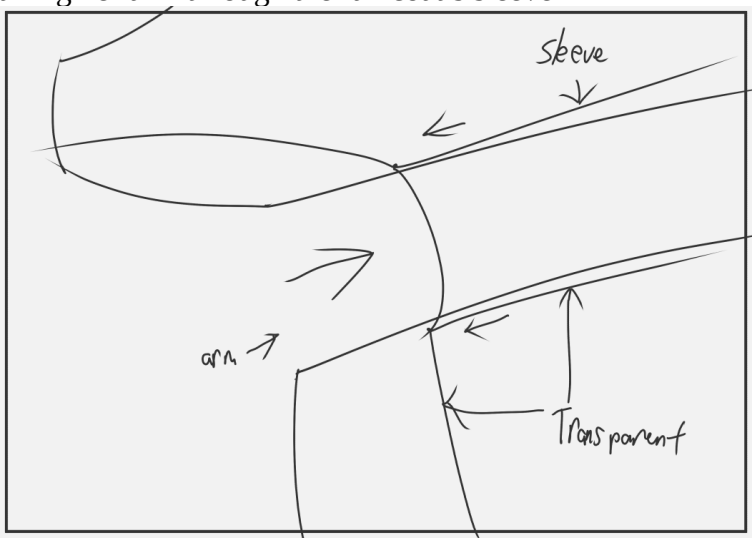
Scene 1 – Getting dressed:

Shot 1:

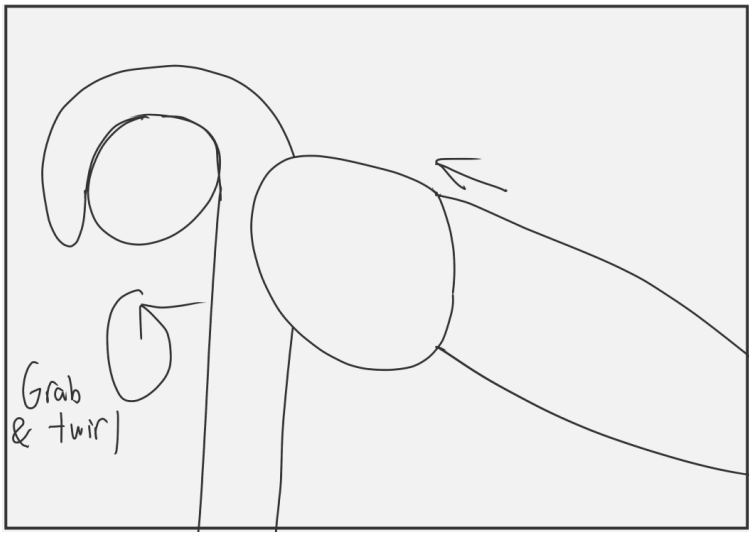
-Close up shot of Yu grabbing her raincoat



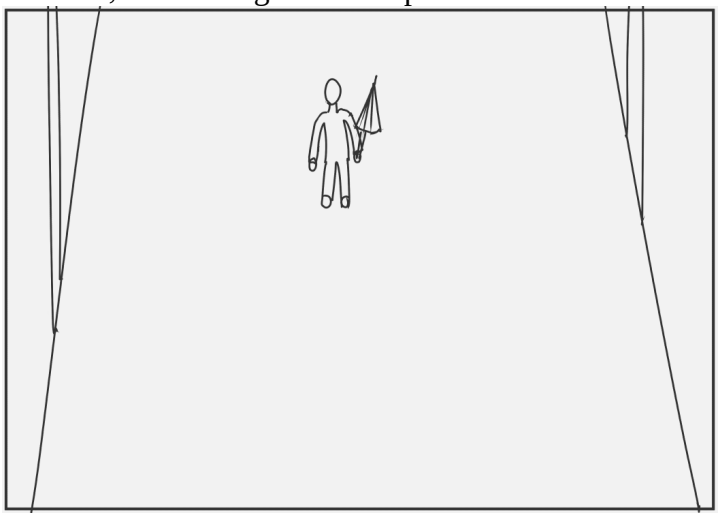
Shot 2:
-Close up shot of Yu pulling her arm through the raincoat's sleeve



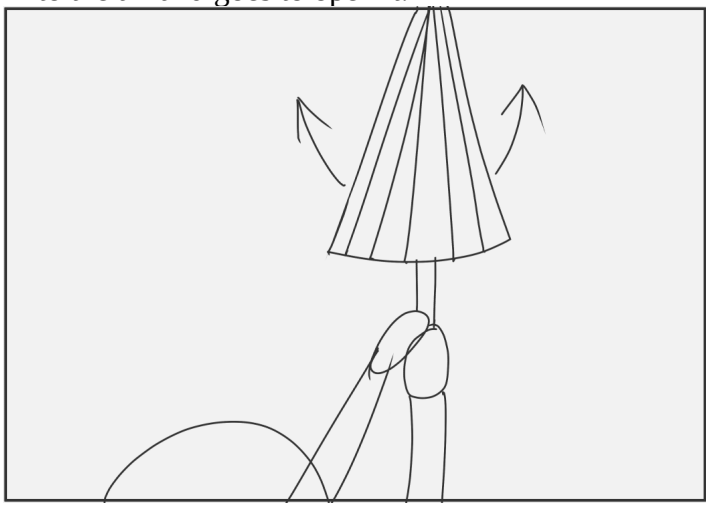
Shot 3:
-Yu grabs the umbrella by the handle and twirls it around



