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Module: Advanced Character Animation

Module Code: ACCA5038

Assignment Title: Aspects of Identity

The theme I chose to research for this assignment:

Role Playing & Purpose: Character Deployment & Impact

Each character has its own role to play, its own Personality, Uniqueness', Fluidity, Flow, Actions, and Expressions. Without such things characters become Dull and Lifeless, it is no fun watching a Stiff character Robotically paint a blank canvas even for a short span of time, so to make it Fun, Engaging, Exciting, and Captivating we Must incorporate Essential aspects of Animation such as, Exaggeration, Secondary Action, Follow through & Overlapping action, Anticipation, Appeal, Arc, Timing, and Slow in & Slow out, these aspects are the most essential for character development and expression, the other aspects are also important, but those aspects are more about the practical side of animation.

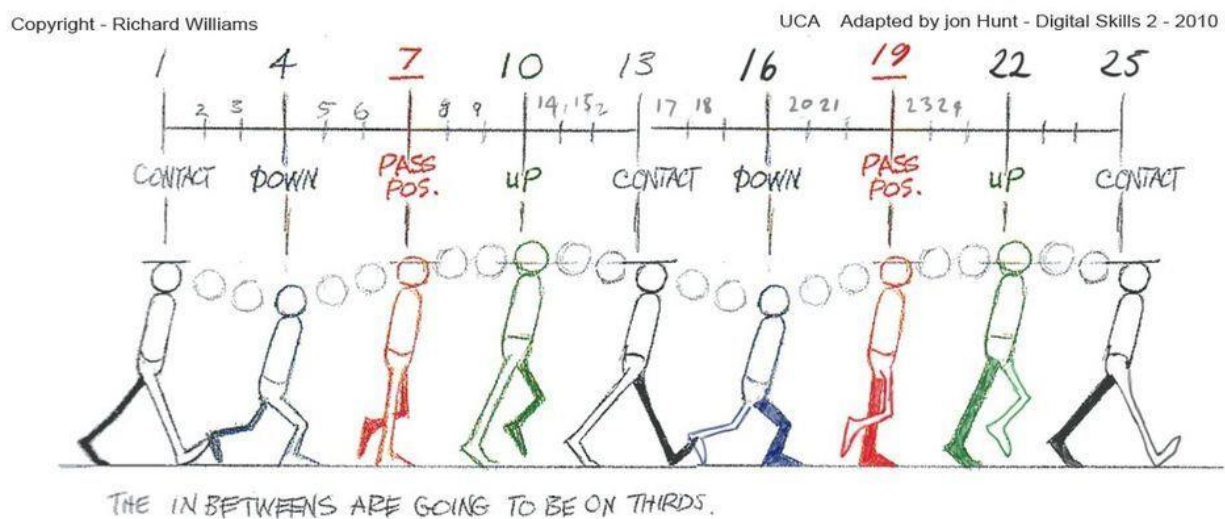
So how could we make a Dull scene such as a Stiff Robotic character paint a blank canvas to be Fun and Exciting you might ask?

It is simple!

We give our character a personality. To do this, our character could be doing wide Arcs sweeping across the canvas as if the character is really into what they are doing and are focusing immensely on creating the best painting they will ever make. To enhance this, we could also make our character have Secondary Action this could be them picking up the paint bucket with their off hand, placing it down and then them playing with their hair or

resting their hands in their pockets, or with a relaxed swinging off hand as Recoil from the wide Arcs in the primary hand. We could also implement Slow in & Slow out at each wide Arc, a slow start to the sweep as it follows through with a fast escape of the canvas with the brush. We can also Exaggerate the characters facial expressions by making them have a serious, focused, relaxed or intense expression this will highlight and enhance the characters personality as them being heavily focused on the painting like previously mentioned.

Research and Practical's [1]:

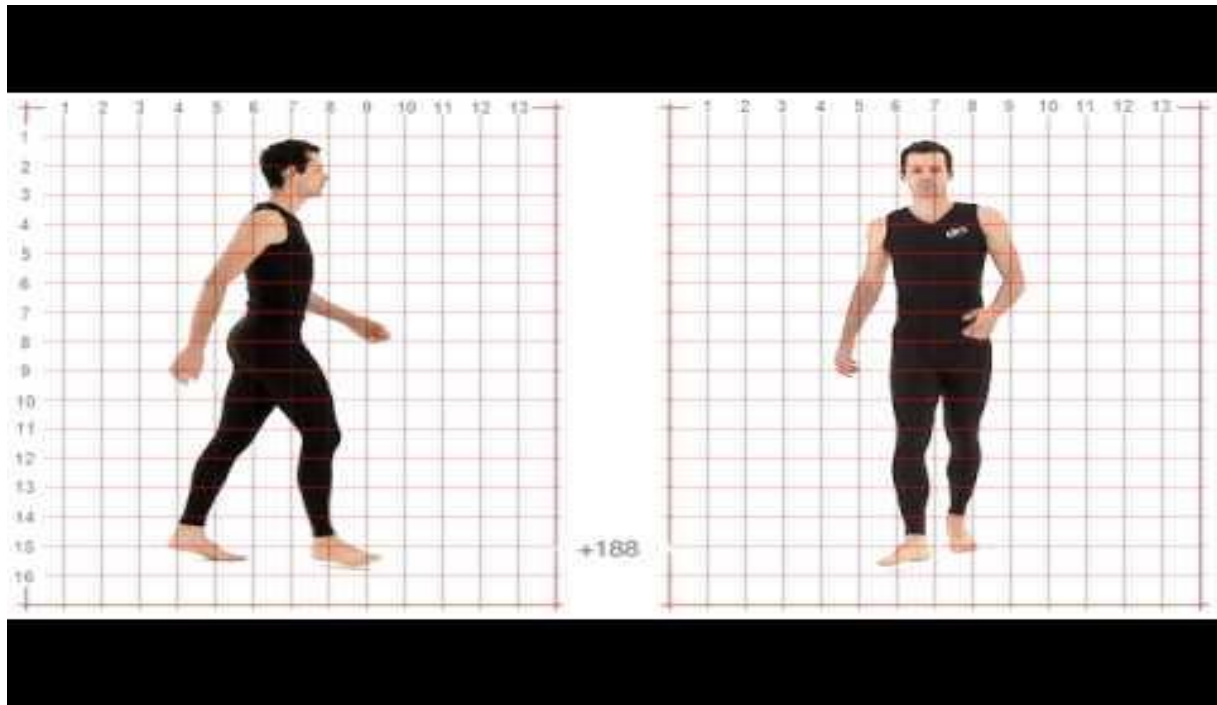


In the beginning of the assignment, we did short animations in class exploring diverse ways of animation. The first practical we did was the Walk Cycle. I did a short animation of a character walking and jumping over an object to see if I can animate a walk cycle successfully. I found this quite simple and easy as I've had practice doing this last year, so I introduced an object to make it more challenging, I am also adding emotion such as arms reaching down and swinging upwards for anticipation to a jump this is to have my characters movements show a more expressive and fluid movement.

