Lightning Boy Character Design

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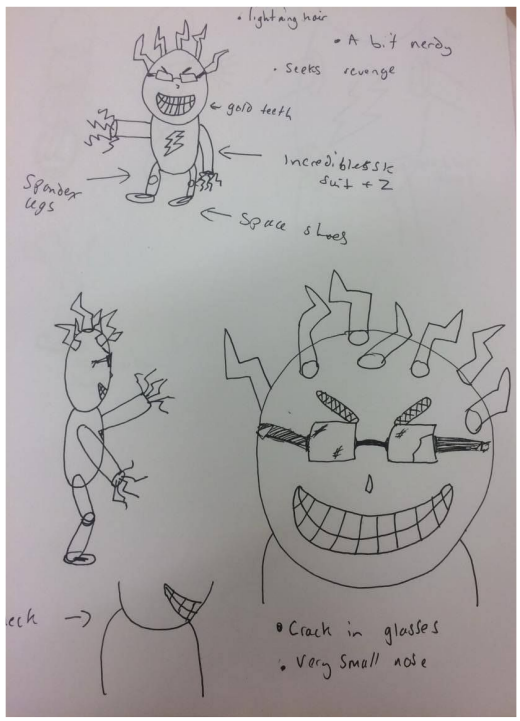
Complete Render of Lightning Boy

From a child's sketch to complete rendered character was a challenging task. The character progressed through different poses and stages, with several elements changing throughout the process. The steps to create this final rendered image above is documented below.

Pre-production and Planning

The drawing of Lightning Boy had several elements that were appealing to model. From the name alone we can start to picture the type of attributes for this character, Boy denotes a childlike nature, different style of clothing and items. I drew various elements from the drawing to see if they fitted the mood and how they could be realised in the final scene. The character was 'seeking revenge on the galaxy' and when I drew the face, I found that he didn't fit the word revenge, so I added menacing eyebrows to add a darker side to the character. A crack was added to the sunglasses to denote a careless child nature of Lightning Boy. ,The name Lightning Boy sounded like a super villain, so the clothes were inspired by the Incredibles, a full body suit with a lightning bolt on his chest. The smile aimed to be a manic smile with a slight discomfort to it.



