

Designing the Future: The Implications of AI in the Costume Design Field

The field of costume design dates to some of the earliest plays in human history when Greek playwright Aeschylus designed costumes for his actors to wear when performing his tragedies. The costumes of ancient Greece, contrary to popular belief, were elaborate in design, and from this time in theatre history the comedy and tragedy masks commonly associated with the performing arts find their origins. Costumes grew more influential during the Renaissance, when a revival in theatre interests brought mystery and miracle plays to churches, as well as the development of theatre troupes and the first public theatres. While wealthy patrons of the theatres gifted some costumes, many designers, including some directors, started to create costumes that reflected the period and genre of the play.

Though costume design experienced several changes in the centuries between the Renaissance and the early twentieth century, no change was so significant as the rise of film. Among other concerns, costume designers had to consider creating costumes for stunt doubles and how costumes would work with (the then rudimentary) special effects. Designers rose to the challenges film presented, and over the last century garnered new understandings of what costume design entails. They now face a new obstacle: the rise of artificial intelligence, or AI, in the design field. Looking at the potential, both good and bad, that AI poses for costume design allows people to take preventative steps now to ensure designers and those in the costume field do not lose their jobs.

Benefits of AI in Theatre

Advanced technology and AI could potentially revolutionize the organizational aspect of theatre costuming. Building on the work of writers Watanapun Krutasaen and Yu Peng, who

imagined a system that would allow its users to “match [Chinese] national costume suits according to their own preferences, and....transmit national culture to people through this system,” a developer could easily create a similar database for theatres. It could be on an individual level, such as local theatres using the databases to track their own costumes and quickly locate pieces they need, saving them from sorting through all the costumes they hold in storage in hopes of finding what they need. It could also be on a national (or even international) level. An AI-powered catalog of costumes held in theatres and warehouses across the United States, for example, would allow designers to easily sort costumes by show, size, and character to locate costumes. They could then find theatres that owned the needed costumes and arrange to buy or loan those costumes. Such an organizational system would cut down on the time theatre costumers and crew members would need to spend searching for costumes both inside and outside the storage rooms, enabling them to have cohesive designs sooner, as theatres often do not have all of their costumes until a few weeks before—or sometimes the week of—the show.

Benefits of AI in Film

Like theatre, film design would best benefit from AI in the form of a database. Linda Muir, the costume designer behind the historical films *The VVitch*, *The Lighthouse*, and *The Northman*, explained, “One area I can see [AI] being phenomenally helpful, if the costume designer is still involved, is the research.” Research for a historical film is arduous, often involving scouring museums and archives, reading books on fashion history or literature from the time, and consulting historians. Designers must know what costumes would be appropriate for different social standings or times of the day. Muir explains that for the historical projects she and her team work on, research alone takes four or more months to complete. A database that stored a large amount of information on different periods in history could revolutionize the

research process. Such a database, if designed well, would let those researching historical costumes to specify the exact year, fabric type, and color they want to see from historical fashion plates or magazines. This would speed up their research time, as well as cut down on how long they spend on a particular film, allowing them to take more jobs in a year.

AI could potentially be used to create more in-depth and interactive costume visualizations than flat sketches provide. In their paper “Design and Analysis of Clothing Catwalks Taking into Account Unity’s Immersive Virtual Reality in an Artificial Intelligence Environment,” Yu Hong and Yuemeng Ge describe their experiment with virtual reality technology during a broadcast of a fashion show, and their results “show that the sensory evaluation given by users is 22.02% higher than that of users of traditional online clothing shows.” In non-technical terms, Hong and Ge, through combining the Unity 3D game engine with AI technology, created an immersive virtual reality experience that viewers enjoyed much more than simply watching the fashion shows online. The VR experience allowed viewers to better understand the movement and design of the clothing, increasing the viewers’ interest in the designs and desire to purchase those items. If utilized in the movie industry, a VR experience would allow directors to see costume designs on a more realistic scale than flat costume sketches would, giving them the opportunity to know better what they do and do not like before the work of producing the physical costumes is done.

