ORIGINAL RESEARCH



Al and the future of creative development: redefining digital media production

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Abstract

This research examines the relationship between artificial intelligence (AI) and its transformative impact on the creative industries, with a focus on film, television, and game production. It investigates AI's dual role in enhancing efficiency and democratizing creativity while also highlighting ethical dilemmas and risks of creative homogenization. Through an analysis of case studies, the study explores how AI accelerates workflows, introduces novel techniques, and expands creative possibilities, yet also raises concerns regarding originality, authenticity, and the role of human creators. The findings reveal that while AI offers unprecedented opportunities to experiment and innovate, its adoption can make certain creative tasks redundant, reshaping the development process in entertainment. This research provides critical insights into the capabilities and limitations of current AI technologies, contributing to the broader discourse on their potential to redefine creativity in digital media production.

Keywords Artificial intelligence \cdot Creative processes \cdot Digital production \cdot Innovation \cdot Generative \cdot Interactive experiences \cdot Entertainment technology

1 Introduction

While digital media in the entertainment industry has achieved impressive production quality at a rapid pace, this may not be sustainable. The industry traditionally depends on risky development cycles, specialized roles, and significant financial investments. As production costs rise and expectations increase, AI integration is seen as both an impactful force and a potential solution to challenges such as employee burnout, tight budgets, and deadlines. The transformation of the entertainment industry through AI goes beyond accelerating production; it fundamentally reshapes the creative process. AI is not just reducing costs or improving efficiency but also altering roles within production teams [1]. Tools now assist with tasks such as

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generating visual effects, composing music, and writing scripts, shifting the balance between human creativity and automation [2, 3]. In essence, AI is becoming a collaborator, transforming how creative decisions are made, how teams work together, and how projects are developed [4]. While AI proponents argue that it can address many issues, critics worry about its impact on creativity, authenticity, and human roles [5]. This research explores how AI reshapes creativity and productivity in the film, television, and game industries, highlighting its transformative potential while addressing its ethical challenges and impact on human involvement. It is important to distinguish between two types of AI in this study: Narrow AI and Generative AI. Narrow AI refers to systems designed for specific tasks, such as video editing or automating basic processes [6]. In contrast, Generative AI encompasses tools capable of creating original content with more expansive, creative capabilities, such as generating art, writing, or music [7]. Furthermore, we explore the concept of the "human touch", which refers to the emotional depth, intentionality, and unique authorship that human creators bring to their work-qualities that are often questioned when AI-generated content is evaluated [8]. This paper will first present a literature review to explore current trends, industry challenges, and the evolution of AI technologies.

This research paper has undergone a process of copyediting and reviewing with the assistance of ChatGPT. The use of this AI tool was employed to enhance the clarity and coherence of my work but does not represent the authorship of the paper.

Next, case studies of digital media products incorporating AI will analyze the advantages and disadvantages of these tools. A comparative analysis will assess AI's limitations, ethical concerns, production efficiency, and public perception. Data collected through interviews and surveys will complement the existing academic sources and case studies, offering firsthand insights into the industry's adoption of AI. This study contributes to the ongoing debate on AI's ethical implications and its potential to influence the entertainment industry.

2 Literature review

This section reviews literature from academic databases, industry reports, and relevant news articles to examine AI's impact on digital media production and creativity. This was done to gather information related to the topic of AI's influence on digital media production, including its effects on creative processes and authenticity in content creation. This review explores specific AI trends and their impact on the entertainment industry, including associated benefits and ethical challenges.

2.1 An overview of media trends and traditional development cycles

The entertainment industry is shaped by fluctuating consumer preferences, technological advancements, and economic pressures, contributing to its volatility [9]. Technological advancements, particularly AI-driven tools for asset creation and programming, have rapidly transformed the digital media industry, reshaping workflows and consumer engagement [10]. Rising production costs and the demand for affordable prices have driven changes in monetization models in digital media, with examples including subscription services and microtransactions. The entertainment industry is facing significant layoffs due to cost-cutting pressures, leading Hollywood and streaming services to restructure operations to meet market demands and financial constraints. This trend is particularly evident in the games industry, as highlighted by Microsoft Gaming CEO Phil Spencer, who argued that rising development costs and audience expectations have contributed to layoffs and changes in monetization, given the inherent risk of game development [11].

Despite inflation driving up costs across sectors, the value consumers receive from entertainment products has generally improved, particularly in terms of production quality [12]. In fact, it's evident that the average digital media product produced by a mid-sized or major distributor often has a higher budget and higher-quality visuals because

of raised standards [13], and this is being done at a cheaper price than older products when considering inflation rates. Advancements in technology have led to expectations for faster production timelines without sacrificing quality [14], despite being sold at cheaper prices (when factoring inflation) and having the expectation to be more advanced. The graph below (Fig. 1), created by video game analyst Sam Naji, illustrates how, if adjusted for inflation, game prices would be significantly higher than they are today [15]. This does not account for the fact that games are now far more advanced and visually detailed due to hardware improvements, offering consumers greater value.