I found videos on YouTube showing a realistic walking cycle which will help guide me in creating a more realistic walking cycle for my animation.

Here is that video I mentioned [2]:

<https://www.youtube.com/watch?v=vq9A5FD8G5w>



Below I found a really helpful clip to reference a jump for my animation, I chose this clip because he flails/kicks his arms and legs in the air and then braces for impact with anticipation, this will prove as a useful guide for when I am to animate my character jumping over an obstacle.

Here is the clip of a person jumping I found useful as a reference [3]:

<https://www.youtube.com/watch?v=EoDZmyO59SM>



I also intend to incorporate a falling animation as a part of my 20 - 30 second animation, this will be where my character will be free falling and flailing their arms around and looking around showing their reactions, I think that including a part where the character is falling will be good for the topic I have chosen, this being roleplaying and purpose. Something like this clip in doctor strange from 0.50 – 1.10 here is what type of falling scene I will do something similar of [4]:

https://www.youtube.com/watch?v=QkoKbp_DdFQ



I did think about doing 2d animation focusing on impact frames, I enjoyed watching this animation particularly from 6.23 - 6.27 I liked the speed effects from the action lines and the amount of power it felt the stickman had from the short scene.

Here is the video [5]:

<https://www.youtube.com/watch?v=blr6EZslGV8>



I also tried to do this on adobe animate, however, although I find 2d animation fun to do Aswell as finding it really easy to do compared to 3d animation due to the flexibility of animating itself, due to the tools like onion skinning and the practicality of being able to draw the characters where I want them to be, I find it much harder to get my creativity down because in maya I feel extremely limited with the flexibility of animating due to the awkwardness of going frame by frame guessing where to place the rig ahead of another movement whilst also taking into consideration the fluidness of the animation being at risk of being interrupted from moving the rig too far forwards, backward, upward, etc. I will stick with 3d animation for this assignment as I don't have much experience with it, it's an effective way for me to get some more knowledge with 3d animation than sticking with a more familiar 2d animation.

Here is the short 2d animation I considered expanding for the assignment, I decided not to do 2d animation for the assignment because it would take too long to do, and I primarily wanted more experience with 3d animation:

<https://www.youtube.com/watch?v=t4-1iCtONuE>



As I have previously mentioned, I do have some good knowledge with 2d animation, in college I made an animation for a project, I included a good chunk of impact frames Inspired by various animations I found on YouTube and Anime, here is the video below [6]:

<https://www.youtube.com/watch?v=6hb4hxjdj8>



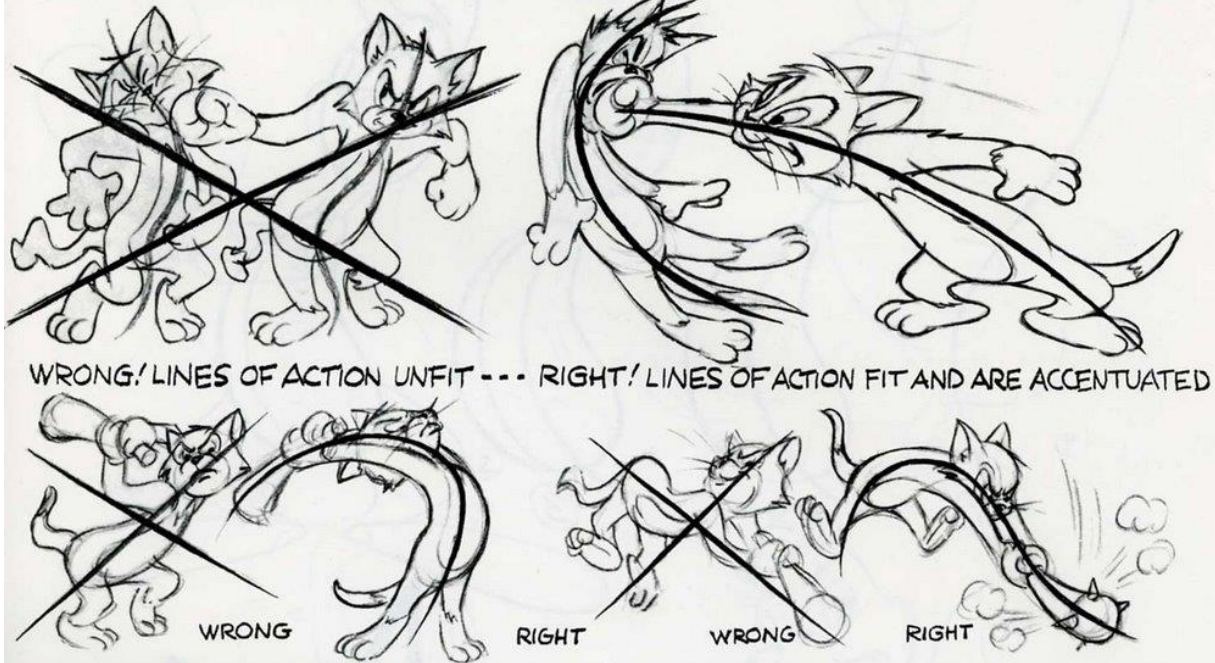
Below I researched line of action to portray more powerful feeling and dynamic poses which will be essential for my animation. With a correctly done line of action It will make my animation look and feel more fluid and smoother. Compared to an animation with a bad line of action, that animation will look rigid and hard to watch.

A line of action is used to shape a character pose. A line of action is a straight line through a character from head to toe, this line of action can be curved or bent to display different varying poses a character can make, either to feel more powerful, natural, fluid or stronger.

