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Atıf: Akça E. (2025). Artificial Intelligence in Cinema: A Thematic Review of Production and Aesthetic Shifts, 5(2), 7–22. https://doi.org/10.53723/cosohis.60

Akademik Editör: Didem Deniz Anamur

Alındı : 1 Kasım 2025

Kabul Edildi : 21 Aralık 2025

Yayın : 27 Aralık 2025

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ARAŞTIRMA MAKALESİ

Sinemada Yapay Zekâ: Üretim ve Estetik Dönüşümlerin Tematik İncelemesi

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Öz

Dijital çağın belirleyici unsurlarından biri hâline gelen yapay zekâ (YZ), film endüstrisinde de giderek daha etkin biçimde kullanılmaktadır. YZ'nin sinemaya entegrasyonu, üretim süreçlerinden estetik dönüşümlere uzanan geniş bir alanda yenilikçi imkânlar sunarken; aynı zamanda çözümlenmemiş sorunları, etik tartışmaları ve insan yaratıcılığı üzerindeki olası etkileri gündeme taşımaktadır. Bu çalışmanın amacı, YZ teknolojilerinin sinema endüstrisindeki rolünü derinlemesine incelemek ve sektöre etkilerini tematik analiz çerçevesinde değerlendirmektir. Araştırmada, sinema–YZ ilişkisini farklı yönleriyle ele alan beş akademik makale tematik analiz yöntemiyle incelenmiştir. Bu sayede YZ'nin yaratıcı üretime katkıları, film estetiğine etkileri ve dağıtım süreçlerinde yarattığı dönüşümler sistematik biçimde ortaya konmuştur. Özellikle senaryo yazımı desteği, görsel efektler ve post-prodüksiyon gibi yaratıcı süreçlerde YZ uygulamalarının sağladığı yenilikler ayrıntılandırılmıştır. Ayrıca büyük veri yönetimi, izleyici analitiği ve kişiselleştirilmiş izleme deneyimlerinin dönüştürücü etkisi de tartışılmıştır. Bununla birlikte YZ'nin emek üzerindeki etkisi, sanatsal özgünlük ve etik değerler çalışmanın temel sorgu alanları arasındadır. Bulgular, YZ'nin sinemada hem dönüştürücü bir araç hem de tartışmalı bir unsur olduğunu göstermektedir; verimsiz veya denetimsiz kullanım etik riskleri artırabilir ve özgünlüğü zayıflatabilir.

Anahtar Kelimler: Yapay Zeka, Film Estetiği, Film Üretim Süreçleri, Etik Sorunlar, Dijital Dönüşüm

Artificial Intelligence in Cinema: A Thematic Review of Production and Aesthetic Shifts

Abstract

Artificial intelligence (AI) has become an influential force in the digital age and is increasingly integrated into the film industry. Its use creates new opportunities while also raising unresolved challenges, ranging from production workflows to aesthetic transformation. Beyond technical innovation, AI reshapes creative practices and provokes debate about ethics, authorship, and the future of human creativity. This study examines the role of AI in cinema and evaluates its impacts through thematic analysis. Five academic articles focusing on different dimensions of the cinema–AI relationship were analysed thematically to develop a systematic understanding of AI's contributions to creative production, its influence on film aesthetics, and changes in distribution. Particular attention is given to AI-supported processes such as screenwriting assistance, visual effects, and post-production optimisation. The analysis also considers AI's role in big-data management, audience analytics, and personalised viewing experiences. At the same time, the study highlights critical concerns about labour displacement, artistic originality, transparency, and ethical responsibility. Findings indicate that AI functions as both a transformative tool and a contested element in contemporary cinema. While it can enhance creativity and efficiency, unregulated or opaque use may intensify ethical risks and undermine originality. The study offers a balanced perspective on AI's present influence and its potential future implications for the sector.

Keywords: Artificial Intelligence, Film Aesthetics, Film Production Processes, Ethical Issues, Digital Transformation

Introduction

Background of the Study

Cinema has historically evolved continuously, and this evolution has undergone significant changes parallel to technological advancements. In the early 20th century, during the initial periods of cinema, silent films began to explore the visual power of cinematic storytelling. However, this period is characterized as a time when narrative relied entirely on visuals due to the absence of integrated sound; the transition to sound cinema, in turn, facilitated not only a shift in the narrative structure of films but also the development of cinema's technical infrastructure (Girod, 2011). With the emergence of color cinema, the audience's experience of cinema became richer, and film aesthetics took on a new dimension (Bordwell & Thompson, 2010). This evolutionary process highlights the effects of technology on cinema aesthetics and production processes.

A pivotal shift occurred with the migration from analog film to digital workflows, a change that significantly optimized both production timelines and budgets (Meyer, 2009). However, the current industry landscape is being defined by a disruption arguably more profound than digitalization: the rise of Artificial Intelligence. Beyond merely enhancing Visual Effects (VFX), AI has begun to permeate the core of content creation itself. This technological leap does not just offer new tools; it necessitates a re-evaluation of the creative workflow. As noted by Hertzmann (2019), the deployment of deep learning algorithms and AI-assisted processing is not just accelerating production but fundamentally altering how cinematic stories are conceived and visualized. With the digitalization of the film industry, the role of AI tools has increasingly expanded, particularly in areas such as screenwriting, character development, sound design, and editing.

AI enables filmmakers to design images in ways that were previously unimaginable, while also playing a significant role in the creative processes of screenwriting. The impact of AI on film aesthetics is reshaping artistic forms of expression, transforming processes that rely on creative thought and technical skills. This transformation has not only significantly altered the visual structure of cinema but also greatly impacted its creative aspect (Gomez, 2018).

Problem Statement

The effects of artificial intelligence (AI) on the film industry remain an area that is not yet fully understood. In particular, many questions arise regarding how technology impacts creative processes, the transformations it brings to film aesthetics, and the ethical implications of these changes. In this context, the increasing use of AI in the film industry facilitates the creation of film productions in a more efficient, rapid, and economical manner. However, it also raises concerns about the creative control, originality, and ethical dimensions of these processes. As Akkoyun (2025) points out in his recent thoughts on mass communication, the integration of artificial intelligence into our lives brings not only convenience but also the necessity to question the future of individual communication and social ethics.

