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What is happening to animation in 21st century?

Once a French-Swiss film director, screenwriter and film critic Jean-Luc Godard wrote ‘The cinema is not an art which films life; the cinema is something between art and life’, a statement said by the author, focused on stop-motion animation (Wilson, 2018). This quote is significant since it applies not only to cinematography, but it also applies to animation, from its first appearances till 21st century films. However, animation in the 21st century has changed massively since its first appearance. Therefore, it is essential to mention the first animation creations, techniques artists used to achieve animated movies in order to investigate the essay question of what is happening to animation in 21st century.

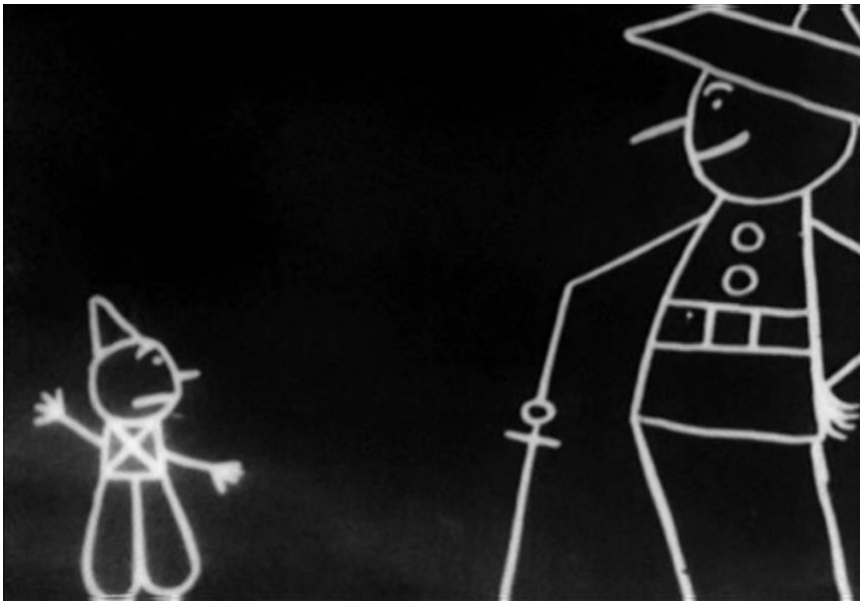

Figure 1. A shot from *Fantasmagorie* (1908)

To start off, first animation attempts go back way to 1908 where first short animated movie *Fantasmagorie* was created by French cartoon and animator Emile Cohl, in the same year he created a few more short movies using the same technique. He was the first to feature drawn cartoons on paper shot sequentially frame by frame on a makeshift animation camera stand or in other words stop-motion photography. The creator also had to create a lightbox in order to register his drawings (Beck, 2018). *Fantasmagorie* photographic stop-motion animation inspired many other creators. In addition, same technique was used to create cartoon *Pedigree* (1927) by Pat Sullivan and Otto Messmer's Felix (Riffel, 2012).

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Figure 2. A shot from *Snow White and the Seven Dwarfs* (1937)

Not long after Walt Disney came out with first hand-drawn animated films *Snow White and the Seven Dwarfs* (1937), *Cinderella* (1950) and *Sleeping Beauty* (1959) (Kalmakurki, 2018). A newspaper in London in 1938 has said about the first Walt Disney movie *Snow White and the Seven Dwarfs* (1937) that 'It is difficult to find any flaws in this very lovely film; there is beauty here and tenderness, fantasy and humour and, above all, a perfect understanding of a young child's dream. The animation is almost perfect, giving, except on very rare occasions, the illusion of life.' (British Film Institute,1938).

Figure 3. Image of Walt Disney showing rotoscoping

Since these releases, the animation industry kept growing and changing, in fact, it can be argued that animation in 21st century is completely different, and first techniques are forgotten and changed by new technologies. The aim of this essay is to guide through animation from its early appearances, however, mainly discussing and comparing the creation of animation.