Here is an example of line of action [7]:

LINE OF ACTION

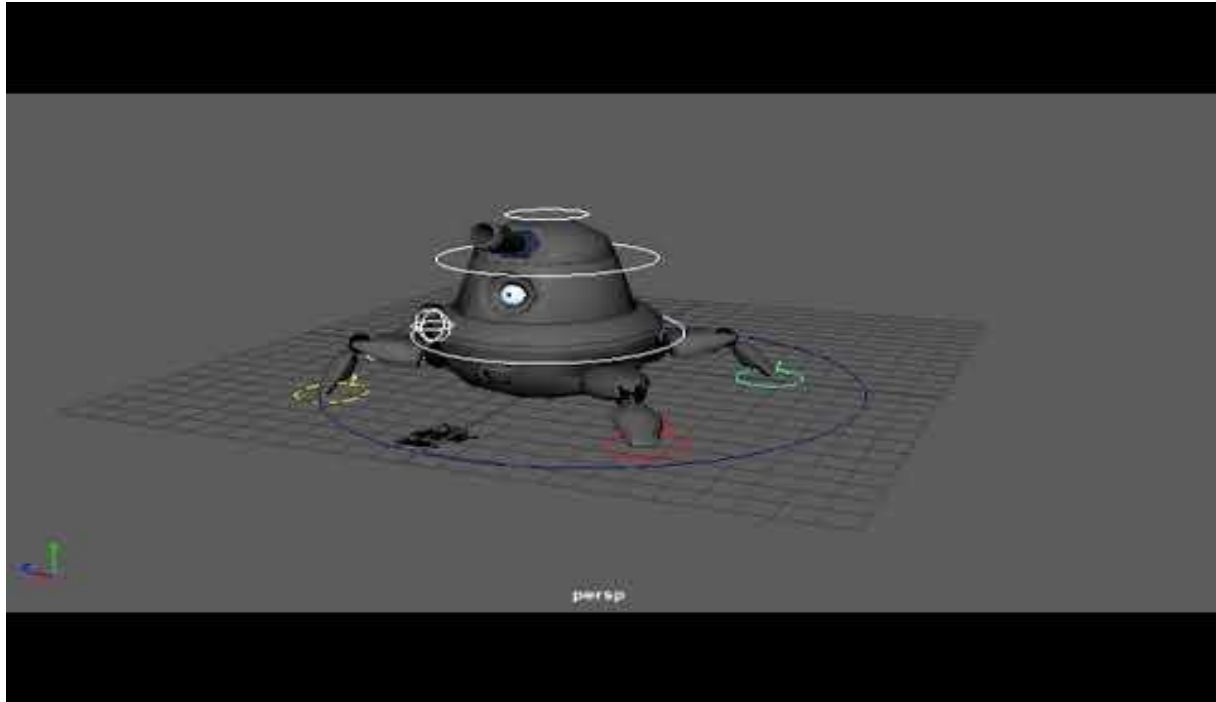
AN IMAGINARY LINE EXTENDING THRU THE MAIN ACTION OF THE FIGURE IS THE "LINE OF ACTION" -- PLAN YOUR FIGURE AND ITS DETAILS TO ACCENTUATE THIS LINE -- BY SO DOING YOU STRENGTHEN THE DRAMATIC EFFECT -- THE FIRST THING TO DRAW WHEN CONSTRUCTING A FIGURE IS THE LINE OF ACTION -- THEN BUILD OVER THAT.



As we can see in the example above, a bad line of action looks much more rigid than a correct one and will most likely draw the viewers' attention from a somewhat good animation, it simply does not fit well and often comes across as distracting.

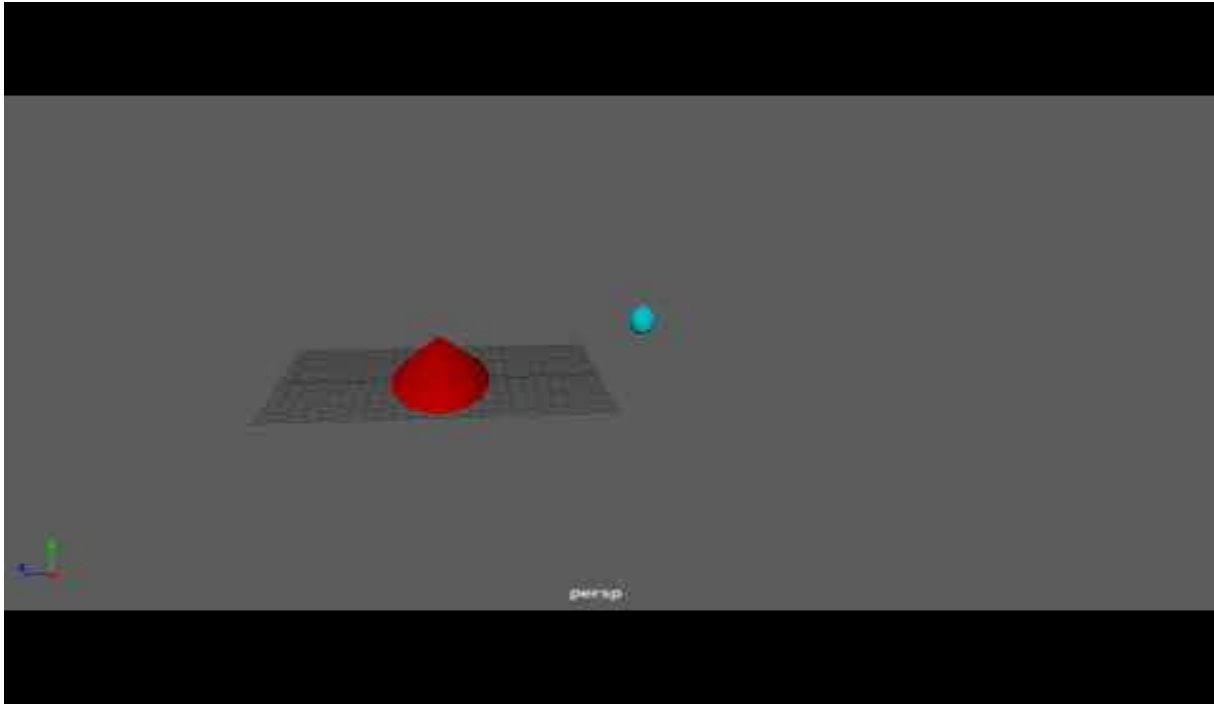
After this we also tried to do a more complicated animation. This time we were to make a spider or a creature with multiple legs do the walking cycle and to make it look natural. This short animation test will help me for when I am to animate an animal with 4 legs in my animation, in my case it will be a mountain lion and will hopefully speed up my work with this knowledge. Here is my attempt at that:

<https://www.youtube.com/watch?v=6VNiaU0Afo0>



I also did a quick animation to test the squash and stretch and see if I could do it, this will be helpful for when I do my animation as I have a few parts that will use the squash and stretch principle, here is the animation below:

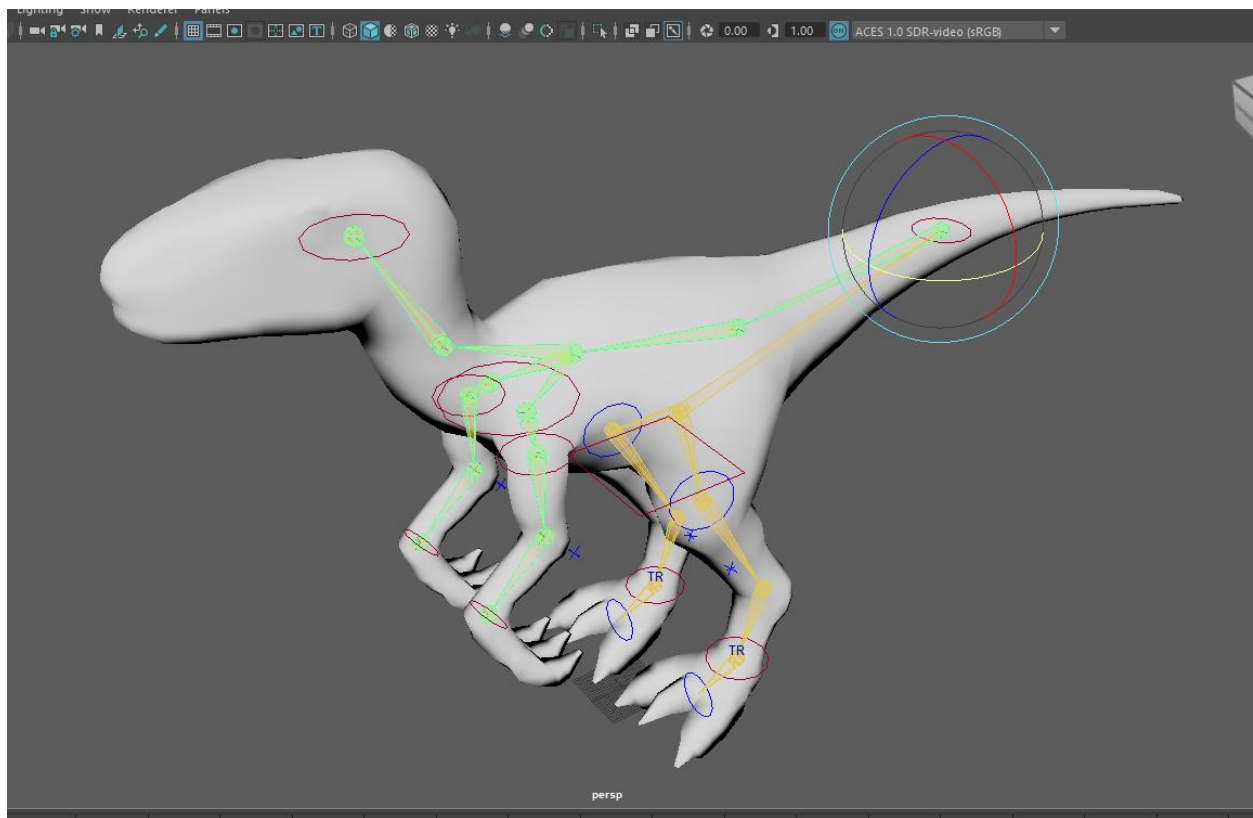
<https://www.youtube.com/watch?v=hQqBqmlU6CY>



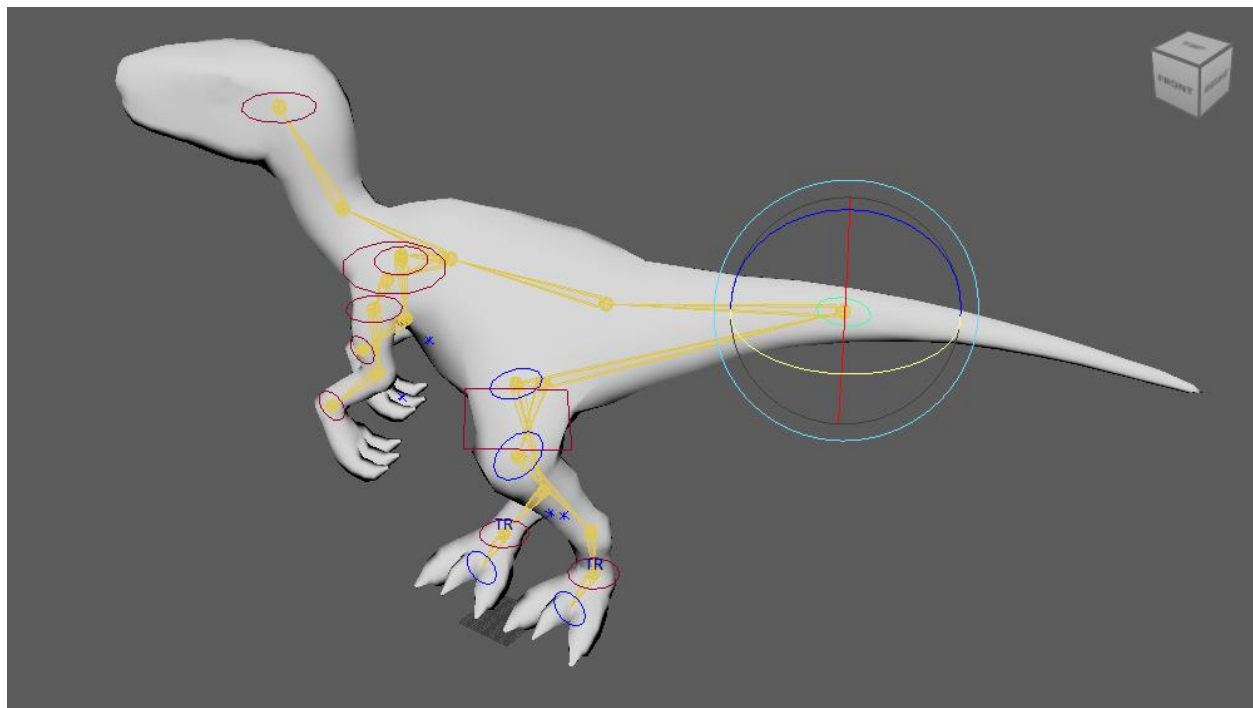
To test whether I could rig a 4-legged animal I tried to rig a raptor mesh from the content browser, I already knew the basics of rigging by making guide points then updating the points to create bones between the guide points to form the skeleton, then you bake the skeleton into the skin/mesh of your model. However, I didn't manage to figure out how to rig the tail of the raptor, I watched a couple of videos to try and create a separate parent joint to combine with the raptor skeleton hierarchy, but I did not succeed. If I were to do this again, I would learn how I can succeed in creating a controllable tail on the rig.

Since I was unsuccessful in creating a tail for the raptor I tried to adapt and move 1 guide point to be at the beginning of the tail, which also didn't work, so for my 20 second animation I will try and minimize the tail of the mountain lion being in frame.