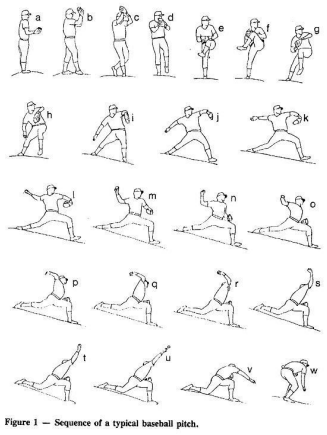
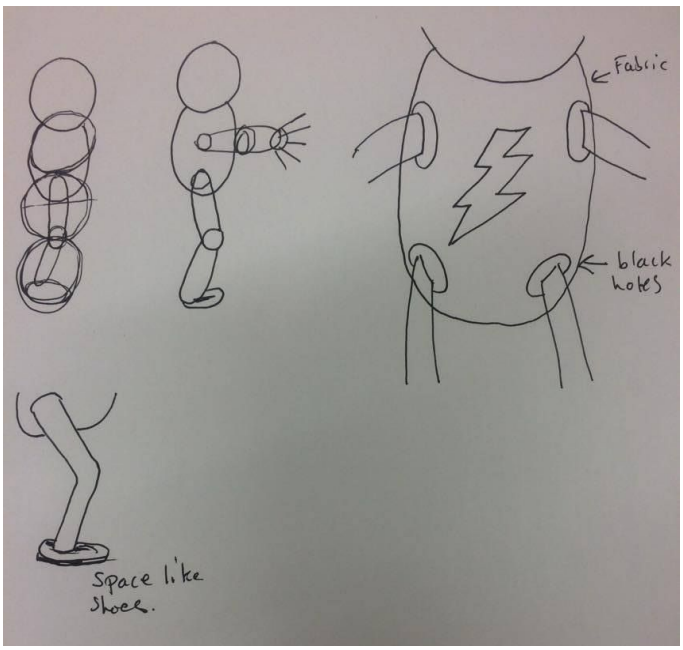
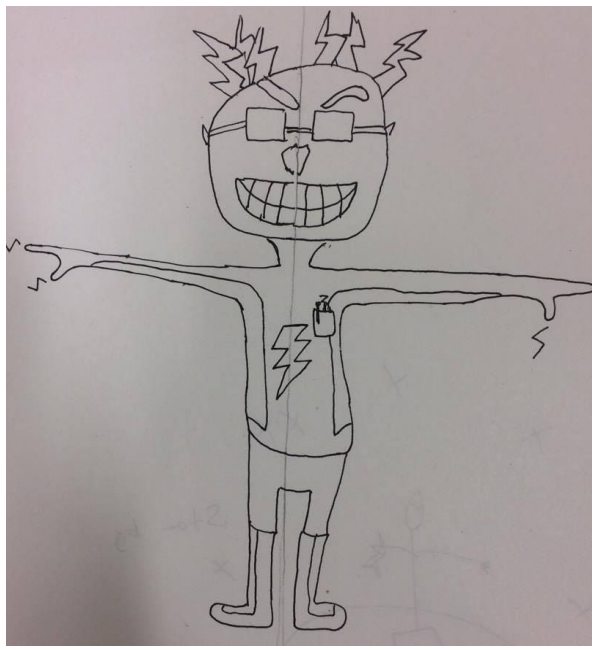
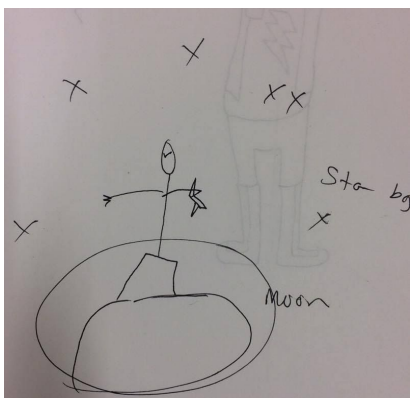


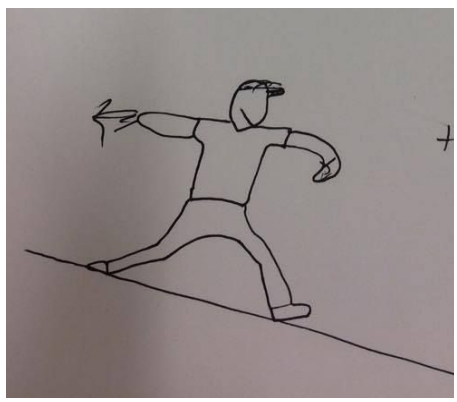
Figure 1 — Sequence of a typical baseball pitch.

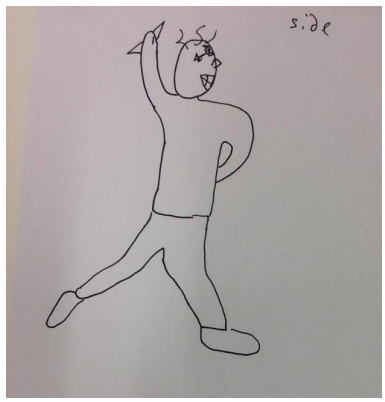
After I had visualized the character's head, I worked on the body and thought about different poses that the character would be positioned in. The revenge aspect of Lightning Boy inspired me to interweave the act of throwing a lightning bolt for the pose. I looked at various baseball poses as that was a position where people throw items. I sketched the body proportions then different poses the character could be in.