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The Walt Disney Company success at the beginning of 20th century

My essay question is about 21st century animation, however, it is important to investigate animation history throughout the years in order to find out what is happening nowadays. The Walt Disney Company is a perfect history example, since they were one of the first animation production companies and they create animated movies till this day. The beginning of Walt Disney production mentioned in a book *The illusion of life: Disney animation* came back to year 1923 where he makes *Alice's Wonderland*, moves to Hollywood and forms a company with his brother Roy as written in the Time Chart from 1923 to 1933 (Frank Thomas, Ollie Johnston 1981). The same book talks in-depth about Walt Disney Company, various methods and creations. The main ones are the twelve principles of animation.

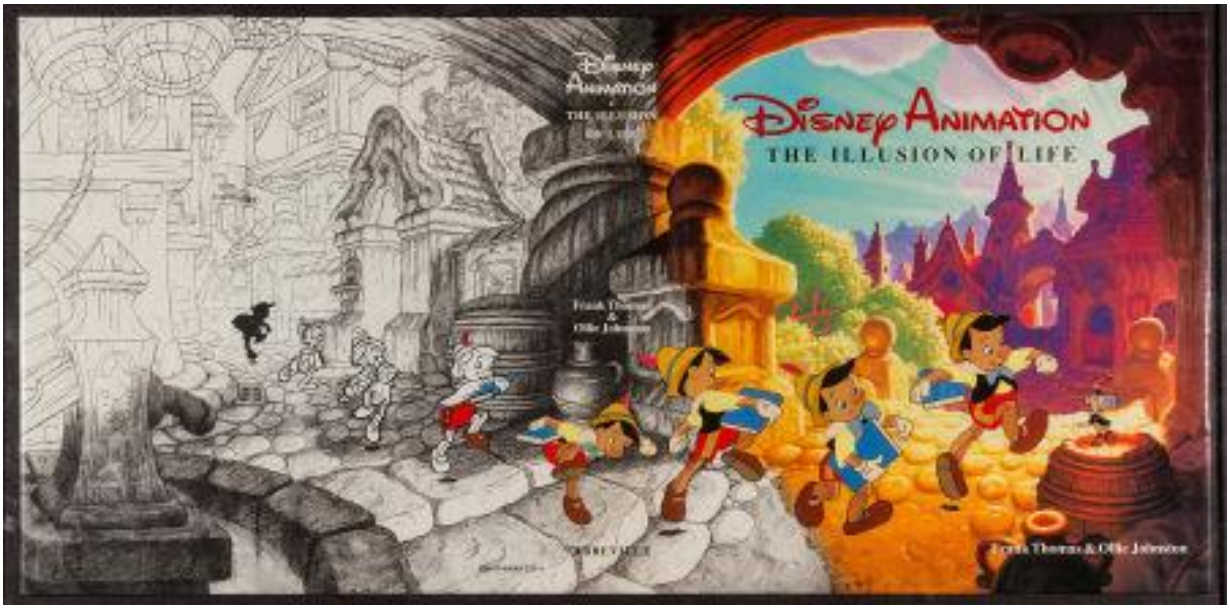

Figure 4. Image showing the back and front cover connected of the book *The illusion of life: Disney animation*

However, it is worth mentioning, that before the twelve principles were officially written down, Disney animators used a few techniques such as *The Cycle*, where a series of drawings would connect from the first and the last drawing, *Repeat Action*, were a character's action could be repeated by borrowing drawing from earlier scenes and *The Cross-over*, a technique of drawing many other characters on one's character cycled movement, this way the artists would create straightforward various characters in motion (Frank Thomas, Ollie Johnston 1981).

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Time went by and artists were looking for easier method to connect drawings and many techniques became noted and described, every new member of staff were taught these techniques as they were rules and this is how the twelve principles of animation were created (Frank Thomas, Ollie Johnston 1981). By translating physical laws and realistic motion in order to produce convincing and precise characteristics with hand-drawn animation Disney's animators put into a set of twelve aesthetic and moralistic principles. Therefore, these principles were created to persuade animation on screen that was not only relied on real-life physics and forces yet to make the audience believe in the characters and feel sympathy and compassion (Thesen, 2020).