2.2 How AI can influence key production stages

The integration of AI in the overall development process of entertainment products has been major, as many minor and repetitive tasks can now be streamlined and automated for efficiency, saving time and money while maintaining a high level of quality [16]. All three stages of production can benefit from the use of AI, as the wide variety of tools and software available can be useful for many different purposes [17]. During the planning and preparation stages, AI can assist with scriptwriting, storyboarding, scheduling, and market research by analyzing data to ensure an idea's viability [18]. These benefits are applicable to not only the mediums of television and film, but also gaming as well, widely benefiting the entertainment industry. AI is particularly valuable during the production stage of digital media, offering specialized tools and applications that streamline development processes. In a BBC interview, studio veterans highlighted how AI tools can streamline tasks such as scriptwriting, asset creation, and animations [19]. Similarly, television and film productions, especially those using computer-generated imagery, can benefit from AI, which accelerates the creation of artistic components [20]. Furthermore, some AI applications are more advanced, in that they can produce entire scenes through models that can produce images, saving time and money in the process [21]. The table below examines AI's impact on the entertainment industry, outlining the benefits and risks, including how while AI streamlines development, it has downsides, such as job displacement and copyright issues [20] (Fig. 2).

2.3 The rapid evolution of AI tools

The entertainment industry has long been at the forefront of adopting new technologies to stay competitive [22]. The rapid evolution of AI tools now has the potential to revolutionize various facets of the industry, offering more efficient production and enabling creatives to complete tasks that were once extremely time-consuming [23]. For example,



Video Game Release Price VS 2022 Inflation Adjusted Price

Fig. 1 Chart produced by analyst Sam Naji showcasing differences in game prices upon release dates with their 2022 inflation adjusted price. Source: gamesindustry.biz (2022)

Benefits	Risks
Personalization: Al tailors content recommendations, boosting user engagement (e.g., Netflix).	Quality Control: Risk of spreading disinformation, low-quality, repetitive 'AI slop' content, and a lack of originality, potentially limiting the diversity of content; risk of idea homogenization.
Efficiency: Automates editing and metadata tagging, saving time and costs.	Job Displacement: Threatens creative roles like editing, writing, and animation; reshapes jobs into content supervision rather than creation.
Engagement: AI chatbots and personalization enhance user interaction.	Copyright Issues: Legal disputes and potential content theft over AI's use of copyrighted material without proper licensing.
Accessibility: Real-time translation and speech recognition expand audience reach.	Privacy Risks: User data collection raises ethical concerns about surveillance and misuse.
Production Quality: Enhances CGI and animations, streamlining filmmaking and VFX.	Ethics: Concerns over misuse for deepfakes, biased content, and manipulation.
Marketing Impact: AI optimizes ad targeting, campaign timing, and ROI.	Public Perception: Resistance to Al-driven media due to concerns about authenticity, manipulation, misinformation, and erosion of trust in media.
Scalability: AI can generate large volumes of content quickly to meet demand.	Environmental Cost: High computational power needs in AI systems lead to increased energy consumption and carbon footprint, contributing to environmental degradation.
Augmentation of Creativity: Human creators can use AI tools for ideation and rapid prototyping.	Working Conditions: Risk of devaluing creative labor, including data annotators who often work under poor conditions with inadequate compensation; pressure on creators to adapt to new tech without fair compensation or support.
Improved Analytics: AI can use behavioral tracking and gather data from products to make Quality Assurance changes.	Idea Stagnation: Over-reliance on AI may lead to homogenized aesthetics, reduced originality in creative outputs, and a decline in content diversity, contributing to the creation of 'AI slop,' which lacks creativity and variety.
Error Reduction: AI systems can minimize human errors, improving overall accuracy.	Societal Impact: Potential influence of AI on public discourse, political manipulation, and erosion of trust in authentic media, especially in news, social media, and entertainment.

Fig. 2 Table summarizing the benefits and risks of AI in the entertainment industry. Source: Prasad, R., & Makesh, D. (2024). Impact of AI on Media & Entertainment Industry

Chris LeDoux, Co-Founder of Crafty Apps, noted that visual effects artists can save as much as 99% of their time due to new AI tools [24]. AI can also simplify complex tasks like

rotoscoped animations, which were previously challenging and time-consuming but can now be easily accomplished with AI tools [25]. By saving time on such tasks, creators can redirect their efforts toward more creative experimentation [26]. However, the introduction of AI into creative processes raises questions about the definition of creativity. Traditionally, creativity is defined as the ability to generate novel and meaningful content, driven by emotional depth, intentionality, and personal expression [27]. As AI tools such as generative models assist in content creation, the question arises whether these tools can replicate the nuanced, emotional quality of human creativity, or if they are merely aiding human creators in executing their ideas. For this study, creativity is defined as the generation of original content that balances technical skill with emotional resonance and intentionality-qualities often regarded as uniquely human. The rapid advancements in AI have been driven by factors such as increased computational power, improved algorithms, large-scale data availability, and open-source collaboration [28]. Popular tools like ChatGPT have attracted substantial investment, leading to industry adoption and improved research techniques [29]. These developments have accelerated the release of numerous AI tools designed to meet the demands of businesses and consumers. In fact, according to Statista, the global AI market is expected to reach \$2 trillion by 2030, reflecting significant investments in tools that directly impact industries such as entertainment and gaming [30] (Fig. 3).

