Lights, Camera, Algorithm: The Rise of AI in Film Production and Scripting

Artificial intelligence is no longer just science fiction. Its presence in creative domains is growing and evolving expeditiously. The use of AI in the film industry began in the early the 90s with basic computer graphics and "rudimentary animation techniques." Examples of movies that used these early AI techniques include, *Tron* from 1982 and *Terminator 2: Judgment Day* from 1991 which used basic algorithms to create visual effects. However, it wasn't until the late 20th century that AI established a solid presence in the film industry. It was then that the use of computer-generated imagery began to become increasingly prevalent.

Films like *The Matrix* from 1999 demonstrated the potential of AI to create "groundbreaking special effects" while *Toy Story,* from 1995 showed how AI assisted motion capture could make animated characters more realistic. These innovations ultimately led to the emergence of AI driven editing in 2000. These tools could perform tasks like selecting footage and suggest cuts with the result that editors now spend significantly less time on postproduction then they used to. These are just some of the changes artificial intelligence has brought to the film industry.

This essay will explore the role of AI in script writing and movie generation. AI technologies are reshaping the film industry by generating scripts, editing production, and even creating fully AI generated films, raising both creative possibilities and ethical dilemmas. We will explore many of these possibilities, dilemmas and other repercussions of AI in the film industry in upcoming sections.

The Evolution of AI in Film

As already mentioned, the first use of AI technology in the film industry came in the form of video effects, computer generated images and animation. The history of animation goes back to the very earliest days of film in the mid to late 1800's when various manual techniques and special cameras created the capacity to tell a compelling story with "constantly moving images." The next major advance in filmmaking technology came in the 1940s and 1950s with the advent of computer animation. Since that time, computer graphics and 3D animation have transformed from something that was merely "experimental" to something you would be hard pressed not to find in a modern movie.

Animation or digital animation, whose history also traces back to around this time, is now a feature of most modern movies and it has become difficult to imagine a world without this technology. However, in recent years AI has moved from playing a supporting role in the film industry to playing a significant part in actual content creation. For instance, filmmakers may use deepfake technology to recreate actors for flashback scenes or to finish scenes if an actor is unable to fulfill his/her role . AI can also age or de-age actors to portray characters across different time periods, eliminating the need to cast multiple people for the same role.

AI has also come to play a significant role in the sound design process. AI powered platforms like AIVA and Amper can assist the film industry by "composing original tracks for different styles and moods." While human composers are still necessary for "emotional and unique music," AI can be used to compose background music and even to remix existing songs.

Perhaps the most significant milestone that has been achieved in the advancement of AI in the film industry is the first AI written short films. An example of one of these is The Diary of Sisyphus. This was the first film to be entirely written by AI. It was created by a student in Information Engineering at the University of Padua who prompted a chatbot to write the screenplay. His reasoning for doing this was to combine his love of cinema with his love of the Internet. The fact remains however, that it is hard to imagine AI ever completely taking the place of the art of movie production or the original medium of film.

AI In Script Writing

The influence of AI across the fields of science and industry is well known and not surprising. It is AI's evolved ability to learn, analyse and make decisions that is transforming the creative fields of scriptwriting in the film industry. AI technology can assist scriptwriters in their creativity when it comes to plot development, character creation, and refining dialogues.

Equipped with advanced algorithms based on Natural Language Processing (NLP) and Machine Learning, modern AI writing can analyze extensive databases of existing scripts

and literature to learn storytelling patterns, character development, plot progression, and dialogue styles. Tools like GPT (OpenAI), Claude (Anthropic) and other Large Language Models are examples of chatbot engines that drive text generation. Trained on an extensive collection of movie scripts, screenplays, novels and conversational data these tools can understand context, predict next words, and generate logical narratives based on the structure and tone of a given script.

AI can also assist in giving structure to a story. Tools like Sudowrite can help writers brainstorm, structure, and refine their stories by generating plot points, character ideas, and even entire scenes. Sudowrite is particularly known for its skill in writing fiction, more specifically, natural sounding prose.

