<u>What practice is current and at the forefront of your discipline?</u>

The interaction between costume and CGI is current and at the forefront of the discipline of costume. I am a practitioner currently studying and training for a Bachelors in a Costume for Performance and Film degree course. CGI affects me as it, and similar practices are being implemented more and more into both live theatre and film, making it essential to understand how it is used and implemented collaboratively within my discipline. In addition, I would like to dispel the fear of technology replacing jobs within my field.

Costumes are used as a tool, typically by a Director, to help tell a story within the mediums of film, television, theatre, gaming, and much more. Within this essay, I will be focusing more specifically on film and television as they relate to the interaction between CGI and Costume the best. Costumes make use of anything from everyday modern garments to period clothing. They are used to help the artists in channelling the character they are portraying. These garments are used to subliminally tell a character's personality, feelings and foreshadow the character's development. By subliminal, I do not mean the costume hides anything physically underneath it, but small nuances can often be overlooked by the untrained eye, blending into the garment. These can present themselves in specific colours, a pattern or even an intricately placed brooch or handkerchief. The artist may have originally meant to convey something specific, but audiences are free to interpret these details however they like, theorising what might happen in the next season of a television show or a sequel to a movie.

Similarly to how costumes use subliminal messaging to suggest nuances about a character, CGI can also be implemented as a tool in the same way. CGI, like costume, is a visual medium. 'Computer Generated Imagery (CGI) is the creation of still or animated visual content with computer software.' (McDonald, 2020) This software is typically used in film, television and gaming to create characters, scenes and special effects through 3-dimensional computer graphics. In relation to costume, CGI can be used to create or enhance the garment. Movies like *'Spider-man: No way Home'* (Watts, 2021) use CGI to enhance Spider Man's costume, making it so that the suit 'accurately mimic[s] Tom Holland's subtle underlying muscle movements, twitches and physical interactions with onset actors.' (Nebens, 2022) CGI's enhancement of Spider-Man's muscles is a reference to the physicality of Spider-Man displayed in the comics. Alternatively, it is also used to display the related effect of having muscles-strength. This builds upon the character, representing them as physically fit, which would have typically been lost on a bodysuit as it cannot be completely skin-tight to allow for functional movement.

Fig. 1 (The Direct, 2022)

In addition to adding muscles, the VFX (Visual Effects) artists - those in charge of implementing CGI, 'replaced the practical suit [...] with a newly designed and digital suit.' (Nebens quoting Waegner, 2022) as seen in Figure 1. This means that a physical red-and-black suit was created and worn by the actor. However, it was used as a base to create something that would not be physically possible or practical in terms of being highly uncomfortable otherwise. The VFX team used CGI to create a costume 'with metallic inlays and overlays woven together.' (Nebens quoting Waegner, 2022) By imposing a digital costume over the physical costume, the VFX team would not have to worry about the metal physically reflecting the set if they were to change it in post-production. It would also probably reduce costs regarding the materials that would have had to be used to make the costume physically look like the CGI. Through the use of CGI, impossible effects such as the subtle effect of realistically portraying the movement of muscles underneath the costume to give a stylistic comic book feel to the character or overlaying metal inlays and overlays for the aesthetic effect of a more technologically developed costume - are made possible. 'As it turns out, [...] combining realistic costuming and CGI may have been the toughest task that the VFX team had to accomplish.' (Nebens quoting Waegner, 2022) Though the VFX team had trouble accomplishing this task, they rose to the challenge, creating a seamless combination of costume and CGI- which is used to subtly depict who the character is without either medium being overbearingly used.

In some instances, CGI can look like a physical costume- such as in the case of *'Spiderman: No Way Home'*. This is most likely primarily due to an actual costume being used as the base model. However, the CGI used is commendable as it fabricates a very realistic representation of the true textures and reflection of materials on the CGI suit. Sometimes you find that the CGI is so good that it makes physical elements of the costume or scene look as if they are CGI or vice versa. This is essentially the case in *'Maleficent 2: Mistress of Evil'* (Rønning, 2019) during the fight scene near the end. Angelina Jolie, dressed as Maleficent, is shown dawning a tattered black dress along with large black feathered wings, as seen in Figure 2. Upon first seeing this ensemble, one might believe that the dress is painted onto the artist or overlaid via CGI. However, the dress is actually a physical garment made by 'Ralph & Russo'. Their team made the dress by

creat[ing] a rendering based on the sketch [...] designing a motif based on the real pattern piece [...,] laser cut[ing] into stencils, and painting us[ing] silicone on the tulle [...] applying it with a painting knife to create texture.