AI tools have revolutionized the creation of artistic components, with tasks such as texture generation, concept art, and 3D modeling now streamlined through AI applications [31]. In the past, artists would have to rely on creating such components either through replicating existing reference materials or from pure imagination, which can be challenging and time consuming. Early AI art tools, though limited in practicality, have evolved to streamline workflows by shifting the focus from manual production to prompt-driven processes. This transformation highlights AI's growing role in accelerating creative tasks. A notable example comes from DeepDream, an early AI art tool developed by Google, based on convolutional neural networks. This program was only capable of enhancing and distorting existing images, which can still be beneficial depending on the purpose [32]. The development of Generative Adversarial Networks (GANs) and transformer architecture has enabled sophisticated AI models that are now used in digital media, such as AI-generated art and deepfake technology [33]. In essence, tools like DeepDream pioneered the visualization of learned patterns using neural networks, while modern tools such as DALL-E represent a more advanced stage where AI interprets information and generates content. As a result, artists can write down their ideas in the form of prompts and have AI tools generate results in a matter of moments. They can then either choose to use those results as reference images, or integrate them into projects, providing that their usage abides by legal requirements and does not infringe upon others' work.

Similarly, other tasks such as programming and writing have also been streamlined because of AI, as advancements have been made that have dramatically improved capabilities. Previously, AI tools for these purposes relied on rule-based logic for specific tasks [34], which was limited in scope and flexibility compared to today's AI tools. Over the years, developers have incorporated new strategies and techniques—such as statistical models, word embeddings, and transformers—to overcome limitations, improving contextual understanding and generation capabilities [35]. AI has simplified data organization by automating tasks like document review and candidate matching, reducing manual labor in casting and production [36]. For instance, casting directors can now use AI tools to automatically



review portfolios, matching candidates with specific skills to relevant roles, thereby saving significant time [37]. AI tools like automated document review systems have greatly reduced the manual effort involved in data organization, such as automatically filtering casting portfolios [38]. By reducing the effort needed to produce high-quality products, the advancement of AI tools can also essentially allow for the democratization of individuals and smaller development teams regarding producing higher-quality content, like how the public release of many game engines and digital media software opened opportunities in the media industry [39].

3 Case studies

This paper examines three case studies to illustrate how AI integration influences creativity and production in television, games, and film. The selected case studies showcase AI's varied integration across television, games, and film, highlighting recent advancements identified through academic and industry sources. These case studies highlight the opportunities and challenges of AI integration across different creative mediums. The case studies were chosen based on recent advancements in AI, identified through academic sources and industry trends. Each case study presents a unique application of AI in development, showcasing its varied impacts across different media. This section compares case studies to analyze how AI can enhance or limit creative expression depending on its application.

3.1 The frost: A film made entirely with Algenerated imagery

Once image generation became feasible, it was only a matter of time before it was applied to digital media production. In combination with a script created with a human, a short film titled "The Frost" set out to do just that, using DALL-E 2 to produce all the footage. 'The Frost' (2023) by Waymark Creative Labs is one of the first AI-generated short films in the entertainment industry [40]. An executive producer at Waymark by the name Josh Rubin noted that AI used for this purpose is still not perfect by any means, as it can "struggle to get certain things from DALL-E, like emotional responses in faces" [41]. However, director Will Douglas Heaven decided to embrace the creepy aesthetic often found in AI-generated art for the film, effectively leveraging its flaws [42]. While The Frost showcases AI's potential to establish unique visual themes, it also highlights the significant creative challenges posed by AI's limitations. The use of unnatural movement and eerie aesthetics may serve the narrative [43], but it raises questions about the extent to which AI's inherent flaws can be creatively leveraged. Is the reliance on these imperfections a sign of innovation, or does it underscore a limitation in the technology's capacity to fully replace human creativity, particularly in more nuanced artistic aspects such as fluid motion and emotional expression? This illustrates that while AI can expedite production and open new creative avenues, it also risks hindering the overall quality of the work if employed without careful consideration.

In contexts where AI's flaws are exposed, such as in human facial expressions and body movements, the need for human intervention underscores a fundamental tension: AI can enhance efficiency, but it often falls short in conveying the emotional depth that human artistry brings. For instance, the panning shots that showcase detailed environments such as vast icv mountains and a military camp are impressively showcased, supporting an uncanny, disconcerting vibe [44]. This storytelling style could be useful for products featuring 2D motion comic-style cutscenes, where movement is less critical. Videogames such as Infamous (2009) and Mortal Kombat 1 (2023) are notable examples where an emphasis is placed on still images in combination with minimal camera movement techniques so that less focus is needed on animation. This technique, common in budget-conscious video games, allows for efficient storytelling with minimal resources. By combining this strategy with AI, creatives can utilize its benefits and its ability to produce visual elements without the concern of its weaknesses. AI still struggles with facial expressions, requiring significant human oversight to address these issues in post-production. It's evident that while AI can streamline production, its limitations may require direct oversight and modifications from human input to fully realize creative potential. The technology in its current state is far from perfect, but it can still contribute towards creativity without compromising production quality providing that it's not used in areas that still need major upgrades, such as body movement and facial appearances (Fig. 4).

