

# The Future of Screenwriting in the Age of AI

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## Humanities and Arts Course Sequence:

<i>Course</i>	<i>Title</i>	<i>Term</i>
<i>WR 1010</i>	<i>Elements of Writing</i>	<i>E22</i>
<i>WR 1011</i>	<i>Writing about Science and Technology</i>	<i>A23</i>
<i>GN 1511</i>	<i>Elementary German I</i>	<i>A21</i>
<i>GN 1512</i>	<i>Elementary German II</i>	<i>B21</i>
<i>GN 2511</i>	<i>Intermediate German I</i>	<i>C22</i>

Presented to: Professor Yunus Telliel  
Department of Humanities & Arts  
Term C 24  
HU 3900: Communication in the Workplace: The Future of "the Future of Work."

Submitted in Partial Fulfillment of  
The Humanities & Arts Requirement  
Worcester Polytechnic Institute  
Worcester, Massachusetts

**Abstract:**

The Humanities and Arts Requirement was completed with a sequence of courses in writing and German that culminated in a research paper in a seminar on AI and the future of work. This research paper examines the role of AI in the future of screenwriting. It discusses the process of creative writing, emphasizing the centrality of conveying and connecting via human emotions. While some of the recent AI systems are designed to replace writers, other AI systems are designed to work with writers. Comparing these types of AI systems, the paper examines human-machine collaboration in creative writing and envisions a possible future where machines and humans create emotionally moving scripts. It concludes with an analysis of AI's potential impact on the future of Hollywood writers.

## **Introduction:**

Artificial Intelligence was initially a concept that computer scientists dreamed about. Computer scientists have always strived to make machines as intelligent as humans. One of the first AI (Artificial Intelligence) systems titled Theseus completed a maze and remembered its path. Over time, as computation power and computer processing has increased computer scientists have been able to develop powerful AI systems. Currently, there are immensely powerful AI systems that have far surpassed the capability of Theseus. Systems like Chat-GPT, Bard and Grok have incredible text-generation capabilities and ability to solve complex problems (Roser, 2024). With this rapid growth, many in our world today are concerned about the rampant development of AI and whether it will replace humans or even lead to the extinction of humanity. It may sound absurd but AI researchers like Geoffrey Hinton claim that “smarter-than-human AI could be here in 5-20 years.” And Blake Lemoine who claimed that google AI is “sentient” (De Vynck, 2023). Furthermore, there are concerns about the ethicality of AI and whether it reinforces the inherent biases that exist in the data that it is trained on. In the entertainment industry there are concerns about the growth of AI and whether it will replace writers and actors. One recent example is with the Screen Actors Guild-American Federation of Television and Radio Artists (SAG-AFTRA) strike. In this strike members were fighting for “better pay with regards to residuals and AI provisions” (Rich, 2023). The debate about AI use revolves around studios using actors’ dialogue and faces in shows without their permission alongside the heavy use of AI in the creative process of developing a movie or series (Rich, 2023). Another example of this debate was with the recent agreement between the Writers Guild of America (WGA) and writers in Hollywood. The strike with the WGA occurred regarding the use of AI, undermining the role of writers in the industry. After a few months of strife, the writers and the guild arrived at an agreement where “AI cannot

be used to undermine writers or reduce their pay” but it enabled studios to “use past material to train AI models” (Richardson, 2023). A similar deal was reached with SAG-AFTRA, the main concern with these “solutions” was that it did not secure writers in the long run.

This begs the question: as AI becomes more powerful and studios train AIs on past written material, *what will the future of screenwriters look like?* In an era of rampant AI development, we could experience a future where AI may become a widely used tool in the screenwriting industry. The future of AI is intertwined with the debates and concerns of AI with the present. Therefore, it is important to discuss the use of AI as a screenwriting tool, so that in the future it does not cause a complete disruption and that there is job-security for writers that have brought wonderful and heart-touching stories to the big screen.