(McDermott quoting Ralph & Russo, 2019)

An illusion of a second skin was created through the costume and silicone being stitched together and painted into. This begs the question as to why the dress looks almost impossible structurally, to the point where it could be confused as CGI or body paint. My theory is that due to the realistic look of the wings' feathers on the character, which look as though they could be tangible, tricks the audience into perceiving the dress might also be created using the same methods. An audience already suspends their disbelief when entering a fantasy genre film such as this one. However, the use of CGI further assists in blurring the line between reality and fantasy- especially within a film that has been through rigorous pre-production to create a high-quality post-production product.

Fig. 2 (Disney, 2019)

CGI is not a new practice in the industry, though it has improved marginally at a rapid pace. There are still faults with CGI, from its complexity to occasional unrealistic or uncanny visual results. One movie which could be considered a failure for its overuse of CGI in relation to costume would be *'Green Lantern'* (Campbell, 2011). Ryan Reynolds, who played the lead role in *'Green Lantern'* has defended the use of a CGI suit, as shown in Figure 3, by explaining that it was imperative to the character's depiction, claiming that the 'suit is powered specifically on [Green Lantern's] will, his emotion, his creativity and his imagination.' (Plumb quoting Reynolds, 2011) However, in gaining the lead role in *'Deadpool'* (Miller, 2016), Ryan compared the two roles- explaining that for *'Green Lantern'*, it had been 'brutal doing a film where you're wearing a motion capture suit the whole time.' (Holmes quoting Reynolds, 2015) He did not get to see his character's appearance until the first trailer, which must have made getting into character very difficult. In contrast, during the production of *'Deadpool'*, Reynolds claims that due to Deadpool's association with cancer, he had the chance to 'work[...] a lot with the Make a Wish Foundation and those kids would come on set and [he] loved hosting them.' (Holmes quoting Reynolds, 2015) This was a lot more fulfilling to him, as he enjoyed viewing everyone's reactions. He was able to experience physically seeing, feeling and moving in the costume- which he did not get to experience with the Green Lantern suit. It shows that, though a CGI costume can seem more appealing in terms of the range of possible implementations that can be done, using a physical costume can help gauge and create a better performance from the actor(s) and audience.

Fig. 3 (Flashback FilmMaking, 2017)

Reynold's wasn't the only one who commented on his outfit for the film. The costume designer for *'Green Lantern'*, Ngila Dickson, explained that the production suffered due to 'politics [referring to the] "aggressive release slate and tight deadlines.' (Battle quoting Dickson, 'no date') which affected the final result. She claimed that the designs differed from what ended up on screen. Dickson believed that there was not enough time given to achieve the designs she had created. Building upon this, it could be argued that the CGI was not as technologically advanced at the time. However, with similar situations occurring involving CGI and Costume in recent years, such as *'Cats'* (Hopper, 2019)- this is probably not the issue. In conjunction with time restraints, this lack in quality is also likely due to the overuse and the overdependence on CGI. Many designers are inexperienced in working with CGI, especially on a larger scale. These designers may not be as knowledgeable on what is possible to do within the time constraints, as it is a relatively new medium.

This was the case for the costume designer for *'Cats'*, Paco Delgado, who claimed, '[They had] never been involved with something where the CGI techniques were so important and dominant.' (Shaw quoting Delgado, 2019) Having to learn as he worked on the film. The attempt at realism created an uncanny visual of people poorly attempting to dress as cats- resulting in extremely disturbing moments where actors looked as if they were naked. An example of this is Idris Elba as Macavity, who is dressed in a fur-lined trench coat for the majority of the film. He takes off the coat near the end, resulting in him looking as though he is nude as shown in Figures 4 and 5. This is a good example of being too reliant on CGI as Delgado minimalistically uses bits of physical costume within the film while heavily relying on CGI. The issue with being so heavily reliant on the VFX team is that they were in charge of creating the set, makeup, costume and any other special effects necessary for the plot.

This issue was also the case for Ngila, as the entire film was heavily reliant on CGI to create the set and VFX. Ngila also claims it was her 'first time working on a costume created entirely through CGI,' (Pryor quoting Ngila, 'no date') similarly to Delgado. From her explanation of her love for big films and their complexity, it is highly suggestive that this was part of the reasoning for the resulting costume in the final film. The overuse of CGI in the costume's muscle definition, lighting, and other special effects are used in an attempt to make the garment as close to its comic book equivalent as possible. This has affected the film's overall feel making it feel more cartoonish, attempting to parade as a realistic adult film. This makes it difficult to lose yourself in the story. In comparison,*'Spiderman: No Way Home,'* has the same skin-tight suit, but it uses a more nuanced and subtle approach in comparison. This made it almost unrecognisable as CGI and caused it to meld better within the setting and atmosphere of the film.