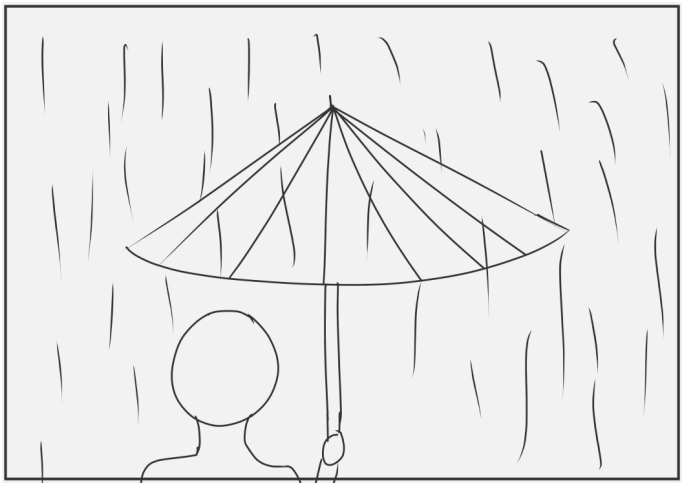
Scene 2 – Walking to work:
Shot 1:
-Wide shot with Yu in the centre, Yu walking down the pedestrian street.



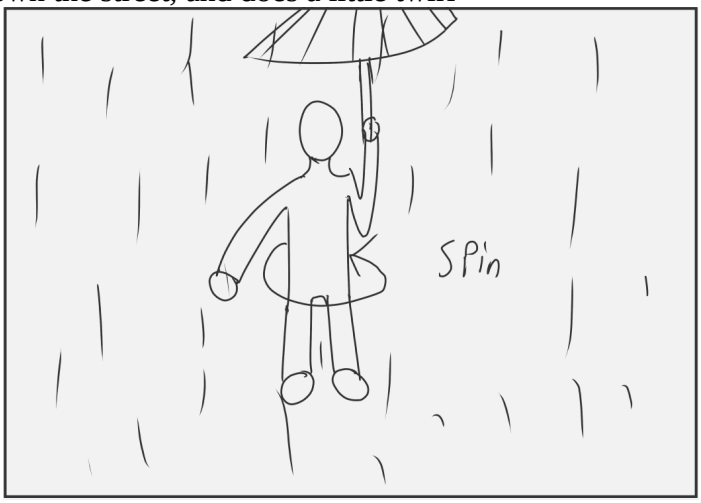
Shot 2:
-Yu lifts up her umbrella into the air and goes to open it.



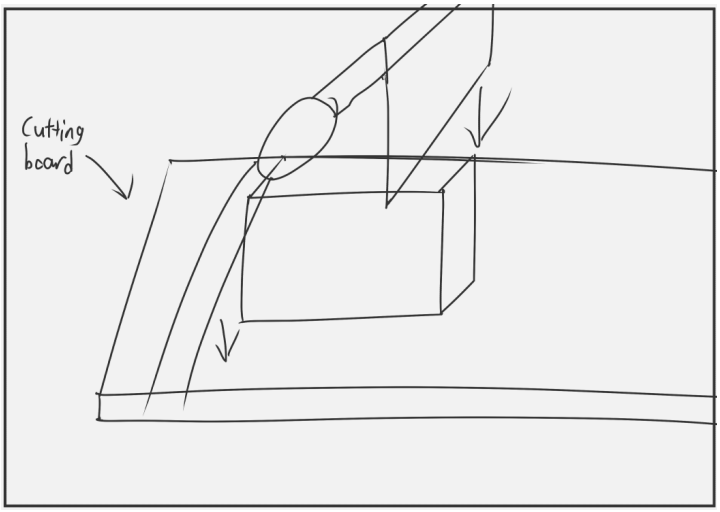
Shot 3:
-Yu opens up the umbrella, causing it to rain



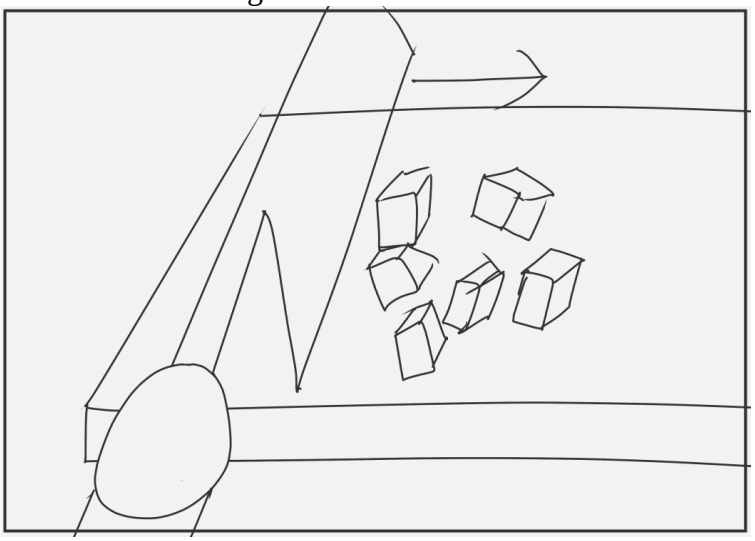
Shot 4:
-Yu continues to walk down the street, and does a little twirl



