Reflective Account

The development of the idea that eventually
turned into my Major Study over Semesters A & B

Semester A

One of the weekly projects that were set by Martin in Semester A had the topic "Light and Shadow". I was quite impressed with some of the examples Martin showed in class, especially with the high contrast animations we've been shown. I spent two days doing research on topics that could be suitable for a high contrast animation but couldn't really find anything that suited this theme. And as I didn't want to make one just for the sake of making one, without a real story behind it that justifies the use of that style I decided to abandon that idea and look for something else to do instead. When I was thinking about "Light & Shadow" synonyms like Day and Night also more abstract binary oppositions like Life and Death came to my mind. Life and Death as an interpretation of the topic seemed to be an interesting theme for a short animation so I decided to go with that. But as it is not very imaginative and also a bit sad and bleak as an ending to have a living creature die in a short film I thought it would be more interesting to have it the other way round. Start with something that is dead and comes to life again. This would also play on the myth of the Phoenix being reborn from its ashes. So I started searching google for creatures that I could resurrect but while doing so I realized that I probably strayed too far from the original topic and stretched to brief too much by having a dead creature coming to life again. What I needed was something that brought me back to "Light & Shadow" yet kept the animations theme of life and death that I had developed and that I really liked. Serendipity helped me out a bit here as when I was searching for "life" and "light" on Google I came across a page dealing with photosynthesis and how sunlight meant life for plants and how prolonged darkness is death to all life. This set me off towards the final theme of my Semester A animation of having a dark room without anything living inside that gets changed to a room filled with life by sunlight that is flooding in.

The timelapse growing of plants lent itself because the brief had a 30 seconds time limit in it so I needed to grow the plants fast. The only question left now was plant to use and in what environment the animation would be set. For plants I wanted to go for ivy first as that makes for a very nice growing motion in timelapse as a quick look at the BBC motiongallery confirmed. But as ivy is more associated with decay and ancient buildings (as it is mostly seen on really old buildings) that didn't fit my theme of fresh life being born. A very "happy" plant that is associated with positive things is a sunflower. Sunflowers also have light / sun incorporated right into its name and the bright yellow petals would contrast a darker gloomy background well and introduce "life" to my animation not just at a story-level but also on a visual level through a strong contrast in colours. So I went with sunflowers. As for the environment of the animation – I wanted to have it set in an old, decayed, run down environment so I was looking at medieval castles, torture chambers and also Maya and Inca stone halls and caves. I decided to go for a mixture of both (European medieval and Maya/Inca) and built a stone chamber lit by some torches to introduce some subtle lighting. Looking back I think the torches were not such a good idea to add as they emit a very orange and warm kind of light and took away much of the decayed, evil look of the environment. The old dirty stonewalls worked very well though. The sunlight coming

into the chamber was done by cracking a wall and having a beam of light coming through that crack. This in a way works as it is showing that the "era of death" is coming to an end and "better times" are about to come but it also provided me with a reason to make a cool looking visible light beam with dancing shadows in it that break up the beam and make it look less computer generated. Making this animation in just a week (actually in just 4 days as I spend 2 days on developing the idea) proved to be quite challenging and I couldn't finish it to a high quality standard because of time restraints. The rendering the Wednesday lecture with Martin looked more like an advanced animatic than a finished animation but as I grew really attached to the idea I was hoping that I could pick it up on day and make it into a finished short animation.

Semester B

In Semester B the decision to go pick up the idea and use it for my Major Project was mainly based on a reflection on Semester A and the early weeks of Semester B, looking back at the work I've done. The "Light & Shadow" animation was the only one that I've left unfinished despite the really promising idea behind it and I didn't want to let that idea go to waste. It had a whole set of really good symbolism in it and I thought it could be developed to a really good animation that had both technical challenges in it and a good and meaningful story as well. Actually the animation is packed with technical challenges as every scene except the first one which is just an establishing shot is rather difficult to do. Timelapse growing of a whole plant in one continuous shot, the deconstruction of a whole room and a field of sunflowers are quite hard to do. After doing some preliminary tests if I could manage the technical aspect I put the idea forward to Alan and Martin and they agreed that I could use half of Semester B to start doing research for the animation and its technical aspects and then make the animation in Semester C. Without the possibility to do research and technical tests in Semester B it would not have been possible to do the animation so once I was cleared for Semester B my decision of going with the "Light & Shadow" idea for my Major Project was set. As agreed with Martin the Major Study portion of Semester B would consist of researching and testing solutions for a collapsing room and modelling, texturing and lighting that room (in essence completing the first set of the animation).