Here is what the rig of the raptor looks like:



The reason this point in the skeleton didn't move the tail is because that point is supposed to be a spine point, this made the whole rig turn if I tried to bend the tail and it does not prove its usefulness:



Above I mentioned I watched a few videos to try and help me rig the tail, here is one of them [8]:

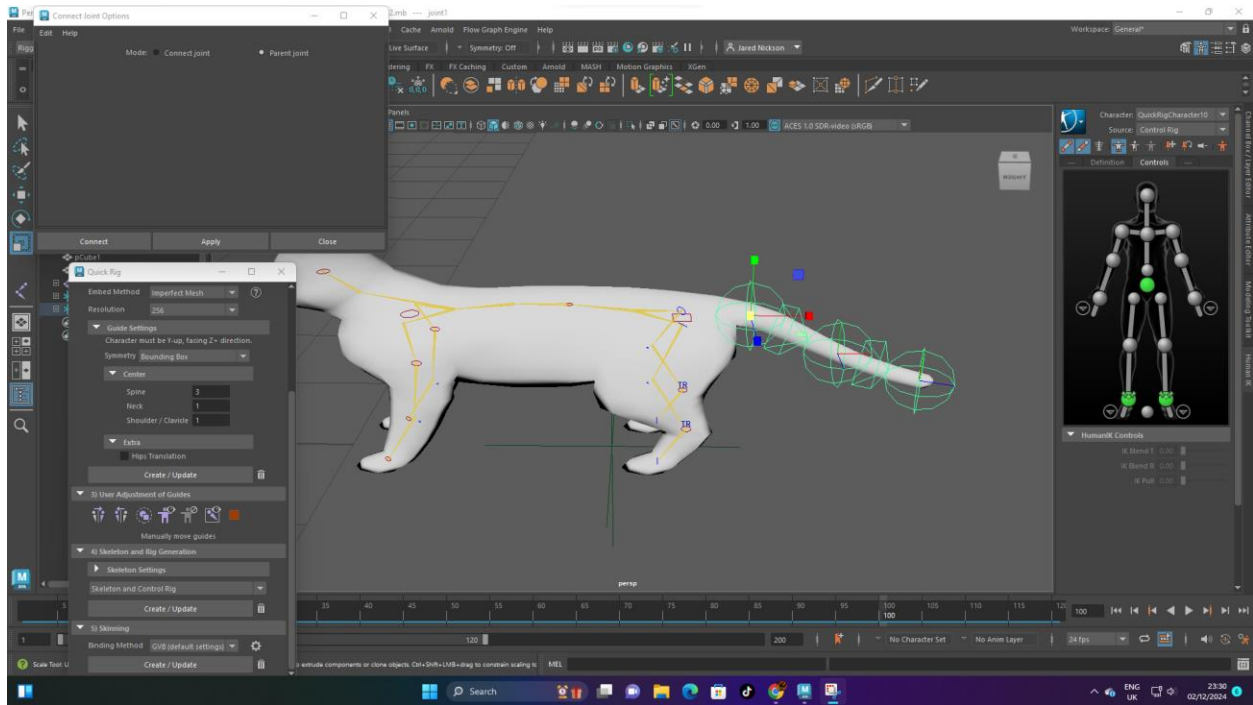
<https://www.youtube.com/watch?v=bRzcdpn7m2A>



Again, I'm not entirely sure as to why I could not rig the tail, I followed the tutorial, I created a separate joint and I even connected the separate joint to the main skeleton hierarchy, but when I tried to bake the rig into the mesh, the tail wouldn't bake into the mesh, so I'm not sure what went wrong with it.

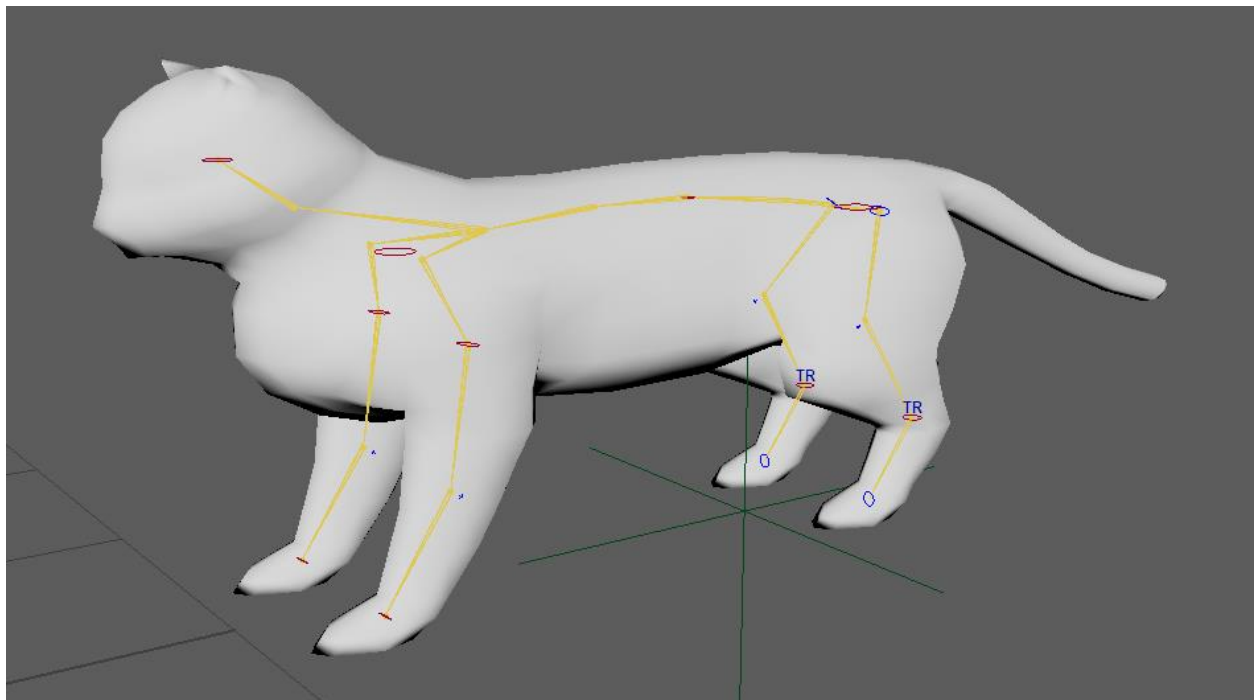
In my main animation, I will be including a mountain lion for a 4 to 5 second scene, I attempt to rig the tail again, but this time I couldn't get the separate parent joint to join with the main skeleton of the lion mesh, I'm not sure why this isn't working either, so it is something I can work on in future animation assignments.

Here is what it looked like:



For the lion mesh, I chose the cat on the content browser and stretched out its torso to look like that of a mountain lion, I did adjust the mesh because the neck and limbs looked stretched, but the result looked just like I wanted it to look like.