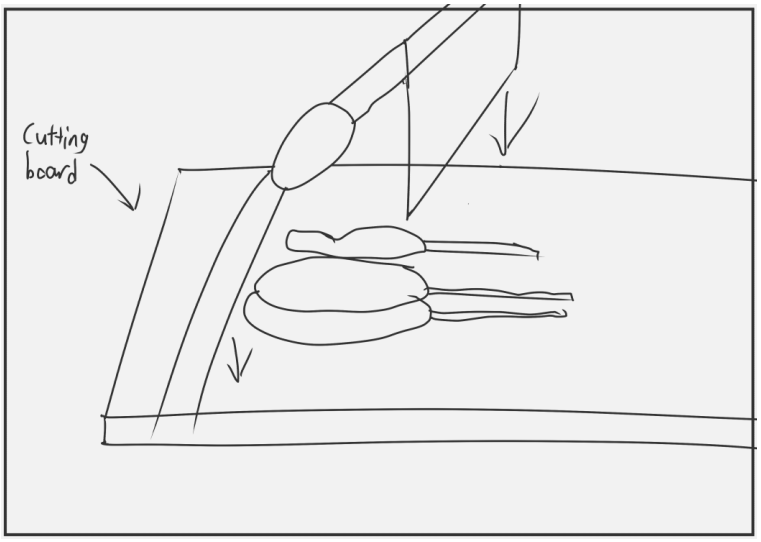
Scene 3 – Cooking at work:
Shot 1:
-Yu now in her work uniform brings out a cleaver and starts chopping up Tofu into cubes



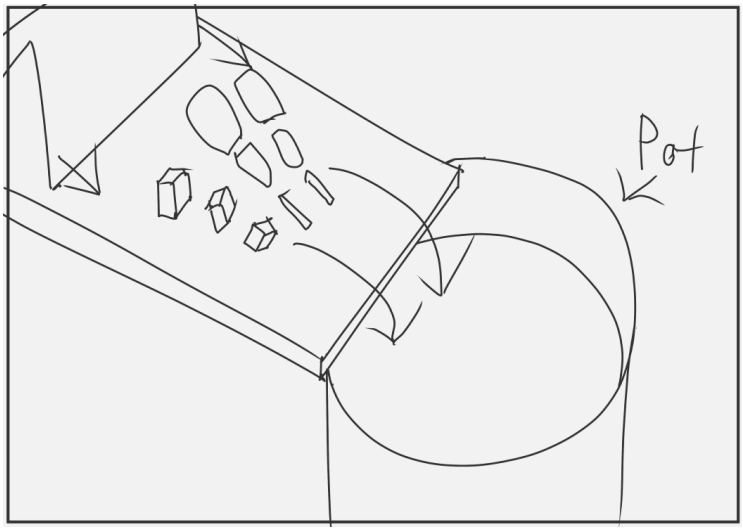
Shot 2:
-Yu slides the tofu to the side of the cutting board with the cleaver