On the other hand, the role of AI in film production processes has also altered traditional production techniques. Filmmakers, with the help of AI, are able to accelerate post-production processes that would previously be time-consuming, and visual effects can now be created in a much shorter time and at a lower cost. However, questions regarding the aesthetic changes brought by these advancements, how they affect audience perception, and the extent to which creative control has shifted remain unanswered. Additionally, whether AI-generated content holds artistic value and how this technology establishes ethical boundaries in film production are other crucial issues that need careful examination.

Motivation for the Study

The relationship between artificial intelligence (AI) and cinema has become one of the most intriguing and debated topics of our time. Throughout history, cinema has held significant innovative power both in the arts and technology. However, the use of AI in film production raises questions regarding how it affects the creative nature of cinema, the processes through which filmmakers create films, and the societal messages films convey.

This study, based on the notion that the effects of digitalization on artistic production need to be better understood, aims to particularly explore the role of AI in creative processes. As the use of AI has increased with digitalization, how does it transform the creativity of artists, and what opportunities do these technologies

create in film production? These questions provide valuable insights into the future of contemporary cinema. Within the scope of this research, these issues are critically examined, and an attempt is made to find responses. Additionally, the potential of AI in the film industry highlights the new creative possibilities offered to artists, as well as the efficiencies it provides in the industrial context. This new evolution of cinema in the realm of technology merging with art forms the core motivation of this study.

Aims, Objectives & Research Questions

The aim of this study is to examine the profound effects of artificial intelligence (AI) on film aesthetics, creative processes, and ethics. To achieve this objective, a comprehensive analysis will be conducted on the integration of AI into film production processes, the opportunities it provides to artists, and the ethical challenges encountered. The key research questions are as follows:

How does AI transform film aesthetics and the visual modes of storytelling in films? What are the artistic implications of this transformation?

How is the shift in creative control within film production processes reshaping the roles of directors and producers?

In AI-generated content, what ethical issues arise, and how are these challenges addressed?

The answers to these questions will contribute to our understanding of the innovations AI brings to the film industry, considering aesthetic, creative, and ethical perspectives, and will help us comprehend the new realities arising from this transformation.

Significance of the Study

The significance of this study lies in its comprehensive examination of the multifaceted effects of artificial intelligence (AI) on the film industry using thematic analysis, and in developing a deep understanding of how technological advancements reflect not only on the technical aspects of cinema but also on aesthetics, creative processes, and ethical concerns. This approach will make a significant academic and practical contribution by offering a nuanced perspective on the impact of AI on the film industry. By clarifying the relationship between AI and cinema, this study aims to serve as an example for other works in the field, helping filmmakers, producers, and critics understand how to best utilize this emerging technology.

Furthermore, discussions on how the artistic nature and ethical values of cinema interact with AI are not only an academic contribution but also a valuable resource for film producers. This study aims to provide a clear perspective on the boundaries between art and technology in the digital age.

Limitations of the Study

This research is limited to a thematic analysis of five articles from the existing literature on the use of artificial intelligence in the film industry. The fact that these articles focus on specific examples and theoretical frameworks may restrict the generalizability of the findings. In this context, the study will focus on specific genres and productions within the film industry rather than examining the industry as a whole. It is believed that this limited focus will allow the research to offer a more in-depth and specialized perspective. Nevertheless, these limitations will enable the research to be presented in a more focused manner and facilitate a deeper analysis.

per second; however, this number was eventually raised to 24 frames per second, which is the optimal level for the human eye to perceive movement (Bordwell & Thompson, 2010: 34). This development made the cinematic experience smoother and more visually satisfying, significantly improving the enjoyment of viewers. In 1927, the production of the first sound film marked an important turning point in the historical evolution of cinema. The integration of sound into cinema transformed screenwriting, acting, film production processes, and exhibition methods (Kılınç, 2023: 102). These developments helped establish cinema as a popular art form.

However, with the development and widespread use of television technology, cinema gradually lost its former brilliance and saw a decline in its audience base. While television, with its powerful technological infrastructure, became accessible to every home, cinema halls began to lose their audiences (O'Brien, 2018: 112).

1. Literature Review

1.1 Cinema and Technology: The Effects of Digital Transformation

Cinema is regarded as a dynamic art form shaped by the progress of technology. Introduced to the world in 1895 with the invention of the cinematograph by Auguste and Louis Lumière, cinema has evolved over time through technological innovations to reach the present day. Nilgün Abisel (2010: 8) defines the Lumière brothers' cinematograph as One of the many technical marvels invented throughout the nineteenth century, showcasing the most advanced point in the reproduction of the external world." This camera not only reflected the outside world but also transformed into a storytelling tool shaped by the human imagination. Beginning with the cinematograph, this narrative process has been enriched with technological advancements and has played a significant role in the evolving nature of cinema today.

When thinking about cinema, the first elements that come to mind are often the film, the audience, and the cinema hall. These components are frequently tightly interconnected. The impact of watching films for the first time in cinema halls has greatly contributed to this perception of cinema. Cinema halls, as special spaces for connecting the audience with cinema, have been an essential part of cinema for a long period. However, with the digital revolution, the relationship among these three elements has undergone transformation. The inclusion of digital technologies in film production processes has profoundly changed both the viewer experience and filmmaking (Kırel, 2012: 17). The impact of technological innovations on cinema has not only reshaped viewing habits but also the production processes of films.

Cinema, which continues to exist today thanks to the indispensable contributions of technology, has become possible through the visualization of ideas, industrial inventions, and technological innovations. Without technical equipment, filming a scene or editing a film would be impossible (Bazin, 2011: 23). Cinema is an art that consists of a combination of technical and aesthetic elements, and each of these elements plays a significant role in the development of cinema (Cevher & Aydın, 2020: 615). The impact of technology on cinema has enabled this art form to develop much faster than other arts. Looking at early cinema examples, one can observe significant differences in technical equipment and narrative style between two films shot only a month apart (Ünal, 2010: 9).