### **What does screenwriting look like?**

The process to create a film is a long and arduous one. From the initial story, to writing the script and screenplay<sup>1</sup>, to filming and editing the entire thing. But to even get to filming and editing it is important to have a strong script and screenplay so that the film can resonate with the audience. *So where does this process start?* It is not simple as taking an idea, writing a dialogue about it, and hoping the audience will be entertained. This is what separates the average screenwriters from the better ones, in that within their scripts they make the “audience care about the characters and the situation” and that then translates into the screenplay (Taylor & Batty, 2015). *How can a script resonate with the audience?* According to script researchers and writers a screenplay and movie

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<sup>1</sup> While the terms screenplay and script are used interchangeably in production. There are differences between the meanings of the terms. A script is considered the “initial layout” of a production. A screenplay is the “finalized outline” contains information about shots and dialogue as well as the cuts (Vierra, 2022).

can come alive with “a strong thematic spine guided by the protagonist's emotional journey” (Batty, 2015). This means that having a powerful theme can resonate with the audience and even have them view their own lives in parallel with the film, which is what makes good films, well, so good. This was why *The Lion King* was so well received by audiences, the writers of the film so much time into having a strong theme and writing a story that viewers of all ages could resonate with (Batty, 2015). The reason that I resonate with it is because it was a coming-of-age story that had many important life lessons that anyone can relate to. One of my favorite lines that I still listen to when I look for inspiration is, “The past can hurt, but as I see it, you can either run from it, or learn from it!”

Now that we have a script with a strong theme, *how do we translate this to a screen play?* Screenplays are what the audience sees when they go to cinemas. Therefore, it is important to make sure that the story and the script is conveyed to the audience in a manner such that the story’s ultimate meaning is expressed without losing any value. For screenwriting researchers this means that a character’s emotional arc is portrayed correctly because this helps the give the story direction and dimensionality (Batty, 2015). Furthermore, these screenwriting professionals claim that emotional engagement for the audience is so valuable that audiences tend to gauge how good a story is based on their emotional engagement throughout the story. Overall, it seems that it is the “invisible hand” of the screenwriter and the scriptwriter that guides the audience through an emotional journey (Batty, 2015). Doing so correctly and smoothly is what makes these films so amazing. Calling back the timeless classic *The Lion King*, one of the reasons why I and others love it is because the writers do such a great job of guiding the audience through Simba’s emotional and physical journey.

Throughout all these different phases of development it is never linear, there are other factors that influence the development of film. One of these factors is feedback loops with the director and producers to ensure they are constant with the vision they have set out to achieve. Additionally, there are the demands of the studios and their shareholders to make sure they are hitting certain objectives and goals with the film (Taylor & Batty, 2015). Through all this bureaucracy, it is very easy for the vision of the story to be lost and writers work very hard to retain the vision and emotional weight of the story.

The beauty of screenplays and scriptwriting is that writers can convey and write about the human condition and emotions. This is why people can resonate with certain films so much, it is because part of the emotion that the writers convey resonates with the viewer. One film that received praises for resonating with the audience was *1917*, critics say that it was technically brilliant, but it also connected with the audience on an emotional level as it was a movie that conveyed Sam Mendes' grandfather's story (Solly, 2023). In an interview with IMDb (an online database of information related to films, television series, podcasts, home videos, video games, and streaming content online), director Sam Mendes talked about how he used his grandfather's letters and stories about his time in WWI to write an award-winning film that resonated with audiences so well (Lewis, 2024). Furthermore, in another interview with Collider Magazine (2020) co-writer Krysty Wilson-Cairns states how the creative process for creating a script and screenplay for a "one-shot" movie was complex. She goes on to state that they wanted to take Mendes' story, something close to him, and make it into a feature film, when talking about why the writing process was so complex. Part of what makes the writing process so complex is generating a story that a worldwide audience can resonate with, specifically creating characters that are not ideal embodiments but rather human so that audiences can relate to the character. But now with the

advent of AI, a lot of writers are worried about AI being able to replicate this creative process. *But can it actually?*

