1.2 REPORT

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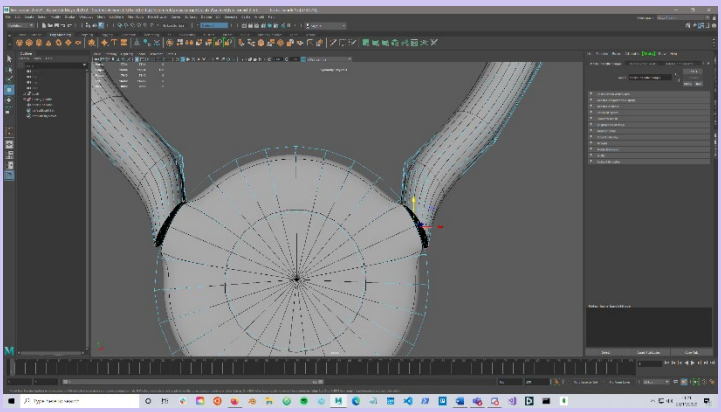
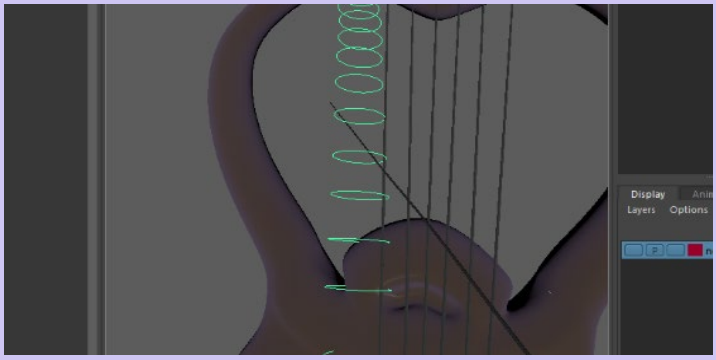
Short version:

- I tried to use a bit of a Pixar style to emphasise on the squash-stretch and principles of animation, so I used my harp because it has the most organic shape that I can squash around
- After getting down basic movement, I added joint rigs to the strings of the lyr. However, the transformations of these joints can never be zero, so I couldn't use the keyframe method from before without warping the strings
- After zeroing the edit history on the strings, I still had the joints but just hadn't bound them, and now they work fine with the transformation, but just won't warp the strings
- This is fine
- So I perfected my keyframe transformation squash and stretches by changing the curves, and then I started on using non linear deformations to make the movement feel more organic
- I added a bend to the peak of the jumps, that sort of emphasises the rotation and uses exaggeration to make the movement seem weightier and more characterised
- Then I started experimenting using sine wave deformations on the strings, adding a low amp, long wavelength to sort of make it look like its vibrating
- This works alongside the animation using transformations better than the rig and does the same thing so that's nice

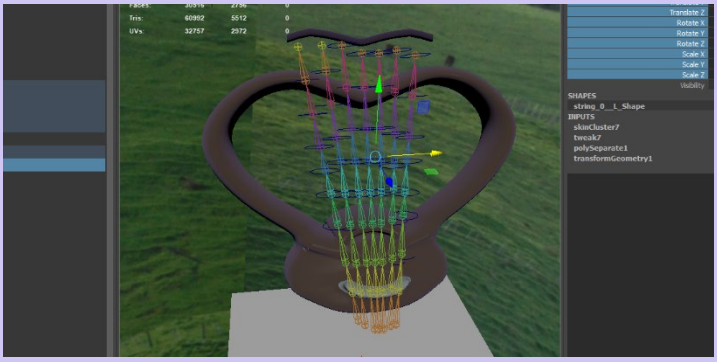
Key Issues:



[I wanted to change the geometry to make it a little easier to work with, by making sure it was symmetrical and hollowing out the base.]



[This is the transformation issue I had using the joint rigs. Initially the joints wouldn't transform (squash) alongside the rest of the hierarchy so they would just stick out. This was an issue caused by edit history which took me an insanely long time to realise.]



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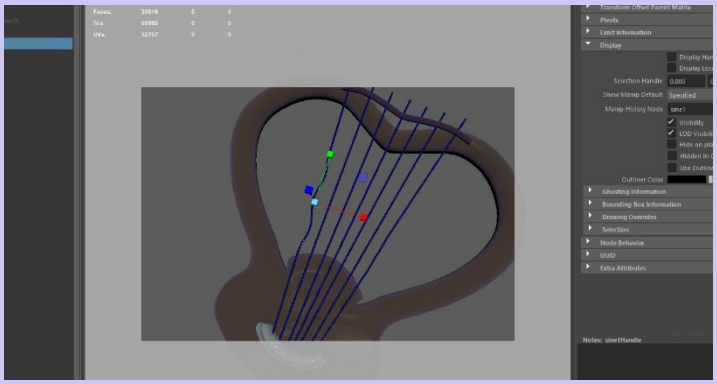

[This was me experimenting with the sine wave non-linear deformer; I needed to make it longer here, since it looks really wrong if only a small portion of the string vibrates.]

