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THREE OBSTACLES TO AI-GENERATED CONTENT COPYRIGHTABILITY

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Prompt-based AI creativity is redefining how expressive works are produced, posing novel challenges for copyright law. This article identifies three major obstacles standing in the way of AI copyrightability. First, the lack of meaningful human control in prompt-based AI creation undercuts the traditional requirement of human authorship. The cross-categorical nature of generative AI outputs also exposes a fundamental mismatch with copyright's theoretical design. Second, recognising copyright in machine-created outputs risks creating unjustified windfalls for users who claim authorship without true creative contribution, undermining copyright's incentive structure. Third, protecting AI outputs under copyright without distinction has broader creative and social consequences, including cognitive offloading, reduced authenticity, and stagnation in artistic diversity, which could erode the

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value of human creativity. This article recommends that future regulation preserve human-centred authorship in copyright law, implement transparency mechanisms for AI-assisted creations, and avoid overextending copyright in ways that erode the value of human creativity.

I. Introduction

In recent years, the rise of large language models ("LLM") has pushed courts and agencies around the world to confront fundamental questions in copyright theory. One question is whether a machine can be the "author" of the output that it generates. In the US, both the US Copyright Office ("USCO" or "the Office") and the courts have read the statutes to require a human author.[1] In *Thaler v Perlmutter*, the District of Columbia Circuit affirmed the denial of copyright registration for an image generated entirely by an artificial intelligence ("AI") system, stating that the US Copyright Act "requires all eligible work to be authored in the first instance by a human being".[2] This human authorship requirement echoes earlier cases like *Naruto v Slater*, in which the Ninth Circuit held that a non-human creator – a macaque – could not be an "author" under US law.[3] The premise is simple: however striking an AI's output may be, the AI itself can neither hold copyright nor be deemed to be the author of the work. Accordingly, a work generated entirely autonomously by AI cannot qualify for copyright protection.[4] In the copyright laws of China and other jurisdictions, non-human entities, except legal persons, are clearly excluded from the list of parties that can own copyright.[5]

The harder question is: what makes one an author? That question is unsettled, and jurisdictions are diverging. The USCO's current view is that only material reflecting a human's own creative expression is protectable, and autonomously generated portions must be carved out.[6] China takes a different path. In a 2023 case, *Li v Liu*,

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1 USCO, *Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence* <https://www.govinfo.gov/content/pkg/FR-2023-03-16/pdf/2023-05321.pdf> (16 March 2023) at 16191 [USCO, *Copyright Registration Guidance*]; USCO, *Copyright and Artificial Intelligence Part 2: Copyrightability* <https://www.copyright.gov/ai/Copyright-and-Artificial-Intelligence-Part-2-Copyrightability-Report.pdf> (January 2025) at 28–31 [USCO, *Copyright and AI Part 2*].

2 *Thaler v Perlmutter* 130 F 4th 1039 (DC Cir, 2025) (affirming that an AI-generated work could not be registered because "the Copyright Act of 1976 requires all eligible work to be authored in the first instance by a human being").

3 *Naruto v Slater* 888 F 3d 418 at 421 (9th Cir, 2018) (holding that a monkey lacked statutory standing as an author to claim copyright, since the Copyright Act does not extend to animals).

4 Edward Lee, "Prompting Progress: Authorship in the Age of AI" (2023) 76 Fla L Rev 1445 at 1578 [Lee, "Prompting Progress"].

5 For example, Copyright Law of the People's Republic of China 2010, Art 2: "Chinese citizens, legal entities or other organizations shall, in accordance with this Law, enjoy the copyright in their works, whether published or not."