Possible Pitfalls in Film

Unlike in theatre, where AI would be overall useful, AI poses many risks to the field of costume design in the film industry. Martha Bayles, a humanities professor at Boston University and a film critic for the Claremont Review of Books, states, “Hollywood has been going through a rough patch lately...having access to an unlimited supply of A.I.-generated mashups must seem

a godsend.” In recent years, Hollywood has shown itself to be entirely mercenary. Last year's actors and writers strikes, which fought for fair wages and protection from AI, lasted 118 and 148 days, respectively, and the writers strike became the second-longest strike in the history of Hollywood.¹ It can be reasonably supposed that the fight against AI will not stop with those strikes, as AI could continue to provide lower-priced alternatives to the creatives in the industry. The median yearly income for costume designers, \$91,219, is not a large sum of money compared to the salaries of others in Hollywood; however, it is much larger than the \$46,366 pattern makers receive on average in a year.² If directors use AI to create general costume sketches, they could then send those sketches on to the lower-paid pattern cutters and seamstresses, eliminating the higher-paying job of the costume designer. Furthermore, if AI-generated films continue to be successful and profitable, there lies the possibility of the costume designer's job becoming completely obsolete. Rather than a costume designer creating costumes that they feel represent or reveal aspects of the characters they are designing for, the AI film's director could plug in a short, well-written prompt for the character, and have a fully costumed character in a matter of seconds.

Hope for Creatives

In *Biographia Literaria*—which is half autobiography, half philosophical musings—Samuel Taylor Coleridge, a revered poet, writer, and philosopher, describes the aspects of human nature which he calls “fancy” and “imagination.” Imagination, which holds the power to bring order out of chaos, he labels, “a repetition in the finite mind of the eternal act of creation in the infinite I Am.” Fancy, he states, is the lower human capability to rearrange pre-existing thoughts and ideas. Capable of making associations, but not of creation, fancy is inferior to the faculty of imagination. Like humans, AI has the capacity of Fancy. It can rearrange pre-formed ideas but

does not have the power of Imagination. It only processes and reorders humans' input; it cannot create anything for itself. For Artificial Intelligence to ever reach the capabilities of a human, it would have to be able to create ideas and images devoid of any influence from human programming. As human programming taught AI how to generate text and images, it can never separate itself from human influence.

Though Coleridge did not live to see the rise of artificial intelligence, those who, like him, feel that imagination is a completely human faculty believe that AI will forever be inferior to humans. In her article for *TeenLife*, Sarah Bay-Cheng, PhD, the Dean of the School of the Arts, Media, Performance & Design at York University in Toronto, Canada, attempts to assuage the growing fears that AI will replace human designers: “[AI] programs are masterful at combining and recombining existing digital data and they are excellent tools for artists’ pre-visualization work. It is fun to test the limits of one’s imagination in these environments, although rather quickly the works all begin to look similar.” Combining elements it pulls from the internet, AI can guess what its users want to see based on the inputted prompt. For example, in an experiment corresponding with this paper, Microsoft Bing’s AI was asked to create a costume design sketch for the character of Daisy Buchanan based on descriptions of Daisy from *The Great Gatsby*, but it could only rearrange aspects from the most popular portrayals of Daisy—Carey Mulligan and Mia Farrow. When instructed to look at the novel and fashion plates alone to design its Daisy, it simply copied artists’ depictions of 1920s stereotypes. It sometimes went so far as to reference the images it copied. No amount of rewording the prompt could move AI away from its understanding of popular depictions of Daisy in contemporary culture. As AI relies on images of the work of others, it cannot create anything that is not derivative.

Though the future of costume design can at times seem dire in the face of AI, designers should realize that it poses a challenge, like the advent of film, around which they can learn to work. It may mean reshaping how they view their field or redefining their roles as costume designers, but by viewing AI as a new tool, rather than a replacement, designers hold the possibility to craft their future in the industry. By familiarizing themselves with the new technology now and learning how to utilize it to their advantage, designers can continue to fight for their place in the industry. When equipped with an understanding of AI's capabilities, designers can advocate for restrictions to keep AI as an assistant rather than an adversary. By becoming the pioneers of the new age in costume design, where AI aids the designer to reach new heights, designers are left to do what they do best: create the world they want to see.

Notes

1. Technically, the 2023 writers strike ties with a strike in 1960 as the second-longest strike to stop production in Hollywood.
2. Salaries were found on [comparably.com](https://www.comparably.com) and are subject to change.

Works Cited

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