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THE CHALLENGES OF ARTIFICIAL INTELLIGENCE FOR CINEMATOGRAPHY

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Abstract: This article explores the implications of artificial intelligence (AI) in cinema, examining copyright challenges with a focus on authorship, innovative models for protecting cinematographers' rights, and the existing economic and moral copyrights of cinematographers. It also addresses the legal complexities surrounding the training of AI systems using the creative works of audiovisual authors and other creators, the "opt-out" solution proposed in AI legislation, and the legal status of works that are predominantly the result of technology. Proposed solutions include a new framework for safeguarding cinematographers' creativity and an output-based flat-rate or lump-sum remuneration system, to be applied as a general payment obligation on all providers of generative AI systems engaged in visual (and literary or artistic) production. The article advocates for balanced policies that uphold the rights of creators while fostering innovation in filmmaking.

INTRODUCTION: THE RISE OF ARTIFICIAL INTELLIGENCE IN CINEMATOGRAPHY

From the chilling logic of HAL 9000[1] to the charming quirks of R2-D2 and C-3PO[2], and the apocalyptic threat of Skynet[3], cinema has long portrayed artificial intelligence (AI) as both a marvel and a menace. Today, AI has moved beyond the realm of fiction, embedding itself into reality and reshaping industries, including filmmaking. This transformation raises critical questions: how can we ensure AI enhances rather than diminishes the artistry of cinema?

While AI does not replace the human creativity of audiovisual creators, it complements their work in important ways. AI applications are now assisting in various stages of film production, such as script analysis, location scouting, visual effects and post-production. Beyond these enhancements, AI is pushing the boundaries of creative expression, enabling innovations such as branching narratives and audience-tailored storytelling by analysing viewer preferences and engagement patterns. As these technologies evolve, they promise to usher in new forms of cinematic storytelling. (Azzarelli, Anastrasirichai, & Bull, 2024; Dhaair, Mahadi Al-Hakeem, & Alshadoodee, 2022; Sun, 2024; Orak, 2024)

FUNDAMENTALS OF COPYRIGHT AND AUTHORSHIP: THE BASIS FOR ADDRESSING AI IMPLICATIONS

The rise of AI in cinematography poses significant challenges to traditional copyright law. Central to these issues are questions of how algorithmic systems affect authorship and co-authorship in cinematographic works, and whether existing copyright frameworks are adequate to address these complexities.

To understand the authorship challenges posed by AI, it is essential to consider foundational legal principles. Two major legal traditions offer distinct perspectives: the Common Law system (prevalent in countries such as the United States, United Kingdom, Ireland, New Zealand, and Malta) focuses on intellectual property protection through economic and contractual rights. This approach prioritizes practical and financial benefits for creators or owners, reflecting a utilitarian philosophy aimed at fostering innovation and ensuring public access to creative works for societal benefit. In contrast, the *droit d'auteur* system, primarily followed in continental European countries, places greater emphasis on moral rights, recognizing the creator's personal connection to his or her work alongside economic protections.

To this end, it is necessary to consider the key requirements for copyright protection: a priori contingent in both legal traditions is the existence of a "work." A work is defined as the concrete manifestation of an idea, capable of being perceived by the human senses (no protection for "simple" or "mere ideas"). Therefore, it must be clearly stated that the style or technique is not copyrightable as a work.

1 Intelligent computer in "Kubrick, S. (Director). (1968). *2001: A space odyssey* [Film]. Metro-Goldwyn-Mayer."
2 Intelligent robots in "(1977). *Star Wars: Episode IV – A New Hope* [Film]. Lucasfilm Ltd."
3 Intelligente computer in "Cameron, J. (Director). (1984). *The Terminator* [Film]. Orion Pictures." for more: Hsitov Manolakev,P., Works generated by AI-How Artificial Intelligence Challenges Our Perception of Authorship" Tilburg, July (2017),1-53 (3).;

According to most jurisdictions, this work must be "*original*" (Rosati, 2013). Under EU copyright law and Jurisdiction, the required standard [4]of originality is the "*author's (human) own intellectual creation*". The author's own intellectual creation is present when human authors can exercise free and creative choices and put their personal stamp on the work. When an expression is determined by technical or functional rules, such as when there is only one way to express an idea, or the expression is predetermined by a specific goal or constrained by narrow rules that leave no other decision, no originality is given, therefor no copyright protection is applicable.