6 Letters from USCO, *Re: Zarya of the Dawn (Registration #VAu001480196)* to Van Lindberg, Taylor English Duma, LLP (21 February 2023) <https://www.copyright.gov/docs/zarya-of-the-dawn.pdf> [USCO, *Re: Zarya of the Dawn*]; Letter from USCO Review Board, *Re: Second Request for Reconsideration for Refusal to Register A Recent Entrance to Paradise (Correspondence ID 1-3ZPC6C3; SR #1-7100387071)* to Ryan Abbott, Esq, Brown, Neri, Smith & Khan, LLP (14 February 2022) <https://www.copyright.gov/rulings-filings/review-board/docs/a-recent-entrance-to-paradise.pdf>; Letter from USCO Review Board, *Re: Second Request for Reconsideration for Refusal to Register Théâtre D'opéra Spatial (SR # 1-11743923581; Correspondence ID: 1-5T5320R)* to Tamara Pester,

the Beijing Internet Court recognised copyright in an image generated using Stable Diffusion as the court found that the human user's iterative prompting, parameter tuning, and selection reflected aesthetic judgement.[7] Yet in later cases about Midjourney-generated images, copyright protection was rejected by the Chinese courts due to insufficient human intellectual input.[8]

These splits trace an older debate about the concept of computer-generated works since the 1980s.[9] However, with the emergence of generative AI in the mid-2010s, a growing divergence in copyright treatment of AI-generated content is observed: some argue that AI-generated content should remain in the public domain with no legal protection,[10] while others favour granting them some form of protection.[11] Within those proposals, the "computer-generated work" approach provided by s 9(3) of the UK Copyright, Designs and Patents Act 1988 seems to be an off-the-shelf solution: it provides that if a work is computer-generated with no human author, the author is the person who made the necessary arrangements.[12] However, scholars now question whether that rule fits the generative AI scenario, especially when the provision was enacted years before generative AI applications

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Esq, Tamara S Pester, LLC (5 September 2023) <https://www.copyright.gov/rulings-filings/review-board/docs/Theatre-Dopera-Spatial.pdf> [USCO Review Board, *Re: Théâtre D'opéra Spatial*]; Letter from USCO Review Board, *Re: Second Request for Reconsideration for Refusal to Register SURYAST (SR # 1-11016599571; Correspondence ID: 1-5PR2XKJ)* to Alex P Garens, Esq, Day Pitney, LLP (11 December 2023) <https://www.copyright.gov/rulings-filings/review-board/docs/SURYAST.pdf> [USCO Review Board, *Re: SURYAST*].

7 *Li v Liu* [2023] J0491 MC No 11279 (Beijing Internet Court) (China). See the English translation of the judgment: GRUR International, "Copyright Protection for 'AI-Generated' Images" (2024) 73(4) GRUR International 360 <https://doi.org/10.1093/grurint/ikae025>.

8 *Feng v Zhangjiagang Dongshan Cultural Commc'n Co, Ltd* [2024] Su 0582 MC No 9015 (The People's Court of Zhangjiagang City, Jiangsu Province) (China) [*Feng v Zhangjiagang*]. For the English translation of the judgment and the case note by this author, see GRUR International, "Distinguishing Copyrightable from Non-Copyrightable AI-Generated Content" (2025) 74(8) GRUR International 772 <https://doi.org/10.1093/grurint/ikaf085> [GRUR International, "Distinguishing Copyrightable"]; *Zhou v One Beijing Company* [2024] J0491 MC No 10423 (Beijing Internet Court) (China) [*Zhou*].

9 See *eg*, Timothy L Butler, "Can a Computer be an Author – Copyright Aspects of Artificial Intelligence" (1982) 4(4) Hastings Comm & Ent LJ 707; Pamela Samuelson, "Allocating Ownership Rights in Computer-Generated Works" (1986) U Pitt L Rev 1185 [Samuelson].

10 For example, Jan Smits & Tijn Borghuis, "Generative AI and Intellectual Property Rights" in Bart Custers & Eduard Fosch-Villaronga (eds), *Law and Artificial Intelligence: Regulating AI and Applying AI in Legal Practice* (The Hague: Springer, 2022) 323; Xiao Wang, "AI Output: A Human Condition that Should Not be Protected Now, or Maybe Ever" (2021) 20(1) Chicago-Kent Journal of Intellectual Property 136; Mauritz Kop, "Al & Intellectual Property: Towards an Articulated Public Domain" (2020) 28(1) Tex Intell Prop LJ 297.