3.2 Angry pumpkins: a fully ai-generated game

AI can generate artistic components, programming scripts, and other necessary elements for game development, enabling the creation of a game through simple prompts. In 2023, Javi Lopez, founder of Magnificent.ai, used GPT-4 for programming and Midjourney and DALL-E for graphics to attempt this. Lopez used 400–500 prompts to create a Halloween-themed game, 'Angry Pumpkins,' inspired by Angry Birds but with pumpkins replacing the traditional projectiles. Titled, "*Angry Pumpkins*", Lopez notes that the entire process took around 10–12 h and required only 600 lines of code, of which he has staunchly admitted he wrote none of [45]. When interviewed by Techspot, he also



Fig. 4 A scene from 'The Frost: Part One,' showcasing digital artistry and storytelling. Image Source: Screenshot From Official YouTube Video—Waymark (2023)

discussed how producing the artistic components was easy, but giving AI instructions on programming elements correctly was far more challenging, involving a lot of patience and many iterations to yield the intended results [46].

While 'Angry Pumpkins' functions as a playable prototype with professional assets and a working physics system, its heavy reliance on AI-generated templates highlights a key limitation of AI-driven game development: the potential for creative stagnation. By automating processes, AI risks prioritizing efficiency over innovation, producing games that lack originality or emotional depth. This contrasts with traditional human-driven game development, where creative iterations often lead to groundbreaking ideas. The case illustrates the democratizing potential of AI but also raises concerns about homogenization in the absence of human oversight. While the technical components may meet industry standards, the game's lack of originality, stemming from the heavy reliance on pre-existing templates, suggests that AI might be better suited for enhancing specific elements of game design rather than driving the entire creative process. This reliance on AI for basic mechanics may result in a gaming landscape where innovation takes a backseat to efficiency. The rapid creation of Angry Pumpkins exemplifies AI's potential to democratize game development, allowing non-experts to produce professional-grade prototypes. However, its reliance on pre-existing templates risk homogenizing creative outputs, raising questions about originality. AI's ability to democratize game development by enabling smaller teams to create high-quality content quickly is undeniably transformative. However, this ease of access raises critical concerns about the homogenization of creativity. Without strong human oversight, AI-generated content risks becoming formulaic, adhering too closely to pre-existing templates and thus stifling originality.

This trend highlights a broader concern: while AI democratizes production, it may simultaneously dilute the diversity of creative expression within the industry. Additionally, the use of AI integration in the context of games development



Fig. 5 Gameplay screenshot from 'Angry Pumpkins', featuring artistic components and programming scripts produced entirely by AI. Image Source: TechSpot (2023)

can prove useful towards accelerating the time it can take to recreate common mechanics, which is already a very customary process involved when developing interactive experiences anyways. It's also important to consider that Angry Birds (2012), the game that inspired Angry Pumpkins, was developed on a budget of roughly €100,000 and required a team of people [47]. Though AI enabled the rapid creation of a similar product, its lack of human creative input led to a homogenized result. Figure 5 illustrates how, despite the high-quality visuals, 'Angry Pumpkins' feels like a reskin of 'Angry Birds' due to its striking similarities. AI's ability to enhance specific areas of game development, such as asset creation and game mechanics, is clear. However, the critical role of human oversight cannot be overstated. Without this oversight, AI-generated content risks becoming repetitive and uninspired. The role of the human creator is essential not only to correct AI's imperfections but to inject the originality and emotional resonance that makes games truly impactful. This underscores a larger debate in creative industries as to whether AI can ever fully replicate the nuanced decisions and intentionality that come from human artistry.

3.3 Secret invasion and the mandalorian: Al usage in television

As one of the forefront industry leaders in the entertainment industry, it comes as no surprise to many that Disney was quick to adopt AI tools and integrate them into the development process of some of their most popular brands. Marvel's *Secret Invasion* (2023) and *The Mandalorian* (2019) employed AI tools differently, each addressing unique production challenges. By doing so, creatives were able to complete challenging tasks in a short timeframe, as well as achieve goals that may not have been possible without the use of AI. Disney's integration of AI tools in both *Secret Invasion* and *The Mandalorian* demonstrates its commitment to enhancing production efficiency and creative quality. In the case of Marvels Secret Invasion, the introduction sequence incorporated the use of AI-generated art with the intention of making the footage seem more unnatural and unnerving [48]. This allowed creatives to exploit a common critique of AI art at the time, turning a negative into a positive. It's important to note that director Ali Selim used it for the purpose of enhancing the theme of the context of the show, which involves a plot with shape-shifting aliens invading Earth [49]. The divided reception of AI's use in Secret Invasion underscores a fundamental conflict within the entertainment industry: while some view AI as a creative breakthrough, others see it as a threat to job security and the authenticity of artistic production [50]. On the one hand, AI's ability to enhance visual aesthetics and streamline production is undeniable; on the other, it raises concerns about the erosion of human creativity and long-term consequences for employment within the industry. This tension reflects broader anxieties surrounding AI's increasing role in creative fields-where efficiency gains might impact artistic integrity and labor opportunities.

