

The Impact of Generative AI Applications on Creative Labor and Commercial Sustainability in the Hollywood Film Industry

Yan Yan^{1,*}, Moran Wang², Xinxin Zhang³

¹Department of Culture, Media & Creative Industries, King's College London, London, UK

²International Department, Hefei No.168 Middle School, Anhui, China

³Department of Economics, Irvine Valley College, California, USA

**Corresponding Author. Email: k23164006@kcl.ac.uk*

Abstract. In Hollywood, generative artificial intelligence (GenAI) is becoming a growing part of filmmaking, introducing innovative solutions but also new challenges for the workforce, authenticity, and the future of the film industry. This research explores the implications of GenAI applications for creative work, redefining notions of originality, and their impact on the economic viability of the Hollywood film industry. The research draws on a literature review and conceptual analysis of the latest studies on AI-assisted filmmaking, creative labour, digital replicas, copyright, and AI governance, which have appeared since 2022 to this day. The results indicate that GenAI does not so much replace or support the human creative as it re-distributes creative work, authority, and responsibility among workers, technologies, and production organizations. AI-assisted screenwriting, AI-generated performances, digital replicas, and visual generation are also selected technologies that erode the lines between human creativity and machine-generated content, further emphasizing the importance of human input and control in the creation of original works. Although GenAI can enhance production efficiency and open up new creative possibilities, it can also lead to issues of labor instability, IP risks, and potential loss of creative legitimacy and stakeholder trust. The study raises several key questions, one of which is whether or not GenAI can become a financially viable commercial entity in Hollywood while ensuring that human creative control is upheld, labor practices are fair, and legal and governance frameworks are sound.

Keywords: Generative AI, Creative Labor, Originality, Hollywood Film Industry, Commercial Sustainability

1. Introduction

Generative artificial intelligence (GenAI) is increasingly finding its way into the Hollywood movie business. AI-powered screenwriting, image and video generation, digital replicas, and synthetic performances have been recent advancements that have broadened the potential avenues for film development and production. These technologies have also been a source of concern regarding the

evolving job landscape for creative workers, the limits of originality, and the future impact of AI in filmmaking. Further, the Hollywood Writers' and Actors' strikes of 2023 illustrated the tensions between the use of AI and creative employment, including voice and image reproduction, consent, and creative control. As these advances demonstrate, generative AI is not merely a production technique; it's a transformative force with the potential to redefine the structure and significance of creative labor in Hollywood.

This issue is important because Hollywood is not just about production cost-effectiveness, but also about the availability of specialized creative talent, a sense of authorship, intellectual property rights, and trust among employees, fans, and other stakeholders in the film industry. While generative AI can shorten production time, decrease some costs, and enable new creative experimentation, the commercial benefits of adopting it might be hard to maintain if it undermines the legitimacy of creatives or labor relations or leads to legal disputes. Exploring the dynamics between technological innovation and creative labor is crucial, then, to determine whether GenAI can help make Hollywood financially sustainable in the long term, or simply improve short-term efficiencies.

This study concentrates on three interrelated dimensions. It first explores the current literature on the potential future impact of GenAI on creative work and the transformation of creative jobs, skills, authority, and responsibility. Second, it examines the ways in which AI-assisted screenwriting, AI-generated performances, digital replicas, and other forms of AI-generated content are now challenging traditional notions of originality in the production of film. Third, it assesses the potential impact that shifts in creative work and in the understanding of originality can have on the commercial viability of Hollywood, in terms of production efficiency, labor stability, intellectual-property risk, creative legitimacy, and stakeholder trust.

The method of this research is a literature review and conceptual analysis of recent research that has been published from 2022 to 2026. Media and cultural studies and creative labor research policy reports, as well as academic studies relevant to the case, are reviewed and compared. This approach can be helpful, given that the state of the art of generative AI in Hollywood is still scattered across various fields. The study synthesizes the perspectives, highlighting common results, differences, limitations, and research gaps, and draws links between technological applications and labor transformation, originality, and commercial results.

The aim of this research is to gain an integrated picture of the impact of generative AI on creative work in the Hollywood film industry and how this impact could help or hinder the ongoing commercial viability of the industry. To achieve this objective, the study first explores existing GenAI applications in filmmaking, second, examines the implications of these applications on creative work and originality, and lastly, discusses the potential impact on the future commercialization of Hollywood.

2. Literature review

The recent research on generative artificial intelligence (GenAI) considers it as more than a production technology. In film and other creative industries, it is transforming the way creative work is organized, rights and control are distributed, and cultural businesses are exposed to risk. This review views four related aspects: GenAI applications in filmmaking, creative labor, authorship, and digital-replica governance, as well as commercial sustainability. It contends that previous research seldom addresses the impact of the transformation of the creative workforce on the long-term commercial sustainability of Hollywood.

