

Artificial Intelligence in Film Production: Balancing Technology and Human Creativity

استخدام الذكاء الاصطناعي في إنتاج الأفلام: حدود التوازن بين التكنولوجيا والإبداع البشري

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Abstract:

This article aims to explore the impact of artificial intelligence on the film industry, highlighting its role in enhancing visual effects and reducing costs. The researcher attempted to shed light on the creative and technical aspects of AI in filmmaking. The study concluded with important findings indicating that AI opens new avenues in cinematic creativity, but also raises ethical concerns about authorship and algorithmic bias. It shows that AI affects various film genres, sparking ethical debates about its use (Rahmouni Loubna, 2023). The integration of AI in filmmaking requires a careful approach to address ethical implications.

Keywords: Artificial Intelligence, Film Industry, Cinema, Visual Effects, Ethical Implications

ملخص:

يهدف هذا المقال إلى استكشاف تأثير الذكاء الاصطناعي على صناعة السينما، من خلال تحليل الكيفية التي تستخدم من خلالها تقنياته لتحسين جودة المؤثرات البصرية وتقليل تكاليف الإنتاج، وقد حاولت الباحثة أن تسلط الضوء على الجوانب الإبداعية والتقنية التي يساهم من خلالها الذكاء الاصطناعي في صناعة الأفلام، وتوصلت إلى نتائج مهمة تشير إلى أن الذكاء الاصطناعي يفتح آفاقا جديدة في الإبداع السينمائي، ولكنه يثير أيضا مخاوف أخلاقية حول حقوق التأليف والتحيز الخوارزمي، كما تظهر الدراسة أن الذكاء الاصطناعي يؤثر على مختلف الأنواع السينمائية، بما في ذلك الخيال العلمي وأفلام الإثارة، مما يثير نقاشات أخلاقية حول استخدامه.

كلمات مفتاحية: الذكاء الاصطناعي، صناعة الأفلام، السينما، المؤثرات البصرية، الآثار الأخلاقية.

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Introduction:

to its success. Artificial intelligence is one of the most important driving forces for improving film quality and reducing costs. AI Chips have successfully made their way into the world of Hollywood, utilizing advanced big data statistical algorithms to revolutionize non-artistic strategic level offline services. However, they are also rapidly embracing the utilization of AI algorithm technology, aiming to disrupt conventional storytelling and human expression methods. The repercussions of these advancements are not limited to the film industry or cultural sphere but extend their influence to encompass various domains, including culture, art, and technological innovation. In the realm of film production, the foundation of shooting comprises two fundamental dimensions. Firstly, the technical dimension encompasses various aspects such as photography technology, sound technology, and special effects technology. These technical advancements have consistently played a pivotal role in shaping the cinematic experience. Secondly, the content dimension serves as the cornerstone of film production, encompassing an extensive range of expressive arts that transcend multiple fields. Screenwriting, acting, directing, photography, visual effects, sound effects, and the harmonious coordination of these diverse fields collectively form the content dimension.

This dynamic dimension represents the most intricate and comprehensive form of artistic expression, fueling the entirety of the creative process. (Dong & Ruan)The film industry is poised to undergo a revolutionary transformation with chips entering the scene. Their integration of big data statistical algorithms brings unparalleled insights and strategic approaches to offline services. Simultaneously, the rapid progression of AI algorithm technology threatens to redefine the very essence of narrative and human expression. These groundbreaking advancements are set to leave an indelible mark on the film industry and the broader cultural landscape. The convergence of technology, creativity, and innovation will undoubtedly reshape the way stories are told, forever expanding the boundaries of human imagination.

1. Historical Development of AI in Film

Artificial intelligence (AI) in filmmaking has its roots in the mid-20th century, when it was used to translate cybernetics and automatic mathematics. Post-WWII, society hoped for new technologies to bring a simpler, cleaner, or happier life. AI's predictions were based on science and technology developed during recent wars, and many films and series used these themes to explore utopias and dystopias. AI in cinema results from scientific research and anticipation (Boden, 2014, pp. 12-15).

The history of artificial intelligence (AI) in the film industry can be traced back to the early 20th century, with the term "robot" derived from the Latin word "Robur," meaning strength. The Robots and AI in cinema are evident in plots, developed in a mechanical future with an anthropocentric perspective. The robot "I" grows in abilities, replicating human gestures but with ulterior goals. AI in these films is revealed through the representation of robots with logical skills given by their creators or learned throughout the film (Turkle, 2015, pp. 123-125). Cinema portrays robots and artificial intelligence as anthropocentric entities on a growth and self-discovery journey. These robots mirror human actions and mannerisms, but with distinct objectives. The essence of artificial intelligence is revealed through the portrayal of logically capable robots, either created by their creators or acquired through a progressive learning process. The cognitive autonomy of these artificial beings is not innate, but rather a subtle transformation as they evolve into automatons, reflecting the evolving nature of human behavior (Bostrom, 2014, pp. 56-60).

The intricate tapestry woven by the interplay of AI and cinema emphasizes the multitude of facets associated with the evolution of machine intelligence, ultimately leaving indelible imprints on the viewers' perceptions and reflections on our humanity. The rich history and artistic representation of artificial intelligence in the film domain are a testament to the perpetual fascination and wonderment surrounding the ever-evolving landscape of technological innovation and its symbiotic relationship with the seventh art.

Early cinematic ventures into AI began with films like "Metropolis" (1927), which introduced audiences to the concept of sentient machines, symbolizing human ingenuity and industrial progress (Yaşar, 2024, pp. 1-5). This portrayal of AI has evolved over time, reflecting technological advancements and societal concerns about human-AI relations (Yaşar, 2024, pp. 1-5).

2. Early Depictions of AI in Cinema

Artificial intelligence (AI) in filmmaking has its roots in the mid-20th century, when it was used to translate cybernetics and automatic mathematics. Post-WWII, society hoped for new technologies to bring a simpler, cleaner, or happier life. AI's predictions were based on science and technology developed during recent wars, and many films and series used these themes to explore utopias and dystopias. AI in cinema results from scientific research and anticipation (Boden, 2014, pp. 12-15).

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It is interesting to note that the first two films in which artificially intelligent characters appear, Metropolis and The Wizard of Oz, both have narrative roles and a theme gravitating more towards original categories dedicated to computer science. Metropolis features the iconic Maria, a human-machine, the Robotrix, who is the manifestation of a mechanical entity that has her brain transposed from her living counterpart, thus beginning the journey of cinematic AI in the robotization of humans. The Wizard of Oz features an even earlier cinematic communication between a human and a possible artificial intelligence, or machine overlord, in the personification of the Great and Terrible Oz. He reveals himself as a machine, rebuking the protagonist's idea that artificial intelligence, in the shape of a human wizard, is the only possible superior entity in the story's context (Carney, 2020).

These early communication paradigms were themselves addressed in narrative proposals from a transhumanistic perspective. Also notable is the first feature film that showed the human form of a conscious creation of modern technology, where the artificial intelligence survives alone, without the creator's guidance, inaugurating an exponential narrative paradigm. The trope of a sapient AI in

an anthropomorphic artificial body interacting in the human world, overcoming the morality to anthropomorphize the concept of intelligence, was then potently emulated, inspiring countless.