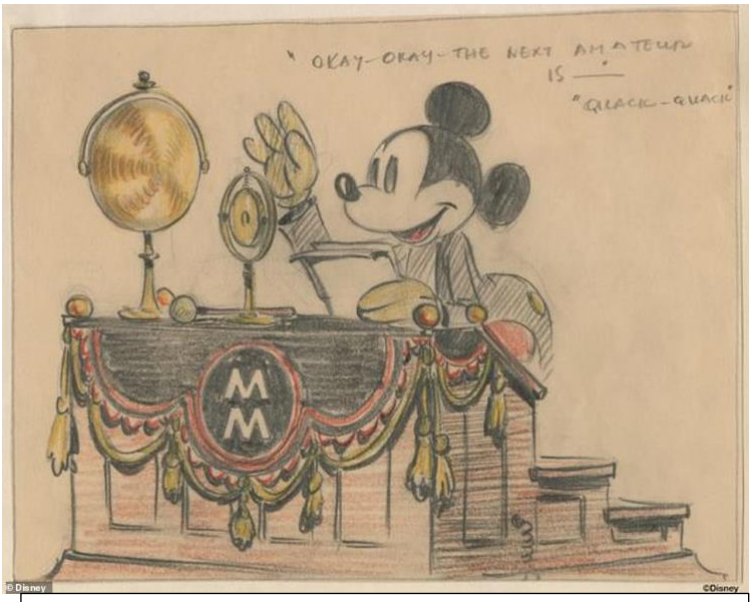

Figure 5. Unseen sketch of Mickey Mouse from 1930s

As early as in 1920s end to the mid-1930s, Disney's animators created a set of techniques that were called as the Twelve basics principles of animation. The Walt Disney studios mostly saw their artistic interpretation directly based on real-life movements, therefore, real life movements were thoroughly examined. In order to write down the twelve principles of animation, Disney's animators explored Newton's Laws of Motion and other photographical studies of human and animal motion (Thesen, 2020). The Walt Disney studios took inspiration from artists like Eadweard Muybridge and Étienne-Jules Marey, using their knowledge and trying it to fit into animation creation. In addition, these studies and additional ones took place at the studios and did test-screenings of the character animation. These methods were not pursued in other studios in the same years. Nevertheless, the ongoing process of reaching success and quality made Disney above other animation studios at the time (Thesen, 2020).

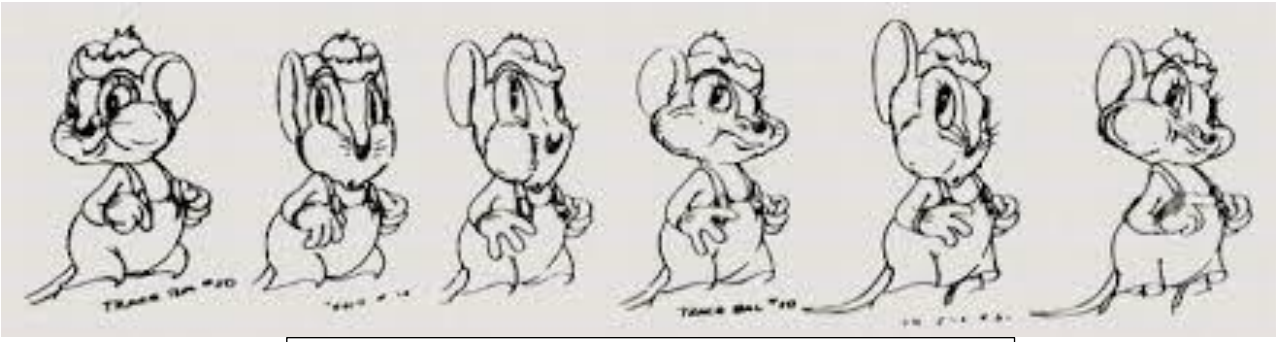

Figure 6. Squash & Stretch

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In the year 1935 Walt Disney himself said ‘A good many of the men misinterpret the idea of studying the actual motion. They think it is our purpose merely to duplicate these things. This misconception should be cleared up for all. I definitely feel that we cannot do the fantastic things, based on the real, unless we first know the real’. This quote is significant and shows that The Walt Disney studios investigated real life motion, however, the need of exaggeration makes the animation fantastic and artistic (Thesen, 2020). To sum up, Disney animators compounded, named and used the following twelve principles in their animations: Squash and Stretch, Anticipation, Staging, Straight ahead action and pose to pose, Follow through and overlapping action, Slow in and Slow out, Arc, Secondary action, Timing, Exaggeration, Solid drawing and Appeal These guidelines have been used to date (Thomas & Johnston, 1994).