In the United States, the courts have established that a work must be "*independently created by the author*" and possess at least "*some minimal degree of creativity*" in order to qualify as original. The "sweat of the brow" Doctrine, which required a significant effort or labor alone has been overcome for some time in United States *(Tsiota, 2023)*. Notably, common law countries, due to their utilitarian approach, could potentially accommodate nonhuman authorship. However, recent case law—particularly in the United States—has reaffirmed that the term "author" must be understood as the human "originator" responsible for the creation of the work (Gaffar, 2024).

CURRENT COPYRIGHT FRAMEWORKS FOR CINEMATOGRAPHERS: A PATCHWORK OF PROTECTIONS

In the case of audiovisual works, the challenge of analyzing authorship from a legal perspective is especially significant. A single film involves several creative professionals, including a scriptwriter, a director, a cinematographer, a composer, an editor, a costume and make-up designer, etc. The value of each creator's contribution must be assessed on a case-by-case basis. To be considered co-author of cinematographic works, the cinematographer must meet the requirement of "*personal*" or "*independent creation*" in each production. This is only possible if the cinematographer has the autonomy to create images and realize his or her inspired ideas.

There is no doubt, that cinematographers have a crucial influence in all the important creative elements of the film. Especially the visual design and the lighting design which corresponds almost only to them. Since the lighting design is a crucial part of the film, giving each frame its own atmosphere and influencing the sensation of the whole film, it is the cinematographer who gives the film its own personality. In conclusion, the cinematographer must be considered a co-author of the film.

This is why, in many countries, cinematographers are legally recognized as co-authors of films. This recognition can happen in two main ways:

1. **By Case Law:** In countries, under copyright systems like the *droit d'auteur*, courts interpret general copyright principles to grant co-authorship to any creator whose contribution to the work shows originality and creativity. Examples include Germany, Austria, Denmark, Switzerland, and the Netherlands, where this is determined based on the "principle of creativity" (*Schöpferprinzip*).

2. **By Law:** Some countries, such as Poland, Romania, Estonia, Hungary, Mexico, Croatia, Bulgaria, Czech Republic, Greece and Lithuania, following

4 However, if the style is perfectly imitated and an attempt is made to attribute the work to the 'inventor' of the style, plagiarism protection may apply. However, that is not the point being addressed here.

the droit d'auteur systems too, make it easier, their directly presume cinematographers to be co-authors.

But in many countries, formal recognition of cinematographers' contributions remains elusive. Even in countries where co-authorship is legally recognised, protections are often inconsistent. They often depend on the specifics of contractual agreements, leaving cinematographers vulnerable to buyouts and the commodification of their creative vision. The emergence of AI technologies further complicates these challenges, blurring the boundaries of authorship and potentially eroding cinematographers' rights. This evolving landscape underscores the urgent need for innovative models to protect their intellectual and creative contributions.

INNOVATIVE MODELS FOR PROTECTING CINEMATOGRAPHERS' RIGHTS

To address these challenges, three less-explored approaches for safeguarding cinematographers' rights merit consideration. European and international law provide opportunities to reexamine the existing framework, as EU directives currently mandate only the recognition of directors as authors with legal protections, while international law lacks specific guidelines on the matter[5].

a) Cinematographers as Rightsholders of Neighboring Rights

One approach to protecting cinematographers is through neighboring rights, which, while part of copyright law, differ from traditional copyright by granting protection to contributors who are not classified as primary authors (e.g., performers). Unlike full copyright, which grants ownership and recognition to authors, neighboring rights provide remuneration for the exploitation of a work, such as reproduction, public performance, and distribution, along with moral rights like attribution and integrity.