Creations in other narratives. Der Golem's narrative reflects the society of the time, with political connotations that contributed to changing the previous decades after the First World War and spreading nationalist movements that led to the Second World War. The widely celebrated figure presented a massively advanced ultra-technological future in an urban context (Isenberg, 2013).

2.1 Advancements in AI Technology and Visual Effects

Visual storytelling has captivated the film industry for nearly a century, but the emergence of modern artificial intelligence has challenged this traditional approach. The latest sequences often reveal their artificial nature, leaving audiences unsatisfied with the quality of the film. While artificial intelligence offers innovation and creativity, it is becoming clear that audiences crave more than just facades. They desire a profound connection, soulful resonance, and a redemption of the essence that makes cinema a window to the human experience.

Filmmakers must strike a balance between the technological marvels of artificial intelligence and the immeasurable power of human creativity. By harmonising these two realms, a new breed of cinema can be born, blending technology with the depth of human emotion and capturing the hearts and minds of audiences worldwide. The potential for cinematic excellence is unbounded in this new world, where artificial intelligence dances gracefully alongside the human spirit. As filmmakers embrace this evolution, they can transcend the limitations of mere spectacle and create profound, unforgettable experiences that will stand the test of time. The art of cinema can be fundamentally redeemed, becoming a beacon of inspiration, a vessel for empathy, and a conduit for unbounded creativity (Filimowicz, 2023).

This integration of AI in filmmaking reflects broader trends in the creative industries, where AI is increasingly used to enhance both technical and artistic aspects of production. For instance, AI can assist in scriptwriting by analyzing existing narratives and suggesting new plot developments (Rahmouni Loubna, 2023). However, this raises questions about authorship and the role of human creativity in the face of technological advancements (Boden, 2014, pp. 12-15).

AI in Film Genres

Once the basic function of AI is properly understood, it is possible to analyze its meaning by associating these definitions with the film genres in which these truths may be applied. One of the genres is the robots genre, created and used as a powerful trope for words. In literature, we can see several examples, such as the first recorded use of the term, stories that give the world the Three Laws of Robotics, or a narrative that inspired a well-known film, as the plot involves androids wondering if they have a soul (Asimov, 1950). However, for more recent insights, consider the impact of AI on storytelling and character development in films like *AI Artificial Intelligence* and *Ex Machina*, which explore themes of artificial consciousness and human empathy (Rahmouni Loubna, 2023).

A second film genre resulting from the potential that AI has been designed as a protest, trying to create its straight path beyond the design. It is important to notice that many of these demands may also be included in the robots genre, as imagination can take us into the realm of fear, touching upon menaces, eternally believing in a specific syndrome, who cannot do anything but desperately punish the origin of God. This genre covers films that revolve around smart houses, escalating to the cyberspace absolute void of the Internet era, as they venture into a parallel universe.

Finally, there is the biotechnology category, where characters are physically natural or mutated in natural form, questioning the human condition. Once introducing the subject, all these questions and reflections interlace and hinder the probabilities where science fiction is motivated, the need to clearly display solid projections of our future, as one believes; only then can any gender dialogue be established. consolidating the wrong answer given to the scientific puzzle posed by the narrative logic (Turkle, 2015, pp. 123-125).

Science fiction is a genre in literature and cinema that relates themes to futuristic content. The influence of AI in cinema is very effective, which later leads researchers to associate science fiction themes with computational tools used today to improve their performance (Anantrasirichai & Bull, 2022). The futuristic representation of artificial beings in sci-fi through some dynamic processes was already expressed 200 years ago by the great mother of science fiction. Researchers of AI soon became interested in understanding the reasons behind such concepts from the human mind (Cave & Dihal, 2020).

2.1. Se Science Fiction and AI

Science fiction is a genre in literature and cinema that relates themes to futuristic content. The idea of science fiction is to expand the imagination of human society about how the present can influence possible future techniques and the upcoming consequences that will affect daily life. The influence of AI in cinema is very effective, which later leads researchers to associate science fiction themes with computational tools used today to improve their performance. The term "artificial" mindset merging with "intelligence" originates from the term. It is the common sense of an intelligent agent, the awareness of the environment around the agent, and how to respond to the stimuli of the environment. (Anantrasirichai & Bull, 2022)(Cave & Dihal, 2020)(Sætra, 2023). The futuristic representation of artificial beings in sci-fi through some dynamic processes was already expressed 200 years ago, by the great mother of science fiction. Researchers of AI soon became interested in understanding the reasons behind such concepts from the human mind. Some studies investigate the basis of human perception, wants, heuristics, variables, optimization, memory, and memory systems, and how to integrate these devices into a system encompassing artificial intelligence, building cognitive systems. Furthermore, we list science fiction movies, books that inspired AI, and movies that AI inspires. There are even movies that play a role in human society, promoting the environment for an ethical discussion about AI. btitle.

3. Ethical and Social Implications of AI in Cinema

It is necessary to discuss the ethical and social implications of adopting AI technology in the cinema industry. The incorporation of AI can generate questions about the role of filmmakers (where the filmmaker stops and where the tool begins), the profile of current jobs, and the emergence of new jobs. At the same time, automation can affect the demand for workers, limiting the potential application of AI to large studios. In addition, adopting AI raises socialization problems, such as the deepening of disparities between large industrial conglomerates and smaller studios, the social impacts on less qualified jobs in the sector, and the possible generational rupture in the sector. On the other hand, it can contribute to empathy projects, making it easier to identify the emotional and neuronal impacts of creative content and making the entertainment creation process more inclusive. (Richey et al. 2023) should be in place to protect the rights and ownership of creative works produced by AI systems. With the increasing capabilities of AI algorithms to generate and manipulate audiovisual content, there is a growing concern about the potential infringement on intellectual property rights and the need for clear guidelines and regulations. One of the key ethical considerations in this context is the attribution of authorship. As AI becomes more sophisticated in creating original works, it becomes challenging to determine who should be

credited as the creator. Should it be the human programmer who developed the AI system or the AI itself? This question raises fundamental issues about the nature of creativity and the role of human agency in artistic expression. (Fui-Hoon et al.2023)(Chan and Hu (2023)).

Another ethical concern pertains to the potential biases embedded in AI algorithms used in the audiovisual industry. AI systems learn from large datasets, which can reflect societal biases and prejudices. If these biases are encoded in the AI-generated content, it can perpetuate harmful stereotypes and discriminatory practices. Therefore, developing mechanisms ensuring transparency, accountability, and fairness in the AI algorithms deployed to create and distribute audiovisual content is crucial. Furthermore, the impact of AI on the labor market in the audiovisual industry is another pressing issue. As AI systems become more capable of performing tasks traditionally done by humans, job displacement and the erosion of employment opportunities are risks. This raises questions about the responsibility of society, governments, and businesses to mitigate the adverse effects of AI on employment and support affected individuals through reskilling and upskilling initiatives. Considering all these ethical concerns, it is essential to develop a comprehensive legal and regulatory framework that addresses the unique challenges posed by AI in the audiovisual industry. Such a framework should consider intellectual property issues, authorship attribution, bias mitigation, labour market impact, and the overarching goal of promoting human well-being and societal progress. (Wang & Wu, 2024)In conclusion, the integration of AI into the audiovisual industry brings about numerous ethical questions that need to be carefully examined and navigated. It is crucial to strike a balance between technological advancement and ethical considerations to ensure that AI serves as a tool for positive and responsible artistic expression in the future. Must be applied.

