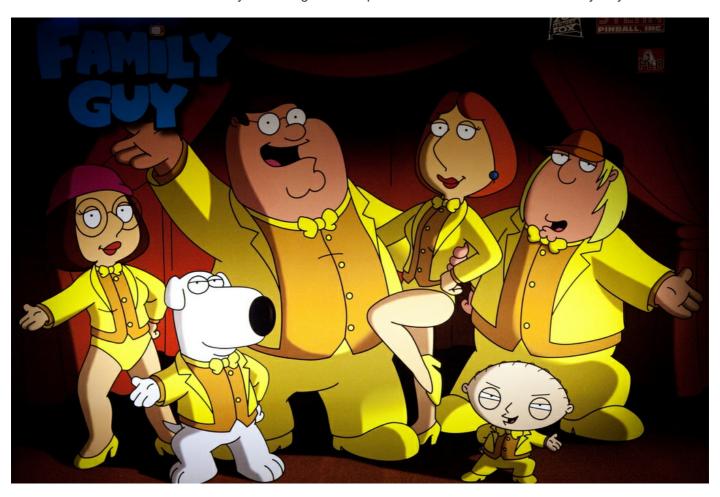# Unit XXXI Assignment I

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PI: Different Types of Animation

There are a few different ways that animation can be used. This informational leaflet will list three different types of animation.

Masking

Masking animation is when an animation will be added to the background of an image. Traditionally this was made by animators painting a static background and then draw on the objects that will move later on, ensuring that they can be shown to move across the screen without changing the static image in the back, meaning that the static background does not need to be recreated for every frame. A good example of this is the animated show Family Guy.

Movement

Movement animation requires all objects within the scene to move at one point or another. Over time, an object will move from one point to another at a specific speed. The speed is important as if it moves too quickly it may look unrealistic and if it moves too slowly then it may simply take too long. The one downside to this is that only a simple objects can move due to the fact that complex objects such as characters with many body parts can look unstable with this method.

Morphing

Morphing is when a computer program is used to generate the frames in between keyframes. This means that you place object A at the left side of the screen and move it over to the right side of the screen 10 frames later. Then, using morphing, the object will automatically move between the places specified at an even rate. Because 10 frame is not particularly long, especially in a 24 or 30 FPS video, the object will move quickly. One way to solve this is to increase the morphing time to 30 frames, so that it will take one second to move from point A to point B, if it is rendered at 30FPS.

PII: Different Uses of Animation

There are many different ways that animation can be used. I will now list five different ways in which animation can be used.

Advertisement

Advertisement is the main method of pushing a product or service to more new people, in order to sell the product and generate new customers. Animation is used in many television advertisements due to the fact that it allows the company to show footage that may not be possible to create with practical effects. This can result in some very powerful visual scenes. One of the most well known adverts in British culture is the 'John Lewis Christmas Adverts' which are a yearly event and have become part of popular culture in the UK. In 2016, the advert depicted a young girl who often looks up at the moon, and on this particular evening she finds a shed with an old man living alone inside. She tries to talk to the man over many different ways but to no avail. Finally, Christmas Day comes and a package arrives by balloon outside the old man's home. He opens it up and finds a telescope. Using the telescope, he spots the girl and sees her waving back at him. This advertisement, combined with the slow, soft music, makes it very moving but it is important to remember that this would not be possible without the animation of the old man on the moon. Due to the fact that it impossible a person to walk on the surface of the moon without a spacesuit, it is obvious that CGI, a type of animation, was used.

Creative Art

Creative Art is can also use animation, specifically in more abstract pieces. Artists may use similar tools to those used to create 3D animations, but may make them still. Another reason for using animation is that it allows the artist to add a new dimension to their work, time. The use of the fourth dimension is a good method of expressing oneself.

Education

Educational animations are used to help inform the audience of different things. When making an educational animation it is important to remember what the age of intended viewers are. For instance, if they are children then animals may be a good choice to try to convey the message. When showing complex diagrams, such as a blow up of an engine, an animation may be needed to be to show the innards of the machine. Another example is for a more specific case. If the animation is for geography, there may be an animation of the Earth spinning and zooming in on important areas.