Despite its potential for international harmonization through established conventions—something not easily achieved with pure authors' rights or co-authorship frameworks—the neighboring rights model should be rejected. It relegates cinematographers to secondary contributors, offering not only reduced rights protection but also a shorter term of protection and, overall, fails to recognise their role as creators of original artistic works.

b) Collective Ownership

Another model is collective ownership, where all primary contributors to a film—such as directors, scriptwriters, cinematographers, editors, costume and production designers, stylists, and even performers—share joint ownership of the film's intellectual property. This model reflects the collaborative nature of filmmaking, ensures equitable recognition and compensation for all contributors, and simplifies rights allocation by acknowledging the roles of all key stakeholders. Moral rights could extend to all recognized con-

5 EU directives establish the requirement for Member States to recognize directors as authors of cinematographic or audiovisual works: Directive 2001/29/EC (Information Society Directive), Article 2, refers to authors' exclusive rights to reproduce their works and extends the notion of authorship to directors of cinematographic works; Directive 2006/115/EC (on rental and lending rights), Article 2(1), specifically recognizes the principal director of a cinematographic or audiovisual work as one of its authors; Directive 2006/116/EC (on the term of protection), Article 2(2), reinforces this by mandating that national laws of Member States align with the recognition of the principal director as an author or co-author.

tributors, not just traditional authors.

Such an idea should be rejected from the outset, first because it violates European law, which mandates that the director be recognized as the author, and second because it risks creating the illusion of protection. In practice, the producer could *de facto* hold all the rights, making the enforcement of those rights as difficult as it already is for creatives like cinematographers.

c) Sole Authorship for Cinematographers

Cinematographers could claim recognition as sole authors of cinematography due to their unique role in crafting or creating a film's visual storytelling, as mentioned above. While the director shapes the overall vision, it is the cinematographer who defines the film's visual identity through choices in lighting, composition, camera angles, and movement. Their work goes beyond simply capturing images; they create the aesthetic and mood that guide the viewer's experience. In this sense, cinematographers establish the film's "visual identity," much like photographers are credited as authors of their photographs.

This recognition aligns with the principle that parts of a larger work can receive individual protection under copyright law. Embedded photography, the images within a film, can already enjoy individual protection, as it is accepted that original parts of a work can be separately protected. Some jurisdictions specifically address this, presuming the transfer of rights to the producer for photographic works embedded in the film[6]. Based on this principle, cinematography could also be recognized as separable and protectable.

By asserting sole authorship, cinematographers could secure legal protection for their contributions to a film's visual composition, ensuring both economic and moral rights. This recognition would affirm their status as creators of the film's visual identity and highlight their crucial role in the creative process.

Recognizing cinematographers as sole authors may initially conflict with co-authorship frameworks in some countries and EU legislation, which designates directors as principal authors. However, EU law allows flexibility, recognizing directors without excluding other creative contributors.

Legal precedents in music and choreography show that complex creative relationships can be fairly regulated. Recognizing cinematographers as authors underscores their key role in visual storytelling and ensures human creators are credited and protected as AI-generated content grows.

In conclusion, cinematographers' artistry is the lifeblood of cinema, shaping its visual language and emotional impact. While neighboring rights and collective ownership fail to fully acknowledge the unique contributions of cinematographers, and co-authorship is often denied by lawmakers or jurisdictions, sole authorship of cinematography offers the strongest framework for ensuring that cinematographers receive the recognition, rights, and protections they deserve. This approach may also align with, or complement, existing national protections of cinematographers as co-authors.