I don't have a screenshot for it but I also accidentally did delete edit history instead of delete non-deformer history, which meant my non-linear deformers (bend and sine) got removed from my initial render. Fortunately I noticed this whilst stitching the videos together, which is a good reminder to always double check submission pieces.

Key Take-aways

- I learned the hard way to absolutely obsess over edit history.
- Got decent practise using the deformers, including changing the axis size and rotation around which the polys are deformed.
- I found some good ways to use the three main transformations (translate, scale, rotate) to make some really weighty effects
- Learned how to move the camera do good things

Potential future improvements

- Some of the animation moves a little too slow and appears a little 0G – I would fix this by amending the tangents of the keyframes in the graph editor
- One of the strings is a little off, and I want to find a way to have an impact on them as though being strummed (so from a specific origin point)
- I want to make the model a little more complex, adding details like grooves, and finding a good texture.

Long version

I started this project out by looking at my models and comparing them with the brief, to animate with emphasis on the squash and stretch principles. I wanted to work on the lyre since I thought it had the most potential for movement, and then I thought about how I would animate it to add a bit of a character to it. I thought having it rattle then jump around would work well because its shape means that it sort of draws into a natural exaggeration of movement, which fits into one of the 12 principles of movement.

I looked through my model to check the geometry, since I wanted to make sure everything would work and transform nicely together, and tweaked the hierarchy so that the whole entity was a group containing the body and the crossbar. Parenting the crossbar to the body means that I can tweak it separately, which I wanted to make sure that I could do just in case that became useful later, and also meant that I could group the strings beneath the crossbar.

As I was animating, I had trouble with the rig as the strings would fly out despite seemingly not being under any other transformations. I spent hours trying to find where the fix would be, and since it reminded me so much of transformation order in Graphics PMC, I was looking in the wrong place; freezing the transformations of the strings at frame 1, then deleting all of the edit history fixed the problem. I think that this came about because of the strings being modified to lie in place against the lyre, and since they're not merged objects but rather a parented hierarchy, their own transformations applied before the transformations that applied to the lyre.

For the animation process, I essentially went through blocking the transformations I wanted in the order of: translation, rotation, scale. I chose scale to go last, as I wouldn't be sure of where I wanted the squash-stretch action until I had blocked out the general movement arc to get a sense of where the momentum would be. This was generally an iterative process, and I would run the preview over and over again, sometimes scrolling through frame by frame, to identify problems. One of the biggest issues with this method was sorting out the speed of transformations using the graph editor. I often found I needed to split the tangents unevenly (to be steeper on a downwards action) but that working with a spline curve gave an acceleration that felt more natural.

The final step to the process was using deformers to add a little bit extra squash and stretch/exaggeration. I did this because the animation ultimately felt a little bit too rigid for the movement that the lyre was taking; for a really bouncy movement of a static object, it doesn't make sense for there to be no bend. I used the non-linear deformer "bend" to warp the lyre during the arc of its jumps. An alternative would have been to use a lattice, however I really struggled with transforming the lattice in the way I wanted it to warp, and there were odd interferences as the lyre moved through the lattice at the edges; because the shape is uneven,

the warp just seemed really off. The bend also altered the weight distribution slightly, which made the effect a lot nicer because it seemed to have more motion to it.

I also experimented with the sine non-linear deformer to move the strings, although I'm not 100% happy with how this looks, as I want to have more of an origin point to the wave effect; as though the string were being plucked. Another step I would take next to improve this animation would be to add a little bit of a motion trail; since the movement is so active, I think it would make sense to add that in, especially on the downward fall motions or the spins, to add a bit more of a sense of speed to it. Overall I'm pretty happy with how this project turned out, since it's my first time animating with this kind of method, and I think I took a lot of valuable lessons from it, particularly regarding my workflow (edit history etc.) which was admittedly a little too haphazard towards the beginning of the project.

References

- Skald, A., 2016. *The Song Of Times | Lyre Gauloise - Tan - Atelier Skald |*. [online] Available at: <https://www.youtube.com/watch?v=nmExqfKa1Uc> [Accessed 30 November 2020].
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