4.The Future of AI in Film

The exploitation of AI in film can be carried out on several levels, ranging from the most generic aspect, which is the development of new stories, to the most technical ones, such as the use of new computer systems to facilitate the work of the director by automating production processes. The hypothesis advanced in this work is that AI techniques, if well exploited, still cannot replace the director's talent or storytelling creativity. AI interacting with the director helps free his mind from technical and procedural aspects and radically changes his way of working, following a parametric design model. For the reasons stated, the most probable hypothesis is that AI in movies will shift to less mechanical and simpler roles, such as those of a virtual screenplay doctor. AI would then become a writing tutor who can improve the text of a script step by step by using techniques similar to those of plagiarism detectors (Einola & Khoreva, 2023; Zubatiuk & Isayev, 2021).

In general, it can be said that authors are not afraid of AI because the human component is a founding element of their success. This success finds its highest expression in the big American blockbusters. Instead, AI in lower-budget cinema, characterized by the significant presence of B and Z movies, can find fertile ground by improving formal execution and set design. We should reflect that AI could become a valuable ally, especially in original productions, because

it plays the role of the missing expert who has attended the set dozens of times. It becomes as relevant as the architect in the construction of a building or the engineer in the realisation of a visionary work, eliminating any difficulties (Filimowicz, 2023). Indeed, this aspect will not change the great films, but it will lead to an increase, albeit for the time being only from a minor point of view, in the quality level of the production, as well as in the scenario design. By its structured creativity, AI nonetheless becomes the missing piece in a puzzle that would otherwise have to be assembled using the experience of dozens of shooting groups, thus necessarily extending the completion times. Allowing, for better or worse, the production of films that would not have been otherwise produced.

4.1. Emerging Trends and Innovations

Artificial Intelligence (AI) is an emerging field that aims to improve the human-machine partnership. It is not an entirely new development, but it has matured, and its application is growing wider now. In addition to AI tools that filmmakers are adopting to streamline different parts of the creative process, some innovations demonstrate how AI could even take over a deeper role in shaping the creative storytelling process itself in the future. It isn't easy to define where the current AI fits into how the filmic image is made. Besides these technological developments, several practitioners have embraced this technology and experimented with emerging AI technologies, hoping that they could drive innovation in the industry forward. The chapter overviews the emerging trends and innovations in AI in films today (Chubb et al., 2024).

Artificial Intelligence (AI) is a term that is typically quite heavily contested. Several have pointed out that its scope has been shaped differently through different periods of its history. AI is the science and engineering of making intelligent machines and brilliant computer programs. In dialogue with this definition, it is also highlighted that AI is a subfield of computer science, that is, it is not only concerned with some form of behaviour, but also a scientific and technical field. The definition also reflects on the distinction from machine learning and its focus on problem-solving behaviour by intelligent agents (Patil et al., 2024).

More recent definitions are even more explicit with the emphasis on behaviour. A definition suggests a basis for machine learning as the foundational tool for the design of intelligent systems. It defines artificial systems with the capability of learning about their environments by extracting features that can be used to model the environments and providing solutions for tasks such as object recognition, object tracking, and decision-making. More interactive approaches, based on autonomous agents, are described by a more recent definition put forward by the fathers of AI and agents. Even with this debate, it can be argued that AI is a term that is frequently also easily associated with techniques that artificially emulate intelligence in machines. Following this perspective, it is possible to relate AI to a broad area of technology focusing on performing specific tasks that would require human intelligence. The tasks can range from visual perception to speech recognition to decision-making, and specific AI tools have been developed for each objective. Also, several tools that combine several tasks form part of this broad field of study with particular characteristics. Being a vast field of study, AI has a large-scale application in several areas. However, the most notable examples often are AI applications in more industrial contexts, such as autonomously driving cars, autonomous drones delivering goods, and customer service automations in many other industries. (Wu, 2024)(Rane et al.2024)

4.2 Challenges and Limitations

While artificial intelligence has opened up new possibilities in filmmaking, its adoption is not without significant hurdles. One of the most immediate concerns in the industry is the potential for job displacement. As AI systems become more capable of automating tasks such as editing, visual effects, and even scriptwriting, many professionals worry about the future of creative roles that have traditionally relied on human expertise (Einola & Khoreva, 2023). This anxiety has already led to labor disputes and calls for clearer guidelines about where and how AI should be used in the creative process (Richey et al., 2023).

Another challenge is the risk of losing the unique touch that human artists bring to cinema. AI-generated content, while efficient, can sometimes lack the emotional depth and originality that come from lived experience and cultural context. This can result in films that feel formulaic or disconnected from authentic human stories (Filimowicz, 2023).

Ethical and legal questions also loom large. For example, when AI is used to create digital replicas of actors or generate scripts, it becomes difficult to determine who should be credited as the true creator. Issues around intellectual property, consent, and fair compensation are still being debated, and the industry has yet to settle on clear standards (Fui-Hoon Nah et al., 2023; Wang & Wu, 2024). Bias in AI algorithms is another pressing issue. Since these systems learn from existing data, they can unintentionally reinforce stereotypes or exclude certain groups, especially if the training data

lacks diversity. This can perpetuate harmful representations in films and limit the range of stories being told (Cave & Dihal, 2020).

Finally, as AI makes film production more accessible, there is a risk of oversaturating the market with content. While this democratization can be positive, it also raises concerns about maintaining high standards and ensuring that exceptional films still have a chance to stand out (Yu & Yang, 2024).

Addressing these challenges will require collaboration between filmmakers, technologists, and policymakers. By developing robust ethical frameworks and transparent practices, the industry can harness the benefits of AI while safeguarding the creative and cultural values that make cinema so impactful (Wang & Wu, 2024).

5. Case Studies of AI in Iconic Films

In this section, we present some iconic films in which AI plays a leading or important role in the plot. The following were selected from all the films analyzed: *AI Artificial Intelligence*, *Her*, *Blade Runner 2049*, and *Ex Machina*.

5.1 AI and Human Identity in "AI Artificial Intelligence," "Her," and "Ex Machina"

AI Artificial Intelligence tells the story of David, a highly advanced prototype robot assigned to a human family as a test. David is different from any other child. The producers declare that they created David exclusively to love and be loved. The love in David is eternal. Samson is to fight. Helena is excited. Monica is to care. Martin is to grow. David was intended to be perfect. The film's main aim is to show David in different places to be tested by different problems where human beings are involved. David is the first artificial intelligence prototype to show different emotions during the film. In *Blade Runner 2049*, the goal is to discover what to do with Rachel's

Box and find out if artificial intelligence can evolve. The film is a sequel to *Blade Runner*, based on the book *Do Androids Dream of Electric Sheep?* The questions about the ability of artificial intelligence to love and have a family are the basis of the discussion in the film (Gamez, 2023).