AI IMPLICATIONS IN CINEMATOGRAPHY

Having established the essential role of cinematographers in shaping a film's visual language—crafting its aesthetic and emotional impact, which ultimately

6 For example: section 89 UrhG German Copyright Act (Urheberrechtsgesetz, UrhG)

defines the viewer's experience—it is necessary to examine what happens when a cinematographer incorporates AI tools into this creative process.

Of course, the cinematographer can use AI tools, but the emphasis is on "*using*" it as a tool[7]. According to experts "T*he integration of AI in cinematography is not just a technological evolution; it's reshaping the art of filmmaking itself. By automating technical tasks like lighting adjustments and camera movements, AI empowers filmmakers to focus more on creative storytelling. This synergy of AI and human creativity is paving the way for visually stunning, emotionally resonant films, democratizing high-quality production and opening new avenues for innovation. As AI tools become more sophisticated and accessible, they promise to transform cinematography into an even more dynamic and expressive medium, heralding an exciting new chapter in visual story telling." (Leonard, 2024)*. According to this opinion, AI shall be considered an incentive for cinematographer's creativity, enhancing their work, but not able to replace human authors.

Generative models, like Generative Adversarial Networks (GANs), have showcased exceptional capabilities in producing photorealistic images and videos, including virtual characters, creatures, and environments. These AI-generated elements can be effortlessly blended with live-action footage, elevating the realism and immersive quality of the final output. (Karpuzis, 2024)

The extent to which an algorithm can replace the human author is yet to be determined.

However, according to recent studies on the impact of AI on entertainment jobs, it is possible that "*human filmmakers in their individual disciplines might be replaced by AI*" *(Rakza, 2024)*. It is therefore important to determine the legal status of that part of work which is almost entirely the result of technology *(Rejón Linares, 2023)*.

INTERNATIONAL LEGAL APPROACHES AND POTENTIAL SOLUTIONS

Different countries are adopting their own approach to this issue *(Radetzky, 2024)*. In a ruling in 2022, the United States Copyright Office determined that a "two-dimensional work of art" named "A Recent Entrance to Paradise", created by a generative algorithm, dubbed by the founder of AI company as "Creativity Machine", must have human authorship as a prerequisite for copyright registration. Copyright protection has been denied *(Wilhelm Avocats, 2023)*.

The last Copyright Proposal in Italy, proposes amendments to Article 1 of the Italian Copyright Law [8], specifying that copyright works are protected when created by humans, while AI generated works can be protected "*only when some creative and relevant intervention by humans is demonstrable*" *(Campus, 2024)*.

In contrast, India, a major player in the film industry, grants protection for computer-generated works under Section 2(d) of its Copyright Act to the person who "*causes the work to be made*". Ukraine is currently discussing to introduce a "sui generis right" for

7 For an in-depth investigation regarding the film *The Frost* (Josh Rubin, 2023), see: Lävenberg, T. *Authorship in AI Cinema: The Frost through the Lens of Walter Benjamin*. Stockholm University, Autumn term (2023), pp. 1-26. For further information, also see: Mali, P. *Artificial Intelligence (AI) and Copyright Law: Analysis of Issues in International IP Laws*. *Indian Journal of Law and Legal Research*, Vol. VI, Issue III, pp. 564-578 (2024).

8 Law for the Protection of Copyright and Neighboring Rights (Law No. 633, April 22, 1941, last amended by Legislative Decree No. 68, April 9, 2003)).

AI-generated object, but the inherent contradictions with the national IP law make that, for the moment, it will not be the solution at all to the mentioned conflicts *(Maidanyk, 2021)*.

One potential solution to this complex situation is to apply either the "*derivative work Doctrine*" or the "*work for hire*" Doctrine. The "derivative work" approach broadens the scope of authorship to include individuals who have created a work based on some form of transformation, recasting or adaptation of one or more previous original works.