The transformation of technology from analog and electronic tools to digital technology is also referred to as the "Digital Revolution." This revolution also marks the beginning of the information age. Historically, in the early 1980s, computers became more widespread and accessible, and by the 1990s, the commercialization of the World Wide Web accelerated digitalization. In the 2000s, the widespread use of mobile phones led to a significant increase in the number of internet users worldwide. After 2010, mobile phones became a platform for watching cinema and television content. Additionally, thanks to the possibilities offered by digital environments, viewers can now transition from a passive position to an active one, selecting the films they wish to watch and commenting on content. These developments have not only changed viewing habits but also profoundly impacted the supply and demand balance for cinema and television content (Çoşkuner, 2023: 34). This mutual interaction between cinema and technology has led to significant transformations in many areas, from cinematic narrative forms to production processes.

The digital revolution has reshaped the aesthetic and technical structure of cinema while deepening its relationship with the audience. In this context, the role of mass communication becomes crucial. Akkoyun (2022: 57) emphasizes this dual function by stating that media products not only convey individual and social changes to the public but also actively shape these changes. Therefore, technology does not merely act as a tool; it becomes one of the fundamental building blocks of cinema. Historically, the relationship between cinema and technology has been a critical factor in shaping both production processes and the viewer experience. The relationship between cinema and technology has been a critical factor shaping both production processes and the viewer experience throughout history. From the early years of cinema to the present, the role of technology in cinema has manifested in many dimensions, from enhancing visual storytelling to evolving technical equipment. With the development of technology, particularly the rapid changes in image quality and narrative styles, cinema has created a broader impact area as an art form. One of the first significant technological advancements in the history of cinema was the increase in the number of frames per second that cameras could capture. In the early days,

cameras could capture only 16 frames. In response to this challenge, cinema embraced technological innovations and introduced a series of pioneering developments to attract audiences back to the theatres. Specifically, advancements such as color film, wide-screen technologies, 3D cinema, and enhanced sound systems continually rejuvenated cinema and reshaped the viewer experience (Kozloff, 2019: 94). The interaction between cinema and technology has shaped the nature of cinema with every new technological development. Over time, the shrinking and lightening of film cameras made it possible to use them outside of studio settings, leading to diversification in cinematic narrative styles. This technological progress has led to the emergence of new trends, theories, and traditions in cinema. The relationship between cinema and technology has brought about not only formal but also content-based transformations.

For instance, the "New Wave" movement that emerged in the 1950s is a concrete example of the interaction between cinema and technology. New Wave directors, taking advantage of the opportunities presented by smaller cameras, moved their cameras out of the studios and shot films on the streets of Paris, producing original works that broke free from traditional film production conventions (Zengin, 2016: 31-32). During this period, the formal features of the New Wave also established a unique method and set of rules, creating a more natural and fluid narrative language by moving away from the artificial world of studio systems. Footage shot with handheld cameras provided the audience with a more attractive and captivating experience compared to studio-based filming (Odabaş, 1994: 285). As Monaco (2013: 72) pointed out, with the development of the industry, the ways of recording art such as "Film, sound recording, and photography" have become based on highly developed and complex technology. In the early 1970s, the digitization of images heralded a radical shift in cinema.

By the early 2000s, digital technologies, which had primarily been effective during post-production, began to gain traction in every stage of the film production process. This development allowed the emergence of the digital filmmaking model as an alternative to the traditional film production model. The acceleration of digitalization fundamentally changed the century-old filmmaking model in conventional cinema. This transformation modernized the production processes of the film industry and presented new opportunities that shaped the future of cinema as an art form. However, this transition is not seamless; as Tapkan (2022) emphasizes, while artificial intelligence facilitates life, it also creates significant challenges due to the necessity of constantly keeping up with rapid technological changes. This obligation to adapt is reshaping the professional identity of filmmakers.

On the other hand, while digitalization provided many new opportunities for the art of cinema, it also brought a series of new issues to the forefront. One of these issues is the shift from collective viewing culture to individualization. The collective film-viewing experience in traditional cinema halls is being replaced by individual viewing opportunities offered by digital platforms. The white screen, which constituted the social aspect of cinema, has been replaced by high-resolution screens, and thus the concept of "home cinema" has gained strength. This transformation has changed film-viewing habits and led to the rise of more individualistic viewing practices (Çoşkuner, 2023: 42). The limitless opportunities offered by digital technologies have brought significant changes to film production processes. While this transformation provides a faster and easier production process, it can sometimes result in a lack of meticulousness and care. Compared to the film era, digital filmmaking offers a more flexible approach and creates the impression that editing mistakes can be corrected afterward. This situation, along with the convenience offered by digital technologies, can lead to a sense of haste and superficiality in the production of films. During the film era, each stage was planned and executed with great technical precision, whereas the digital environment allows each stage to be carried out rapidly with less preparation. This has led to discussions regarding the quality of films and has been viewed as a threat to the artistic value of cinema (Zengin, 2020: 156).

However, digitalization has not only impacted the production of cinema but also its artistic value. Some critics have referred to digitalization as the "end of cinema," arguing that this transformation negatively affects the artistic side of cinema. This view suggests that the ease and speed provided by digital technologies in the production process may weaken the creative and artistic originality of cinema.

1.2 Artificial Intelligence: An Examination from a Historical Perspective

At the beginning of the Industrial Revolution, many production processes that were once carried out with physical labor were transferred to machines. During this period, humans became actors who mainly supervised the machines in tasks that required bodily strength. Approximately two centuries following the Industrial Revolution, the global workforce is undergoing another seismic shift in the first quarter of the 21st century. While the former era focused on mechanizing physical labor, the rapid ascent of Artificial Intelligence (AI) has introduced the capacity to offload cognitive and mental tasks to software systems. This transition parallels the profound structural changes of the industrial age but possesses the potential to instigate an even deeper societal transformation. Currently, professional roles requiring intellectual capacity are increasingly being managed by AI systems, suggesting a future where human involvement in work processes may evolve primarily into a supervisory capacity, akin to historical mechanization. Scientifically, AI is described as a technological branch dedicated to engineering intelligent systems capable of executing functions that typically require human intellect (Zhang & Lu, 2021). Offering a slightly different perspective, Haenlein and Kaplan (2019) characterize AI as a system's ability to interpret external data correctly, learn from it, and flexibly apply those learnings to achieve specific goals. Within this framework, AI is viewed as a mechanism that not only mimics human faculties but leverages vast data resources to optimize task performance.