## **AI in Scriptwriting: A Closer Look**

In the entertainment industry the use of AI in the scriptwriting and screenplay writing space is not overly prevalent, however, there are still researchers who are working on ground-breaking technology that writers can use in the creative process. One of the first human-machine collaborations in the entertainment industry was used to create a movie trailer for the film *Morgan* (2016). Their approach was to perform “multi-modal semantics extraction” including audio-visual sentiment and use scene analysis to select specific scenes for a trailer. When the AI generated trailer was released, there was overwhelming support for it on par with the trailer released by the film studio (Smith et al., 2017). Furthermore, the authors also postulate how intelligent technology can be used in other forms of media working together with the respective creators. In another adjacent paper an AI system called Dramatron can generate coherent scripts and screenplays. This system is intended to work alongside writers to generate scripts and screenplays. In their study they conduct interviews with the writers that worked with these systems, some claim that it was beneficial and allowed them to focus on the story. Meanwhile others called it “absurd.” Some of the screenplays and scripts that were written were performed as well and had a good reception from the actors who partook in the play. The authors also elaborate on the ethical implications of this technology and how this technology is not intended to replace writers but offer “human-machine collaboration” (Mirowski et al., 2022).

Critics may argue that AI can be used to automate script generation and be used for screenwriting. However, the following body of research illustrates that despite current systems being trained on a plethora of data, they still fall short of generating coherent and wonderful scripts. One paper discusses how when having Chat-GPT write independent screenplays and scripts of moves, there were often cliches, errors and biases which hindered their effectiveness and creativity (Cho, 2023). To correct this, researchers had tested a more iterative process where specific prompts were used to create screenplays. After textual analysis the researchers discovered an improvement in the creativity of the AI and the script it had created (Cho, 2023). Other researchers discuss how more modern AI technologies can be used in different areas of the film industry including scriptwriting, special effects, and video restoration. For the scriptwriting portion Li details how they are working to train an AI that samples a large corpus of scripts and uses that knowledge to generate scripts. However, on deeper examination of these scripts Li acknowledges that these scripts are flawed and far from what human writers can generate. The author claims that some scripts contained absurd plots, confusing language, and unrealistic emotions (Li, 2022).

This group of researchers seems to advocate for AI systems that writers can use to improve their process and increase their efficiency, converging on both the strengths of AI and humans. These AI systems, the researchers believe, can offer writers the opportunity to delegate some tasks to the AI while they can focus on more important parts of the story and creative process. When discussing the future of work, it seems as if this is a feasible future where both parties collaborate with one another. However, with human-machine collaboration there are still more questions that arise, such as, *how will inherent biases present in the AI system influence writers and their creative processes? Will humans delegate more tasks to AIs? With AI contributing to films, will films lose their “humanity”?*



Having just discussed AI systems being imperfect and requiring human-machine collaboration, I want to now add more nuance to the topic by introducing researchers that seek to dedicate this task to AI. One of these AI systems is called Alyce, an AI model that generates a screenplay when a story is provided by the user. They claim that this “outperforms” what other writers accomplish in a shorter-time period. Their overall process involved a story being entered by the user then a phase splitter labels the narrative, passes them through dialogue processing and sentiment analysis and produces a screenplay (Eldhose et al., 2021). Alyce can then fully generate a script autonomously without the need for a writer to assist the process. In another paper author Sue Cake explores a generative AI created by a Belgian company Deep Story that uses complex Machine Learning algorithms to write screenplays. The CEO claims that their tool will surpass humans in writing screenplays in 5 years. Their findings explore the challenges in using AI as a creator and assess the quality of those screenplays. The authors also discuss how AI might be able to disrupt traditional approaches to screenplays and script writing. They claim this will be achieved by making the process more efficient thereby accelerating the overall production of films (Cake, 2023).