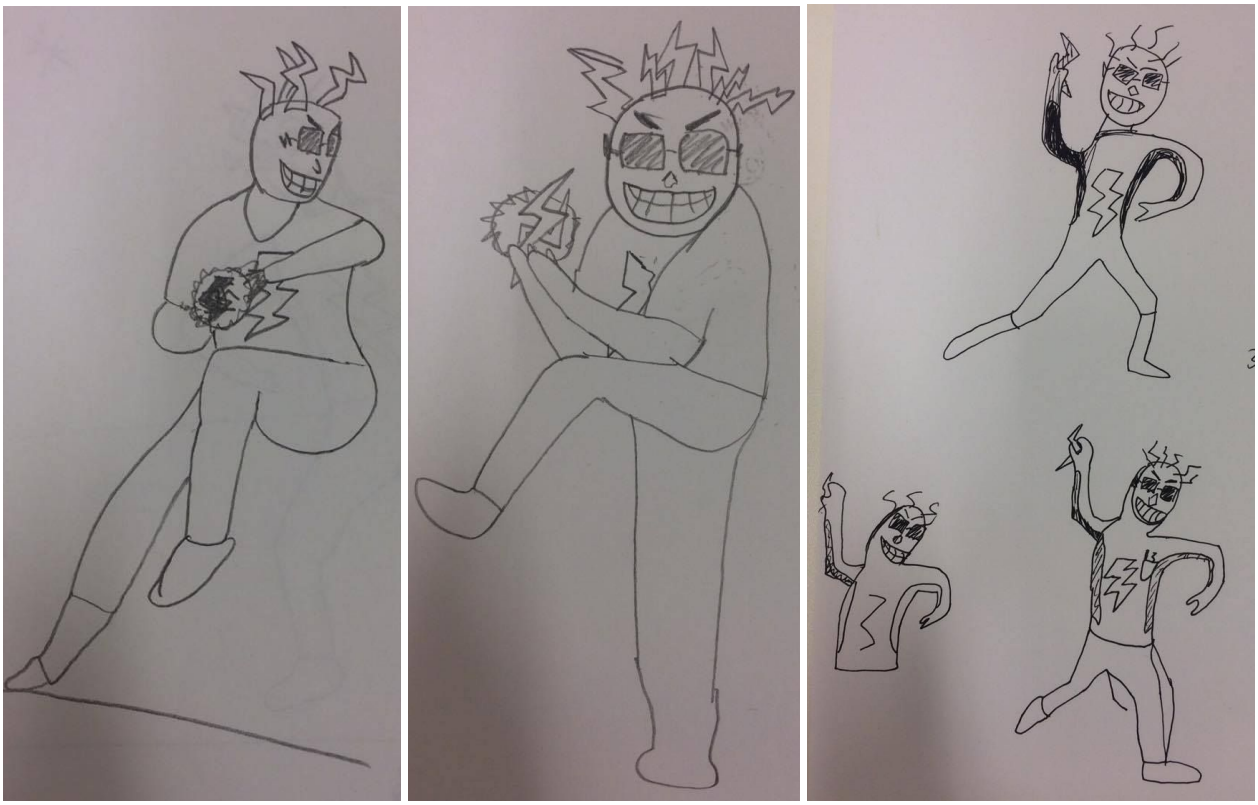






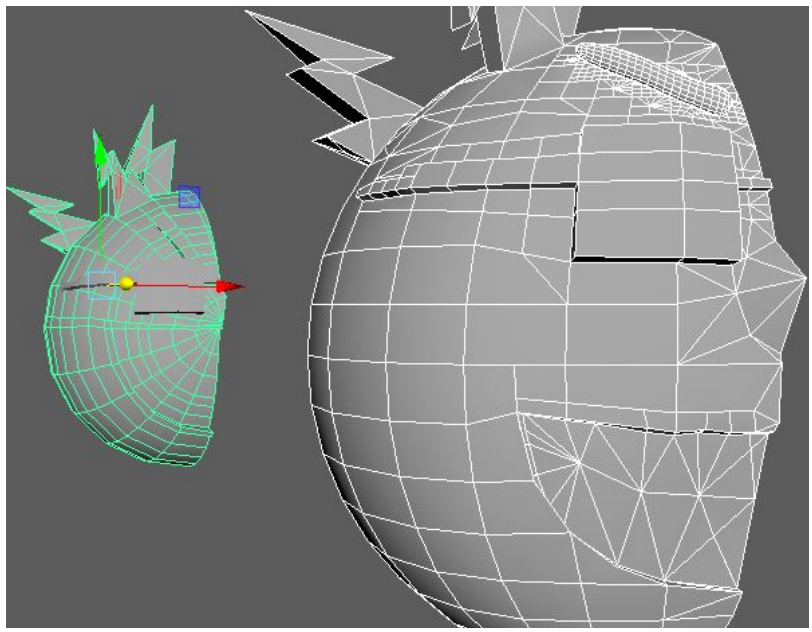


Different poses worked well, however were very difficult to draw. I drew the character in a T-pose to finish all details and to create the model from, then I could pose the character after I had completed the T-pose in Maya.