11 For example, Haochen Sun, "Redesigning Copyright Protection in the Era of Artificial Intelligence" (2022) 107 Iowa L Rev 1213 (proposing a "two-tiered legal mechanism" consisting of *sui generis* rights and public domain for AI-generated creations with and without human contributions respectively); Ana Ramalho, "Will Robots Rule the (Artistic) World? A Proposed Model for the Legal Status of Creations by Artificial Intelligence Systems" [2017] Journal of Internet Law 1 (proposing a solution of public domain plus disseminator's right for AI creations).

12 Copyright, Designs and Patents Act 1988 (UK), s 9(3); see a similar clause in Hong Kong Copyright Ordinance 1997 (HK), s 11(3).

were conceived.[13] Only one English decision has tested s 9(3),[14] and most jurisdictions have no analogue.

As indicated by a number of legal scholars, the global effort or consensus over the future path of resolving AI copyright issues is crucial.[15] A one-sided solution by one jurisdiction may hamper its economic and technological developments, even its global competitiveness. As Peter Yu has opined, there is a "global competitiveness" angle for countries to consider when fine-tuning their copyright laws to accommodate AI challenges.[16] In simple terms, the country that can provide an ideal solution will be emulated by others. However, in order to secure a global consensus, it is necessary to clarify, under contemporary copyright theory, how much human control or contribution is enough to claim authorship over AI outputs, and whether we should embrace a more liberal interpretation of the traditional authorship requirements or just opt for alternative solutions beyond copyright law by evaluating the related impact on society.

For that purpose, this article argues that there are three major obstacles to granting copyright protection to AI-generated content without distinction. Part II examines "control" in prompt-based generation; Part III considers the problem of unjustified "windfall" related to granting copyright to AI-generated content; Part IV looks at the broader creative and social "impacts" of granting protection; and Part V sketches a path forward that preserves incentives for human creativity while acknowledging AI-assisted production.

II. The Problem of Control

Throughout copyright's history, courts and authorities have consistently refused to recognise any non-human source as the creative intellect behind a protectable work.[17] For example, attempts to vest copyright in animals or purely autonomous AI

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[13] See Syn Ong, "The UK's Curious Case of Copyright for AI-Generated Works: What Section 9(3) Means Today", *Authors Alliance* (19 May 2025) <https://www.authorsalliance.org/2025/05/19/the-uks-curious-case-of-copyright-for-ai-generated-works-what-section-93-means-today/>; Söğüt Atilla, "Dealing with AI-generated works: lessons from the CDPA section 9(3)" (2024) 19(1) J Intell Prop L & Prac 43; James Parish, "Time to Repeal Section 9(3) of the Copyright, Designs and Patents Act 1988: New insights from the lobbying and drafting history behind the infamous United Kingdom computer-generated works regime" (2025) Intellectual Property Quarterly 1; Jyh-An Lee, "Computer-Generated Works under the CDPA 1988" in Jyh-An Lee, Reto M Hilty & Kung-Chung Liu (eds), *Artificial Intelligence and Intellectual Property* (Oxford: Oxford University Press 2021) 177 [Lee, *Artificial Intelligence and Intellectual Property*] at 183–184; William Rodolph Cornish, David Llewelyn & Tanya Aplin, *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights*, 9th edn (London: Sweet & Maxwell, 2019) at 863. For a detailed account of the similar clause in the HK Copyright Ordinance 1997, see also Yang Chen, "Reviving 'computer-generated works': should Hong Kong copyright law adapt the rule to harness AI opportunities?" (2025) 20(9) J Intell Prop L & Prac 584.

[14] *Nova Productions Ltd v Mazooma Games Ltd* [2006] EWHC 24 (Ch).