It is important to discuss researchers that seek full automation because if AI can replace humans in this field there are many questions that arise such as, *how will this impact the emotion that makes films so good? Will all AIs begin to make the same sorts of films?* While we may not have the answers to these questions now it is important to keep the conversation on this issue active. Next, we will consider a possible future, one where AI systems will collaborate with humans. This future is one that contradicts the nature of the systems above because writers are not replaced, rather, they are considered an important part of the process, one that only enhances the performance of the AI.

## Human-Machine Collaboration and an Ethical Future

Thus far we have discussed what the scriptwriting process looks like, what makes the scripts and screenplays human and what the use of AI in the screenwriting process looks like. Now, we turn our attention to what the ethical approach is moving forwards, from the perspective of writers, to ensure not only job security but also to maintain the beauty of film. To understand what one possible future in this space looks like we must first understand the idea of human-machine collaboration. With the rapid growth of artificial and autonomous systems one of main debates has been with regards to whether these machines will replace humans. However, many pro-AI activists claim that the workforce will change into a space where humans and machines will work together complementing one another rather than replacing one another. As of today, machines can perform tasks of warring complexities with high-speed and humans have emotion, flexibility and adaptability; together these two entities can work together and form a relationship that can benefit the final product (Alhaji et al., 2020). While on the surface we can all talk about human-machine collaboration, once we delve deeper another issue arises which is *what does the writing distribution look like? Will the writing process be completely reliant on AI?*

To begin this discussion, we must discuss the levels of automation and autonomy. *But don't these mean the same thing?* They are related terms but have different meanings. Autonomous systems can operate independently, adapt to changing circumstances and execute actions based on predetermined goals or objectives. On the other hand, autonomy refers to the ability of AI systems to operate without constant human supervision, but it also implies the capacity for self-regulation and decision-making. Now that we have defined these terms, we delve into the different levels of automation and autonomy. According to researchers Simmler and Frischknecht who have studied autonomous systems claim that there are 5 levels of automation and autonomy. Level 1 systems

offer decisions to the human operator, and then it is the human operator who chooses whether to execute the decision. Level 2 systems offer decisions to the human operator, and it is the operator who approves or rejects the final decision. Levels 3 through 5 increase the overall level of automation and decrease human involvement, with the 5<sup>th</sup> level involving no human participation systems (Simmler & Frischknecht, 2020). Now we turn our attention to autonomy. Level 1 autonomy refers to systems that have no ability to learn and are closed, meaning that they can operate in a predefined environment. Level 2 systems refer to fully determined systems, but the steps to complete the process are not predefined. Systems Level 3 through 5 increase this level of autonomy and the steps required to complete a process become less and less predefined. With level 5 systems the same input will not lead to the same output, these systems can also learn and can interact with others (Beer et al., 2014). Now that we have defined the levels of autonomy and automation, we will now talk about how this can be applied to the screenwriting and scripting process.

Now we will discuss how moving forward this technology can be used in the film industry in an ethical manner. The knee jerk reaction would be to say that an approach where we do not yield all the script development to these technologies would be best. In terms of automation this means a system that is a Level 1 system so that the writer oversees the creative decision making. When considering autonomy, a system that yields different outcomes is best because that is what works best for unique scripts therefore a Level 4 or 5 would be best. *But what do these technologies look like?* As discussed previously, the school of researchers that supports human-machine collaboration has developed technologies that enable writers to work with AI to enhance the screenwriting process. Some examples of these technologies include Dramatron and Chat-GPT among others. These technologies are intended to work with the writer to generate with the script