Although AI has developed rapidly in recent years, it was first defined and accepted scientifically in 1956 during a conference organized by John McCarthy and colleagues at Dartmouth College (Çoşkuner, 2023). Initially related to computer science, AI has been shaped over time with contributions from disciplines such as philosophy, mathematics, and engineering. The foundations of AI are based on the concept of intelligent machines proposed by philosophers and science fiction writers. For example, the French philosopher René Descartes used the metaphor of the "mechanical man" to explain the existence of intelligent machines, while the famous 19th-century writer Jules Verne and the well-known 20th-century writer Isaac Asimov explored non-human intelligent beings in a fantastical context in their works (Dwivedi et al., 2019).

In defining AI, it is thought of as a software system that includes psychological activities such as perception, association, prediction, and planning, which assist humans and animals in achieving their goals (Boden, 2016: 1). This definition divides AI into several sub-disciplines, such as image, language, and planning, while also considering it as a knowledge processing process that functions in thinking, understanding, and applying (Pirim, 2006: 84). Looking at the historical development of AI, one of the key goals in this field has been to produce machines that imitate human mental abilities and can use these abilities in various tasks. However, the development of AI has not only been seen in a positive light; according to some views, AI is also seen as a potential destroyer of the human race (Mueller & Massaron, 2018: 1).

In this context, the historical evolution of AI reveals that it occupies an important place both in technological development and societal impacts. Especially after the definition made in 1956, AI moved from being a theoretical concept to being recognized as a scientific field. During this process, an understanding rooted in philosophical and science fiction literature, combined with technological developments, shaped the fundamental principles of AI.

Initially, AI was defined as a field of science aimed at modeling the intelligence abilities of various species, such as humans, animals, and plants, through computers. This discipline is based on the assumption that cognitive functions such as learning, thinking, perception, memory, planning, and even artistic creation can be simulated through machines (Ganasia, 2023). One of the key figures in laying the foundations of AI is the founder of modern computer science and mathematician Alan Turing. In 1935, he proposed the idea of a computer capable of storing large amounts of data and managing this data, thus laying the first theoretical foundations for AI (Türten, 2023: 379). In the 1950s, Turing predicted that computers would have the potential to mimic human intelligence, although he believed this would not be accepted by humans (Say, 2019: 83). Therefore, in the early 1950s, he developed a test to distinguish machine intelligence from human intelligence. This test would later become known as the "Turing Test," and AI definitions were based on whether a computer could exhibit human-like behaviors under certain conditions (George & Gillis, 2023). The test proposed by Turing opened up an important research area regarding the potential of AI to mimic human

intelligence and marked a turning point in the evolution of scientific studies on AI. The historical evolution of AI has become more than just a theoretical field, transforming into an interdisciplinary domain shaped by philosophical, mathematical, and engineering perspectives. Turing's contributions laid the groundwork for discussions in this area and mapped out the future developments of AI.

AI represents an important stage in the evolutionary process of technology, and its historical development is one of the cornerstones of this process. Initially discussed on philosophical and scientific foundations, AI has, over time, been shaped with contributions from many scientific fields and aimed to mimic human cognitive abilities. This historical development has undergone a significant transformation, leading to revolutionary changes in various areas of technology today. In 1963, Edward Feigenbaum and Julian Feldman published an important work titled "Computers and Thought" to examine AI developments more deeply. This work is considered a reference source that brought together theoretical and practical knowledge about the functioning principles of AI programs. However, in 1973, the negative criticisms of mathematician James Lighthill regarding the state of AI research at that time led to the British government cutting its support in this field, and similarly, the US government followed suit. These developments caused a period of stagnation in the field of AI, and many research and innovation processes were suspended (Kaul et al., 2020).

However, by the early 21st century, there was a significant leap in AI research. This transformation was solidified with the development of AlphaGo, an AI program developed by Google in 2015. AlphaGo succeeded in defeating the world champion in the game of Go, using deep learning and artificial neural networks. This achievement in Go, a much more complex game than chess, demonstrated the potential of AI (Silver et al., 2016; Yoshida, 2019). This development revealed that AI technology had reached a much more advanced and effective point, while also proving the power of methods such as deep learning.

The year 2019 was a milestone for AI, especially in natural language processing and visual production. GPT, a 1.5-billion-parameter AI tool developed by OpenAI, was announced as an AI tool capable of generating text, and the company's DALL-E visual production tool allowed for the creation of visuals from text-based commands. These innovations sparked great interest in the fields of communication and media, and shortly thereafter, expectations emerged that AI tools capable of video production would also be developed. Thus, the potential of AI in the film industry expanded beyond text and visual production, reaching the stage of generating moving images and video content. In short, this process, alongside the digitalization of the film industry, has led to the deeper integration of AI tools in the sector, fundamentally transforming traditional production practices.

1.3 Artificial Intelligence in Cinema: Transformation in Aesthetics and Production Processes

The evolution of art is driven by humanity's desire to create meaning and communicate it to others. Cinema, as an art form that responds to this fundamental need, began to take shape through the recording and projection of moving images (Baudry, 2014). With technological inventions such as the cinematograph and kinetoscope, cinema embarked on its journey, and due to its deep connection with technology, it has become an ever-evolving form of art (Elsaesser, 2019). The process of cinema's adaptation to technology, like other art forms, has evolved and been shaped by new inventions. Artificial intelligence has rapidly integrated into the structure of the film industry and has found a place in every stage of the filmmaking process (Zhang & Lu, 2021).

In recent years, the contributions of artificial intelligence to creative and production processes in cinema have been reshaping the aesthetic and technical dimensions of filmmaking. The use of AI technologies in the pre-production, production, and post-production phases has accelerated the workings of cinema while offering more innovative and different aesthetic approaches (Kaplan, 2020). This transformation allows for the emergence of many different perspectives on the future of cinema.