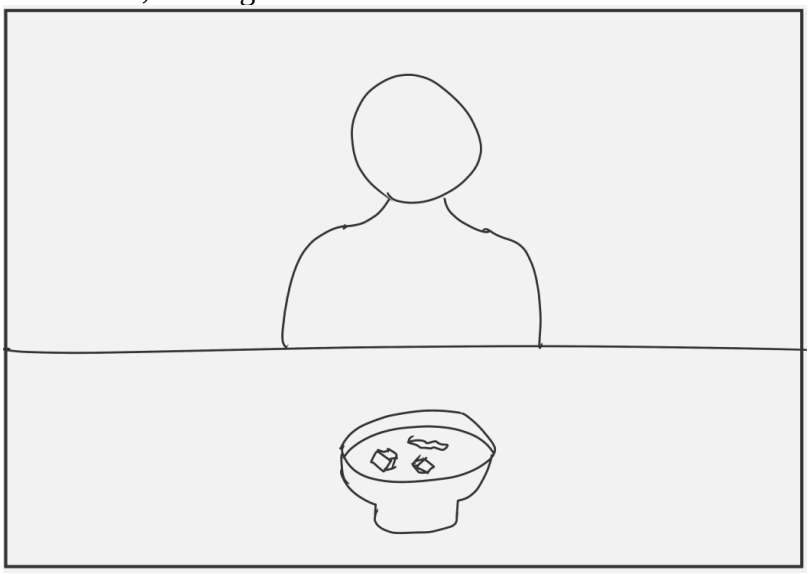
Shot 3:
-Yu chops up spinach



Shot 4:
-Yu puts the ingredients into a pot

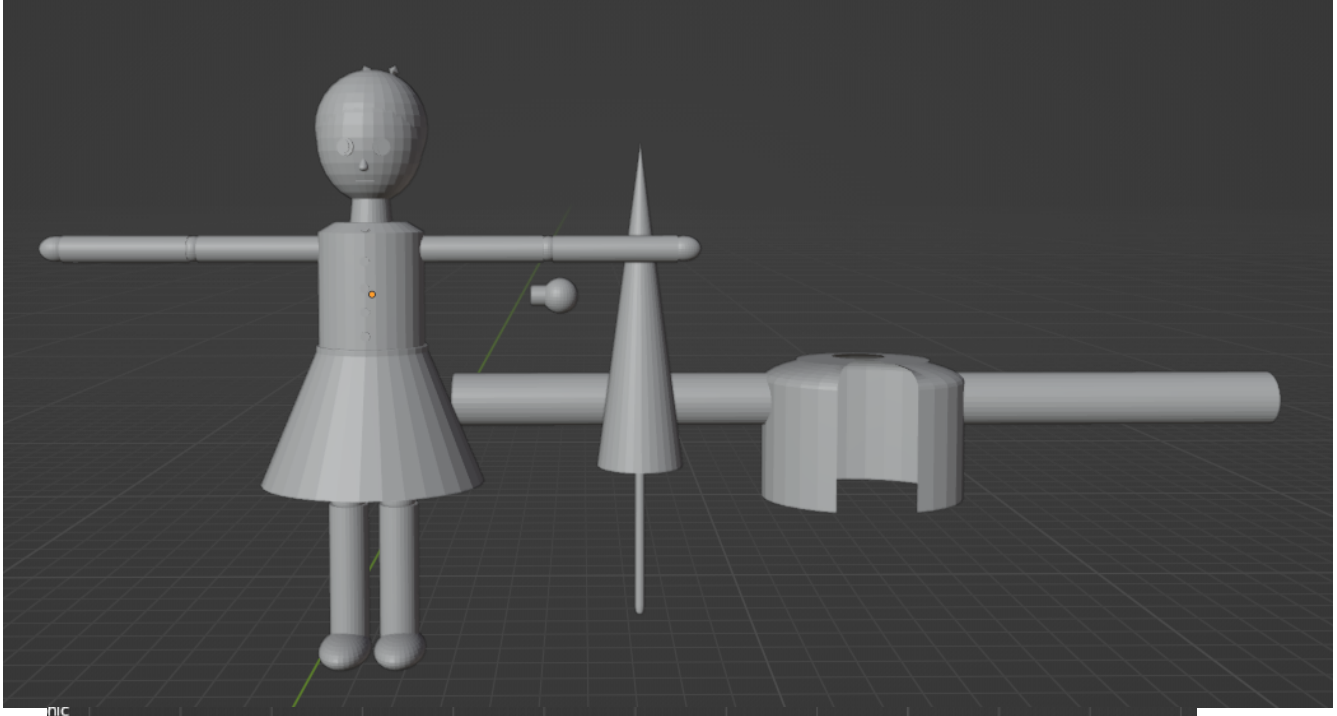


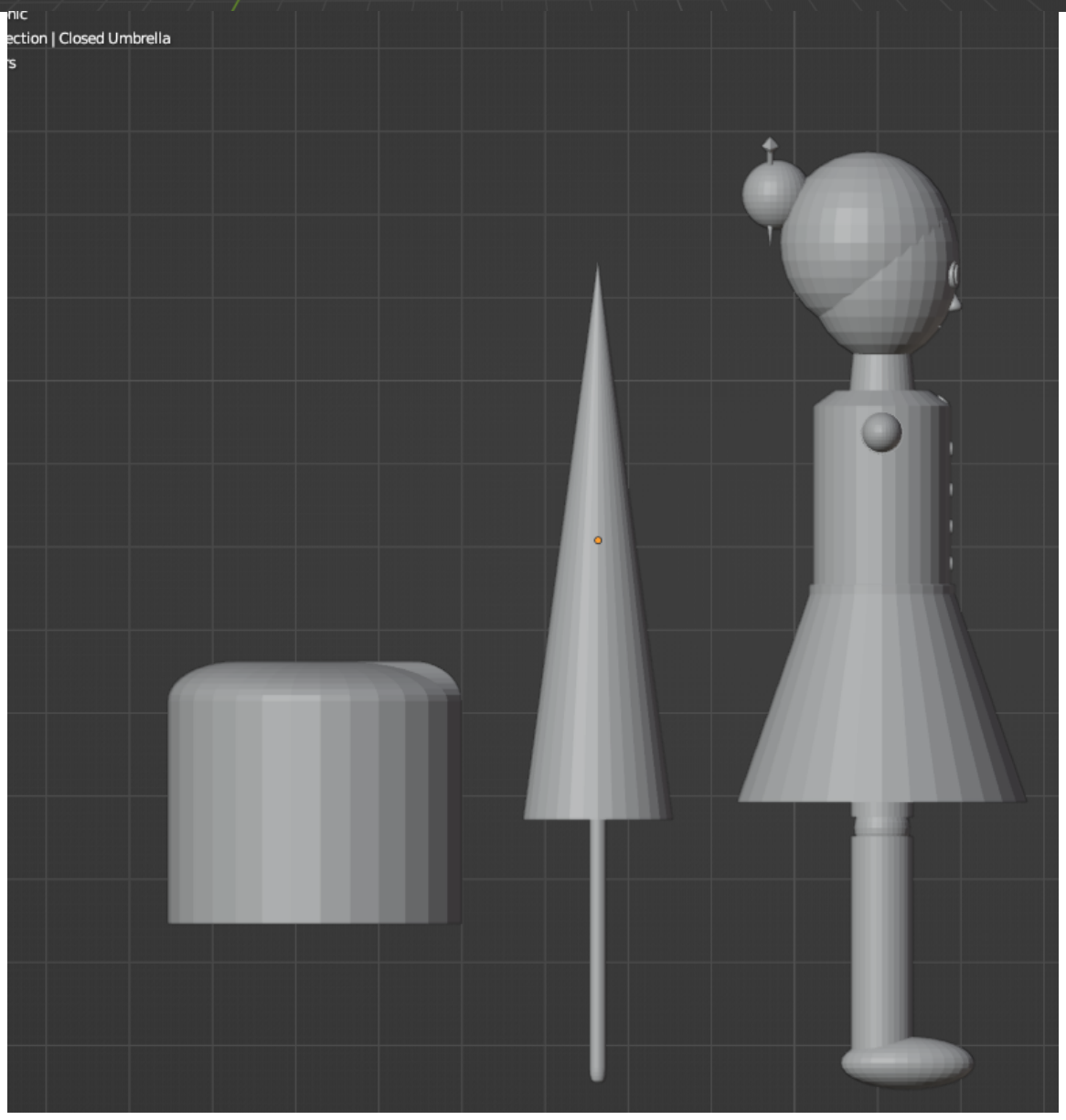
Shot 5:
-Yu serves the soup into a bowl, looking over it