2.1. Generative AI applications in film production

Epstein and Hertzmann call GenAI a new creative medium that transcends aesthetics, ownership, employment, and the media ecosystem at large [1]. Their analysis gives an interdisciplinary foundation for the reasons for not just considering GenAI as automation. The article identifies potential reductions in production time and costs, alongside risks of job displacement and declining trust in synthetic media. But the article focuses on the creative industries in general and not the collaboration and specialist production structure of Hollywood. A more film-specific review is provided by Zhang et al., who cover text-to-image, image-to-video, avatar, and 3D-generation tools in pre-production, production, and post-production [2]. They were able to show from their analysis of AI-film workflows and artists' feedback that AI has potential in character design, aesthetic experimentation, and difficult-to-shoot footage. However, the study is very technical, and it is about how tools are adopted, consistency, and controllability. It pays scant regard to employment relations, studio governance, and turning technical efficiency into sustainable commercial value. These studies provide a framework for the potential of GenAI in filmmaking, and leave unsettled the question of where the labor, responsibility, and economic risk will shift when GenAI is adopted.

2.2. The transformation of creative labor

Caramiaux et al. explore the dominant public discourses about GenAI and creative work [3]. They discover that efficiency is generally interpreted as saving production time, and 'democratization' as stripping the creative process of its skills and material labour. This study challenges the belief that speed equals more production equals more for the creators or more for culture. It does not, however, explore the experiences of the Hollywood workers and film-production organizations, but rather media discourse. The theory of "distributed creativity" as conceptualized by Masai, Carta and Lis sees filmmaking as an endeavour that is distributed between human expertise, technologies, infrastructures and organizations [4]. They claim that GenAI isn't just a tool to aid creators but has the potential to reshape professional roles, production temporalities, and film aesthetics. This framework is useful for the current study to explore the nature of change for writers, performers, designers and post-production personnel without diminishing the question of change to a replacement versus assistance dichotomy. However, the article is largely conceptual and historical and it is not possible to empirically evaluate whether new forms of employment lead to an increase in productivity, a decrease in bargaining power or industrial conflict. Previous studies thus make sense of the redistributed creative agency, without seeing how that relates to Hollywood's commercial strength.

2.3. Authorship, digital replicas and creative governance

According to recent research, consent, credit, and compensation are key factors in the legitimate use of AI. However, as Kyi et al. demonstrate in their interviews with twenty creative workers, they wish for governance systems that ensure these principles are upheld, while acknowledging their practicality [5]. The study offers first-hand insights from the workers, though its sample is limited to design, writing, and programming, and not film production in particular. Yamazaki discusses the Hollywood actors' strike and posits that digital copies could have a negative impact on the actors' ability to manage their own images, creations, and worth [6]. This brings digital replicas into the realm of not just privacy or copyright, but also labor power in Hollywood's star economy. The article does not, however, highlight implications for audience trust or for studio performance, but for

democratic principles and human rights. The U.S. Copyright Office also has evidence of reputational and economic damage inflicted by unauthorized replicas and calls for more robust federal safeguards for people's voices and likenesses [7]. It is a policy report, not a study of the impact of contractual safeguards on efficiency or profitability, and clarifies the legal risks. Combined, these sources indicate that poor governance can turn short-term savings into conflict, damage reputations, and cause volatile worker relations.

2.4. Commercial sustainability and research gap

Rosati directly addresses the film industry and the copyright issues related to the training data, AI-generated content, and liability [8]. She contends that for a protected training material to be copyrighted, an element of human involvement and creative control is required, and that "eventually [when all the materials are protected] licensing may be essential." This research investigates the link between the use of GenAI and business-related risks, such as infringement, liability, and licensing costs. But its legal aspects are not woven into a commercial model of sustainability that incorporates creative labor relations and organizational stability or audience trust.

Two recent empirical studies start to fill some of these gaps. As a case of workers' governance of AI, Grohmann, Rocha, and Guilherme demonstrate how writers, through institutional, structural and discursive power, manage to establish enforceable rules for the use of AI [9]. They link worker involvement and collective bargaining to industrial stability, though the extent to which their model may be generalized to other industries might be greater than to Hollywood, as its union structure is quite strong. A randomized experiment was carried out in the U.S. by Crosby and McKenzie with 500 participants; the experiment was conducted as an indication of consumer acceptance [10]. When AI is used solely to create synopses and recommend casts and directors, they do not see any systematic bias against AI film pitches. This indicates that some small-scale use of AI that can be supervised by humans might be acceptable commercially, but the study does not provide any indication of the impact on finished films, box office performance, or ongoing audience trust.