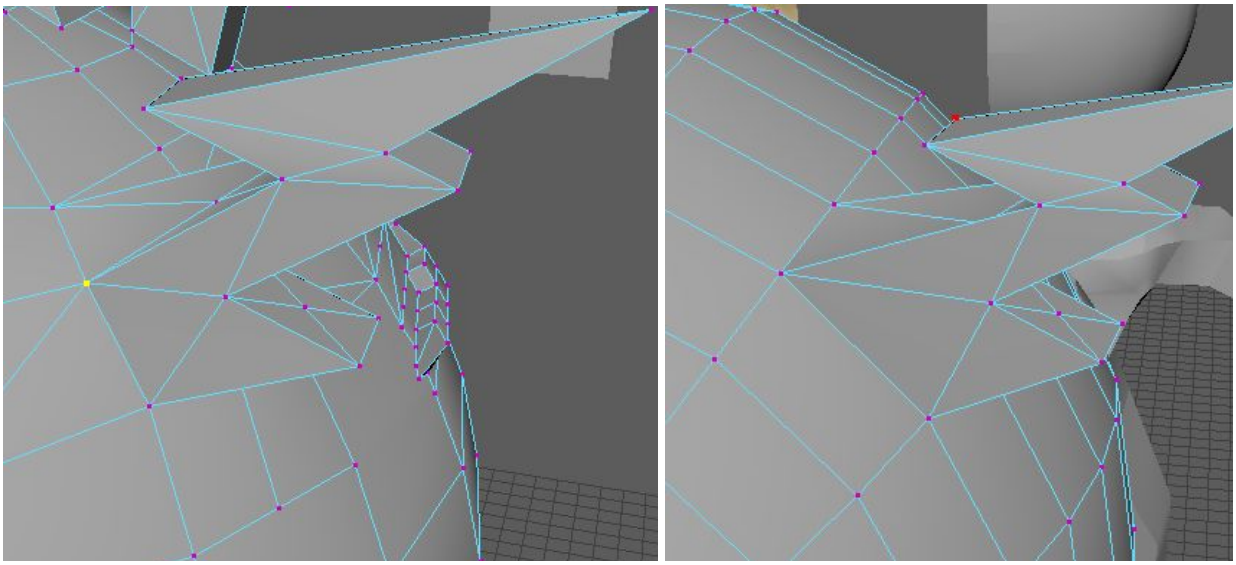
Modelling Process

The head was the most complex feature of the character, so I started with the head, then the body to create a T-Pose. However, when I started modelling the mouth of the character, I realised that the geometry around the mouth was very messy. I found it difficult to work with the nose and ears with geometry like this. Instead of individually reworking each vertex on face, I decided to start again, but this time rotate the sphere 90 degrees so the cluster of endpoints were located at the nose and the back of the head. This created a cleaner shape with nice flowing edges towards the nose and the mouth had a good shape.



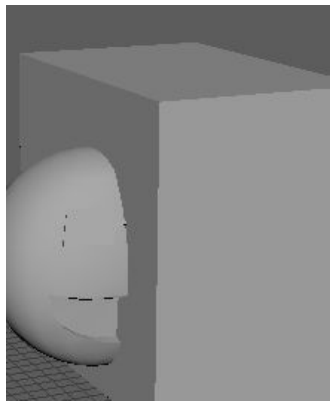
Left, new cleaner geometry. Right, messy old geometry.

In this process I wanted to try and save the current work I had already created. I separated the sunglasses and hair, moved them over to the new head shape, positioned them above the new model, then for the hair I deleted the face on the base of each hair shape, and deleted a face on the head, then merged the vertices together to join the hair to the new head.



Left, old geometry. Right, new geometry

Another difficulty I encountered was when I modelled the lip for the characters mouth. I wanted a nice flowing geometry so I started off using a NURBS curve, however it didn't look very realistic. I tried another method by selecting several faces and extruding them inwards and using the edges as lips, which worked very well.