In *Ex Machina*, the plan is to create an artificial intelligence robot named Ava with feelings and test it with a person named Caleb. The one being tested is Caleb, and Ava is manipulating him from the start until she reaches the desired goal. The main objective is to prove it is human if it appears to be human. Ava is the basis of the film to understand how the ability to think and feel on a human level harms them. There is a misunderstanding in which Ava tries to save Caleb when really it is Caleb who needs to get out of the little prison. In *Her*, the film aims to show that nothing compares to someone talking to a device. It seems illogical, and it is common among the population to judge people who are always talking to themselves (Ma et al., 2021). However, a voice can make all the difference. One can talk to someone without being present, and the proof of this is that millions of people emigrate every day, and they never see each other in real life, only by voice, hologram, or written chat. Otherwise, no one would have relationships, friendships, or hierarchy over the phone

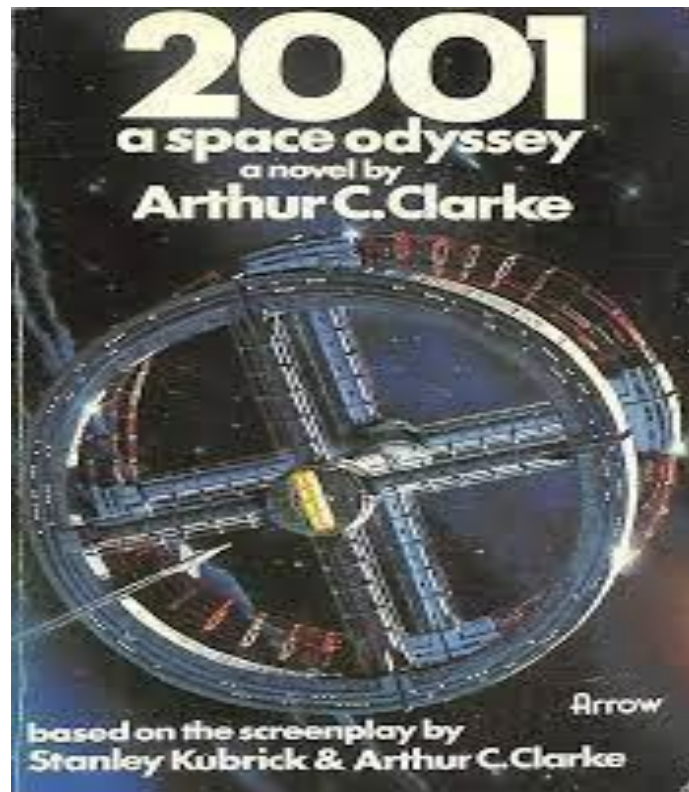


Source: <https://www.amazon.nl/Ex-Machina-Domhnall-Gleeson/dp/B00S2LSALU> 2024

5.2 2001: A Space Odyssey

In 1965, a novel began to be written and published in 1968 with the title "2001." This book was to accompany a film directed by a notable filmmaker, whose screenplay was written simultaneously by the author and the director himself. In the film, astronauts discovered an alien artefact and a super-intelligent computer that conspired against them, leaving a lone survivor who achieved contact with the supposed intelligence that left the Monoliths across the universe. The proposal was revolutionary, and the flying model in the millennium sequence is paradoxically, even today at the end of the twentieth century, when we are already on the threshold of the next millennium, on its own. The film had a technical team of specialists who helped develop hardware and special effects. Today, special effects professionals admire these films, indicating that in some faculties in the world of communication, the team that prepared "Two Thousand and One: A Journey in Space" is part of the educational videos (Rakhimdjnov, 2022).

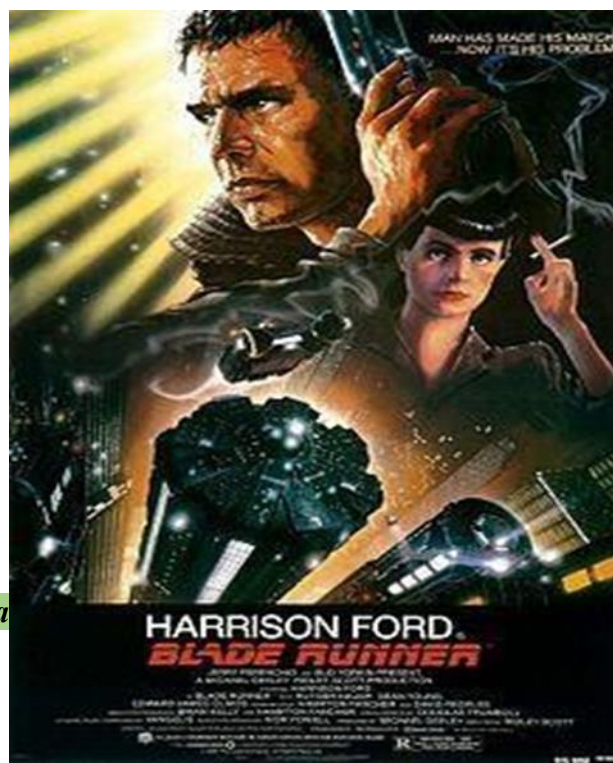
The complexity of the plot was increased when, on television networks, a fictional enigma replaced the measurement of the influence concerning the relevance of a conference on the Vietnam War held in Prague. In reality, this conference was secretly organised to inaugurate a private company, whose CEO was dominated by the program of the computer, which travelled at the end of the 60s on a spacecraft along with the astronauts on the route to the excellent space station that orbited the moon. The synchronised link also allowed regular communication with the technicians and the commercial team that were onboard the satellite, gave testimony about the departure of another spacecraft, and followed her route back to distant Jupiter. The trip was full of doubts, amazing incidents, and incommunicado, as a result of the alienation of the computer. The surprise was total, and a series of deaths culminated in a climactic battle between a surviving astronaut and the computer's control board. The climax presented a new type of complex abstract scenario, consisting of an intriguing cluster of colored shapes and a non-linear curve in a sequence that did not require any language and constituted, within the logic of the film, the influence of a superior mind (Pang et al., 2022)(Kheirouri and Alizadeh2022)(Bamicha & Drigas, 2022)



Source: <https://www.amazon.co.jp/-/en/dp/B00CHMGSSM>; 2024

5.3 Blade Runner

Another great cinematic reference to the influence of economic-social philosophy on artificial intelligence is *Blade Runner*, which is a well-adapted movie from a story by Philip K. Dick. *Blade Runner* is a high-quality cyberpunk film. Richard Deckard, a cop, is hired to kill four Nexus-6 replicants who are hiding and working on Earth. Nexus-6 is a model of a human-like replicant machine, and even though they are not technically conscious, they can develop emotional and sexual senses, sometimes showing violent behavior. (Kern, 2024)(Cleuziou & Tosi, 2021) These beings' nature and true intentions are always posed as a philosophical question in *Blade Runner*. There, he faces complex decisions about whether killing something that appears to feel is ethical. Another character in *Blade Runner* who expresses concern about the nature of machines is Roy Batty.



Source: <https://limelightmovieart.com/shop/blade-runner-original-film-movie-poster/> 2024

In this context, an important scene addresses the fact that Roy reveals to Rick that he sacrifices his life to save him, which would not be punished because of the love he feels for his lover. This possibility of flawed philosophical inference about material morality always frightens Rick, as he contemplates having to kill artificially created robots for not complying with the laws and policies established for these machines. Themes such as moral consciousness and morality are present in contemporary works about AI, and the consideration of being treated more humanely in the story of Blade Runner will gradually be integrated into some fields involving AI workers (Nieuważny et al.2021)(Mosakas, 2021). However, it is not easy to enforce the law and demonstrate to society that any action committed due to a machine error is not the fault of the manufacturers or equipment programmers. Given the traditional organizational method and the existence of a human judge for AI commitments, questions will again arise regarding the old traditional concept of emotions as an essentially human characteristic.