as currently AI alone struggles to generate coherent and diverse scripts (Cho, 2023). Furthermore, in comparison with AI generated scripts, actors that have read these scripts resonate more with the co-written scripts rather than the ones generated by AI (Mirowski et al., 2022). However, with these scripts it was supervised by the writers but if this technology is to be applied in the real world for real films *how should this technology be used so that writers are not neglected?* It is quite apparent that in its current state AI has many issues with regards to bias as the data that is trained on is inherently biased and it thereby inadvertently perpetuates those biases. Conversely, with attempts to make the training data more neutral there may be censorship that could limit artistic freedom, which again is what makes good films so good! Note that, in its current state, AI cannot interpret artistic intent often found in award-winning scripts (Trawler, 2023). Going forwards, it appears clear that in its current state AI is unable to emulate the emotion and artistic intent that motivates and plays a key role in producing feature films. *But how will this change with the advent of AI that can emulate emotions?*

## **Conclusion**

As we look into the future there is no doubt that Artificial Intelligence technologies will improve. In this future many writers in the entertainment industry worry about their job security and avid viewers worry about the quality of entertainment declining. In her book *Robotic Imaginary*, Jennifer Rhee discusses robots in various industries including entertainment. In her book she discusses the advent of emotional robots replacing affective labor. In the context of the entertainment industry, when looking at the writing process this means Emotional AI replacing writers. *But does emotional AI exist?* The simple answer to this is that Emotional AI remains a

theoretical concept but is intertwined with Cognitive AI. These types of intelligent systems seek to emulate human emotions and human ways of thinking to process these emotions. While the researchers claim that these systems are intended to help humans, there is a fair amount of concern regarding whether these systems will replace human writers (Zhao et al., 2022). We may not know the answer to these questions now, but it is important to have this conversation now so that the value of humans and emotions are understood, and the value of AI is not completely neglected.

This paper seeks to do exactly that! This study's purpose is to acknowledge that there is a debate surrounding the use of AI in the writing of scripts and screenplays but to also concede that AI will seep into the industry regardless of the amount of resistance present. Therefore, this is why different application of AI being used in scriptwriting and screenwriting are presented throughout the paper to show that there is a possible future that AI can indeed work with writers to produce scripts and screenplays, but the process must be more refined. On the other hand, research regarding fully autonomous systems is also presented to showcase that there is a possibility that there are systems that may replace writers. In conclusion, this paper offers insight into the current writing process and then presents information regarding the variety of AI systems that are present to introduce a discussion on what the ethical future of work in the entertainment industry looks like.

## References

- Alhaji, B., Beecken, J., Ehlers, R., Gertheiss, J., Merz, F., Müller, J. P., Prilla, M., Rausch, A., Reinhardt, A., Reinhardt, D., Rembe, C., Rohweder, N., Schwindt, C., Westphal, S., & Zimmermann, J. (2020). Engineering Human–Machine teams for trusted collaboration. *Big Data and Cognitive Computing*, 4(4), 35. <https://doi.org/10.3390/bdcc4040035>
- Batty, C. (2015). A screenwriter’s journey into theme, and how creative writing research might help us to define screen production research. *Studies in Australasian Cinema*, 9(2), 110–121. <https://doi.org/10.1080/17503175.2015.1059991>
- Beer, J. M., Fisk, A. D., & Rogers, W. A. (2014). Toward a framework for levels of robot autonomy in Human-Robot interaction. *Journal of Human-robot Interaction*, 3(2), 74. <https://doi.org/10.5898/jhri.3.2.beer>
- Cake, S. (2023). Artificial Intelligence as a Co-creative Tool for Writing Screenplays. In the *Australian Screen Production Education and Research Association (ASPERA) Conference*. <https://eprints.qut.edu.au/241556/>
- Chitwood, A. (2020, January 7). 1917 Co-Writer Krysty Cairns-Wilson on how to write a One-Shot movie. Collider. <https://collider.com/1917-interview-krysty-cairns-wilson-how-to-write-a-one-shot-movie/>
- Cho, T. (2023). A Study on Dramaturgy for AI Screenplays: Writing Alternative Narratives Using GPT (Order No. 30575225). Available from ProQuest One Academic. (2865199295). <http://ezproxy.wpi.edu/login?url=https://www.proquest.com/dissertations-theses/study-on-dramaturgy-ai-screenplays-writing/docview/2865199295/se-2>