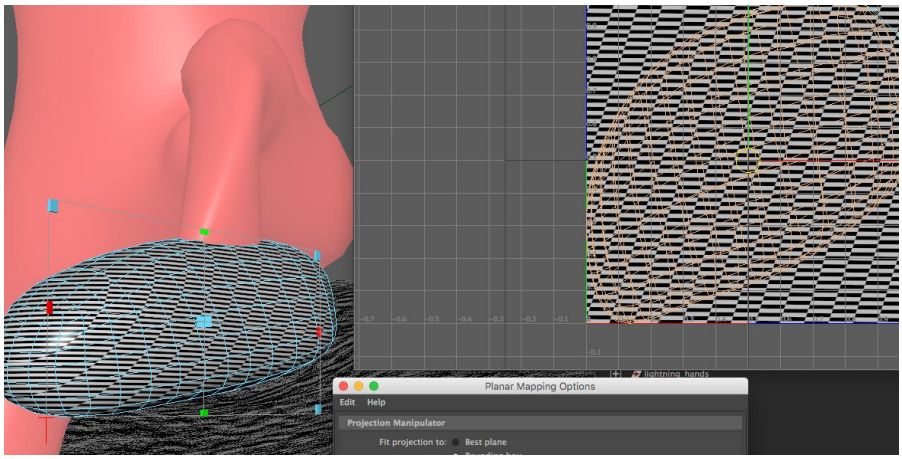
During my modelling process I wanted to duplicate some elements, such as ears, glasses, etc. So I kept creating a mould using boolean differences at various stages of the modelling process. Then mirroring the geometry to create a complete copy of the other side.

Texturing Process

This process involved inspecting the initial character drawing and my development sketches to see what colours, patterns to use. I wanted the head to be a realistic skin colour, but with an alien feel. So I used a light fractal pattern to make the surface look like skin. The moon also used a fractal bump map in addition with a displacement map of a photo of the moon. This was used to pull the surface points to create a bumpy surface. Although there were difficulties when creating this when the render time suddenly doubled to over 2 minutes. This was difficult to debug, but I managed to narrow it down to this moon texture, by simply deleting the whole moon object, then re-rendering. However, I wanted to keep this moon displacement map texture as it looked really good. Instead of deleting the object and remaking it again, I opened the *Hypershade* window and graphed the network for the moon texture. I found that I had accidentally created 2 displacement maps, so Maya was pulling points on a simple surface, then pulling points on the now complex pulled surface! I deleted the second displacement map node and the render time reduced massively.

To create realistic looking teeth, I could've modelled each tooth individually, however, instead I used a grid texture and positioned the UV texture at the right angle to look like lines for teeth. This process was easier because I had created the mouth using flowing geometry edges where the teeth edges would lie, therefore the grid edges were by the teeth edges. I also added a reflective surface to make a glinting grin.

To create realistic shoes for Lightning Boy, I looked at the sort of shoes Lightning boy would wear, finding a texture online. I UV mapped the shoes first with a checker pattern, adjusting the UV map to be a planar surface. However, when I added the shoe texture and rendered using Arnold, I found that the texture didn't appear with the translations. I switched the Mental ray and the shoes appeared with the UV translations applied. For the final render I had to render the shoes separately with Mental Ray.



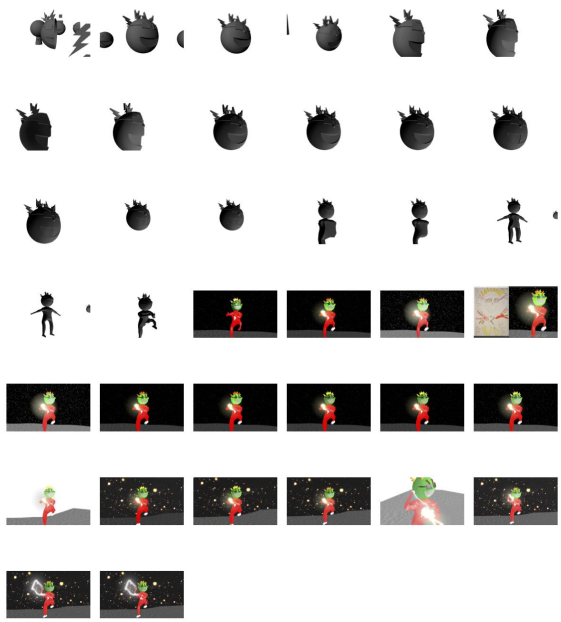
Using the UV editor to adjust the shoe UV map