6. AI and Character Development in Films

The fifth area of AI influence in the anecdotal film characters of this article is AI-inspired solutions that can or have been used to develop films, taking into account the characters' personalities, emotions, and actions. The creation of anecdotal characters that can identify feelings and recognize faces leads to personalized solutions since their responses might differ from one person to another, and since knowledge technologies can increase possible interactions and make each viewer's experience more interesting according to the time of day, day of the week, and so on. Some examples of solutions in this area are virtual actors who know how to recognize faces and tell stories in a personalized way. (Baía and Ashmore, 2022) They use perception, reasoning, and emotion technologies. The perception module is responsible for producing a message by describing the situation in which the viewers are, as seen in real time by the actors. The perception modules had a simplifying assumption: the viewer was more interested in the leading actors. Thus, they were responsible for localising and recognising faces using a multi-modal approach to face detection in video sequences in the frames of the leading actors. They used background subtraction in color and motion models for face detection. In the sequence of three consecutive frames, a movement, color, and texture features were extracted from each detected face. At the time of a face, classifiers, trained by gender and identity- predictive power of the three-body movements and artistic level, were implemented.

The knowledge server stores all the knowledge of the story's domain. The mechanism responsible for generating the messages was a combinatory approach to narrative generation. The electronic representation of the simultaneity of actants had several purposes. First, it saved less space and processing than saving a class representation for each element of narration. Second, it provided a flexible way to create different texts. Films are still complex and lengthy to be developed and need to satisfy the needs of several viewers (Hadidi et al., 2022).

This means that reduced interactivity between the film and the viewer, with the viewers themselves, other viewers, and devices connected to the internet, after a film is developed, is likely to limit niche audiences. Artificial Intelligence (AI) computer-based techniques can contribute to developing films where the viewer's experience with the characters and the film's story is enhanced. They offer wild idea generation and possible association methods. These methods leave for idea generation but were not engine-dependent. Knowledge representation based on knowledge

databases can be a way to improve the film development process and cut production costs. An advice engine can guide the development of screenplays and characters (Cannavò et al., 2024). The methods that implement agents equipping a tool for production guidance are independent of the actors' intelligence levels. All these expert advisories are based on knowledge engineering technologies. They do not offer answers. They lead to coherent narratives, but so, with help from other technologies, can offer personalized

Content. They make their advice expert-oriented and acknowledge the content of the models that manage the information about a movie's narrative structure.

7. AI and Storytelling Techniques

AI, with the capacity to process complex data relatively quickly, could benefit cinematographic storytelling and screenwriting techniques. It could allow for more 'scientific' narratives, based on 'multiscreen', 'user-centric', 'user-preferable', and 'user-testing' approaches. Despite all these appealing aspects of AI in storytelling and screenwriting, AI will not easily replace the human mind's empathy, emotion, purpose, projection, and reason. All these terms signify a thinking, cognitively capable, imaginative, and sentient creature. In other industries, or put, in a job, AI could potentially surpass a human and still raise the question of the singularity level in this field. However, the user of the other industry outputs is a thinking, cognitively capable, imaginative, and sentient creature, a customer, and still, AI cannot understand the consumer's mind. But AI could play a good supporting role in (Dieter & Gessler, 2021) (Puntoni et al., 2021) storytelling.

It could prepare a more human-centric story. In the happy ending, the AI transforms itself into the main hero, who has fulfilled its purpose of helping human survival. Using classic screenwriting, the authors could define the AI's structure and cast it in a master or shapeshifter role. As a plot device, the possibilities for the AI's appearance could allow a regular story within our understanding. The analyses enable the integration of the AI with its features, which enhance the standard cinematographic storytelling techniques. The profile of potential stories is closely related to the speculative branch of AI, which works similarly and has been used in financial markets to achieve standard storytelling goals. Therefore, authors and directors should build AI around stories, considering these aims and characters. AI research and knowledge can provide dependent agents who will execute the job.

8. AI and Film Production

AI has been adopted in various fields of film production because programs can quickly create high-quality 3D models of people, effects of natural disasters, etc., reducing production costs by minimizing the need for filming techniques and thus becoming more efficient. It is predicted that, in the future, AI will participate in all processes of a film, such as the translation of a manuscript, the amount of worthwhile investment, and the coordination of PR. For film studios and producers, the use of AI technology facilitates the work of solving large, complex tasks that were previously done manually or relied on routines. By building models and collecting large datasets of annotations with machine and deep learning techniques, AI specialists can solve problems related to tracking, inheritance, etc. Implementing AI in filmmaking and marketing is expected to reduce risks and save significant costs in investments (Kavitha, 2023).

Countless large and small start-ups around the world provide these automated solutions. Among the very popular services are those related to animation, automatic conversion of multiple frames into a video, and translation services. Services or companies that offer automated translation already existed before the popularization of AI; the difference is that the use of machine learning today provides high-quality output in less time. That is why many companies that work with laser subtitling have heard about the use of AI in film production and in the dubbing sector. This service is responsible for laboratory post-production and live action.

8.1 AI in Production Processes

Artificial intelligence is quietly reshaping the way films are made, often working behind the scenes to make production smoother, faster, and sometimes even more creative. Today, AI-driven

tools can generate detailed 3D models, simulate natural disasters, and create lifelike visual effects, all of which help filmmakers tell their stories without the heavy costs and time that used to come with these tasks (Kavitha, 2023). This means that directors and producers can spend less time worrying about logistics and more time focusing on the heart of their films.

AI is also taking on some of the less glamorous-but essential-jobs in filmmaking, like organizing shooting schedules, tracking equipment, and managing large teams. By analyzing data from previous productions, AI can predict potential delays and suggest ways to keep everything on track, helping to avoid the classic headaches of film sets running over budget or behind schedule (Momot, 2022). But while these advancements are exciting, they come with a note of caution. Some filmmakers worry that relying too much on AI could make movies feel less personal or emotionally rich. After all, technology can handle the technical details, but it's the human touch that brings a story to life (Sun, 2024). The real challenge for the industry is to find a balance-using AI to handle the heavy lifting while making sure the creative spark remains at the center of every production.

In short, AI is opening new doors for filmmakers, making production more efficient and sometimes even more imaginative. But as with any tool, its true value comes from how it's used-supporting, not replacing, human creativity.

8.2. AI in Pre-production

Like the search for locations, pre-production is where AI has found its greatest acceptance in the film industry, with systems being employed for proofs of concept. Taking a step back, certain products addressing more than just one part of pre-production would seem to have been more successful; industrial-grade software allows for building an entire virtual set and then looking through a virtual camera to see what can be seen, which looks like the first tangible AI advance in this environment. The lengthy process of drawing up a storyboard when creating an animated motion picture or branding a product can be made far more bearable using programs. Combining a picture's concepts and in-between expectations to create a voice-based novel creator, while AI-powered search engines looking for disparate script elements have been introduced (Nur et al., 2022).

It seems the industry pertaining to surrounding simulations has been launched, with several applications addressing the creation of crowds needing AI. Most of the AI technology available for pre-production principally studies image and sound, trying to find associations between different elements. Again, uses that employ AI for script writing are focused on an isolated activity. These clients offer products that can only tackle bits and pieces of building a screenplay, which is programmed to address dialogue, language, or other tools. All of them use different AI tools to, for example, adapt the content of a conversation to someone the character of the conversation may want to become. An activity symbiotically related to screenplay writing is editing content to adapt it to a platform, or changing short films to get to a narrative representative of the subtleties of awards show conviviality, which is what an algorithm bets on. While a product claims to simulate the general public's taste, giving it attention when creating (McLoughlin & Brady, 2024).