Figure 7. Walt Disney

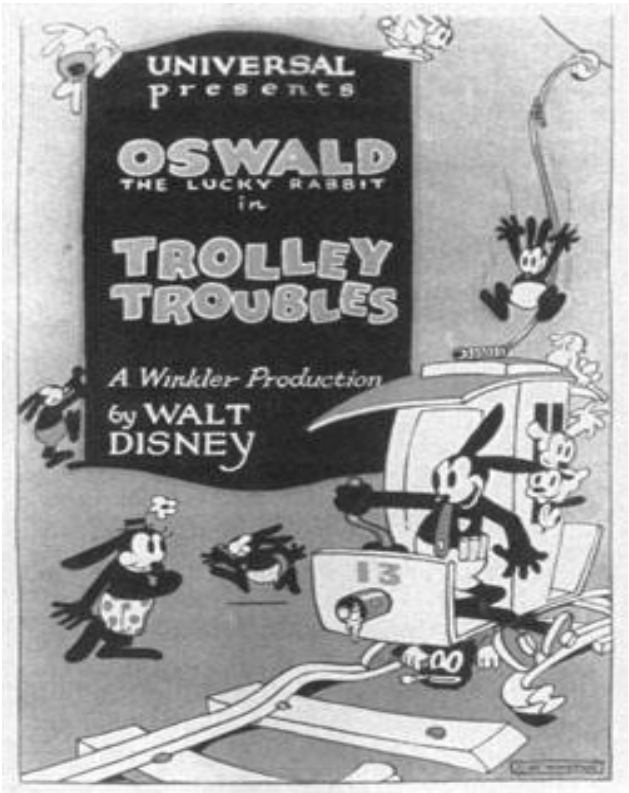

Figure 8. *Trolley Troubles* animation

Officially the Twelve principles of animation were evolved around the year 1935 after several years of ongoing and improving work and became the significant Disney’s step by step aesthetic of illusion of life (Thesen, 2020). Every principle of animation was used and had its own purpose. For instance, in Disney’s short film *Trolley Troubles* the importance of ‘squash and stretch’ as well as ‘exaggeration’ techniques can be seen where the trolley was squashing and stretching beyond physics laws, however, it created artistic and comedic effect, and the audience was delighted, which Disney was aiming for (Thesen, 2020).

Regardless, that Disney's animators have grasped and wrote down the principles, it didn't mean that they were aware of all the possibilities and were done researching the creation of animation. Constant study brought then far but there was more to find and learn. At some point Walt Disney and his animators were investigating the principle of 'timing' and the appearance of Mickey Mouse. In the end, the whole team decided to keep him of the scenes unless there was a necessity to place him into a scene, since he had a certain attitude (Frank Thomas, Ollie Johnston, 1981). Although, these principles were useful for animators that were thriving to create first animation art works and improve their skills in 1930s and 1940s, thus, the majority of these techniques are still useful in the 21st century, however, today's principles may be slightly different to the original Disney's identified twelve principles of animation (Thesen, 2020).

Motion Capture's impact on animation in 21st century

Motion capture takes a unique place among the animation. The way it works gave an ongoing debate whether animated films that used motion capture are still considered real animation in the beginning of the 21st century. Furthermore, motion capture was compared particularly to animation and its creation techniques such as rotoscoping. Not everyone agreed to using motion capture in animated movies. This debate was huge in the movie industry between artists and movie companies (Freedman, 2012). For instance, in the movie *Ratatouille* (Brad Bird, 2007) at the very end of credits there was a caricature of a businessman showing a thumbs-up to the audience and next to him it was written '100% Genuine Animation! No motion capture or any other performance shortcuts were used in the production of this film'. This statement indicated that Disney and Pixar in the year 2007 was still avoiding using modern technology of motion capture. This debate was going on for longer than a decade, however, nowadays a film can be classified as animation if it used motion capture and also quality actors that were wearing motion capture suits for an acting award (Freedman, 2012).