IIn practice, this approach would suggest that the programmer could be regarded as the author of the AI's creative output, such as visual backgrounds (Lu, 2021). While this might seem like a straightforward solution, it does not align with doctrinal requirements. For a new creation to qualify as a derivative work, it must include identifiable elements from a preexisting work—for instance, as seen in translations, where the original work is clearly transformed. However, in the case of creative outputs generated by AI, the algorithm processes and reconfigures raw data into a new form without directly incorporating identifiable material from an existing work. Consequently, the concept of a "derivative work" cannot be applied in such cases.

The application of the work-for-hire doctrine is also doomed to failure. The doctrine requires a contractual relationship between the de facto creator and the beneficiary. However, creative algorithms lack the capacity for personhood, and therefore cannot be "hired". (Manolokew, 2017) (Schirmer, 2018).

The simplest solution is to classify creative contributions made by algorithmic systems as "*public domain or free use*". However, even if this solution could clarify the legal claims of co-authors and be considered prima facie favorable for the film producer, it would not be feasible to implement this idea, as it would harm the economic interest of the producer to invest in a work that is partially non-protectable. It is also important to consider the potential impact of this solution on human creativity. The argument that AI tools might eliminate human creativity could be used more widely by certain stakeholders to deny the economic and moral rights of creators involved in audiovisual production, de facto, expropriate human authors.

In conclusion, despite the unquestionable recognition of the cinematographer's authorship while using AI as tools of expression of creativity and originality, the inclusion of almost AI-self-designed elements in audiovisual works will present challenges in determining rights holders. This will ultimately lead to significant difficulties in rights clearance for producers.

NAVIGATING THE FUTURE OF AI AND COPYRIGHT IN CINEMATOGRAPHY

This leads to the next question: If cinematographers are co-authors, or sole authors of cinematography, despite or with AI, what rights do they have, can they object to their work being used in AI training, or can they demand remuneration even if they have signed a buy-out contract with the producer?

Therefore, we need to know what rights Copyright of cinematographers comprises:

Copyright law of most countries distinguish between moral rights (personal rights) and economic rights (property rights).

Moral rights most commonly include (a) the right to be known as the author of the work ("attribution" or "paternity") and (b) the right to the integrity of the work, i.e. to prevent distortions.

Economic rights can include (a) exclusive rights (monopoly rights) and (b) simple remuneration rights, granted by laws as unwaivable (and alienable) rights to receive remunerations subject to collective management.

a) Exclusive economic right can include: (aa) the right of reproduction (the core right), (bb) the right of distribution (rental), (cc) the right of communication to the public (e.g., by broadcasting, exhibition, dissemination on the internet), (dd) the right of transformation (in order to control the creation of derivative works based on the original work). Depending on national law, whether the exclusive rights are transferred to Producer by contract or by law presumption. In both cases, the transfer should secure fair (appropriate and proportionate) remuneration of Authors (art. 18 Directive on Copyright in the Digital Single Market (CDMS[9]).

b) Simple remuneration rights: The Doctrine identifies three distinct types of simple remuneration rights:
   a) A "mere" right of remuneration (e.g. the Resale Right, Directive 2001/84/EC refers to it as "royalty").
   b) The remuneration for a "restriction" of an exclusive right (e.g. private copy levy).
   c) A residual remuneration right that "survives" the transfer of an exclusive right.

      Although this residual remuneration right is an efficient way to ensure fair and effective remuneration for authors and it is not contrary to the EU acquis and has a precedent in Art. 5 of the Rental Directive[10], Member States have not yet decided on a global harmonization of a residual remuneration in favor of authors and performers *(Xalabarder, 2020)*.

      This right does not duplicate the exclusive rights and does not interfere with the exercise of the exclusive rights by the Producer but ensures a steady flow of income for the authors on the one hand and a peaceful exploitation by the Producer on the other hand (e.g. Germany, Spain, Poland for certain acts of exploitation) *(Xalabarder, 2020)*.