These tools can be invaluable for writers when it comes to the speed and volume of their content creation. When writers experience a creative block, AI can quickly generate new ideas, plot elements, and character descriptions. With a little added inspiration from AI, writers can focus on fleshing out their story and refine the details. This can be particularly beneficial in the fast-paced and deadline-oriented environment of the film industry.

Another advantage of utilising AI in scriptwriting is the innovation it offers to storytelling. AI can introduce writers to novel ideas and perspectives they may not have considered otherwise. These are tools that help the writer streamline their writing process and make it more efficient.

Yet, these tools are not a substitute for the fundamental human qualities of empathy, lived experience, and imaginative instinct that story-telling demands. These human qualities are vital to emotive storytelling. This is where AI still falls short. It is true that AI improves with use because it can quickly process large dataset. But, given this, it's output can also lack originality or emotion and feel uninspired. Furthermore, it may even risk plagiarism.

In 2016, *Sunspring*, a screenplay entirely written by AI was released. This was a short science fiction film conducted as an experiment by director Oscar Sharp and Ross Goodwin, a New York University AI researcher. A neural network, which named itself Benjamin, was fed the scripts of dozens of science fiction movies and came up with

Sunspring. Although it could be understood on a rudimentary level, the structure lacked cohesion. *Sunspring* was critiqued in*, The Guardian*, as being disappointing. The critique assured screenwriters they faced no imminent threat to their jobs. Similarly, Anthony Marcusa, wrote in Pocket-Lint, that although AI generated movies have not been particularly successful, it is not the end of its use in the film industry.

AI-Generated Movies

Before delving further into the capabilities of AI in the film industry, it is important to determine what exactly can be defined as an AI generated movie. According to Aaron Raj of *Techwire Asia*, AI-generated films are films that use AI to create or enhance some or all of their content, including images, animations, scripts, music, or editing.

It goes without saying that the current capabilities of AI in the film industry have great potential and are still evolving. As previously alluded to, AI can help filmmakers with the process of screenwriting, by generating plot ideas, dialogues, characters, and even entire scripts. To add to the list of capabilities, pre-production tasks, such as casting, location scouting, and budgeting are simplified by a tool called ScriptBook that can analyze a script and predict its box office potential, genre, audience demographics, and optimal casting choices.

AI can further enhance the quality and efficiency of film production, by using computer vision, machine learning, and deep learning techniques to create realistic visual effects, animations, and computer-generated imagery. The biggest example of this is Deepfake that can exchange the faces of actors in a video and create convincing transformations. Furthermore, AI can help filmmakers with the post-production tasks of editing, coloring, and sound design. The AI tool called Lumen5 can automatically create video from text articles, using natural language processing and computer vision.

AI can also create original music for films, by using generative algorithms that can compose melodies, harmonies, and rhythms. For example, an AI system called AIVA can produce music in different styles and has been used in numerous films and commercials. Where Netflix suggests movies based on the viewers preference, the potential of AI in the film industry takes this to another level. With AI, movies can be made to adapt to the

viewers preferences in real time. The potential to make personalized films is made real with AI.

However, the capabilities of AI and its' potential use in the movie industry pose ethical, social, and artistic concerns to all that are involved. In fact, the recent strike by American screenwriters in 2023 was in part, due to the impact of AI and its threat to the livelihood of human creatives. The use of AI in the film industry throws into question the authenticity of AI-generated content, the ownership and rights of AI-created works, and the potential misuse or abuse of AI technology. So, while filmmakers readily incorporate the benefits of AI, they must also be wary of its risks and use it responsibly and ethically.

Ethical and Industry Implications

As with any implementation or potential implementation of AI there are ethical and industry implications that must be taken into consideration. First and foremost, is the impact of AI on screenwriters, editors and actors. AI is already being used in the film industry to "streamline production workflows." An example of this is AI cameras that are used to track actor's movements and "adjust focus in real time." This reduces the need for camera operators and other technicians to perform multiple tasks.