Figure 9. Image from *Ratatouille* credits

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Figure 10. Movie director with one of his animation characters

Despite motion capture having theoretical issues such as reality representation, media junction and common issue in the early 2000s the 'uncanny valley', however, producer Robert Zemeckis was keen on trying to pursue and prove motion capture effectiveness and usefulness in animation and that it is a whole new form of filmmaking that should not be pushed away. Rather the opposite, widely used and waited till it gets classified in Hollywood's internal discussion as an animation, live action or visual effect (Freedman, 2012). One of his firsts approaches of motion capture appeared in one of his directed movies such as *The Polar Express* (Zemeckis, 2004), however, the Motion Picture Academy's animation branch where doubtful whether the amount used of motion capture could be defined as animation. After long meetings, in the end, the committee decided that a film can be called an animation if it includes frame by frame manipulation on top of the motion capture imagery. Luckily, *The Polar Express* (Zemeckis, 2004) included that and, therefore, it was classified as an animation (Freedman, 2012).

Figure 11. Motion capture example from *The Polar Express*

Director Robert Zemeckis did not stop and continued the fight and stigma around motion capture. His another directed movie *Beowulf* (Zemeckis, 2007), that featured famous actress Angelina Jolie, also used the latest technology of motion capture as well as CGI, despite some 'Theorists have indirectly linked motion capture to monstrosity' (Brown, 2009). Filming this movie did not require an actual set, since it was virtual, there were no filming locations and actors were filmed for less time than in an actual movie as the sensors on their bodies directly transfers their movements into a visual format human. The whole point is to just record how humans are moving and collect the data (Brown, 2009). Even though it sounds easier than rotoscoping an animation, however, Jerome Chen, Beowulf's senior visual effects supervisor, mentioned that motion capture is not as effective as many believe, it does not record volume, which means that with every single motion capture a group of 60 animators had to work on it. In addition, sometimes they would not have any useful motion data and animators would have to interpret. Nevertheless, the movie met the needed criteria and was also classified as animation.

Figure 12. Shot from *Beowulf* (2004)

One of the most remarkable and complex CGI characters to date were created in Peter Jackson's *Lord of the Rings* trilogy (2001, 2002, 2003). The movies brought attention with their motion capture technique that the audience were happy to see. Behind the scenes it was mainly a British performer Andy Serkins, which became internationally famous as an actor after he provided voice and motion capture movements to trilogy character Gollum. His remarkable work made him a public face of mo-cap in the early 2000s (Allisson, 2011).

Figure 12. Motion capture example of Andy Serkins as Gollum

Andy Serkins became even more known after Peter Jackson made Andy do movements to another computer-generated character for his 2005 remake of *King Kong* (Allisson, 2011). The creation of CGI King Kong character and bringing him to life was a complex process which took two years. Director Peter Jackson faced similar issues as with the character Gollum, however, with a big team of visual effects artists they made a realistic character which muzzle was able to show emotion (Allisson, 2011).

Motion capture has been used from early 21st century, however, even more than a decade later it has not reached its perfection, as Olcun Tan, a VFX supervisor and co-founder of Gradient Effect in Los Angeles, when he worked on *Harry Potter and the Deathly Hallows: Part 1 and 2* (Yates, 2010-2011) has said that 'motion capture data always needs clean-up and additional secondary animation to be able to create the final character'. In other words, the motion capture is not an easy technique to be used in film industry and always requires animators work, another aspect to take into consideration is that sometimes a CGI character is massive, and its movements just can't be used as a motion capture from a human, there is a huge mis match between the actor and the character.

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To conclude this essay, the aim of this paper was to research the creation of animated movies and used techniques from first animation appearances till 21st century. Therefore, the introductory part shortly talks about the first animated movies, the techniques that they used to achieve animation as well as first Disney hand-drawn animations and their aims in terms of the audience. Moving forward to the essay's body the first paragraphs are about the early days of Walt Disney Productions and a fantastic book called 'The illusion of life: Disney animation' that talks in-depth about the whole Disney productions history. Furthermore, there are examples of the techniques that Disney used before creating twelve basic principles of animation. In addition, there were a couple examples of the twelve principles of animation and points stating its significance. Moving on, the next part of the essay was about the animation in the 21st century, the main difference between 20th and 21st century in animation is that animation nowadays uses mainly computer-generated images to create animations as well as motion capture to add motion and facial expressions to 3D models. Regardless that the technologies are improving, there is still struggles creating animations and even though there is almost no more hand-drawing films, the industry still needs people to work since computers are not perfect and cannot do everything.

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