[15] Peter K Yu, "Artificial Intelligence, Autonomous Creation, and the Future Path of Copyright Law" (2025) 50(3) BYU L Rev 753 at 794 [Yu]; Mattias Rättzén, "Location Is All You Need: Copyright Extraterritoriality and Where to Train Your AI" (2025) 26(1) Colum Sci & Tech L Rev 175 at 176.

[16] Yu, *supra* note 15 at 772.

[17] *Burrow-Giles Lithographic Co v Sarony* 111 US 53 (1884) [*Burrow-Giles*]; *Naruto v Slater*, *supra* note 3; USCO, *Compendium of US Copyright Office Practices* § 306, 3rd ed (2021); see also USCO, *Copyright and AI Part 2*, *supra* note 1 at 7.

have been uniformly rejected in the US, leaving such works in the public domain for lack of a human author.[18] Although the US, as a common law jurisdiction, arguably enjoys more flexibility in accommodating the idea of protecting content generated by non-human entities under copyright,[19] this may not be the case for civil law jurisdictions.[20] AI users may not be suitable hosts either. This paper argues that at the heart of the current authorship question raised by generative AI is the issue of control, implied both in originality and the idea-expression dichotomy.[21] The stances taken by China and the US – the two AI superpowers – signal growing divergences in the copyrightability of AI-generated content. Nevertheless, seeing from the analysis below, both China and the US implicitly require a meaningful exercise of human creative control, but they differ in how liberally they are willing to find it.

A. *The Divergence*

Does a user of generative AI exercise sufficient control over the output to be considered its author? Recent rulings by the USCO indicate a sceptical view: when the generative process is largely automated and unpredictable, the answer is no. The Office has drawn a line between using AI as an assistive tool versus using it as an autonomous creative agent.[22] Simply put, if a human uses AI merely to assist in implementing their own creative vision – for example, employing software tools to edit an image or apply effects at their direction – then the final work can still be protected by copyright because the human remains the creative force

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[18] Daniel J Gervais, "The Machine as Author" (2020) 105 Iowa L Rev 2053 at 2053 ("a proper analysis of the history, purpose, and major doctrines of copyright law all lead to the conclusion that productions that do not result from human creative choices belong to the public domain.")

[19] Samuelson, *supra* note 9 at 1199; Robert Denicola, "Ex Machina: Copyright Protection for Computer-Generated Works" (2016) 69 Rutgers L Rev 251 at 283: "[T]he copyright statute does not define 'author' and the constitutional interpretation of that concept is sufficiently broad to include a human being who originates the creation of a work."

[20] For example, a recent study commissioned by the European Parliament explains the EU's doctrinal anchor that insists a human-centric approach to copyright. See European Parliament Policy Department for Justice, Civil Liberties and Institutional Affairs, "Generative AI and Copyright Training, Creation, Regulation" [2025] PE 774.095 <https://www.europarl.europa.eu/RegData/etudes/STUD/2025/774095/IUST_STU(2025)774095_EN.pdf> at 96–99 (accessed 8 November 2025).

[21] Matthias Leistner & Rebecca Jussen, "The Flattening of Creative Industries? A Closer Look at Copyright Protection of AI-Based Subject Matter" (2025) 17(3) Zeitschrift für Geistiges Eigentum 279 at 294–95 [Leistner & Jussen] ("The central doctrinal issues here are the differentiation between idea and expression and, in the terms of EU copyright case law, the requirement of an objectively and clearly identifiable expression of the author's creative choices…") From a comparative law perspective, the originality standard is an obstacle for copyright protection of AI-generated content in many civil law jurisdictions. See Tianxiang He, "The sentimental fools and the fictitious authors: rethinking the copyright issues of AI-generated contents in China" (2019) 27(2) Asia Pac L Rev 218 at 236 [He, "The sentimental fools"]; *cf* Daniel Gervais viewed this from another angle by not asking whether the user can control the specific expression, but by asking whether the machine "caused the choices that make a specific production look like an original work of authorship." If the answer is affirmative, then the "[a]utonomous and ultimately unpredictable choices made by the machine, in other words, do not cause or generate the type of originality required to obtain copyright protection", reaching the same conclusion in effect. See Gervais, *supra* note 18 at 2099.