In The Mandalorian, AI was applied to facial animation and de-aging, marking a significant departure from traditional methods in visual storytelling. While the technological achievement of recreating a younger Mark Hamill is impressive, this reliance on AI to restore a beloved character to his original form also raises questions about the future of human performance in film. Does the use of AI to replicate facial expressions and voices obscure the role of actors in portraying the full emotional depth of their characters? This example points to a larger conversation on how AI can enhance creative possibilities but also displace human talent in the process. The show featured Luke Skywalker in season 2, a prominent character initially played by Mark Hamill in the original films, who now looks significantly different than he did back when he was featured in that film because of the time it took place. This was achieved by Disney's usage of AI for facial mapping and a body replacement to replicate the character's expressions and movements on a human



Fig. 6 Comparison between a recent photo of Mark Hamill (Left) and his portrayal of Luke Skywalker in *The Mandalorian*, Season 2. Image Source: New York Post (2021)

double (Fig. 6) [51]. AI also synthesized Mark Hamill's voice from 1983, compensating for age-related changes in his vocal tone [52]. This was achieved through the process of capturing audio from years' worth of radio broadcasts, interviews, ADRs, and dubs in which Mark Hamill would speak, so that the voice could be cloned using an AI-powered speech synthesis software known as Respeecher [53]. Showcasing a younger character would have been more challenging without these tools, demonstrating how AI can expand creative possibilities.

4 Comparative analysis

4.1 Comparing AI tools and techniques across media

Narrow AI is designed to handle specific tasks previously defined by programmers [54], which can be useful for automation in areas such as video editing and optimizing visuals. It is notably different from Generative AI, which offers creative capabilities such as scriptwriting and content generation, transforming production processes [55]. While both usages can benefit games, television, and films through shared efficiencies in production, their application reveals unique strengths and limitations in each medium. For instance, AI in games enables real-time interactivity, such as advanced Non-Player Characters (NPCs) that adapt to player behaviors [56]. Conversely, in television, AI is leveraged for rapid audience data analysis, allowing real-time adjustments to episodic content [57]. These differences underscore how AI's interactivity-centric benefits in games contrast with its data-driven advantages in linear mediums like television and film. Additionally, AI in the field of games development can help enhance software development practices and allow for the integration of new and advanced features [58]. A notable example includes the potential of sophisticated Non-Player Characters (NPCs) that can be programmed to be far more lifelike and convincing, adapting to player actions and decisions to an extent where they may even be able to have direct conversations [59]. AI benefits television production uniquely by leveraging audience data in real-time, allowing for quick improvements to episodes that reflect current trends and societal issues. Films tend to have higher budgets than television, so creatives can utilize the benefits of AI to really push the capabilities of the medium with less concerns on budgets.

Despite differences between games, television, and film, some benefits of AI may transfer between these mediums due to shared elements. For instance, television and films are linear, non-interactive forms of entertainment that share similarities regarding how they are developed in comparison to games, even though games can be different due to their emphasis on interactivity [60]. It's important to note that games have notably looked less realistic than television and film because of their need to render computer generated imagery in real-time, a process that requires immediate processing power and efficiency to maintain smooth gameplay experiences [61]. The mediums of television and film, however, often use pre-rendered visuals, which can produce more realistic results at the cost of requiring much more time, from a few seconds to potentially entire days [62]. This meant that creatives would often have to wait for renderings to complete during production to compile finished images into video sequences.

The integration of AI during the real-time rendering process as well as further advancements in hardware has made it more possible to produce high-quality results, allowing for visuals almost as convincing as pre-rendered graphics without the downside of long rendering times [63]. Consequently, it's now common for film and television studios to use game development software for rendering [64], showcasing how advancements in one industry can benefit others. Examples of shows and films using real-time rendering techniques through game engines like Unity and Unreal Engine include The Mandalorian (2019), The Lion King (2019), and The Jungle Book (2016) [65]. Kingdom Hearts 3 is a notable example where a version of Unreal Engine was used to recreate the visual appearance of films made with pre-rendered graphics, going as far as to remake entire scenes to look as identical as possible with real-time rendering despite the constraints of gaming hardware at the time of the game's release [66]. While these examples highlight the technological overlaps, it is important to recognize the creative opportunities that arise from these advancements. For instance, real-time rendering's widespread adoption allows smaller production teams to create visually compelling work, narrowing the gap between indie and mainstream projects across all three mediums. Additionally, AI-driven tools used in virtual production (e.g., digital doubles or environments) offer creators more flexibility to experiment with storytelling techniques, such as interactive narratives in games or episodic storytelling in TV that adapts to audience feedback in real-time (Fig. 7).