I started by doing a storyboard as for Semester A I didn't really have one as the animation consists of only three scenes. After showing that storyboard to the class on Wednesday lectures it was suggested that I change the Medieval/Inca setting to something more modern, using concrete walls as that would look "cooler". The more I thought about this the better I liked the idea of changing the set. A modern concrete room would have several advantages over an old stone one. With the right furniture and lighting it could transport the feeling of an oppressive totalitarian regime and people also can relate better to a concrete room and its evil atmosphere as everybody knows creepy subways or tube stations made out of concrete with insufficient lighting and lots of grudge on the walls. Additionally changing to a concrete room wasn't just a good idea story wise but it also had several advantages from a more technical point of view. Concrete textures can easily be obtained be taking pictures of concrete walls while getting textures for a stone wall is not that easy. On the other hand it is easier to collapse a wall made out of stone as opposed to one made out of concrete but I was quite certain that with enough time for research I could find a working solution for the disintegration part.

My first test used the inbuilt Dynamics module of Cinema4d and its RigidBody solver. As expected this turned out to not be a useful approach as the RigidBody dynamics of Cinema4d are really not up to industry standard and produce inferior results at high calculation times. This issue with Dynamics is discussed at length in various internet forums but I wanted to try for myself. My tests with Dynamics only proved the internet forums right though. So my next approach was using a modified Cloth simulation to simulate falling blocks of concrete. This was inspired by an online tutorial that uses Cloth to do object explosions with realistic dynamic behaviour. There is a stiffness setting in Cloth that can be set to more than 100%. When using really high values around 1.000% the cloth starts to behave like a rigid body. The results of my tests on using cloth as a rigidbody simulator however showed that in delicate situations of numerous blocks colliding on each other the simulation is very instable. The main problem of using that technique is that it is hard to maintain a constant volume of the chunks. Because of the nature of a cloth simulator the chunks tend to collapse into flat (cloth like) shapes and don't maintain the depth of a concrete junk. Unfortunately I could not find a solution to that problem as except of that Cloth would have given very nice results at low calculation times. My next try was using the RigidBody simulator that comes with Softimage XSI. From previous experience with it I knew that it is a very reliable and fast simulator. A pretty big disadvantage of using Softimage for the simulations however is the need of import/exporting all 3d data from one application to the other. Using FBX as the transition file format worked quite well for transferring animation data but it doesn't carry textures across and therefore would have put a lot of restrictions on my workflow. There also was a bit of an issue with the scaling of scenes as the world-scale of Cinema4d is rather huge compared to the one of Softimage so I had to use a scale factor and despite using accurate numbers when doing the export it did not quite fit back in the scene in Cinema4d. So while using Softimage worked there were some rather severe problems that came with it. I kept this solution in mind but kept looking for a better one. The last way of doing the collapsing scene that I could think of was using a plugin by Remotion called PhyTools. PhyTools is a plugin specialized on doing RigidBody and Fluid simulations for Cinema4d. It took me a bit of getting my head round that plugin as the workflow is quite different to Cinema4d's one. But once I figured out how to use the plugin it was really easy to use and did the best simulations I had so far at moderate calculation times. So I decided to go with PhyTools, especially as a unlimited 24-day Demoversion is available and I won't need more than 24 days to do that scene.

For the modelling and texturing of the room I used reference images from subways and 70s architecture using lots of concrete. The layout of the room is rather simple to support an evil atmosphere. The textures were done by taking pictures of my old highschool (as that was the only available concrete building without graffiti), stitched together to a 8.000 pixel texture (so it holds up on HD renders) and dirtened a bit with custom grudge brushes in Photoshop. The lighting of the room is mostly indirect diffuse lighting from neon tubes hidden in walls. There only is one direct light in the form of a lamb on a desk (later in the process changed to a bare naked light bulb as explained in my sketchbook). The lighting is all in bluish colours for a dark, cold and evil atmosphere and to contrast the warm orange-yellow sunlight that will pour in through the cracks in the walls. With Ambient Occlusion and Global Illumination enabled a full render of that set at HD resolution takes about 8 minutes which is in my rendertime budget of 9 minutes per frame.