Looking at the historical development of cinema, it is evident that narrative forms and genre characteristics have evolved in parallel with technological innovations. Especially the transformation brought by digital technologies in cinema has significantly impacted the film industry and production processes (Manovich, 2001). Following the digital revolution, the use of AI-based technologies in the film industry marks an evolutionary phase where cinema has entered a deeper

relationship with data science, but its boundaries have not yet been fully defined (Brynjolfsson & McAfee, 2014). The development of artificial intelligence has also brought with it research into theories, methods, techniques, and application systems aimed at simulating, enhancing, and expanding human intelligence in cinema (Kaplan, 2020).

The key processes in the film industry have traditionally been based largely on human abilities and skills. However, the integration of AI technologies into these processes is creating significant changes across all stages of filmmaking (Zhang & Lu, 2021). The filmmaking process generally consists of three main stages: pre-production, production, and post-production. The pre-production phase includes the foundational work of the film, such as scriptwriting, budgeting, visual planning, casting, and scheduling the shooting days. This phase is crucial for the success of the production, and today, AI-powered software provides more efficient planning and organization throughout these processes (Zhang, 2019).

1.3.1 Artificial Intelligence and Screenwriting: Its Impact on Cinema

Artificial intelligence is being used to support creative processes such as scriptwriting, story analysis, and character development, as well as to assist in more accurately determining project budgets and shooting schedules. Thanks to technological advancements, the efficiency of the production process has increased, and the technical equipment used in film production has become more dynamic through software. In particular, AI plays an important role in visualization and graphic design phases, with techniques like image processing and animation production (McCormick, 2020). The integration of AI into scriptwriting has led to revolutionary developments in the creative processes of the film industry. One of the first major examples of this field is the AI program named Benjamin, developed in 2016 through the collaboration of Oscar Sharp and AI researcher Ross Goodwin. Benjamin was supported by advanced AI methods such as Recurrent Neural Networks (RNN) and Long Short-Term Memory Networks (LSTM) and wrote the script for the short film "Sunspring." The film was shown at the Sci-Fi London Film Festival, and in this experimental project, AI not only wrote the script but also produced the film's music (Alpaydin, 2021).

The progress in this field has not been limited to Benjamin. In the same year, in the film "Do You Love Me?", an AI named Cleverbot created the film's characters, dialogues, and title. The AI communicated with the filmmaker, Chris R. Wilson, to shape the script. In addition, tools such as OpenAI's ChatGPT and DeepMind's Dramatron are other AI examples that allow for scriptwriting and are widely used today to assist cinema professionals. Moreover, AI is not only limited to scriptwriting but can also optimize film production in pre-production stages with functions like casting, budget estimation, and box office analysis. Software like Largo.ai can predict film revenues with high accuracy and provide suggestions to minimize production risks. These developments demonstrate that AI is creating a new production paradigm in the film industry and reshaping traditional creative processes.

In summary, AI-based tools are emerging as powerful technologies that facilitate and accelerate the creative process in cinema, enabling data-driven decision-making. However, the full potential of AI in the film industry has yet to be fully realized. AI plays a particularly important role in interacting with hardware tools used in film shooting. AI-based software ensures the efficient use of tools like cameras, photography equipment, and drones. For example, the AI-assisted drone developed at Zurich University successfully demonstrated its ability to calculate optimal flight paths in tests conducted by experienced pilots. This development signals that drone technology could be used more extensively in film production, and the role of AI in these tools is expected to increase in the future (Stuart & Heffernan, 2020). Additionally, robotic cameras and AI-supported systems optimize framing according to lighting conditions and scenes, making shooting processes more efficient, although further development and testing phases are required to enhance these capabilities (Rosenbaum, 2019).

1.3.2 Artificial Intelligence and the Film Production Process: The Transformation of the Production Stage

The film production process is a complex evolution where creative and technical stages come together. In this process, the production phase, in particular, is a critical period where the filming is carried out and managed by a large team. Many professionals, such as directors, actors, cinematographers, lighting teams, and costume designers, come together during the production phase to create a cinematic work. In this

process, the impact of artificial intelligence (AI) technologies is becoming increasingly evident. However, AI-based tools are not yet capable of fully replacing the human factor. Nevertheless, AI technologies are being used as helpful tools in various areas of film production, accelerating and simplifying the production process (Bordwell, 2016).

Additionally, the use of AI-based technologies in devices that cater to a wider audience is increasing. Tools that have become a part of daily life, such as smartphones and digital cameras, are now equipped with AI-supported image processing and facial recognition technologies. In 2019, smartphone manufacturers began using AI-based camera systems as part of their marketing strategies in new models. This marks a significant turning point in the evolution of digital video technologies and shows that AI's impact on film production is not limited to professional areas but has also penetrated a wider consumer audience (Liu, 2021).

One of the most prominent examples of AI applications in the film industry is the StageCraft platform located in Hollywood. StageCraft, developed by ILM (Industrial Light & Magic), is a platform that offers the ability to create digital environments in real-time and use them during film shoots. This platform revolutionizes set design by reflecting cinematic spaces on LED screens. StageCraft offers a faster and more cost-effective solution in film production by enabling real-time data processing and creating virtual environments. This technology is used not only for the production of visual effects but also to provide speed and flexibility during the filming process. The Mandalorian, The Batman, and Thor: Love and Thunder, among other Hollywood productions, have utilized this platform, showcasing AI's functionality and economic efficiency in film production (Türten, 2024).

Platforms like StageCraft highlight the potential of AI-based technologies to reduce production costs and accelerate workflows in the filmmaking process. Hollywood's adoption of such technologies has made film production more efficient and cost-effective. AI's broad range of applications, from the production of visual effects to replacing physical sets with virtual environments, could further transform the creative processes of cinema in the future. The incorporation of AI in film production is not only a technological innovation but also an important contribution to the art of filmmaking (Hillier, 2011).

In short, the integration of artificial intelligence into the film production process is creating a significant transformation in the cinematic world, both creatively and technically. AI not only improves technical tools in film production but also has the potential to transform the aesthetic and creative aspects of filmmaking. AI-supported tools will enable filmmakers to work more efficiently, making faster and more cost-effective film productions possible in the future.