If we make a provisional application of the mentioned basics to AI training and output,

a) regarding AI Training:
   a) Any act of reproduction, distribution, communication to the public and transformation of the whole work and /or significant, identifiable part(s) of the work requires the authorization of the authors/Co-authors. Regardless of whether mass digitization turns protected content into mere data (so-called "de-intellectualized use"), Every use is an IP relevant act of exploitation. Without distinguishing between use of "*works as works*" and use of "*works as data*" according to Art. 18 CDMS author could receive for ANY act of exploitation an appropriate and proportionate remuneration.

      This means, the author could oppose to any exploitation for training the AI. Nevertheless,

9 Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market, amending Directives 96/9/EC and 2001/29/EC.

10 Directive 2006/115/EC of the European Parliament and of the Council of 12 December 2006 on rental right and lending right and on certain rights related to copyright in the field of intellectual property.

the strict application of the IP Basics would conduce to an absolute chaos, this is why, the European legislators provided exceptions in Arts. 3 and 4 of the DCMS.

Concretely, Art 3 CDMS, covers the reproduction and extraction from databases of works for scientific research with No possibility of opt-out.

Meanwhile, Art. 4 CDMS covers the same exploitation for any purposes, but especially provides the possibility of opt-out.

There had been great disputes about the applicability of exceptions of Art. 4 CDMS to AI model training. The "opt-out" solution is far from optimal: There are practical questions of where, who, when and how.

This I why, the AI ACT[11], concretely art. 53 and Recital 105 explicitly link the use of copyrighted works for AI model training to Art. 4 CDMS and puts an end to disputes about the applicability of this exception *(Senftleben, 2024)*.

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"*Providers that place general-purpose AI models on the Union market should ensure compliance with the relevant obligations in this Regulation. To that end, providers of general-purpose AI models should put in place a policy to comply with Union law on copyright and related rights, in particular to identify and comply with the reservation of rights expressed by rightsholders pursuant to Article 4(3) of Directive (EU) 2019/790. Any provider placing a general-purpose AI model on the Union market should comply with this obligation, regardless of the jurisdiction in which the copyright-relevant acts underpinning the training of those general-purpose AI models take place. This is necessary to ensure a level playing field among providers of general-purpose AI models where no provider should be able to gain a competitive advantage in the Union market by applying lower copyright standards than those provided in the Union".*

It seems that EU legislators want to overcome" de *facto*" the principle of territoriality and universalize the obligation to ensure compliance with "opt-out" in the EU. At this state, it remains to be seen whether AI providers and stakeholders in the creative industries will work together to ensure effective enforcement and compliance.

It seems feasible to claim that manufacturers should work towards a common metadata standard for cameras, which will offer cinematographers the option to opt out. This will allow time for the establishment of a global remuneration system for the exploitation of works, while training the AI system *(Busch & Theos, 2024)*.

This is especially important because the AI Act does not consider that EU rights clearance is fragmented, that there is currently no efficient pan-European rights clearance by Collective Management Societies. At the same time, the AI does not consider the high risk that the possible standardized, machine-readable remuneration protocols will be "dictated" by the industry and that a complicated and perhaps even impractical remuneration system may put EU-based

11 Regulation of the European Parliament and of the Council laying down harmonized rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139, and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797, and (EU) 2020/1828.

high-tech industries at a disadvantage compared to international competence. In the worst case there is a potential loss of attraction for European cultural production and heritage.

Having seen that the opt-out solution is far from being a global solution (although the manufactures common metadata standard should be considered the most efficient and quick solution, we should very quickly have a look at the possibility to install a remuneration system for AI-output for authors in order to support them in their fight against the parasitic exploitation of their works.

One option is the introduction of a statutory residual remuneration right, paid by users/licensees and subject to mandatory collective management (input-based Remuneration Systems). Statutory remuneration rights are well known in EU national law, even before Art. 5 Rental Directive, e.g., in relation to online distribution of audiovisual works. But the differences in EU national law are great. The Commission is aware of this situation but has not considered it necessary to address it through harmonization.