In general, previous studies typically investigate the technological efficiency, creative labor and legal governance separately. Commercial sustainability in this study means more than just saving money in the short term; it means stable creative workforces, manageable intellectual-property risk, credible authorship, and sustained stakeholder engagement. The key research gap is the lack of an integrated explanation of how the changes in creative labour brought about by GenAI affect these commercial conditions. This study attempts to fill that lacuna by exploring the impact of GenAI applications on creative job roles, rights, and control, and their potential to boost or hinder the industry's long-term commercial viability, especially the Hollywood film sector.

3. Discussion

3.1. Generative AI and creative labor in Hollywood

As per the literature, GenAI is not just changing the nature of creative labor in Hollywood, but also the distribution of tasks, skills, and creative authority and responsibility. Epstein and Hertzmann propose that GenAI is not just an automation tool but also a new creative medium, and Zhang et al. demonstrate that AI is already capable of contributing to various aspects of filmmaking, such as visual development, image to video generation and post-production [1, 2]. While these advancements can save time and effort, they also change the job description for creative workers to focus on guiding, selecting, and improving AI-generated content and ideas.

Caramiaux et al. warn that efficiency discourses can devalue the craftsmanship involved in creative practice and the materials used in it [3]. Film production is also, as described by Masai, Carta and Lis, a form of distributed creativity, spread between humans, technologies and organisations [4]. These studies, combined, indicate that it is not the loss of human creativity that is the important change, it is the redistribution of creative agency. In Hollywood, this could change how autonomous, how much bargaining power and responsibility creators have, and how vital human judgment is for overseeing AI-powered production.

3.2. Originality and authorship in AI-assisted filmmaking

The problem with GenAI is that it isn't easy to tell when it's original or when it's just something that's already out there, perhaps in another culture. The use of AI tools in screenwriting, image creation and synthesized performance can all play a role in the production of a movie but require a human choice and artistic decision-making process [1, 2]. Originality is then not so much a question of technology but one of the extent of the meaningful human contribution and control.

This is especially evident in digital replicas. Yamazaki demonstrates that replicas can undermine the identity and creation of the artists/performers, and consent, credit and compensation are key factors for legitimate AI use, as identified by Kyi et al. [5, 6]. The U.S. Copyright Office also notes the dangers of unauthorized reproductions to reputation and economic value, and Rosati suggests that copyright protection of AI-generated works is inextricably linked to human creativity [7, 8]. These studies indicate that while GenAI might not necessarily stifle originality, it does make it harder to detect and attribute. In Hollywood, originality in future could rely on the openness of creative processes, and on human decision-making and control of AI-assisted work.

3.3. RQ3: commercial sustainability of the Hollywood film industry

The commercial impact of GenAI depends on whether short-term efficiency gains can be balanced against longer-term labor, legal and reputational risks. AI tools may accelerate production, reduce some costs and expand opportunities for creative experimentation [2]. However, if AI adoption reduces professional autonomy or weakens the perceived value of creative workers, studios may face unstable labor relations and conflicts over recognition, responsibility and compensation [3, 4]. This means that production efficiency cannot be separated from labor sustainability. The 2023 Hollywood writers' strike also demonstrates that collective bargaining can translate labor conflict into enforceable rules for AI use, suggesting that worker participation may support industrial stability rather than merely constrain technological adoption [9].

Originality and legal governance also have commercial consequences. Unauthorized digital replicas can damage reputations and expose studios to legal and economic liability, while uncertainty surrounding training data, licensing, and copyright can increase costs [6-8]. There is some but limited evidence from consumers. Specifically, when AI is used sparingly, with only a few creative roles assigned, there is no systematic bias against AI produced film pitches, as Crosby and McKenzie found [10]. However, their experiment does not prove that greater participation of AI impacts the assessment of finished movies, trust in the audience over time or box office results. The issues of creative legitimacy are thus still of commercial relevance.

Overall, Hollywood's long-term commercial sustainability depends on its management of three related areas – production efficiency and the stability of its labor force, legal- and intellectual-property risk, and creative authorship credibility. However, when it works alongside human expertise and functions in well-defined frameworks of consent, credit and compensation, GenAI can

aid sustainability. But technological efficiency without strengthening creative control, or creating unresolved labor and legal issues, is not likely to lead to commercial value.