Fig. 4 (Hooper, 2019)   Fig. 5 (Hooper, 2019)

CGI is limited to/ readily suited for film; however, this does not exclude the possibility of it being used in live theatre. There are already leaps and bounds being made through the introduction of specific technologies in live theatre- such as projection mapping.

> Projection mapping is a technological innovation that lets you overlap video onto any surface [...] us[ing] a pre-production process to fit images into a 3D model [...] to give the appearance that they are painted on.
>
> (Uzialko, 2020)

It is typically seen being used to project moving visuals onto buildings, such as *'Lighting the Sails' Living Mural'* (Pyke, 2015) which was projected onto the Sydney Opera House. However, projection mapping can also be used to project onto clothing, both still and moving, such as *'Penny & The Magic Dress - 3D Projection Art'* (Themis, 2014) and *'Exisdance - Real time tracking & Projection mapping'* (Ando, 2017). *'Penny & The Magic Dress'* uses the artist's dress as a stationary canvas, pinning it up in the corners to make a crescent-like shape. This allows for a slideshow of moving images to be projected onto the dress and set. In comparison, in *'Exisdance'*, the artist wears a white fitted top and baggy trousers, as seen in Figure 6. The fitted top allows for a smooth surface for the images to be projected on, while the baggy trousers allow more movement for the artist. The video shows the artist moving while the projection is smoothly mapped onto their garments and background. These two examples present a myriad of possibilities for this technology within live theatre in the future.

Fig. 6 (Ando, 2017)

Other practical mediums can and have also been utilised to emulate the effects of CGI as an alternative. These mediums involve practical SFX, hair & makeup, costume and lighting. It is sometimes difficult to differentiate between practical effects or CGI in film and TV. Practical effects can sometimes trick us into believing that they are CGI, much like CGI can fool us into thinking they are practical effects. The extent of what is possible with special effects is widely presented through theatre and live performances. Costumes can use quick changes on stage to create seamless transformations that would typically use CGI in films to create the same or a similar effect. One example, which has a live-action film counterpart using CGI, is a theatrical production of *'Cinderella'* (Tinney, 2019), whereby the white dress the actress transforms into is shoved into a brown gathered overskirt which attaches to the bodice with buttons. The bodice is released by the actress pulling fishing wires, revealing the white dress, hiding the previous outfit underneath, as shown by Figure 7. Through creative problem solving and technical applications, quick changes can create magical transformations on and off the stage, which emulates a similar feeling that CGI creates. Comparing the two methods, you can really appreciate all the technical detail and skill that goes into creating these transformations.

Fig. 7 (Tinney, 2019)

Audiences for both film and live theatre require their audience to suspend their disbelief to an extent, such as previously mentioned when discussing *'Maleficent: Mistress of Evil'*. CGI lends itself largely to creating fantastical elements that may not be physically or economically possible to create. Whereas within live theatre, it is impossible to physically bring the audience to a specific location or period of time. The appeal to both forms is getting lost in a fantastical world unlike our own. This draws these audiences towards a variety of films and theatre productions. Comparing previous examples, you can probably see a pattern relating to the genre of fantasy or science fiction. These types of films, movies and productions draw in a large fantasy audience which are divided into subgroups of superhero, Disney, sci-fi and musical lovers. This leads to large communities choosing to recreate costumes they have seen, creating highly intricate cosplay, and making functional elements that were originally made through CGI or physical special effects. An example of this is presented in Figure 8, which shows Drisana Litke dressed in a cosplay of a young Maleficent. Litke created animatronic wings that expand at will. This shows the creative and technical influence costumes and CGI by themselves or in conjunction have had on these audiences- therefore presenting the importance of utilising the two disciplines in practice.

Fig. 8 (Litke, 2018)

In conclusion, the interaction between CGI and costume are at the forefront of my discipline due to the numerous advancements requiring the collaboration between costume practitioners and special effects artists within film and theatre. CGI affects me due to the importance of obtaining the knowledge necessary to understand what is possible to create, utilising both disciplines' strengths and weaknesses as a designer and maker. As shown through my examples, a balance of practical costume and CGI or special effects is essential to creating a satisfactory result when working to meld the two fields together. It is near impossible to create a convincing piece of costume through CGI without a physical base- whether that be a motion capture suit or a suit with additional special effects added post-production. My research has demonstrated that there are examples of good and bad practices within the industry, and learning from the achievements and mistakes of others will help prepare me for the technological advancements that will affect my work in the future. Acquiring an understanding of time constraints, what might be essential practically to aid in the collaborative aspects of CGI and costume, and seeing what might be possible is crucial to learn.

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