4.2 Evaluating the potential downsides and impact on creativity

While AI tools offer numerous opportunities and potential time and cost savings in entertainment production, there are notable concerns and downsides. This section will discuss three relevant examples: AI's impact on creative processes, project authenticity, and the ethical issues arising from AI integration. It's evident that there are valid criticisms in which AI can negatively impact creativity, as algorithms rely on existing data to generate new content, recycling existing tropes, narratives and themes in the process [67]. The reliance on AI-driven outputs could pressure creatives to prioritize profit over originality, encouraging repetitive content generation and stifling innovation [68]. In the entertainment industry, it's important to balance traditional elements that work, as well as encourage innovation to keep things fresh and interesting. Over-reliance on AI-driven outputs risks prioritizing efficiency at the expense of innovation, potentially stagnating the industry and failing to meet evolving audience expectations for originality. This raises the ethical issue of whether such sacrifices are worthwhile simply to just saving time and money, as this approach can potentially do more harm than good in the long run.

As a result, the integration of AI for entertainment products may work as a double-edged sword, as while it can streamline certain processes, there is a potential danger of its usage replacing areas in which human creativity and insight can play a notable role [69]. This can be a major issue, especially if the integration of AI in the creative process can reduce the need for human input because of new tools [70]. If this were to happen, it would reduce the diversity of voices and perspectives in creative content, due

Fig. 7 (Left) (2013) and the Same Scene Rendered in Real-Time Through Unreal Engine 4 in Kingdom Hearts 3 (Right) (2019). Image Source: YouTube—ElAnalistaDeBits (2019)



to less people being involved in the process. This is why effectively considering the strengths and weaknesses of AI through a balanced approach can be important if developers wish to harness its abilities without negatively impacting other essential areas. Regulation may also play a key role, as policies could promote the use of AI for tasks that enhance efficiency, while still safeguarding roles that rely on human creativity [71]. This could also help prevent those who are more than happy sacrificing the quality of their products for profit from doing so, as this is an unfortunate trend in the entertainment industry where unfinished, deceptively advertised or negatively received products can still yield large profits [72]. One potential mitigation strategy involves implementing hybrid workflows where AI handles repetitive tasks, leaving humans to focus on ideation and refinement. For example, an AI might generate preliminary visual assets, which are then polished by human artists. Such workflows not only maintain creative authenticity but also use AI to amplify human effort rather than replace it entirely. This is a process known as co-creativity, where the creativity of humans and AI blends [73].

The question that really needs to be asked is whether AI is stifling creative autonomy through its use of algorithmdriven outputs or allowing creators to push boundaries by saving them time that can then be utilized for other areas that need it. An argument can be made that depending on its usage, both can be the case, which is why knowing how to use it effectively is important so that time can be saved without impacting on the overall quality of the product. This also needs to be balanced with ethical considerations, so that the benefits of AI usage can be utilized without negatively affecting others in the process. Currently, some regulations do exist because of the potential lawsuits that could arise from the use of AI, as there are instances in which it can draw from works to produce content, even without the consent of its owners [74]. This is very common when producing AI-generated art, as many popular tools are trained on large datasets that can include copyrighted works, making it so that AI-generated art produced as a result can be considered derivative works or infringing reproductions. As a result, several entertainment companies and platforms have implemented policies to limit the use of AI-generated art for this exact reason, such as ArtStation, Adobe Stock and Getty Images [75]. The popular videogame digital distribution service for PC users known as Steam went as far as to initially ban games that contained AI-generated art, but has since changed their stance, making it so that developers now need to disclose when games contain pre-generated content and promise that it's not "illegal or infringing" [76].

4.3 Public perceptions and ethical considerations of Al adoption

While the results of AI technologies, such as enhanced efficiency in content creation and personalized consumer experiences [1], are evidently clear, it's also important to consider the mechanisms through which these tools achieve their impact. Public skepticism toward AI often stems from its reliance on vast datasets and pattern recognition, which can lead to derivative outputs that lack originality and raise ethical concerns [77]. This can be a valid strategy for products that rely on already existing elements, such as digital media products that already take place in non-fictional areas, which can include historical time periods or common environments that already exist in the real world. When trying to be innovative and original, this is where AI usage can really be problematic, as how they work is more reliant on working with already existing ideas and concepts. For this reason, it's worth considering that AI usage may be more valid when trying to produce specific digital media products that rely more on what already works, as opposed to new and inventive content.

This is very feasible in the digital media landscape, where many products can still cater to needs and preferences without needing to be unique and original. The previously discussed case study of Microsoft Flight Simulator (2020) is an excellent example of this, as it demonstrates how the use of such tools for simply recreating existing landscapes is a valid option for saving time and achieving development goals. AI's reliance on copyrighted works for training datasets raises critical legal and ethical questions about intellectual property [78]. For example, the *Getty Images v. Stability* AI lawsuit illustrates the challenges of balancing technological innovation with the protection of creator rights [79]. The case highlights how unlicensed use of copyrighted material in training datasets can blur the lines between fair use and infringement, prompting the need for transparent and legally compliant dataset policies. However, limiting the use of what training data that it can be allowed to work with may also cause potential biases due to how the most extant public domain material was created at, or before, the beginning of the twentieth century, which could make it less diverse-cognizant, tolerant and biased [80]. As its usage may not be ethically sourced, users of any game, film or television show where AI-generated content is present may have questions about its integrity and authenticity [81]. To address these concerns, increased transparency about AI's role in content creation is essential. Studios and developers could provide detailed credits for AI-generated content and explain how it complements human creativity. This would not only build trust with audiences but also allow consumers

to make informed judgments about the authenticity and ethical considerations of the works they consume.