[22] USCO, *Copyright and AI Part 2*, *supra* note 1 at 2.

dictating the expressive result. But where AI is used as a stand-in for human creativity, the USCO maintains that the user lacks the requisite control; therefore, the AI-generated material is viewed as not originating from the human author, and is thus not copyrightable. In its recent report, the USCO expressly distinguished "the traditional elements of authorship" conceived by a human from those aspects conceived by AI, concluding that prompts alone (without more human involvement) do not make a user the author of the AI's output.[23]

The reasoning behind this is exemplified by the USCO's handling of *Zarya of the Dawn*, a comic book that includes images created with Midjourney (a text-to-image AI tool). In a letter addressing that work's registration, the Office explained that there was "significant distance" between what the user inputted as a text prompt and the visual output the AI produced; because Midjourney's output cannot be predicted or fully directed by the user, the user was not the "master mind" behind those images.[24] The Office found that while the claimant wrote the text of the comic and arranged the panels, the AI-generated images "were not the product of human authorship."[25] Consequently, the Office cancelled the original registration and reissued one, covering only the elements the user did create – the text, and the selection and arrangement of the images – expressly excluding the AI-generated art. The *Zarya of the Dawn* decision thus illustrates the current position of USCO: a user who simply enters a prompt and lets the AI do the rest has not exercised the kind of creative control that copyright demands. As the USCO put it in its recent report, "prompts alone do not provide sufficient human control to make users of an AI system the authors of the output," because prompts function merely as instructions or ideas, and the users "do not control how the AI system processes them" into expressive content.[26] Indeed, the Office's own experiments confirmed that identical prompts can yield wildly different results, underscoring the black-box nature of generative AI and the absence of a steady guiding hand that an author normally has over the expression.[27] Whereas in the USCO's recent decision on *A Single Piece of American Cheese*, copyright was granted for how the applicant iteratively selected various AI-created visual elements and composited them into a final image, confirming the control requirement from a different angle.[28] The lack of predictability and iterative human oversight makes generative AI fundamentally different from traditional tools: when an individual uses a paintbrush or a camera, they can intentionally select and shape virtually every element of the final image;[29] but a user of text-to-image AIs such as Midjourney "do[es] not have comparable control over

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[23] *Ibid* at 18.

[24] USCO, *Re: Zarya of the Dawn*, *supra* note 6 at 9.

[25] *Ibid* at 2–3. The USCO concluded that Kashtanova could claim copyright in the text and in the compilation of text and images, but "the images in the Work that were generated by the Midjourney technology are not the product of human authorship."

[26] USCO, *Copyright and AI Part 2*, *supra* note 1 at 18.

[27] *Ibid* at 21.

[28] Söğüt Atilla, "A single piece of US copyright: Are AI-generated images original artistic works or banal compilations?" <https://ipkitten.blogspot.com/2025/02/a-single-piece-of-us-copyright-are-ai.html> (18 February 2025) [Atilla, "A single piece of US copyright"].

[29] *Burrow-Giles*, *supra* note 17 at 60.

the initial image generated, or any final image" beyond curating or editing the AI's outputs after the fact.[30]

However, not all jurisdictions share the same concern about the control issue. Chinese courts, when confronting AI-generated artworks, have adopted a more case-by-case analysis, focusing on the degree of human involvement in the generative process. In the landmark *Li v Liu* case,[31] the court acknowledged that the lines and colours of the image were essentially "drawn" by the AI model, yet it found the work protectable because the human plaintiff had contributed substantial creative input in obtaining that result – he "iteratively guided the creation by inputting around 150 prompts, adjusting various parameters, and curating or rearranging the outputs until a satisfactory final image was generated".[32] The court found that this process involved a series of aesthetic choices made by the human, effectively treating the AI as a sophisticated tool under the artist's direction. The Beijing Internet Court thus concluded that the AI-generated picture possessed originality attributable to the plaintiff's personal expression and thus qualified as a copyrightable work even though the machine executed the "drawing" of the image. However, the court's judgment did not clarify the type of copyright protection the user has obtained. Yet by analogising the AI's role to that of a commissioned artist,[33] the court seemed to suggest that the user enjoys full copyright in the AI-generated image, since the AI is not a legal subject and is treated merely as an instrument of the human author. This position clearly diverges from the USCO's approach.