1.3.3 Artificial Intelligence and Post-Production Stages: Aesthetic and Technical Innovations in the Film Industry

The integration of artificial intelligence (AI) technologies into film production processes is increasingly becoming evident across various stages of the film industry. These technologies are notably being used in the post-production process, bringing significant innovations in efficiency, speed, and creativity, transforming every aspect of film production. During the editing phase, before the film reaches its final form, AI technologies are actively employed. In Hollywood, AI software used in editing processes handles visual and sound data, adding special effects, performing image adjustments, and manipulating sound data. A concrete example of this technology can be seen in the 2016 film Morgan, produced by Twentieth Century Fox. The film's trailer was edited by IBM's Watson AI system, which produced a six-minute trailer in just one day. This process was completed much more quickly than traditional editing times, showcasing the efficiency of AI in trailer production. This development also indicates that AI is not only enhancing the technical aspects of film production but also transforming marketing strategies.

These innovative approaches in the film editing process play an important role not only in the processing of visual data but also in film restoration. In the digitalization and restoration of old films, AI facilitates image and sound improvements and accelerates time-consuming tasks. Tasks such as creating digital copies, removing visual or auditory imperfections, and correcting color losses can now be completed more efficiently with the power of AI. For instance, AI-powered tools like Deoldify AI are used to colorize black-and-white images, while software such as ESRGAN enhances the resolution and quality of images. As a result, film restoration can now be completed in much shorter periods compared to the manual processes that previously took hours.

Another notable application of AI technologies is in the composition of film scores. AI software like AIVA (Artificial Intelligence Virtual Artist) has been increasingly used in music composition. AIVA analyzes thousands of music pieces and can create original works that fit specific music genres. According to Pierre Barreau, AIVA's music composition process involves analyzing past compositions using deep neural networks and creating new pieces based on this analysis. AIVA's abilities offer a wide range of applications not only in film music but also in creating personalized music. Barreau points out that these AI capabilities also provide new opportunities for interactive content, such as video games.

One of the key technologies in the post-production process is text-to-speech and speech-to-text technologies. Neural text-to-speech and speech-to-text systems are used in film dubbing as well as the creation of various language and sound effects. Additionally, technologies that generate video from written prompts and convert photos into moving images have become an integral part of the film production process. These innovative tools play a significant role in post-production by offering capabilities such as video creation from text and converting existing videos into different formats. Furthermore, the use of deepfake technology enables the manipulation of sound and images. While such technologies raise ethical concerns, they provide filmmakers with great flexibility and creative possibilities.

AI is also actively used in film distribution and exhibition stages. After the completion of the post-production process, AI-powered financial forecasting tools are used to predict the film's box office performance and international sales. These tools analyze various data to optimize the film's marketing strategy and distribution process. AI-based systems that offer recommendations based on viewer habits on digital platforms help films reach a broader audience. However, these processes also raise ethical and practical issues such as job losses, biases, and data privacy concerns. While the role of AI in film production is an evolving and changing field, it is essential to consider the ethical debates and practical challenges associated with this area. The innovations brought by these technologies enhance efficiency in film production processes but also introduce new responsibilities for the future of the industry.

2. Method

This research adopts a qualitative methodology, specifically utilizing thematic analysis to conduct an in-depth exploration of Artificial Intelligence (AI) within the cinematic landscape. The primary objective is to dissect the aesthetic shifts and ethical dilemmas introduced by these technologies. The methodological framework is structured around four core pillars: the research design, the analytical approach, the sample selection, and the systematic data processing workflow.

2.1 Research Methodology

Grounded in a qualitative inquiry model, this study critically reviews contemporary academic literature centered on the convergence of AI and filmmaking. The thematic analysis method was selected as the structural backbone of the research because of its efficacy in identifying and interpreting complex patterns within qualitative data. By systematically decoding the concepts, operational applications, and ethical considerations found in the source texts, the study uncovers recurring motifs. Given the dual nature of the dataset—comprising both theoretical concepts and practical applications—the analysis follows a structured three-step protocol:

Defining the Data Corpus: The study curated a focused dataset consisting of five distinct academic articles. These sources were specifically chosen for their comprehensive coverage of the multifaceted relationship between AI technologies and the film industry, ensuring a diverse range of perspectives.

Systematic Coding: A rigorous content analysis was performed on the selected texts. Through close reading, significant semantic units, key concepts, and critical phrases were isolated and assigned specific codes to facilitate comparison across different studies.

Synthesis and Theme Construction: The coded data were subsequently categorized to reveal overarching patterns. This synthesis resulted in the formation of primary themes, specifically clustering around AI's role in artistic innovation, the transformation of production workflows, evolving aesthetic norms, and the resultant ethical controversies.

2.2 Research Approach

The approach adopted in this study can be summarized as descriptive and exploratory qualitative

analysis. This research adopts a qualitative methodology, specifically utilizing thematic analysis to conduct an in-depth exploration of Artificial Intelligence (AI) within the cinematic landscape. The primary objective is to dissect the aesthetic shifts and ethical dilemmas introduced by these technologies. The methodological framework is structured around four core pillars: the research design, the analytical approach, the sample selection, and the systematic data processing workflow. This aspect of the research involves the systematic examination of data obtained from articles in the literature, aimed at understanding the place and impact of artificial intelligence technologies in the film industry. In this context:

Document Analysis: Selected articles were systematically examined in terms of content and conceptual density. Each article was evaluated based on its treatment of the technical, aesthetic, and ethical dimensions of the topic.

Comparative Approach: Similarities and differences between the themes highlighted in various articles were discussed through a comparative analysis, identifying which articles emphasized specific aspects more.

Iterative Coding and Evaluation: The initial coding schema was continuously reviewed throughout the process of examining all the articles, with new codes added as necessary to finalize the themes.

2.3 Sample Group

The sample group of the research consists of recent academic publications on the use of artificial intelligence in the film industry. The selection criteria are summarized as follows:

Scope and Thematic Relevance: The articles were chosen for their focus on the technical, aesthetic, and ethical impacts of artificial intelligence in the film production process.

Diversity: The five articles provide different perspectives on the first use cases of artificial intelligence in cinematic arts, applications in production and post-production processes, the unsupervised technology approach, distribution and exhibition networks, and overall technological transformations.

Recency: The selected publications are recent and suitable for evaluation within the context of current technological advancements and ongoing discussions.