This issue extends beyond art, as AI tools often produce content that mimics existing works, including scripts, music, and literature [82]. This implies that products influenced by AI-generated content could be considered derivative, potentially infringing on original creators' intellectual property rights. Nintendo President Shuntaro Furukawa argued that while generative AI can be creatively used, it may also raise intellectual property issues [83]. However, Nintendo has used AI for upscaling older visuals in remastered games, such as Super Mario 3D All-Stars (2020) [84]. This usage differs significantly, allowing them to achieve results without legal consequences from new content production or backlash from audiences. Some major film, television and game distributors have still integrated the use of AI for content generation in their products. A notable example is film distributor A24, which faced negative reception for using AI-generated posters (Fig. 8) to market Civil War (2024) [85]. This prompted fan comments about visual errors, misleading elements, and how AI took work from actual artists [86]. AI usage in entertainment can also raise concerns, such as racial or gender biases in some models, with Stable Diffusion's harmful stereotypes as a notable example [87]. Considering these issues, ethical considerations will be crucial as entertainment companies integrate AI tools, as failing to address them may lead to consumer backlash and impact product quality.

AI can address the extremely common complaints from audiences aimed at developers involving how production times are often too long, leading to frustrating waiting times. Traditional methods of developing entertainment products are often time-consuming, as producing assets for games and CGI for television and film is labor-intensive. Some notable examples can involve detailed manual work such as modelling (creating 3D representations of objects), texturing (applying surface details to models) and animation (bringing models to life with movement). For instance, open-world games that can involve various buildings, characters and movement are very time-consuming to develop, but the standard of having many of those elements while also maintaining a high level of quality is often expected from audiences despite this. Notably, some consumers have even left death threats over delays, as famously happened during the development of *Cyberpunk 2077* when the release date was changed [88]. While developers can perform such tasks without AI, the quantity expected is a key issue, making AI tools useful for reducing manual effort and prioritizing more nuanced aspects of development.

5 Methodology

5.1 Participant selection and recruitment

To explore how emerging creatives perceive the growing role of AI in digital media production, I conducted a survey with 50 university students studying computer science, engineering-related disciplines, and Computer Games Development. This participant pool was inspired based on existing studies [3], which suggest that technically trained individuals are more likely to work with AI tools in professional contexts. Their familiarity with creative technologies made them ideal respondents for investigating views on themes like authenticity, authorship, and the "human touch"—topics central to AI and creativity literature [89]. Participants volunteered to take part, providing informed consent via an embedded form in the survey, and ethical approval was granted by the university.

The survey sought insights into attitudes toward AIgenerated content, particularly in relation to authenticity, ethical concerns, and human creative input. Although the



Fig. 8 AI Generated Posters for the Film, *Civil War* (2024). Image Sources: PetaPixel (2024)

sample is not representative of the general population, it provides focused insights from individuals likely to shape future creative industries. By engaging technically inclined university students and exploring their views on the ethical and creative implications of AI, this study introduces new insights-particularly by addressing a perspective that is often overlooked in existing literature, which predominantly focuses on professionals or developers [7, 93]. While limited in breadth, the sample's disciplinary relevance allows for an in-depth exploration of how future practitioners interpret AI's creative and ethical dimensions. This depth of insight offers a valuable lens for theorizing how AI may be integrated into professional media workflows. The questions were developed in response to key themes identified in the literature, such as authorship, emotional resonance, and ethical ambiguity (2, 91, 92). Feedback from academic reviewers and the university's ethics team helped refine these themes, ensuring both ethical soundness and theoretical relevance. The survey design followed best practices in AI research, emphasizing transparency, clarity, and data privacy [1].

5.2 Survey design and data analysis

The survey consisted of multiple-choice questions, distributed via Microsoft Forms. A mixed-methods approach was used, combining quantitative analysis of survey data with qualitative interpretive analysis of open-ended responses. While not a full thematic analysis, this approach offered valuable insights into emotional and ethical attitudes toward AI-generated content. Notably, 46% of participants strongly agreed that AI-generated art lacks the "human touch," with an additional 14% agreeing and 18% indicating it does so "sometimes." While this term reflects a recurring theme in both popular and academic discourse around AI in art, its use may have introduced some response bias due to its emotionally charged and somewhat subjective nature. However, its inclusion was deemed necessary to ensure alignment with the language and concerns found in existing literature [8]. To reduce the impact of potential bias, the term was embedded in a broader set of related questions and supported by open-ended responses, allowing for a more nuanced interpretation of participants' views. Ethical concerns were prominent, with 76% of respondents agreeing that the use of AI in art raises issues such as plagiarism, job displacement, and ownership ambiguity. Views on AI's ability to produce complex creative content were more divided: only 12% strongly agreed it could depict complex ideas, while 28% agreed, 24% remained neutral, and 36% disagreed. Perceptions of quality also varied—14% rated AI-generated art as aesthetically superior to human-made work, while 46% felt it was equal or of lower quality. This skepticism underscores the need for ethical and creative frameworks to guide AI's integration into professional workflows. Despite these concerns, the survey revealed strong practical interest in using AI tools: a combined 62% of participants said they would "definitely" or "probably" use AI for their own creative projects, highlighting its appeal in boosting efficiency. However, many acknowledged that AI should serve as a complementary tool, rather than a replacement for human creativity, to preserve innovation and diversity in artistic expression.