Another option is the introduction of an output-based flat-rate or lump-sum Remuneration System to be imposed as a general payment obligation on all providers of generative AI systems involved in visual (and literary and artistic) production *(Senftleben, 2024)*.

This system is fully compatible with or embeddable in current Copyright System:

At first glance, the lack of individually verifiable protected human expression in AI output is an obstacle to the introduction of a flat-rate or lump-sum Remuneration System. In early 1990, Adolf Dietz *(Senftleben, 2024)*, proposed a "*domaine public payant*" in addition to the traditional exploitation and remuneration rights of individual authors. The aim was to close the gap between the substantial profits of those who use works in the public domain and the precarious living conditions of the authors. Dietz entrusted the management of this new right to the existing Management Collective Societies.

The parallels between the *"domain public payment right*" and a flat-rate or lump-sum remuneration system are compelling: the exploitation of AI outputs falls outside the scope of the exploitation rights of individual authors, as does the exploitation of public domain works; the output would not have been possible without human creation, as the exploitation of public domain works requires the existence of pre-existing works.

Even the EU Jurisdiction support such a solution: The Court of Justice of the European Union (CJEU) (21 October 2010, Padwan ./. SGAE) has ruled that Member States are free to impose an obligation on manufacturers and importers of copy equipment and devices and media, given the practical difficulties of identifying private users and requiring them to compensate rightholders.

The advantages of such a solution are convincing: (a) There is no need to track permissions at the level of individual works. AI trainers avoid the heavy financial and administrative burden of identifying rights holders; (b) Remuneration could consist of a percentage of AI company revenues from advertising fees or other payments; (c) The involvement of collecting societies (with their distribution models) ensures that cinematographers can benefit from this additional amount, which could also include industrial right-holders (d)

The proposed lump-sum remuneration system is totally combinable with the existing collective rights management.

Given the breadth of ongoing discussions, including the recent expert opinion by "The interdisciplinary study 'Copyright and training of generative AI models'. Dornis, T. Stober , S.(2024), expertise commissed by the German Iniative Urheberrecht), it is timely to consider whether the moment has arrived to advocate for an independent cinematography copyright in countries where co-authorship of cinematographic works remains unrecognized and where cinematographers strongly advocate for this alternative over co-authorship.

If this approach appears too complex, an alternative solution could be to implement a flat-rate or lump-sum payment system based on the output of generative AI systems. This system would serve as a general payment obligation for all providers involved in visual, literary, and artistic production, as outlined earlier. It should be designed to be accessible to all cinematographers, regardless of whether they are classified as coauthors, authors of cinematography, or not recognized.

CONCLUSION

In conclusion, the rise of AI presents significant challenges to cinematography, particularly in the realms of copyright and authorship. As AI technologies evolve, they disrupt traditional creative processes, raising concerns about the recognition and protection of cinematographers' contributions. Even when cinematographers receive authorial acknowledgment, they often struggle to monetize their creativity, especially in light of autonomous works generated by AI systems trained on existing creative content.

To address these challenges, it is crucial for lawmakers to revise copyright laws to account for the growing role of AI in filmmaking. A key priority should be ensuring a balance between technological innovation, industry investment, and the protection of creators' human rights. This could involve the introduction of a distinct authorship for cinematography, which would provide legal recognition and protection when co-authorship is absent or insufficiently acknowledged. Such a framework would secure both economic and moral rights for cinematographers, reinforcing their vital contributions to the visual and emotional impact of film.

Implementing these safeguards would help protect the value of human creativity in the face of advancing AI, while also reducing the over-reliance on automated technologies. By ensuring fair remuneration and recognition for creators, these measures would contribute to a more sustainable and equitable filmmaking ecosystem. Ultimately, fostering a symbiotic relationship between AI and human creativity will be essential to preserving the integrity of the craft and promoting cultural diversity in the evolving landscape of cinema.

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