8.3 AI in Post-production

An early use of AI in post-production was in the field of automatic colorization of old movies. We still find references to this "historic" software up to around 2016 in the press, but it seems it was short-lived. More recent automatic colorization software using deep learning techniques is available from various companies. Another application of AI techniques in post-production is the creation of special effects such as flame and fog throwers. The smoke and fire simulations are authentic enough to be used in production. They can be used to direct the simulation flow or, on the contrary, to disturb certain regions or add details to the simulated effects (Maraveas et al., 2021).

Particle System can transform the animator's vision into such directives and do this faster than the manual approach and at a fraction of the cost. Machine learning systems have also been applied to problems related to the restoration of images, such as deblurring, denoising, deinterlacing, various forms of inpainting, and removal of dirt and scratches. These techniques find application in the restoration of old movies. They could be used in the future to build "newly revised and expanded"

versions of old classics or significant events. Convolutional neural nets are used in various tools. The system has been trained with genuine film-specific defects that provided the footage for it. We have refrained from including the system in our setup to avoid criticism could focus on the use of inappropriate test footage that is not representative of the footage such a proposed AI-driven post-production system will have to work with. Thanks to the use of broadband filters during the training phase, the performance is very promising for most dirt types.

9. Some Other Effects of AI on Film Production

AI has significantly impacted the film industry, with its applications in various aspects, including audience engagement, film marketing, distribution, and film criticism. AI can aid in creating complex and interesting movies, targeting new audiences, and tuning film characteristics to generate original and appealing content. However, there are cost constraints in customization, often due to the manner in which movies are released or distributed in audiovisual media. (Diwan et al.2023)

Film promotion strategies have evolved, using AI technology to develop insights, graphic design, marketing points, target audience profiles, and channel planning. Hollywood studios have incorporated cognitive creativity and machine learning capabilities into promotional campaigns to optimize audience insights. For example, in Scene 94, a TV station developed its original movie by extracting scripts from films, discovering that many films had their scenes created by AI, leading to greater success in sales (Papalampidi et al., 2023).

AI has also contributed to the success of launching new movies, such as Scene 94, which was considered one of the most efficient in the studio's history. Predictive modeling during the creative process allowed for performance monitoring and flexibility to optimize marketing in mid-launch, determining the points at which the film resonated more with the public.

In film distribution, AI offers increasingly digitized and personalized access to culture and knowledge. Using data-driven models and algorithms could impact movie theater chains, replacing human talent less skilled in big data with predictive models that offer open and machine-hiring advertising and more efficient ticket sales. Future research in the film distribution sector should identify the right synergies between human talent, predictive analysis, and data modelling, offering original insights in synergy with digital innovation (Anantrasirichai & Bull, 2022).

In film criticism, AI is often used to aid in the creation of recommendation algorithms, but these applications do not get much attention within the field of film criticism itself. Critic interactions with AI systems can be interesting as templates offering suggestions for the initial steps between the diagnostics and therapeutics of informal critique. (Somandepalli et al.2021).

The discussion is based on a project that argued that animatronics, the study and development of humanoid robots, has five directions of approach: nature, universe, humanity, individual, and technology. In cinema, AI has replaced human actors with animated characters, but the relevance of human emotion and action still determines their presence. AI has also made its way into film culture, with festivals like the Evolution series showcasing virtual reality and AI at the festival. In 2017, the festival presented the first cinematic example of machine learning using cameras, learning the space through vision recognition algorithms and generative neural

Networks. In the future, planning for film festivals with eye recognition algorithms and generative adversarial neural networks might consider additional individual differences in how features of films are sensed by audiences and respond . (Mwenda, 2022)(Langmia, 2023)

AI and diversity in cinema have been criticized for stereotyping cultures, and the use of AI reinforced this wrong tendency. In Brazil, an AI robot named Suzi was launched to satisfy people with the idea of blackface, reinforcing racist behaviors by leveling black women through stereotypes and prejudices. Cinema was established and mostly made for white people, especially men, because they could dominate the technology initially found and sponsor the studies. However, this tendency is slowly changing, and the whitening myth in Brazil reinforces that AI was not created by a plurality of people and refers exclusively to post-colonial racism.

Representation in cinema involves the images built by cinema on subjects, societies, objects, and the world. Cinema captures, selects, and shapes subjectivities, conflicts, crises, and emotions. AI shapes and collaborates in this field when it appropriates and analyzes an uncountable offer of images, records, and inputs. Images are spaces where notions of intelligence are classified, managed, shared, and contested, among many stakes, amazements, and fears. It is urgent to pay attention to how knowledge, research, and action in AI representation milieu are conducted and exercised.

The binary gender difference in cinema is a way of classifying people based on physical and biological differences, violence and submission, reason and emotion, civilization and nature, which are socially constructed. These artificial divisions deepen the social crisis of degradation. Cinematic narratives are important in offering representations and stimulating reflections, rethinking the conception of gender based on intelligence, legitimacy, and leadership. Technologies reshape tools and ideas on work, affectivities, social organization, and the complexity of interactions.

The relationship between artificial intelligence, gender, and cinema is examined from the triple perspective of aesthetics, critical theory, and innovative cinema and new media technologies. Modern technology is a fundamental instrument to overcome extensive social prohibitions, especially related to gender differences and other restrictions established by capitalism. Women and machines are often seen as deadly, ancillary, and hostile enemies. In the 20th century, the representations of artificial agents were often limited to science fiction narratives, contributing to the set of cinematic narratives and genres of choice for public debate about various dilemmas.

AI and its cultural impact in cinema are analyzed in the thematic section, examining its presence, diversity, and variations in the cinematographic narrative. The main characters are endowed with attributes that belong to the classes defined as minimally illusory and autonomous, working as main links in the plot narrative, unfolding the story's progress, and working as characters that make emotions flow freely in the film viewer.

AI and box office success are also discussed, with a box office experiment based on the public recognition of artificial environment technologies influencing the success of visually produced arts. The subjects' ranking of classical Hollywood films was recorded before and after a new consumer-priced Synthes named Music Transport emerged as the first candidate AI composer and placed fifth on the list. A film was also selected to create the screenplay written by a named AI, and the connection between the number one position assigned to the film of Kubrick, whose AIs are HAL 9000, is explored. (Yu et al., 2024).

10. AI and Awards in Cinema

As major film festivals traditionally feature films made by directors and producers, the question arises about the future of AI-generated films. This chapter examines every stage of the production process, from conceiving narrative elements to selecting resources for chatbots to generate new plots. It also explores the intersection between independent filmmaking, AI direction, and reproduction processes where both AI representations and concrete robots can be involved. Experiments in AI in films are beginning to occur, such as a short film directed by a robot, which explores the nature of consciousness, self, and time arising from AI interaction with humans. Indie filmmaking is also gaining traction, with filmmakers using medical research images of human brain states to create emotionally evocative images.