Interestingly, the Chinese court in a more recent case, *Feng v Zhangjiagang*, also known as the "*Butterfly Chair*" case, rejected copyright protection for AI-generated output. In that case, a designer used Midjourney to create fanciful designs of chairs and posted them online, after which a furniture company copied those designs for commercial products. The court found that the AI-generated images failed to meet the originality requirement as the plaintiff had failed to prove sufficient human contribution in the creative process. The court noted that the plaintiff had no original record or detailed evidence of his iterative prompting process and, due to the randomness of the AI, was unable to reproduce an identical output using the same prompts.[34]

Most importantly, the court opined that a generative-AI user "cannot usually decide the final expressive details with just one round of simple prompts." Accordingly, to claim authorship, the user must make personalised choices or alterations during the process.[35] As the plaintiff failed to provide such evidence, the

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30 USCO, *Re: Zarya of the Dawn*, *supra* note 6 at 9.

31 *Li v Liu*, *supra* note 7.

32 *Ibid*.

33 *Ibid*. The court opined that "in commissioned works, the person who actually draws is regarded as the creator. But current AI models do not have free will and are not legal subjects. Therefore, when people use AI models to generate images, in essence, it is still a human using a tool to create. That is, throughout the creation process, it is the human – not the AI model – who contributes intellectual input."

34 *Feng v Zhangjiagang*, *supra* note 8; see also a similar ruling in *Zhou*, *supra* note 8.

35 *Feng v Zhangjiagang*, *supra* note 8. "The user should provide original records of the creative process to prove that, by adding prompts and modifying parameters, they adjusted, selected, and refined the initially generated image, and made personalized choices and substantial contributions regarding expressive elements such as layout, proportions, viewing angles, compositional elements, colors, or lines of the image."

court concluded that the resulting images did not embody the plaintiff's own intellectual creation and thus were not protected by copyright.[36]

B. *The Implied Element of Control*

In the US, the Supreme Court in *Feist* indicated that "a work must be original to the author", meaning that "the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity".[37] However, the USCO's rulings and guidance suggest that, in a text-to-image scenario, the user cannot enjoy copyright over the AI-generated content as the "traditional elements of authorship are determined and executed by the technology – not by the human user."[38] Here, the USCO actually questioned whether the AI-generated content has originated from a human author when it is AI – *eg*, ChatGPT, Midjourney or Stable Diffusion – that has rendered the text prompts into expression. The USCO utilised the idea-expression dichotomy in its argument: a user's original inputs or ideas may be creative and original, but they remain uncopyrightable unless and until they are concretised as a specific expression by the human's own hand (or by an instrumentality controlled by the human).[39] Chinese courts, in their recent judgments, suggest that a sufficiently detailed prompt-and-refinement process could, at least in some cases, reach the required level of control, and thus, can be deemed as original. The above divergence has put a long-standing overlooked issue under the spotlight: whether and to what degree human creative control over expression is a prerequisite for copyright protection.

Notably, the degree of control is implied in the idea-expression dichotomy, which scholars call "the most important procompetitive safeguard in copyright law" in the AI context.[40] It mandates that an idea has to be fixed as a form of expression in order to be protected by copyright. That creative process, as Nimmer observed, requires "subjective judgment and selectivity" of a specific party in deciding which elements to include and how to arrange them.[41] By choosing one expression from the myriad possibilities latent in an idea and executing it, the author imbues the work with personal creativity. But if that subjective judgement and selection by a human is

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36 *Ibid*.

37 *Feist Publications, Inc v Rural Tel Serv Co* 499 US 340 at 345 (1991) [*Feist*].