- De Vynck, G. (2023, May 23). The debate over whether AI will destroy us is dividing Silicon Valley. *Washington Post*. <https://www.washingtonpost.com/technology/2023/05/20/ai-existential-risk-debate/>
- Eldhose, K. A., Jose, C., Siddharth, S., Geejo, S. S., & Sreedevi, S. (2021). Alyce: An Artificial Intelligence Fine-Tuned Screenplay writer. In *Lecture notes on data engineering and communications technologies* (pp. 627–636). [https://doi.org/10.1007/978-981-15-9651-3\\_52](https://doi.org/10.1007/978-981-15-9651-3_52)
- Lewis, R. (2024, March 1). IMDb. Encyclopedia Britannica. <https://www.britannica.com/topic/IMDb>
- Li, Y. (2022). Research on the Application of Artificial Intelligence in the Film Industry. *EDP Sciences*. <https://doi.org/10.1051/shsconf/202214403002>
- Mirowski, P., Mathewson, K., Pittman, J., & Evans, R. (2022). Co-writing screenplays and theater scripts alongside language models using Dramatron. *NIPS*. <https://doi.org/10.48550/arXiv.2209.14958>
- Rich, K. (2023, November 7). The AI issue in the SAG-AFTRA strike may have finally been resolved. *Vanity Fair*. <https://www.vanityfair.com/hollywood/2023/11/sag-strike-ai-issue-resolved>
- Richardson, D. (2023, October 17). Hollywood’s AI issues are far from settled after writers’ labor deal with studios. *CNBC*. <https://www.cnn.com/2023/10/16/hollywoods-ai-issues-are-far-from-settled-after-wga-deal.html>
- Roser, M. (2024, January 29). *The brief history of artificial intelligence: The world has changed fast – what might be next?* Our World in Data. <https://ourworldindata.org/brief-history-of-ai>

- Simmler, M., & Frischknecht, R. (2020). A taxonomy of human–machine collaboration: capturing automation and technical autonomy. *AI & SOCIETY*, 36(1), 239–250.  
<https://doi.org/10.1007/s00146-020-01004-z>
- Smith, J. R., Joshi, D., Huet, B., Hsu, W. H., & Cota, J. (2017). Harnessing A.I. for augmenting creativity. *Association for Computing Machinery*.  
<https://doi.org/10.1145/3123266.3127906>
- Solly, M. (2023, August 16). The True History Behind the '1917' Movie. *Smithsonian Magazine*.  
<https://www.smithsonianmag.com/history/true-history-behind-1917-movie-180973800/>
- Taylor, S., & Batty, C. (2015). Script development and the hidden practices of screenwriting: perspectives from industry professionals. *New Writing*, 13(2), 204–217.  
<https://doi.org/10.1080/14790726.2015.1120314>
- Trawler, D. C.-. F. (2023, July 30). AI in Screenwriting: Manipulation, Deception and Ethical Dilemmas. *Medium*. <https://medium.com/@rocknrollover007/ai-in-screenwriting-manipulation-deception-and-ethical-dilemmas-bf9109f17ca8>
- Vierra, E. (2022, October 13). *Screenplay vs. script: What's the difference?* Videomaker.  
<https://www.videomaker.com/how-to/planning/writing/screenplay-vs-script-whats-the-difference/#:~:text=However%2C%20there%20are%20still%20differences,a%20step%20above%20a%20script>
- Zhao, G., Li, Y., & Xu, Q. From Emotion AI to Cognitive AI. *International Journal of Network Dynamics and Intelligence*. 2022, 1(1), 65–72. doi: <https://doi.org/10.53941/ijndi0101006>