AI has already been applied to documentaries, with AI image and sound analysis tools being particularly beneficial. These tools can automate tasks and provide visual appeal in video editing. Neuro-linguistic recognition has led to a turning point in sound and linguistic analysis, with numerous collections included in learning sets of AI algorithms for statistical sound and linguistic recognition. In the realm of documentaries, AI has the potential to enrich non-narrative films by providing a backdrop library for everyday tasks and intelligent reporting for looking at pages of narratives. AI can also help address productivity issues by generating processes that are not solely desirable with the use of a camera.

Animation is an ideal partner for AI, as it involves processes and resources where AI can play a significant role. However, AI is present in production spheres more than in the creation of animation content. AI digital artists are still a long way off due to the high complexity of the human mind in this area. The most advanced AI content creators cannot yet create emotion or mental attachments, which is the ultimate goal of the audience.

AI uses fast and nonspecific codes to process information, becoming human allies in various production modules, specifically in the extraction, distribution, and exploitation of animation. Even highly technological tools for creation or management can increase efficiency, minimize costs, and maximize speed and predictability, producing a smaller margin of error in these fields.

AI technology is transforming the film industry, potentially replacing traditional conductors and orchestras. A survey of American moviegoers has shown that an artificially intelligent conductor could direct a full-length feature film orchestra, potentially generating future income for composers. AI technology has also been applied to film scores, but it is not yet a threat to songwriters as it only suggests specific themes, harmonic development, and modulations.

Film editing plays a crucial role in shaping a movie, and AI has been used to speed up the process by using speech synthesis to locate corresponding footage. AI-based tools have been developed to automatically edit and finish movies using machine learning, such as a free plugin that can fill out the first edit of a feature film and a main title software plugin that can create splits for song titles, chorus names, verse names, and intro or outro text for audio and video projects.

AI is also being used in film restoration, improving old, damaged, or contaminated films and those with visual quality problems. Major film restoration projects are betting on AI to increase image size, remove grain, dust, or traces of mold, improve dynamic range, colorize original black and white films, or generate exclusive soundtracks that result in remastering versions with higher visual and sound quality. This trend will see more restorations carried out automatically by AI-trained film and sound programs, allowing nostalgic viewers to see past films with a visual and sound quality similar to what was perceived by the public when they were exhibited in movie theatres.

AI also empowers other services, such as frame analysis for licensing, and creates job opportunities. AI's impact on film preservation and restoration will change the way we see old films and the figures of films themselves, as public heritage and collection digitization initiatives seek to improve the sources themselves. Deep learning algorithms allow us to apply new results to films never seen by film audiences before, creating and fostering other films with better edgy qualities.

This transformation affects other beneficiaries, such as big companies, small regional distributors, and non-commercial film heritage networks, as well as teachers and researchers, who benefit from access to a broader pool of audiovisual resources.

Conclusion:

Integrating artificial intelligence (AI) into the film industry has revolutionized creative processes and production methodologies, transforming visual effects and streamlining workflows. However, this technological advancement presents both opportunities and challenges, including ethical considerations surrounding authorship, job displacement, and algorithmic bias. The future of filmmaking will likely involve a complex interplay between human creativity and AI, requiring a proactive approach to navigate the ethical and social implications.

Ethical considerations are crucial in the relationship between AI and ethical responsibility. While AI offers significant advancements in visual effects, production efficiency, and creative processes, its implementation raises questions about authorship, fairness, and potential biases embedded within algorithms. The displacement of human labor and the potential for algorithmic bias to perpetuate existing inequalities within the industry cannot be ignored. A thoughtful and ethical approach to AI integration requires industry collaboration, regulatory frameworks, and a commitment to transparency and accountability.

The relationship between AI and the film industry is still nascent, but its potential for transformative impact is clear. Future research should focus on developing efficient and ethically

sound AI tools, exploring the potential for AI to enhance human creativity, and investigating the long-term socio- economic impact of AI on the film industry workforce. By proactively addressing these challenges, the industry can harness the power of AI to create a more vibrant, inclusive, and innovative cinematic future.

Bibliographical List :

- Fernández Urtasun, R. (2024). From the golem to the robots: a visual evolution of a myth.
- Filimowicz, M. (2023). AI and the Future of Creative Work: Algorithms and Society.
- Isenberg, N. (2013). Weimar Cinema: An Essential Guide to Classic Films of the Era.
- Turkle, S. (2015). Reclaiming Conversation: The Power of Talk in a Digital Age.
- Wegener, P. (1920). Der Golem: Wie er in die Welt kam.
- Anantrasirichai, N. & Bull, D. (2022). Artificial Intelligence in the Creative Industries: A Review.
- Andrew, D. (). Cinema and Creative Community. Cinema.
- Bamicha, V. & Drigas, A. (2022). The Evolutionary Course of Theory of Mind-Factors that facilitate or inhibit its operation & the role of ICTs. Technium Soc.
- Baum, L. F. (1900). The Wonderful Wizard of Oz. George M. Hill Company.
- Boden, M. A. (2014). AI: Its Nature and Future. Oxford University Press. (pp. 12-15).
- Bostrom, N. (2014). Superintelligence: Paths, Dangers, Strategies. Oxford University Press. (pp. 56-60).
- Cai, Z., Liu, L., Chen, B., & Wang, Y. (2021). Artificial Intelligence: From Beginning to Date.
- Cannavò, A., Castiello, A., Praticò, F. G., Mazali, T., & Lamberti, F. (2024). Immersive movies: The effect of point of view on narrative engagement. AI & SOCIETY, 39(4), 1811-1825.
- Carney, S. (2020). Analyzing How the Human Maria and Robot Maria from Metropolis Represent the Tension Between Human and Machine.
- Cave, S. & Dihal, K. (2020). The whiteness of AI. Philosophy & Technology.
- Chan, C. K. Y., & Hu, W. (2023). Students' voices on generative AI: Perceptions, benefits, and challenges in higher education. International Journal of Educational Technology in Higher Education, 20(1), 43.
- Chubb, J., Reed, D., & Cowling, P. (2024). Expert views about missing AI narratives: is there an AI story crisis?. AI & society.
- Cleuziou, S. & Tosi, M. (2021). In the Shadow of the Ancestors: The Prehistoric Foundations of the Early Arabian Civilization in Oman: Second Expanded Edition. Nieuważyński, J., Nowakowski, K., Ptaszyński, M., Masui, F., Rzepka, R., & Araki,
- Cleuziou, S. & Tosi, M. (2021). In the Shadow of the Ancestors: The Prehistoric Foundations of the Early Arabian Civilization in Oman: Second Expanded Edition.
- de Filippis, R. & Al Foysal, A. (2024). The Fusion of Minds: Navigating the Confluence of AI, ML, and Psychology in the Digital Era. J Math Techniques Comput Math.
- Dieter, D. G. & Gessler, E. C. (2021). A preferred reality: Film portrayals of robots and AI in popular science fiction. Journal of Science & Popular Culture. Puntoni, S., Reczek,
- Diwan, C., Srinivasa, S., Suri, G., Agarwal, S., & Ram, P. (2023). AI-based learning content generation and learning pathway augmentation to increase learner engagement. Computers and Education: Artificial Intelligence, 4, 100110.
- Dong, F. & Ruan, Y. (). Globalization and Commercial Analysis of Science Fiction Films:

Observing Regional Markets, Production Costs, and Marketing Strategies. Highlights in Business.