2.4 Data Collection and Analysis Process

The data collection and analysis process consists of the following stages:

LiteratureReview: At the beginning of the research, academic papers addressing the relationship between artificial intelligence and cinema were reviewed; five papers offering unique and current approaches to the topic were included in the sample group.

Document Examination: Each paper was read using a systematic document analysis method; important concepts, usage examples, and aesthetic and ethical evaluations were noted.

Coding: The examined data was analyzed using qualitative data analysis programs (such as NVivo or similar software) or manual coding techniques. Predefined key themes (such as AI's impact on the creative process, technological transformation, ethical discussions, etc.) were identified.

Theme Creation and Categorization: The data obtained from coding was grouped based on recurring themes and sub-themes. This stage allowed for the identification of common points and different approaches across the papers.

Comparative Analysis: The identified themes were evaluated comprehensively and comparatively, considering the topics discussed in each paper, thus forming a general framework regarding the impact of artificial intelligence on the film industry.

Analysis Notes and Coding Table: The coding and insights made throughout the process were organized in analysis notes and coding tables, and these documents were presented in the appendices of the study.

This systematic method enabled a holistic evaluation of the technical, aesthetic, and ethical dimensions of artificial intelligence technologies in the film industry, allowing for the comparative analysis of different perspectives presented in the literature.

3. Analysis

3.1 Common Themes Identified

3.1.1 The Use of Artificial Intelligence in Artistic Creation

The use of artificial intelligence (AI) technologies in artistic production is transforming the art of cinema, particularly in terms of its impact on creativity and production processes. In Ferhat Zengin's (2020) work Introduction to Cinema in the Age of Smart Machines, it

is stated that AI-based tools in film production have ushered in a new phase through data science. This new phase is described as one in which human creativity plays a lesser role, and algorithms expand the boundaries of art. Zengin emphasizes that AI tools redefine creative control, carrying the risk of mechanizing art. From a similar perspective, Türten (2024) argues that cinema's creative potential is being reshaped through AI-based scripts and visual designs. An example of a short film created with AI, Sunspring, demonstrates the potential of AI to create original artworks. However, this also brings with it the risk of moving towards rapid and pragmatic production rather than a profound creative process.

The debate on whether AI serves as a tool supporting artistic creation or as a limiting mechanism is discussed from a more critical perspective in Coşkuner's (2023) work Cinema's Test with Uncontrolled Technology. This study highlights how AI's centrality in creativity, by excluding the human factor, could become a threat to artistic originality. Thus, the common point discussed in this theme is the potential of AI not only to expand creative processes but also to transform the essence of art.

3.1.2 Transformation in Film Aesthetics

The impact of artificial intelligence (AI) on film aesthetics has brought about a shift from traditional narrative structures to digital and data-driven aesthetic approaches. Zengin (2020) states that film aesthetics, influenced by digitization and AI, has moved away from traditional methods and evolved into a production approach focused on digital data science. This transformation in film production, especially with the use of CGI and deep learning algorithms, has led to visual effects playing a central role in shaping film aesthetics.

In Türten's (2023) work titled Artificial Intelligence Applications in Film Distribution and Exhibition Networks, it is noted that this transformation is not only significant in the production phase but also affects the distribution and exhibition processes of films. Big data analytics and targeted content recommendation systems shape viewers' film experiences, ensuring that even aesthetic perception is guided by AI. In this context, the influence of AI on aesthetic transformation is not limited to content production but is also an integral part of the viewer's experience.

Coşkuner (2023) highlights that visuals produced by AI and digitally revived characters create a new perception of reality in film aesthetics. For example, the rejuvenation of an actor using AI or a completely digital character delivering a "real" performance in cinema is fundamentally redefining film aesthetics.

3.1.3 Ethical Discussions and Their Impact on the Industry

The increasing role of artificial intelligence (AI) technologies in the film industry has profound effects on labor, creative control, and ethical issues. Coşkuner (2023) discusses how uncontrolled use of AI could lead to problems such as copyright violations, content originality, and the devaluation of creative labor in artistic production. In this context, it is noted that while AI offers aesthetic and technical advantages, it also carries serious ethical risks. Similarly, Türten (2023), while examining the speed and cost advantages of AI in distribution and exhibition processes, brings up the issue of the devaluation of creative labor as human involvement is replaced by AI. Particularly, algorithms modeling big data analytics and audience behavior, by transferring creative control from filmmakers to technological tools, are causing a structural transformation in the film industry. Kılınç's (2023) work, Technological Transformations in the Film Industry, explores the ethical impacts of AI in the film industry within a broader framework. The author predicts that the influence of AI tools on human labor and creativity could completely change the nature of the film industry in the future. While this may make the industry faster and more efficient, it also introduces a transformation that needs to be questioned from the perspective of ethical and human values.

3.2 Comparative Analysis of the Articles

The five articles examining the effects of artificial intelligence (AI) in the film industry have approached the topic from different perspectives, yet they converge around common themes and diverge in various aspects. Each article has addressed AI's contributions to the film industry, the challenges it faces, and the ethical issues it raises from a different focal point. This allows for a comprehensive comparative analysis of AI's role in the film industry.

Zengin (2020), in his work Introduction to Cinema in the Age of Smart Machines, analyzes the impact of AI on

the filmmaking process within a historical and theoretical framework. The study states that cinema has entered a new conceptual phase through production models supported by data science, emphasizing the blurring of boundaries between art and technology and how AI-assisted production methods are transforming cinematic aesthetics. However, Zengin's analysis focuses primarily on the artistic production process, giving relatively superficial attention to ethical issues and the impact on labor.

Coşkuner (2023), in Cinema's Test with Uncontrolled Technology, takes a more critical approach when discussing AI's effects on creative processes. The study elaborates on how AI threatens human creativity and artistic originality through the concept of uncontrolled technology. It highlights ethical concerns regarding AI-generated digital characters and CGI technologies, stressing the risk of shifting creative control from humans to algorithms. Despite the speed and cost advantages of AI technologies, Türten warns about the long-term risks these tools could create in the film industry.

Türten (2024), in Artificial Intelligence and Cinema: Possibilities and Opportunities in Filmmaking, focuses on the practical benefits AI brings to the film sector. In this study, 30 different AI tools used in production and post-production processes are classified, and their positive effects on speed, cost, and labor are detailed. Türten's analysis centers more on the technical details and applications of these tools, while artistic or ethical outcomes are either not addressed or discussed briefly. This indicates that the study aims to shed light on sectoral innovations.