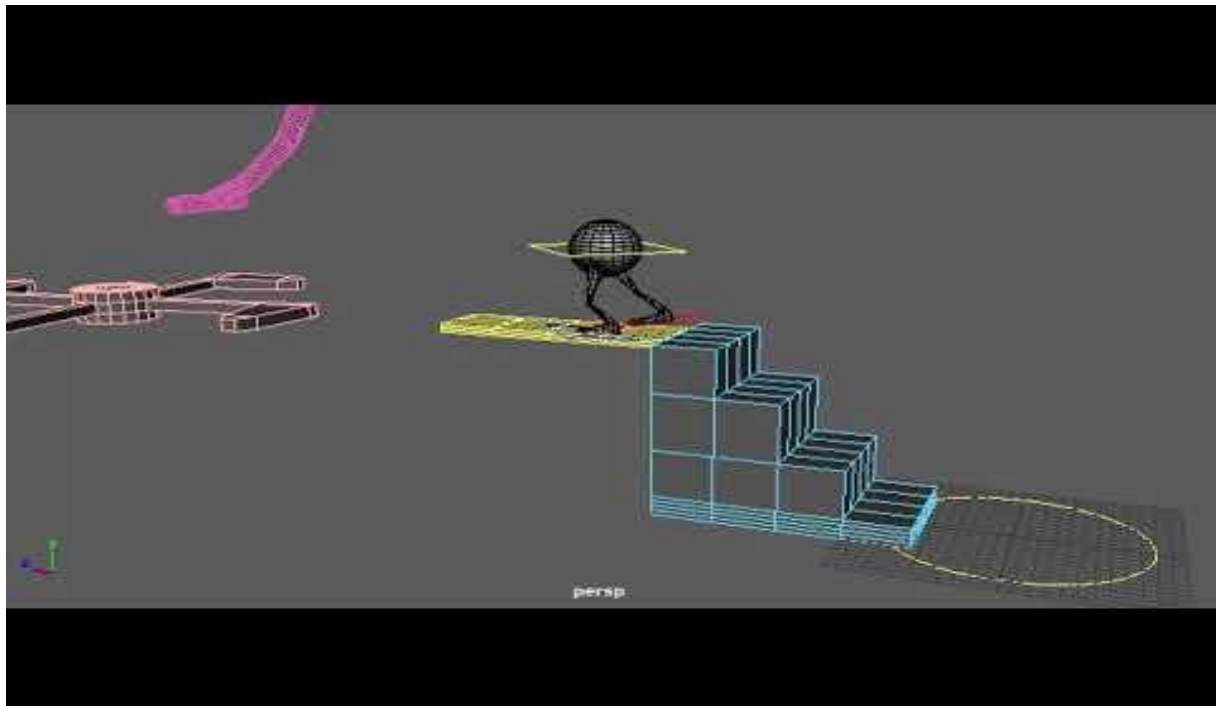
Here is how the mountain lion mesh looks like including the rig:



We also were to do a short animation of a character on a wipeout course, I decided this would prove useful for when I am to create my 20 second animation, this is because In this short wipeout animation I made the character fall and kick his legs trying to stay on the swing, I used physics to show the character keeping his momentum by falling forwards and rotating backwards, this was to show his natural reaction to the fall where he was also flailing his legs.

Here is the short animation of the wipeout course the character went through:

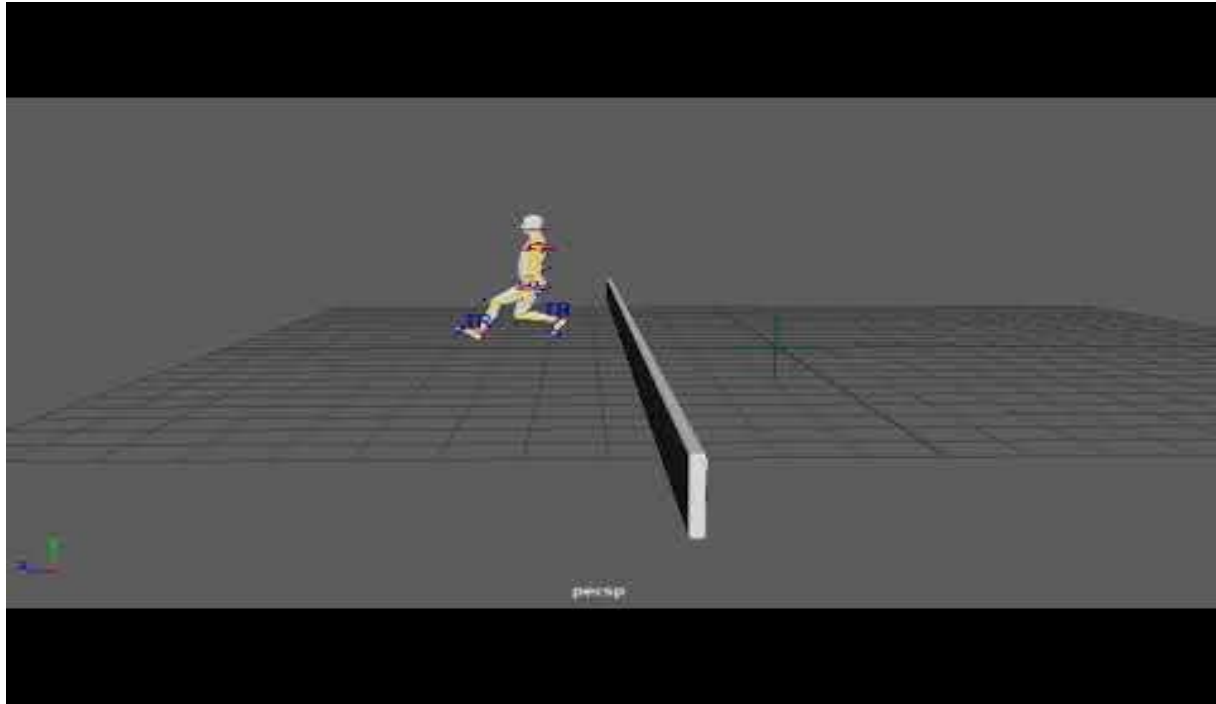
<https://www.youtube.com/watch?v=talfT-tW46Q>



I also tried to see if I could get a fluid landing by showing squash and stretch as the character contracts his legs to brace for impact after a jump, I didn't animate the arms as I was primarily focused on getting the jump and walk cycle done correctly, I was doing this because I found the walk cycle the hardest part of 3d animating last year so I wanted to give myself a head start in improving my walk cycle.

Here is the walk cycle, jump and landing I made my character do:

<https://www.youtube.com/watch?v=dQfv9anGj14>



For my Story board I will show reference images here for what inspired me for specific parts. For the following images I want to show a mountain lion hiding behind a wall with it then going over the wall and lunging at my character. I wanted to show uncertainty and unease from my character's movements with his arms when he discovers a mountain lion has been stalking him.