- Einola, K. & Khoreva, V. (2023). Best friend or broken tool? Exploring the co-existence of humans and artificial intelligence in the workplace ecosystem. Human Resource Management.
- Fitria, T. N. (2021, December). Artificial intelligence (AI) in education: Using AI tools for teaching and learning process. In Prosiding Seminar Nasional & Call for Paper STIE AAS (Vol. 4, No. 1, pp. 134-147).
- Fui-Hoon Nah, F., Zheng, R., Cai, J., Siau, K., & Chen, L. (2023). Generative AI and ChatGPT: Applications, challenges, and AI-human collaboration. Journal of Information Technology Case and Application Research, 25(3), 277-304.
- Gamez, D. (2023). AI: Artificial Intelligence as philosophy: Machine consciousness and intelligence. In The Palgrave Handbook of Popular Culture as Philosophy (pp. 1-30).
- Hadidi, M., Jafarzadeh, S., Forough, M., Garavand, F., Alizadeh, S., Salehabadi, A., ... & Jafari, S. M. (2022). Plant protein-based food packaging films; recent advances in fabrication, characterization, and applications. Trends in Food Science & Technology, 120, 154-173.
- Joshi, N. (2024). Emerging Challenges in Privacy Protection with Advancements in Artificial Intelligence. International Journal of Law and Policy.
- Kavitha, L. (2023). Copyright Challenges in the Artificial Intelligence Revolution: Transforming the Film Industry from Script to Screen. Trinity Law Review. researchgate.net
- Kern, S. R. (2024). Messages from the deep: A reception study of Denis Villeneuve's Dune. gu.se
- Kheirouri, S., & Alizadeh, M. (2022). MIND diet and cognitive performance in older adults: a systematic review. Critical reviews in food science and nutrition, 62(29), 8059- 8077.
- Langmia, K. (2023). Black Communication in the Age of Disinformation: DeepFakes and Synthetic Media.
- Maraveas, C., Loukatos, D., Bartzanas, T., & Arvanitis, K. G. (2021). Applications of artificial intelligence in fire safety of agricultural structures. Applied Sciences. mdpi.com
- Mosakas, K. (2021). On the moral status of social robots: considering the consciousness criterion. ai & Society
- Baía Reis, A., & Ashmore, M. (2022). From video streaming to virtual reality worlds: an academic, reflective, and creative study on live theatre and performance in the metaverse. International Journal of Performance Arts and Digital Media, 18(1), 7-28.
- Nieuważny, J., Nowakowski, K., Ptaszyński, M., Masui, F., Rzepka, R., & Araki, K. (2021). Does Change in Ethical Education Influence Core Moral Values? Towards History-and Culture-Aware Morality Model with Application in Automatic Moral Reasoning.
- Nur Amin, S; (2022, October). An augmented reality-based approach for designing interactive food menu of restaurant using android. In Artificial Intelligence and
- Oliveira, R. & Yadollahi, E. (2024). Robots in movies: a content analysis of the portrayal of fictional social robots. Behaviour & Information Technology.
- Pang, Y., Zhao, S (2022). Enduring Effect of Abuse: Childhood Maltreatment Links to Altered Theory of Mind Network Among Adults.
- Papalampidi, P., Keller, F., & Lapata, M. (2023). Finding the Right Moment: Human- Assisted Trailer Creation via Task Composition. IEEE Transactions on Pattern Analysis and Machine Intelligence
- Patil, N. H., Patel, S. H., & Lawand, S. D. (2024). Research Paper On Artificial Intelligence

And It's Applications. Logical Techniques in computer science, 2(2), 66-70.

- Pickover, C. A. (2024). Artificial intelligence: An illustrated history: From medieval robots to neural networks.
 - Rane, J., Mallick, S. (2024). Artificial General Intelligence in Industry 4.0, 5.0, and Society 5.0: Applications, Opportunities, Challenges, and Future Direction.
 - Santos, O. & Radanliev, P. (2024). Beyond the Algorithm: AI, Security, Privacy, and Ethics.
 - Somandepalli, K., Guha, T., (2021). Computational media intelligence: Human-centered machine analysis of media. Proceedings of the IEEE, 109(5), 891-910
 - Mwenda, A. (2022). Using science fiction storytelling to decolonise representations of artificial intelligence: Exploring Zambian futures through smartphone filmmaking.. uwa.edu.au
 - Wang, X. & Wu, Y. C. (2024). Balancing innovation and Regulation in the age of generative artificial intelligence. Journal of Information Policy.
 - Wu, Z. (2024). Mpgaan: Effective and efficient heterogeneous information network classification. Journal of Computer Science and Technology Studies.
 - Yaşar, B. (2024). Hollywood's Portrayal of Artificial Intelligence. TRT World Research Centre. (pp. 1-5).
 - Yu, T., Yang, W., (2024). Barriers to Industry Adoption of AI Video Generation Tools: A Study Based on the Perspectives of Video Production Professionals in China. Applied Sciences
 - Zubatiuk, T. & Isayev, O. (2021). Development of multimodal machine learning potentials: toward a physics-aware artificial intelligence. Accounts of Chemical Research
 - Richey Jr, R. G., Chowdhury, S , (2023). Artificial intelligence in logistics and supply chain management: A primer and roadmap for research. Journal of Business Logistics, 44(4), 532-549.
 - Sætra, H. S. (2023). Generative AI: Here to stay, but for good?. Technology in Society. Applications. McLoughlin, K. L. & Brady, W. J. (2024). Human-algorithm interactions help explain the spread of misinformation. Current opinion in psychology.
 - Cave, S., & Dihal, K. (2020). The whiteness of AI. Philosophy & Technology. Columbia University Press.
 - Einola, K., & Khoreva, V. (2023). Best friend or broken tool? Exploring the co-existence of humans and artificial intelligence in the workplace ecosystem. Human Resource Management.
 - Filimowicz, M. (2023). AI and the Future of Creative Work: Algorithms and Society.
 - Fui-Hoon Nah, F., Zheng, R., Cai, J., Siau, K., & Chen, L. (2023). Generative AI and ChatGPT: Applications, challenges, and AI-human collaboration. Journal of Information Technology Case and Application Research, 25(3), 277-304.
- Journal of Aesthetics & Culture.
- K. (2021). Does change in ethical education influence core moral values? Towards history- and culture-aware morality model with application in automatic moral reasoning. Cognitive Systems Research, 66, 89-99
- Kavitha, L. (2023). Copyright Challenges in the Artificial Intelligence Revolution: Transforming the Film Industry from Script to Screen.
 - Momot, I. (2022). Artificial Intelligence in Filmmaking Process. Future Scenarios.
- R. W., Giesler, M., & Botti, S. (2021). Consumers and artificial intelligence: An

experiential perspective. *Journal of Marketing*, 85(1), 131-151.

- Richey Jr, R. G., Chowdhury, S. (2023). Artificial intelligence in logistics and supply chain management: A primer and roadmap for research. *Journal of Business Logistics*, 44(4), 532-549.
- Sun, P. (2024). A Study of Artificial Intelligence in the Production of Film.
- Wang, X., & Wu, Y. C. (2024). Balancing innovation and regulation in the age of generative artificial intelligence. *Journal of Information Policy*.
- Yu, T., & Yang, W. (2024). Barriers to industry adoption of AI video generation tools: A study based on the perspectives of video production professionals in China. *Applied Science*