Türten's (2024) Artificial Intelligence Applications in Cinema Distribution and Exhibition Networks focuses on the impact of AI in distribution and exhibition processes rather than film production. The study thoroughly examines the advantages of big data management, targeted content recommendation systems, and AI applications on digital platforms in the film industry. In this context, the capacity of AI to shape audience experience and increase profitability in distribution networks is emphasized. While Türten's work highlights the economic benefits of technological tools, it neglects their impact on creative control. Nonetheless, it provides an important contribution to understanding the broader commercial transformation of cinema.

Finally, Kılınç (2023), in Technological Transformations in the Film Industry: Where is AI in Cinema?, examines the impact of AI technologies on the film industry within a broader framework. Kılınç emphasizes that AI is influential not only in production processes but also in other stages of the industry such as distribution, exhibition, and audience experience. The study offers comprehensive insights into AI's effects on cinematic aesthetics and ethical issues, providing important predictions on how these technologies could transform the film industry in the future. Kılınç's approach synthesizes the specific focal points of the other articles.

In light of these analyses, it can be said that the primary differences between the articles lie in how they address the effects of AI in the film industry. Zengin (2020) and Coşkuner (2023) focus on artistic and ethical perspectives, while Türten (2024) and Türten (2023) primarily highlight the practical benefits of technological tools. Kılınç (2023), however, combines these two approaches, offering a holistic perspective on the impact of AI on the film industry. Nevertheless, all the works examine the profound transformations AI is creating in the film sector and contribute valuable insights on how this technology is redefining cinematic art. In conclusion, the effects of AI technologies on the film industry have been analyzed from multiple dimensions, including artistic creativity, aesthetic transformation, ethical issues, and economic benefits, with each article offering its perspective on these areas. This enables a more comprehensive understanding of the relationship between AI and cinema and provides important clues about how these technologies might shape the industry in the future.

Conclusion

Summary of the Study

This study examines the effects of artificial intelligence (AI) technologies in the film industry based on five academic articles and comprehensively analyzes the role of these technologies in the sector through thematic analysis. The findings reveal that AI not only provides technical innovations but also transforms cinema as an art form in aesthetic, creative, and ethical dimensions. Specifically, AI applications in scriptwriting, visual effects, film editing, and post-production processes have brought speed and cost advantages to the industry. This has made the film production process

more efficient than traditional methods and positioned AI as an innovative tool in the sector.

However, the impact of AI is not limited to technical advantages. The study finds that AI has redefined cinematic aesthetics and changed the nature of creative processes. As emphasized in Zengin's (2020) work, AI technologies' contributions to visual storytelling have created a more realistic and dynamic structure in cinematic aesthetics. However, this transformation has led to questioning the perception of reality created by the visuals on the audience. The study also addresses the ethical dimensions of AI, highlighting the risks of uncontrolled use of technology in areas such as copyright, human labor, and creative originality.

In conclusion, this study provides a multifaceted evaluation of the effects of AI technologies on the film industry. The findings demonstrate AI's capacity to transform cinema as an art form, while also emphasizing the importance of ethical control mechanisms for these technologies.

Conclusions Drawn from the Study

A critical evaluation of Artificial Intelligence (AI) technologies within the cinematic sector unveils a complex landscape characterized by both beneficial innovations and significant challenges. The findings indicate that AI acts as a transformative catalyst for modernizing creative workflows. As detailed in the research by Türten (2024), the deployment of AI utilities across various domains—ranging from screenwriting and audio engineering to visual effects—has notably expedited production timelines while simultaneously optimizing budget allocations. In specific instances, AI-driven visual effects have shattered previous technical limitations, facilitating the realization of imagery that was once considered unachievable. Conversely, these advancements are not without their drawbacks; they introduce profound ethical and artistic dilemmas, most notably regarding the gradual migration of creative authority from human artists to algorithmic systems. This critical concern is echoed in Coşkuner's (2023) work, which warns that an over-reliance on AI-based production methodologies poses a substantial threat to the value of human labor and may compromise the authenticity of artistic expression.

In terms of cinematic aesthetics, the effects of AI are clearly observed. Especially, Zengin (2020) states that AI presents a data science-based production approach, grounding cinematic aesthetics in a digital foundation. This shift offers more dynamic and creative solutions in visual storytelling, while pushing traditional cinematic aesthetics to the background. Türten's (2023) work addresses the contributions of AI technologies to distribution and exhibition processes. Thanks to big data analytics and recommendation systems that optimize audience preferences, the reach of films to target audiences has increased. However, these processes also carry the risk of cinema being increasingly directed by commercial concerns.

Ethical discussions form one of the most striking aspects of the study. Coşkuner (2023) highlights that the uncontrolled use of AI carries the risk of transferring creative processes to algorithms, which may threaten artistic originality. Moreover, AI is presented as a tool that raises questions about copyright, content originality, and the devaluation of human labor. The study's findings clearly show that AI technologies create both opportunities and significant ethical responsibilities in the film industry.

Suggestions for Further Research

The findings of this study offer several recommendations for future comprehensive research on the relationship between artificial intelligence (AI) and cinema. First, examining the effects of AI technologies on the film industry with a broader dataset would contribute to enriching the literature in this field. Future studies could explore the role of AI in different genres such as animation, documentary, and experimental cinema. Such studies would be important in understanding the impact of technology on various types of cinema.

Second, focusing on the ethical dimensions of AI would help us better understand the effects of these technologies on artistic originality and creative processes. In particular, research should investigate how the collaboration between humans and algorithms can be balanced in AI-assisted production processes. Additionally, the impact of AI technologies on copyright and content originality could be addressed through the joint contributions of law and art disciplines.

Finally, studies on audience experience are crucial for understanding the role of AI in recommendation systems and content personalization processes. Specifically, the effects of AI-supported content on audience perception in different cultural contexts could

provide valuable insights into the universal values of cinema. In this regard, interdisciplinary research could offer a more comprehensive evaluation of how AI technologies are reshaping the art of cinema.

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