Lighting Design and Rendering Process

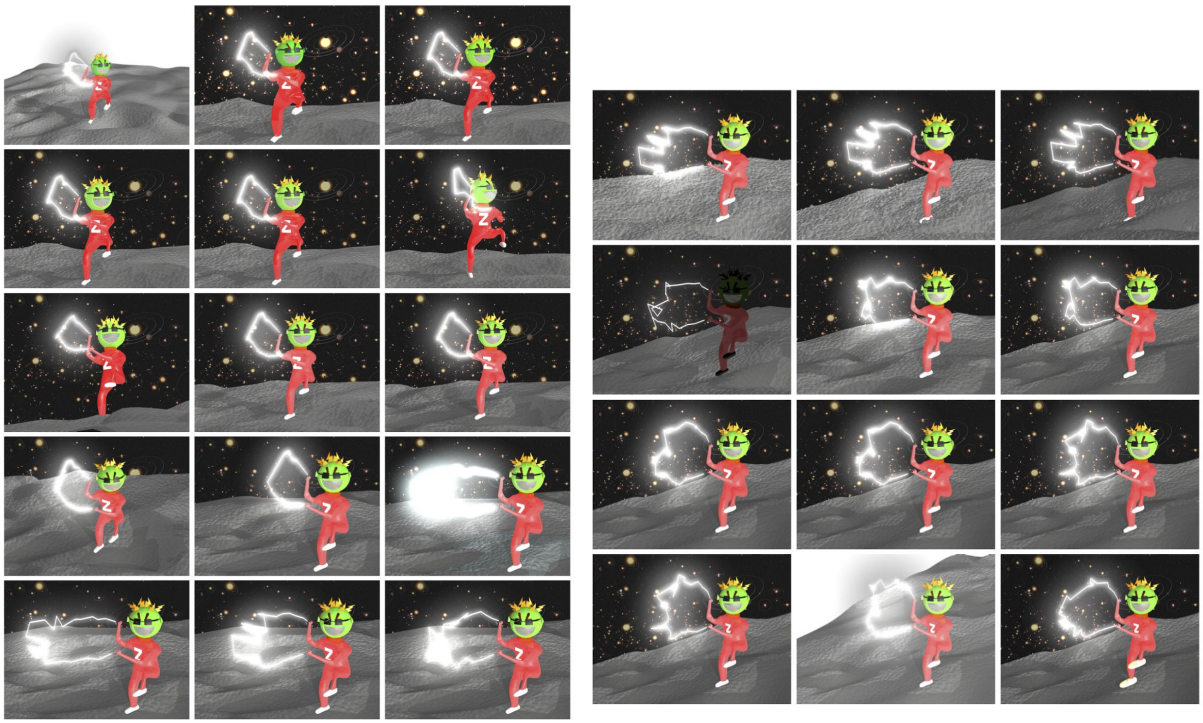
A combination of lights were added for a combined purpose to set the character for a revenge pose. A directional light was added to create shadow, a point light behind the character picked out features, a point light was focused on the teeth to shine and create that glinting evil grin. A ambient light was used to lift the overall scene. I kept rendering the scene to check that the lighting suited the style of the character, an evil boy. I explored other types of lighting positions but they didn't suit the pose of my character.

Lots of renders were made with multiple critics with peers to refine the image. For example, somebody pointed out that the lightning bolt could've meant a Z for planet Zorg, therefore I updated the model to show this.

After I was happy with the final image, I added a photoshop layer of cloud and fog to the whole image. This created a good edge to the image and added to the moon setting.



The start of the render process



Lots of renders were done to refine the final image

Side by side comparison of the finished model and the child drawing