Modelling process:
Blender was used to model all the models used in a simple low polygon style.

Scene 1 models:

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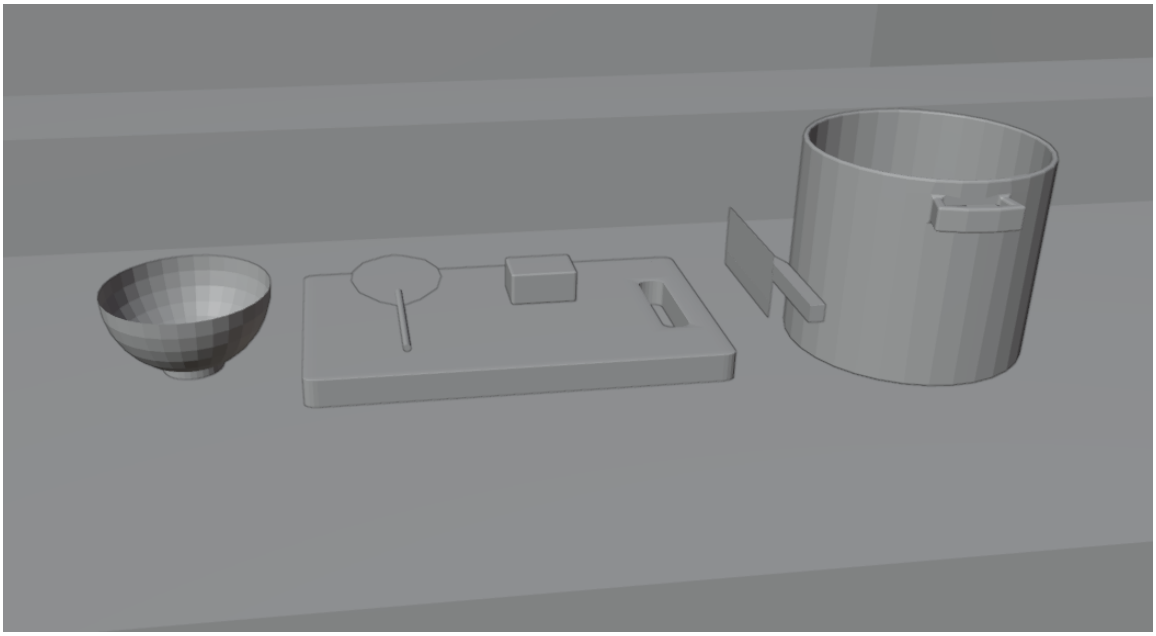
Scene 2 models:
-A separate umbrella model is used to avoid having to rig it.

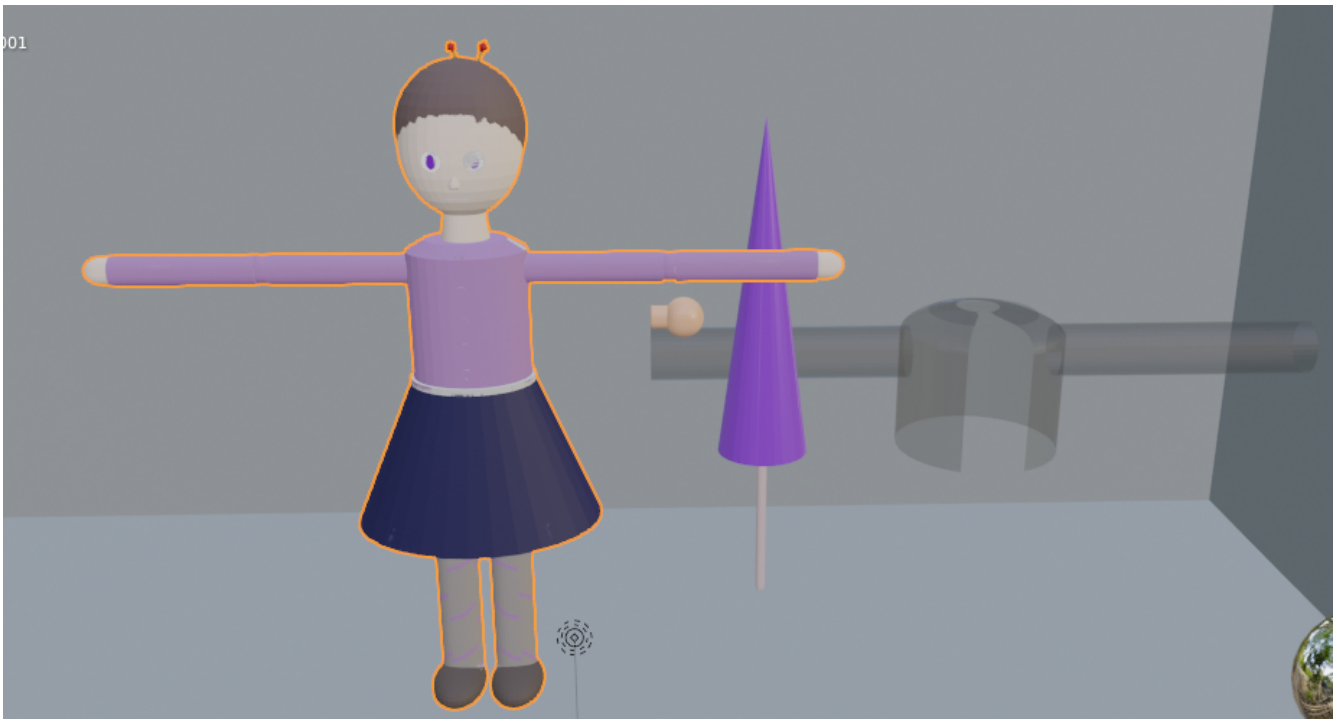
Scene 3 models:
-Scene 3 uses the same model of Yu from scene 1.