There are also AI powered postproduction tools that "enhance visual effects by generating realistic environments characters and animations." This has the double benefit of reducing costs and increasing the number of possibilities for storytelling.

On the other hand, numerous concerns have been voiced by organizations such as the Writers Guild of America and the Screen Actors Guild over the increasing prevalence of AI in the film industry. As already mentioned, these concerns were one of the main causes of the Writers Guild strike in 2023. The strike which began on May 2nd of that year and ended on September 24th ended with the agreement that an AI model cannot be considered a writer because it is not a person, that producers can supply writers with material written by AI as long as the company discloses that the material was in fact written by AI and the material is not considered assigned or source material for determining its composition among other things.

The writers Guild as well as the Screen Actors Guild were worried about the risks of AI replacing human labour in the film industry. The Screen Actors Guild was especially concerned about AI being used to replicate a performance or to replace a specific performer. The union's position was that the right to use AI to replicate a performer's voice or create a new performance are “the subject of bargaining and cannot be conveyed without establishing the compensation and terms under which they are granted or used.”

Predictably, there are also ownership and copyright questions that need to be asked when considering AI generated films. Firstly, who owns an AI generated script or film? Clearly, AI tools do not replace human creativity. This means, copyright is still available for the human author regardless of how much the AI tool might have assisted. In other words, “copyright protects the original expression in a work created by a human author, even if the work also includes AI generated material.” Whether humans contributed enough to the AI generated material to be considered authors, must be decided on a case-by-case basis.

However, according to the copyright clause of the US constitution, “copyright does not extend to materials that are solely AI generated without any human involvement.” This means even if you are the one who prompted the AI model to write the script, you cannot be said to own the script which the AI model generated for you. In other words, the exact copyright parameters that come into play when dealing with a work entirely created by an AI model are undefined and it may take some time before we have any clarity on these parameters.

Outlook and Recommendations

There are several things to look out for and recommendations to make when it comes to the future of AI in the film industry. The first of these things is what is known as “the hybrid approach.” In other words, instead of serving as a replacement for human writers or film makers AI can be a co-writer. This hybrid approach involves combining the use of computer programs and AI models with human employees with the goal of keeping the human workforce but expanding their horizons and embellishing on their tasks to tell more gripping stories and bring the industry to new heights.

There are also several AI tools that are slated to bring great contributions to the future of the film industry. One of these is Runway. This is a company based in the United States that

creates tools allowing users to generate “consistent characters and locations for their video or screenplay by using “reference images” that are fed into the AI model.

There's also Jasper, a content generation tool used across a number of industries to help users generate text images and video. Its goal is to make content creation faster and more efficient and both more attractive to marketers and to people who just want their content created quickly.

Predictably, there are several guidelines that should be followed to ensure that AI is used ethically in creative work including films in the future. First and foremost, collaborations between humans and AI should be prioritized rather than simply allowing AI to generate a script or film on its own. The best way to ensure this is being done is to make sure AI is solely focused on editing techniques like colour correction, camera angles and other such aspects. This ensures that AI is concentrating on the technical aspects of filmmaking and that all the creativity comes from humans. Finding this balance would be as close as anyone could get to a perfect collaboration between humans and AI in the film industry.

In conclusion, AI is changing how stories are told and who tells them. It is making it possible for marketers to simply make a quick video for their clients instead of hiring a production company. Scripts or screenplays can also be completely written by AI which raises ethical questions and concerns. If someone makes a video using an AI model, the creator cannot be said to own it. This means settling the question of how copyright applies to AI might make people less reluctant to use it. However, if more people are using AI in their moviemaking, it may be at the cost of originality. This is just one of many technical and ethical issues that need to be resolved so that AI and its use in the film industry can be easier to understand. Film makers must balance innovation with integrity to ensure AI enhances, rather than replaces the human heart of cinema.