For the first image we see a mountain lion behind a rock I found this as an effective way to bring tension, the camera will pan facing our human character, but we will also be able to see a mountain lion behind something in the background stalking the human character.



[9]

For the next image we see a mountain lion slowly walking towards the human, the mountain lion is ready to pounce at our character, this will bring uncertainty as the human has only just noticed the mountain lion after tripping over a rock.



[10]

For the next image we see a mountain lion jumping towards our character, for this part I wanted to sow a reaction of fear into the human character, he jolts back in fear and waves his arms around to show his fear.



[11]

For the next two images I show a mountain lion about to land on or reach its prey, I want to make the human so scared he loses balance and trips off the cliff edge behind him.

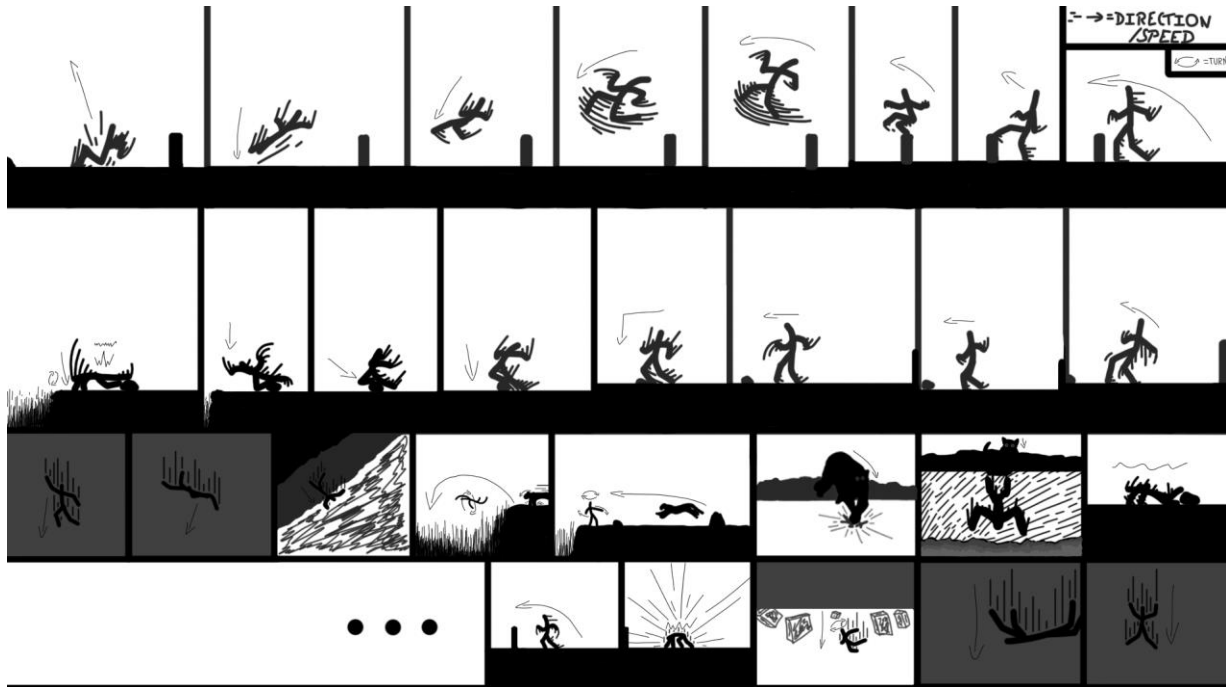


[12]



[13]

Below is my Story Board which will layout and plan the 3d animation I will make:



In my story board I present a human character that I want to portray as clumsy or an individual that is not so careful. So to start he will casually be walking, he then reaches his arms down anticipating the upcoming jump with energy and momentum, he then jumps over an obstacle and flails his arms around mid-air to show the emotion and natural reaction, he will then brace for impact where he will land quite roughly, to show his reactions to this impact, his body will contract like a spring which will dampen the impact, his arms will be wide out by his sides as he anticipates the landing. He will then swing his arms up to lift him up with momentum and he then carries on with his walking cycle. A few seconds later he will then trip over a rock, as his body calibrates to the sudden threat, his arms will instinctively react and will place themselves on the ground to prevent him hitting his face on the ground. After coming to his senses, he finds himself near a vertical cliff drop where he cannot see the bottom of. As he analyses the cliff, we can hear a branch snap which the camera will then pan over to show that a mountain lion has been stalking him. He then stands up in a jolt of fear, the mountain lion tries to pounce at him as he shows weakness. Caught off guard, the human gets scared, loses balance and accidentally falls off the cliff, the mountain lion can be seen stopping at the edge watching the human fall. We will then cut back and watch as the human falls for what seems like quite a while, he looks around, kicking and flailing his arms as he feels the fall goes on forever and ever. After a while, the human gets concerned as there is a sudden shift in color. The wall of the cliff abruptly stops showing, like as if he fell through reality, there will be floating pieces of rocks underneath the cliffs supposed side. He then softly lands on firm but familiar ground and finds himself Infront of the same object he first met, creating a loop.

Animation Lighting and Render test:

Here I tested the rendering, I have not done this before as I have purely used play blasts to display my animations, so this is new to me. I also used lighting to make the scene appear better, otherwise it would be dark and hard to make out.

Here is the render and lighting test animation:

<https://www.youtube.com/watch?v=KDvxAOmP-rw>



Here is the Final 20 – 30 second Animation:

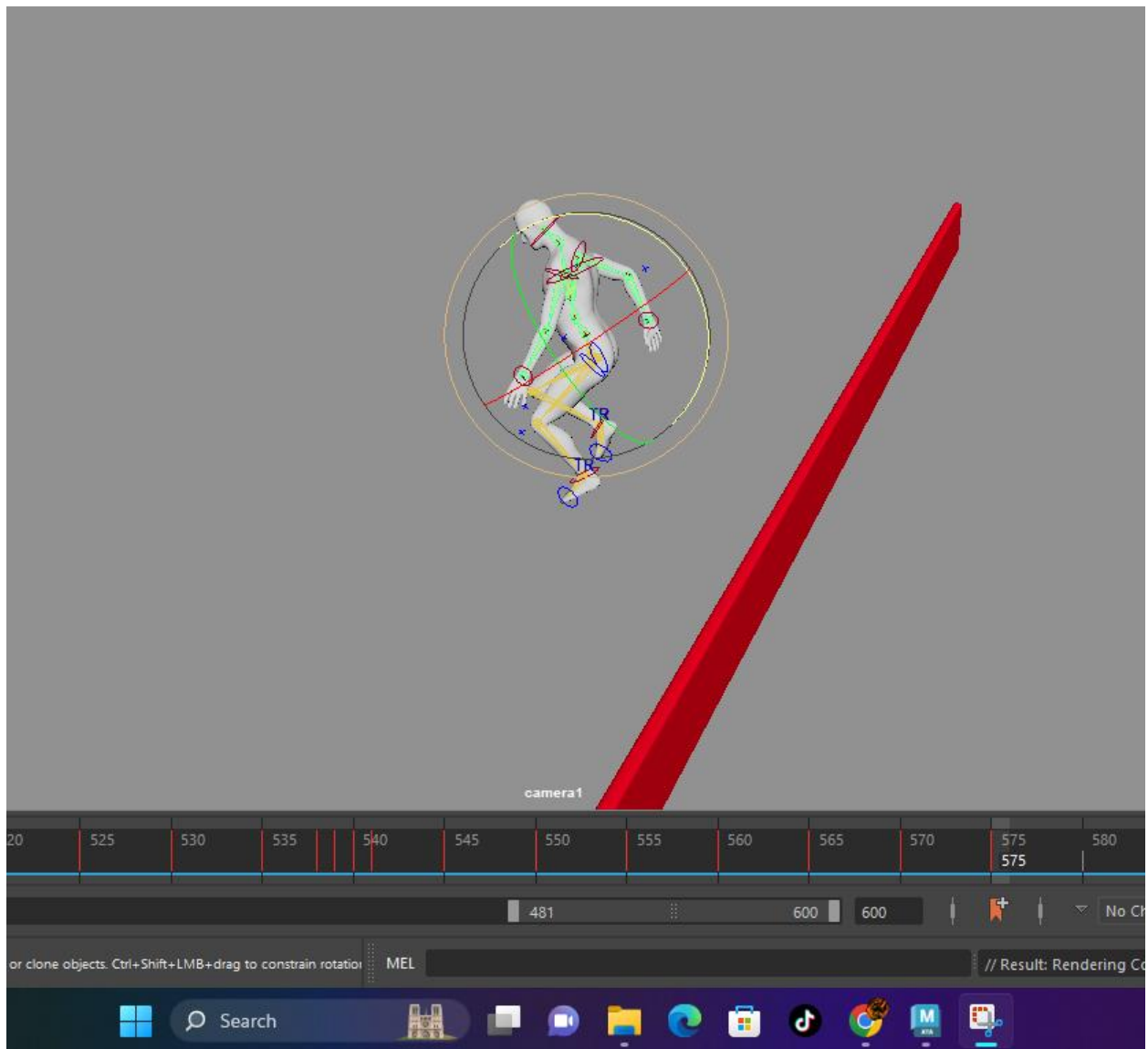
<https://www.youtube.com/watch?v=o78qpjns2xl>



Above is my Final Animation, what I mainly found difficult when animating was the fact that you must guess where to lead the joints ahead of another movement, this made my animation look rather stiff, and this wasn't what I intended. I also found that trying to put an extra joint/rig onto a tail or fingers were quite difficult, I managed to parent the extra joints and I also managed to join them onto the main skeleton, but I never figured out how to bake the extra joints into the skin of the mesh – it would only bake the bones of the main skeleton and not the extra joints I added on, I'm not sure why it did this. I think that if I were to do another animation again, I would aim to rig fingers and tails, or extra parts of the host mesh I want to animate. I would also aim to try and create more smooth animations rather than it looking stiff. If I were to do another animation again, I would pick 2d animation over 3d as I find it a lot easier to animate because of the more versatile tools like onion skinning and I'm better at drawing things than 3d modelling, which gives me more options when animating.

The final animation says it is only 19 seconds. I am not sure as to why this is because my render settings were for it to render every frame in 24 frames per second. The final frame my animation ends on is frame 575 which should end up as 23 seconds with 23 excess frames.

Here is proof the animation ends at 575 frames:



And here is the calculation:

Frames

...

575

Frame rate

...

24

fps

Timecode

Time in hours

...

0

hours

Time in minutes

...

0

minutes

Time in seconds

...

23

seconds

Excess frames

...

23

frames

Bibliography in IEEE Referencing:

- [1] Bridgetharveyartist (2014) *Walk cycle – Richard Williams ‘animators survival kit’*, *bridgetharveyani210*. Available at: <https://bridgetharveyani210.wordpress.com/2014/12/17/walk-cycle-richard-williams-animators-survival-kit/> (Accessed: 08 December 2024).
- [2] (No date) *YouTube*. Available at: <https://www.youtube.com/watch?v=vq9A5FD8G5w> (Accessed: 08 December 2024).
- [3] (No date a) *YouTube*. Available at: <https://www.youtube.com/watch?v=EoDZmyO59SM> (Accessed: 08 December 2024).
- [4] (No date a) *YouTube*. Available at: https://www.youtube.com/watch?v=QkoKbp_DdFQ (Accessed: 08 December 2024).
- [5] (No date a) *YouTube*. Available at: <https://www.youtube.com/watch?v=blr6EZslGV8> (Accessed: 08 December 2024).
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- [7] Ted (no date) *Gestures, Through an Artist’s Eyes*. Available at: <https://tedwoodsart.blogspot.com/2010/08/gestures.html> (Accessed: 08 December 2024).
- [8] (No date) *YouTube*. Available at: <https://www.youtube.com/watch?v=bRzcdpn7m2A> (Accessed: 08 December 2024).
- [9] Pacelle, W. (2024) *Wayne Pacelle on linkedin: Opinion: We need mountain lions to do their job, curtail chronic wasting...*, *Wayne Pacelle on LinkedIn: Opinion: We need mountain lions to do their job, curtail chronic wasting...* Available at: https://www.linkedin.com/posts/waynepacelle_opinion-we-need-mountain-lions-to-do-their-activity-7249413342061035522-WGfi (Accessed: 08 December 2024).
- [10] Catit (2024) *10 things you need to know about pumas, Catit*. Available at: <https://www.catit.com/spotlight/10-things-you-need-to-know-about-pumas/> (Accessed: 08 December 2024).
- [11] *California Mountain Lion population is thousands fewer than previously estimated* (2024) *Los Angeles Times*. Available at:

<https://www.latimes.com/environment/story/2024-01-07/california-has-fewer-mountain-lions-than-previously-estimated> (Accessed: 08 December 2024).

[12] *Canvas Print Mountain Lion jumping* (no date) *Pixers*. Available at: <https://pixers.uk/canvas-prints/mountain-lion-jumping-14429184> (Accessed: 08 December 2024).

[13] Wiki, C. to F.R. (no date) *The Mt. Googas Monster*, *Floppapedia Revamped Wiki*. Available at: https://floppapedia-revamped.fandom.com/wiki/The_Mt._Googas_Monster (Accessed: 08 December 2024).