Entertainment

One of the most known types of animation that is used in entertainment are the animated movie studios `Walt Disney` and `Pixar`, which have made at least 170 films combined. All of these films span many different types of animation such as stop motion, traditional and 3D animation. Animated movies are normally made for a younger audience, but recently some animated movies have been made for an adult audience, such as the R rated film `Sausage Party`.

Virtual Reality

Animation is becoming much more widely used in Virtual Reality, which enables gyroscopes and other movement based technologies to track the user's movement, then outputs a video into their vision via a headset or goggles, meaning that the user feels like they are somewhere else. This can be used to make different types of situations, from horror games to military simulations. The animation used is normally 3D to give a more realistic approach to the user, but 2D can also be used to make interactive sidescrolling games such as `Super Mario`.

PIII: GIFs

Advantages

There are quite a few different advantages to using GIFs, the first being that back when they were first created they were much faster to load than video due to the smaller file size. GIFs are also very compatible; they can run on almost any system and do not require proprietary drivers to be able to be viewed, unlike MP4 videos. GIFs also have a very good compression algorithm, meaning that they can have their file size lowered drastically without the need for losing any pixels or details within the image. GIFs can also be singular, static frames, meaning that they can stand in as both short, soundless movies and also just regular images too. GIFs have many settings that can be applied to them when injecting them into the user's browser, but the main setting is looping, which repeats the GIF once it has ended to create an infinite playback. This is very useful for a GIF that may load but be not in the user's line of sight, such as lower down a page. When the user gets to the GIF, it will already be playing so they do not have to interact with the GIF at all, merely observe it. The final advantage to GIFs is that they can be used to set the transparency of certain pixels, meaning that a GIF can have 'blank' spots which may be very useful to an animator as they have more freedom, and to a user as they have to load loss data.

Disadvantages

There are a few disadvantages to GIFs, but the main one is that there is no *buffering*. This means that the GIF has to be loaded in it's entirety before it can be played, whereas MP4 videos can load only a bit of it before playing, then downloading and rendering it on the fly as the user watches the video meaning that they can access it quicker. Also, if a GIF has a high resoution and a high framerate, then the user's CPU may not be able to cope with the rendering process, meaning that it will take much more time than a video. Another issue is that GIFs are now much slower to play using the older format. A newer format, GIFV, is better at loading the animation due to the fact that the encoding and compression is better, but this format is not as widely known about or used. A final issue is that there are only 256 colours that can be used within a GIF, meaning that the colour scheme is very limited as it is only 16bit.

MI: Flipbook

Please see the attached flipbook within the folder that contained this work.

MII: Different Animation Formats

Traditional Animation

Traditional Animation covers all types of animation that are hand drawn by an animator. These animations have each individual frame drawn and are shot in sequence to create a moving picture. A good example of this is a flip book, or an old Disney movie.

2D Animation

2D Animations are vector based animations that have become increasingly popular within the last view years due to the rise of the ease of access of animation software. Adobe's Flash is cheap, especially the older versions that are not SaaS, meaning that they have a fixed cost rather than a monthly cost. **Flash** animations are also very quick and easy to make, meaning that they are an ideal starting point for beginner animators that want to learn tools and techniques of the trade without spending large amounts of time and money on purchasing and subsequently leaning how to use professional, expensive software. Many animation shows, such as South Park, are made using 2D animation softwares and techniques, rather than the traditional methods of doing so.

3D Animation

3D Animation is vastly different from the other forms of animation mentioned thus far. Rather than simply being able to draw well, 3D animators also need to be able to be good at computer animation. A more colloquial term for 3D animation is CGI, which stands for `Computer Generated Images`. These are used largely in movies and TV shows, where it would not be economically feasible to shoot a scene using practical effects.

Motion Graphics

Motion Graphics are a method of moving text and shapes around a canvas. This method is primarily used for title cards and introductions to movies and videos. While typography, which is a type of motion graphic, can seem like it is very simple and easy to make, it can be very hard to make a motion graphic look fluid and easy on the eye. It takes a lot of artistic skill and effort to create decent animation.

The following example is part of a video which can be seen at natfan.github.io/typography

Stop Motion

Stop Motion is another older form of animation and uses singular images that have only a few things moved to be placed one after the other, to make it seem like the subjects in question are moving. Stop motion has been used in popular culture, such as the TV show and movie `Wallace and Gromit`.