Shading/Texturing:

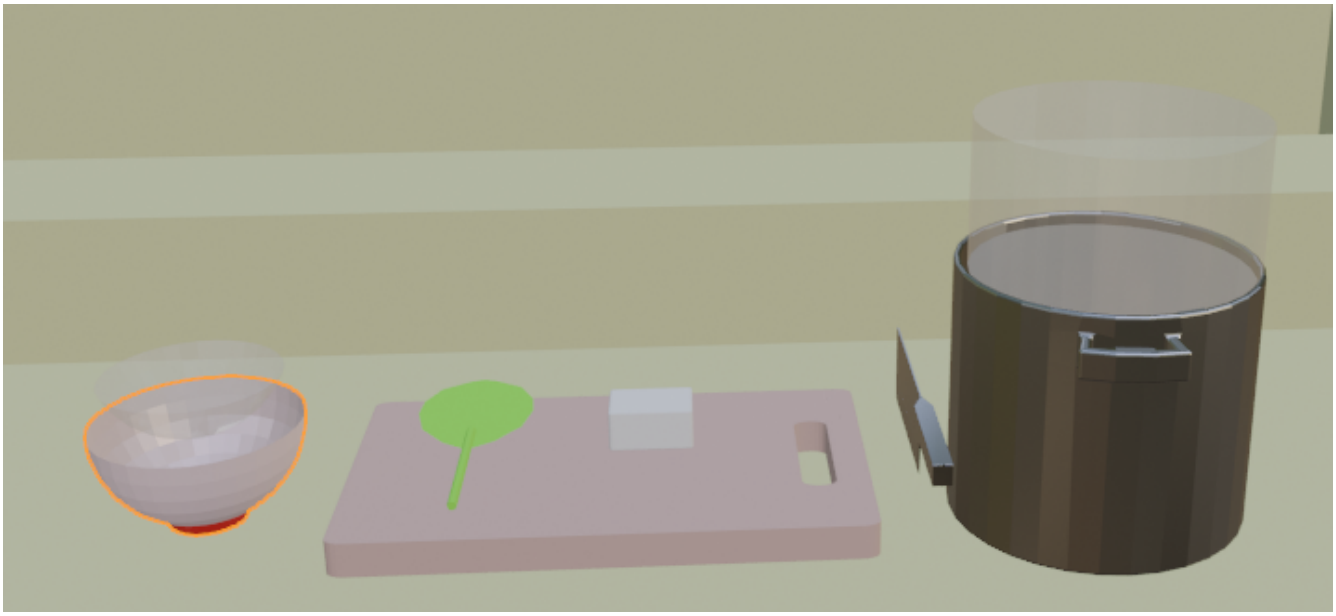
A basic colour/shading style was used to fit the low poly aesthetic of the models and also to save time and energy.
-Note: Texture painting on the character model is slightly off or missing in a few spots because I had to adjust the model to get the rigging to work, but I would have to completely redo the texture painting to fix it.

Scene 1:



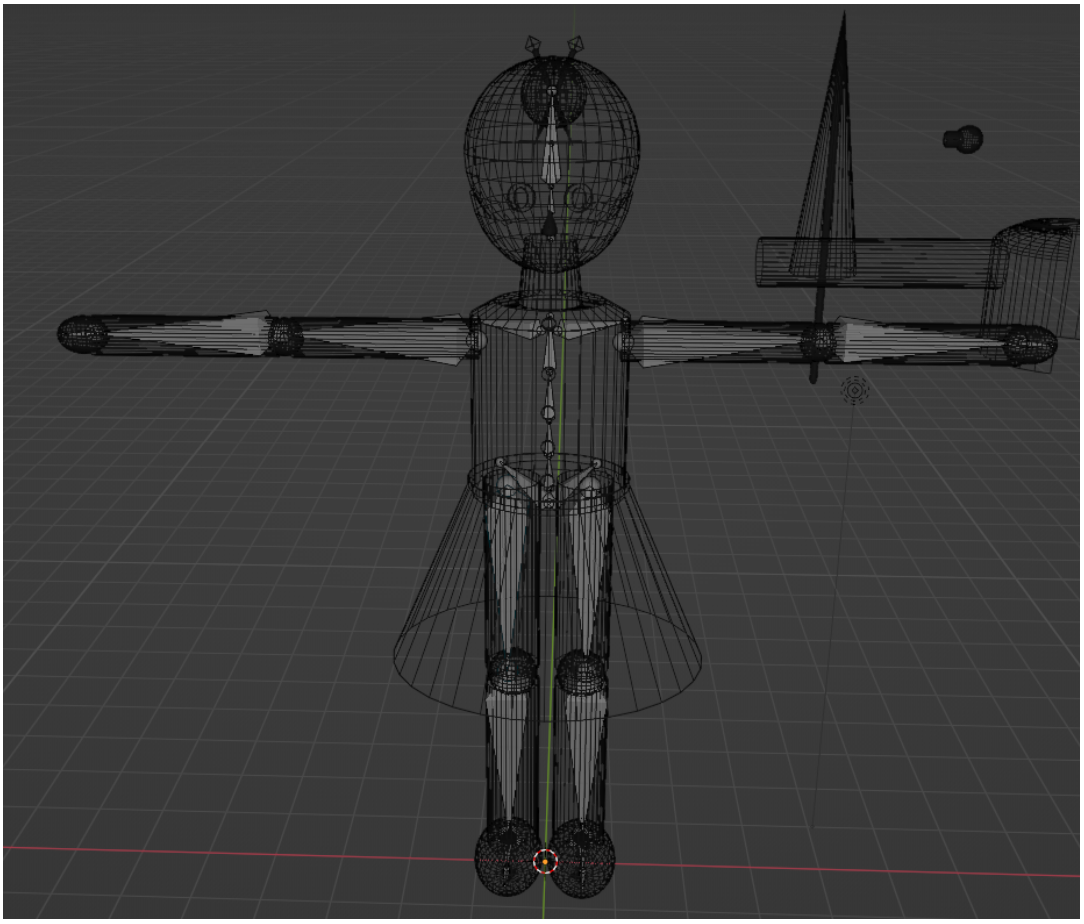
Scene 2:

Scene 3:



Rigging:

After trying various tutorials and remaking the mesh I managed to put together a workable rig. Likely due to the fact that it was hobbled together with deformed basic geometric shapes put together, it’s a bit scuffed. The automatic weights assigned by the program had to be manually adjusted as they were distributed oddly.

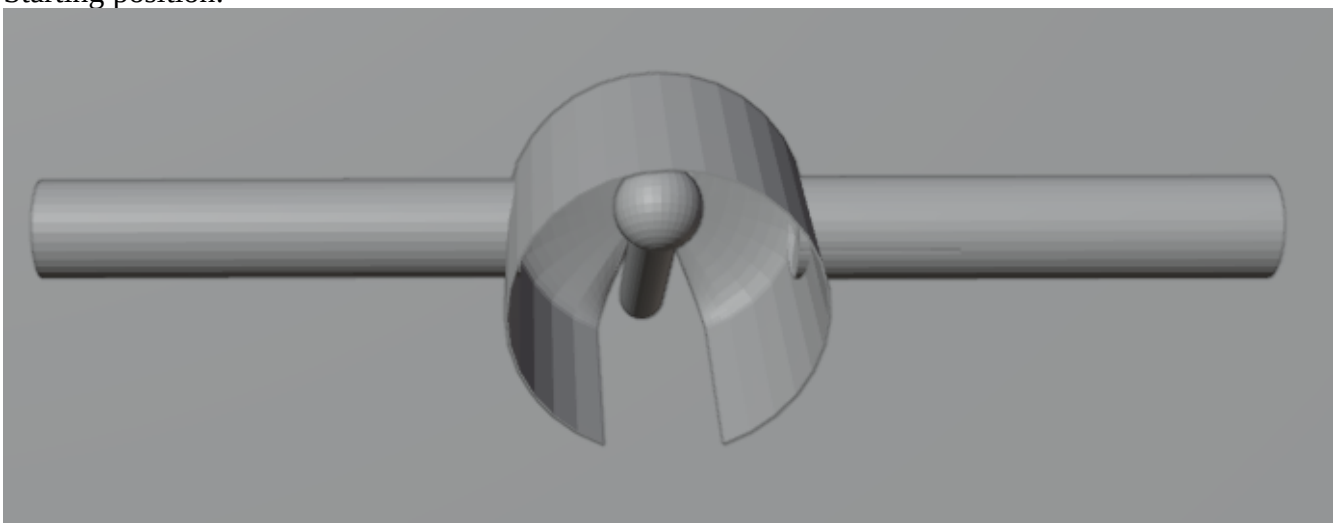


Animation process:

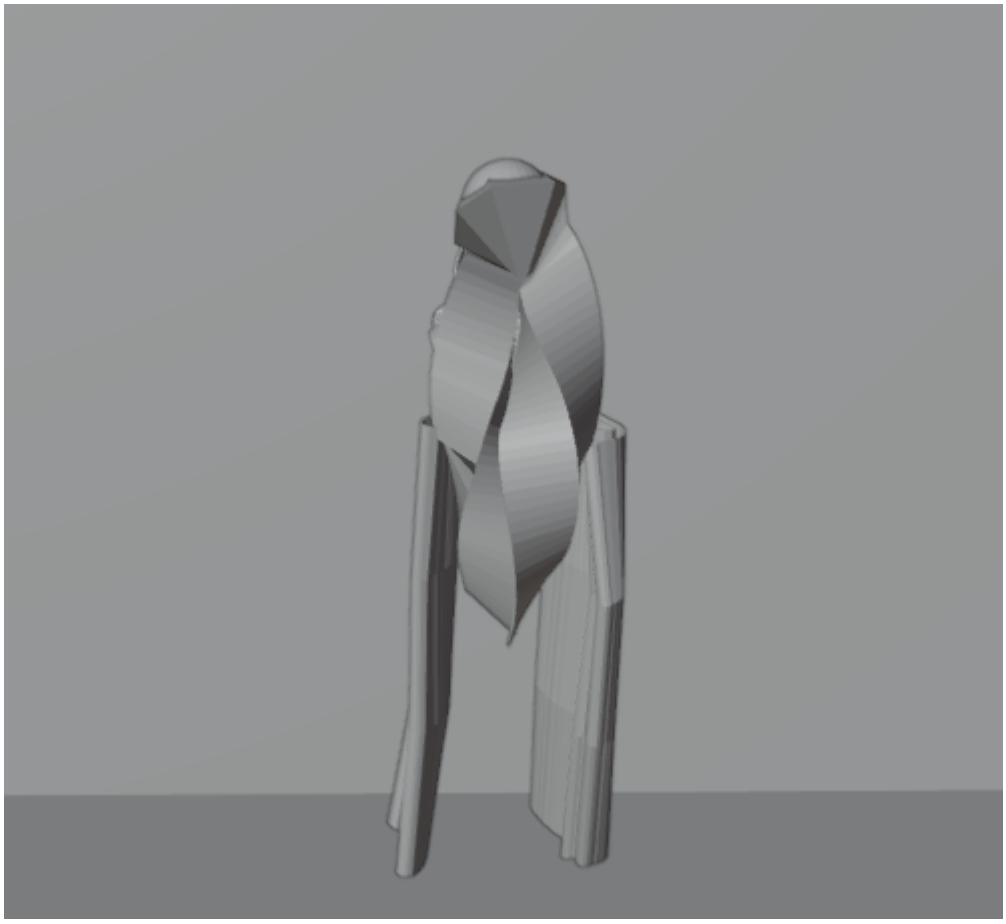
Scene 1:

To have the raincoat hang properly, Blender's cloth physics simulation was used. The settings for the quality of the simulation were kept low so as to allow my system to calculate it quickly, due to having to rebake the animation multiple times to get the positioning right.

Starting position:



Position after cloth simulation:



Keyframes were used to make the animations relatively close to the storyboard I planned out earlier.

Scene 2: I used a variety of effects like fog and rain for scene 2 I learned from tutorials on youtube. I hope the fog, rain, and darker lighting make it less obvious that I had no rigging on the raincoat. Also due to some bones I didn't quite fix the character's eyes move around in weird directions which I find quite funny so I kept it in.

Although the animation was scuffed due to time, I tried to implement some of the principals of animation by having a jump squat before the character's jump and have her enter another squat and recovery after the jump.

Scene 3:
For the chopping of the tofu and spinach, to make the ingredients get cut I replaced the models of the objects with two models that were the object sliced in the correct position, and repeated for every separate cut.

Rigid body physics was applied to the chopped up ingredients to simulate them being pushed into the pot.

Sound Effects:
All sound effects used were taken from BBC Sound Effects Archive, which allows for personal, educational, or research use of its sound effects: https://sound-effects.bbcrewind.co.uk/

Video Editing:
I slapped everything together in DaVinci Resolve and then lowered the audio so that it wasn't deafening.

Software used:
-Design/Storyboarding: Clip Studio Paint
-Modeling/Rigging/Animating/Rendering: Blender

-Video editing: DaVinci Resolve

Learning resources used:

Blender - Blender Fundamentals Series - https://www.youtube.com/playlist?list=PLa1F2ddGya_-UvuAqHAksYnB0qL9yWDO6
Blender - https://youtu.be/f-mx-Jfx9lA
DECODED - https://youtu.be/Fva4_a5ChFA
New Frame Plus - https://youtu.be/rHEJZXvFc5I
New Frame Plus - https://youtu.be/28s1Hv3Zqlo
New Frame Plus - https://youtu.be/1kFRU_xBZnE
New Frame Plus - https://youtu.be/rYtrV1lChsA
Kevin Kirk [Clark HS] - https://youtu.be/x1BQk2UVEh0
Grant Abbitt - https://youtu.be/WjS_zNQNVlw
Chris P - https://youtu.be/WASS6X8Dz90
AlanBeckerTutorials - https://youtu.be/uDqjIdI4bF4
MyPhysical World - https://youtu.be/b2tCEkyt9ug
Olav3D Tutorials - https://youtu.be/Dyj0sJVd3Lw
knx - https://youtu.be/4NrOXReR3Dk
CG Geek - https://youtu.be/35bbyAJodEQ
25games - https://youtu.be/aoDTzHqgaDY