4. Conclusion

The study analyzed the role of generative artificial intelligence in transforming creative work, challenging the concept of originality in the creative industry, and its impact on the business of the Hollywood film industry. The results indicate that GenAI does not simply replace human creators; rather, it redistributes creative work, decision-making, and responsibility among workers, technology and production organization. Meanwhile, AI-powered screenwriting, AI-driven acting, virtual lookalikes and visual creation are breaking down the lines between human creativity and AI content. Thus, originality is increasingly linked to the amount of meaningful human contribution, creative control and transparent attribution. The transformations pose opportunities and dangers to Hollywood. Moving forward, GenAI can drive efficiency in production and unlock novel methods of experimentation within creation, but it can also lead to a precarious work environment, intellectual property conflicts, and the challenges of creative authenticity. The study thus finds that commercial sustainability of GenAI in Hollywood will not only depend on short-term gains in efficiency, but also on the industry's capacity to forge stable creative relationships between workers, retain meaningful human control over AI systems and be provided intellectual-property protection and trust by its stakeholders.

This research is a valuable addition to the literature as it integrates the study of GenAI applications, creative work, originality and commercial viability, which are typically studied in isolation. It offers a more holistic view of the impact of technological shifts within the film industry on a wider range of potentially ramifying labor relations, legal regime, and long-term commercial value issues. The results could also serve as a reference for film studios, creative practitioners, labour organizations, and policy makers when discussing the acceptance and implementation of AI without compromising the human creativity that the film industry still relies on.

However, future research is needed to go beyond conceptual and literature-based analysis to offer more empirical evidence of the actual effects of GenAI in the film industry. Studies could first look at the impact of AI on the job prospects, pay, negotiating power and job roles of creative workers. Secondly, audience-based research might explore if the knowledge of the involvement of AI affects the perception of originality, authenticity, trust, willingness to watch, film ratings or box-office performance. Third, future research may include a comparison of various AI governance and remuneration structures in the context of digital replicas, training data, consent, credit, and remuneration. These lines of inquiry would help determine in understanding if short-term gains achieved through GenAI can be sustained in terms of economic and cultural benefit for the Hollywood film industry.

Author contribution

All the authors contributed equally and their names were listed in alphabetical order.

References

- [1] Epstein, Z., Hertzmann, A., & the Investigators of Human Creativity. (2023). Art and the science of generative AI. *Science*, 380(6650), 1110–1111. <https://doi.org/10.1126/science.adh4451>
- [2] Zhang, R., Yu, B., Min, J., Xin, Y., Wei, Z., Shi, J. N., Huang, M., Kong, X., Xin, N. L., Jiang, S., Bahuguna, P., Chan, M., Hora, K., Yang, L., Liang, Y., Bian, R., Liu, Y., Valencia, I. C., Tredinick, P. M., Kozlov, I., Jiang, S.,

- Huang, P., Chen, N., Liu, X., & Rao, A. (2025). Generative AI for film creation: A survey of recent advances. In *2025 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)* (pp. 6257–6269). IEEE. <https://doi.org/10.1109/CVPRW67362.2025.00623>
- [3] Caramiaux, B., Crawford, K., Liao, Q. V., Ramos, G., & Williams, J. (2025). Generative AI and creative work: Narratives, values, and impacts. *arXiv preprint arXiv:2502.03940*. <https://doi.org/10.48550/arXiv.2502.03940>
- [4] Masai, P., Carta, L., & Lis, M. M. (2026). Integrating GenAI in filmmaking: From co-creativity to distributed creativity. *arXiv preprint arXiv:2603.23415*. <https://doi.org/10.48550/arXiv.2603.23415>
- [5] Kyi, L., Mahuli, A., Silberman, M. S., Binns, R., Zhao, J., & Biega, A. J. (2025). Governance of generative AI in creative work: Consent, credit, compensation, and beyond. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25)*. Association for Computing Machinery. <https://doi.org/10.1145/3706598.3713799>
- [6] Yamazaki, A. (2024). Digital replicas and democracy: Issues raised by the Hollywood actors' strike. *Humanities and Social Sciences Communications*, 11, Article 1661. <https://doi.org/10.1057/s41599-024-04204-w>
- [7] U.S. Copyright Office. (2024). Copyright and artificial intelligence, Part 1: Digital replicas. *U.S. Copyright Office*. <https://www.copyright.gov/ai/Copyright-and-Artificial-Intelligence-Part-1-Digital-Replicas-Report.pdf>
- [8] Rosati, E. (2025). The future of the movie industry in the wake of generative AI: A perspective under EU and UK copyright law. *Computer Law & Security Review*, 59, Article 106207. <https://doi.org/10.1016/j.clsr.2025.106207>
- [9] Grohmann, R., Rocha, A. C., & Guilherme, G. (2026). Worker-led AI governance: Hollywood writers' strikes and the worker power. *Information, Communication & Society*, 29(6), 1836–1854. <https://doi.org/10.1080/1369118X.2025.2521375>
- [10] Crosby, P., & McKenzie, J. (2025). The reel deal? An experimental analysis of perception bias and AI film pitches. *Journal of Cultural Economics*, 49(2), 281–300. <https://doi.org/10.1007/s10824-025-09534-4>