In addition to multiple-choice questions, participants were asked an open-ended prompt: "What are your overall thoughts on the integration of AI in the creative process?" Responses were analyzed using an interpretive approach, identifying key themes based on repetition, emotional tone, and theoretical alignment with the literature. This form of qualitative coding, while informal, allowed for a richer understanding of participant attitudes, particularly around creativity, authorship, and ethical ambiguity. A prominent theme was the framing of AI as a practical tool-useful for tasks such as prototyping, idea generation, and streamlining repetitive work. Many respondents viewed AI as a way to complement their work, rather than a replacement for human creativity. However, this optimism was tempered by concerns about authenticity and emotional depth, with several participants arguing that AI-generated content lacks the uniqueness and affective resonance of human art. Ethical issues were also frequently raised, especially regarding the use of training data derived from artists' work without consent, as well as the misattribution of AI-generated content. Some expressed strong discomfort with the notion of passing off AI output as original. Fears of job displacement and the commodification of creativity further contributed to a sense of unease, with participants highlighting the threat AI poses to labor value in creative industries. A minority of responses offered a more nuanced perspective, advocating for a collaborative model in which AI serves as a support system within human-led creative processes. These reflections illustrate the broader tension between AI's enabling potential and its ethical and cultural ramifications (Fig. 9).

5.3 Contribution to existing literature

This study contributes towards existing empirical data on how emerging creatives from technical disciplines perceive AI-generated content [92]. While existing research has explored AI's role in media production [93], my study extends this work by focusing on students who are likely to engage with AI tools in their careers. The findings on the "human touch" and the ethical concerns surrounding AI-generated art challenge the more optimistic view of AI as a seamless collaborator [94]. Additionally, this research



Fig. 9 Survey Data Conducted to Gather Public Perceptions of AI in Art and Creativity involving 50 student participants

introduces new perspectives on the ethical dimensions of AI in creative industries, addressing concerns like plagiarism, job displacement, and ownership of AI-generated content—issues often underexplored in current literature [90, 91]. My study also emphasizes the importance of balancing AI's efficiency with the preservation of human creativity, offering insights into how AI's integration may disrupt traditional creative roles [4]. By focusing on emerging creatives, this research lays the groundwork for future studies on the relationship between technology, creativity, and the ethical implications of AI, particularly in shaping the future of creative industries.

6 Conclusion

The use of AI tools in the entertainment industry reflects a significant shift with both benefits and drawbacks. These tools improve efficiency, reduce costs, and address issues like employee burnout and budget constraints. However, they also pose challenges, such as job displacement, content homogenization, and ethical dilemmas. Striking a balance between the advantages of AI and the need for ethical oversight is crucial to avoid negative impacts on the industry and its workforce. Empirical data from this study highlights key public perceptions on AI, revealing that while many acknowledge its potential to streamline workflows. ethical concerns such as bias and copyright infringement remain prevalent. These findings underscore the importance of addressing these concerns to build trust in AI usage. In addition, this research complements existing large-scale analyses [95], which explore the systemic shifts AI is triggering across creative sectors. By focusing on the perceptions of future practitioners, the present study contributes a grounded, human-level perspective that can inform ongoing policy and industry debates. The industry's acceptance of AI hinges on transparent implementation that respects intellectual property rights. The industry's acceptance of AI hinges on transparent implementation that respects intellectual property rights. Addressing cases like Getty Images v. Stability AI through legal frameworks and promoting dataset transparency, such as OpenAI's recent opt-out feature for creators, could ensure AI innovation does not come at the expense of creator rights. As AI technology evolves, promoting responsible development practices is essential to safeguard human oversight, product authenticity, and creative diversity. To fully realize AI's potential in media production, industry leaders and researchers must balance efficiency gains with ethical oversight, ensuring its integration fosters innovation, safeguards artistic integrity, and aligns with consumer expectations.

Declarations

Ethical statement This research paper is a survey study focused on analyzing existing literature and case studies to understand the impact of artificial intelligence on the development process in the digital media industry. In addition to reviewing publicly available sources, empirical data was also collected through interviews and surveys, with all participants providing informed consent. Ethical approval was obtained for the data collection process. The research adheres to ethical guidelines regarding accuracy, respect for intellectual property, and the confidentiality of participants' information, with all referenced works properly cited.

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