38 USCO, *Copyright Registration Guidance*, *supra* note 1.

39 *Feist*, *supra* note 37 at 348–9 (explaining that originality means the work owes its creation to the author's own creative choices in selection or arrangement, not merely effort or data). In Singapore, the requirement is similar. See *Global Yellow Pages Ltd v Promedia Directories Pte Ltd and another matter* [2017] 2 SLR 185; [2017] SGCA 28 ("for copyright to subsist in any literary work, there had to be an authorial creation that was causally connected with the engagement of the human intellect.")

40 Daryl Lim & Peter K Yu, "The Antitrust-Copyright Interface in the Age of Generative Artificial Intelligence" (2025) 74(4) Emory LJ 847 at 876; see also Carys Craig, "Transforming 'Total Concept and Feel': Dialogic Creativity and Copyright's Substantial Similarity Doctrine" (2021) 38(3) Cardozo Arts & Ent LJ 603 at 619–20.

41 Melville Nimmer & David Nimmer, *Nimmer on Copyright: a treatise on the law of literary, musical and artistic property, and the protection of ideas* (New York: Matthew Bender & Company Inc, 2017) vol 1 at § 2.03[E].

not directly linked to the final output, then the result is not that person's expression because he has failed to control the execution of the idea.[42]

1. *Shake off the Shackles?*

One might question whether the Chinese courts in the above cases have adequately accounted for the unpredictability of AI when assessing the user's control. As a number of commentators have observed, a key question is whether an AI output that is unpredictable or non-replicable can ever be said to reflect the "will" of the human user in a copyright sense.[43]

For example, the court in the *Feng v Zhangjiagang* required that the plaintiff provide the original generation record or re-generate the same image again, but the plaintiff had failed to do either. This underscores a practical challenge: the black-box nature of AI makes it exceedingly difficult for a user to exercise frame-by-frame control over what the machine generates, especially in a single prompt iteration.[44] Unless and until AI technology evolves to allow more precise tuning of first-round outputs, the safest legal assumption is that first-round AI-generated content lacks a human author. Indeed, the USCO's recent report concludes that, under current technology, prompting an AI is more akin to providing ideas and instructions than to expressing creative content, and therefore, "given current generally available technology, prompts alone do not provide sufficient human control to make users of an AI system the authors of the output."[45] Nevertheless, the USCO does leave open the door that future advancements might enable prompts to "sufficiently control expressive elements" in AI outputs, such that human authorship could be found in prompt-generated content. For now, however, that remains a hypothetical scenario.[46]

One of the possible solutions proposed is to recognise this new type of creativity by relaxing the stringent control requirement, recognising prompt-based AI-generated content as satisfying the threshold of copyright protection. Copyright law already accommodates multiple authors (joint authorship) and even corporate

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[42] Jane C Ginsburg & Luke A Budiardjo, "Authors and Machines" (2019) 34 BTLJ 343 at 352 ("The 'core concept' of authorship, therefore, is 'creativity in conceiving the work and controlling its execution.'"); Jane C Ginsburg, "The Concept of Authorship in Comparative Copyright Law" (2003) 52(4) Depaul L Rev 1063 at 1072 ("An 'author' conceives of the work and supervises or otherwise exercises control over its execution."); *Lindsay v The Wrecked & Abandoned Vessel RMS Titanic* 97 Civ 9248 at [4]–[6] (SDNY, 1999) (affirming the authorship claim of the director of a documentary film who had "exercised . . . a high degree of control over a film operation").

[43] See Seagull Song, "China's First Case on Copyrightability of AI-Generated Picture", *KWM* <https://www.kwm.com/cn/en/insights/latest-thinking/china-s-first-case-on-copyrightability-of-ai-generated-picture.html> (7 December 2023); see also Yuanxiao Xu, "China's Controversial Court Rulings on AI Output – and How It May Affect People in the US", *Authors Alliance* <https://www.authorsalliance.org/2025/04/03/chinas-controversial-court-rulings-on-ai-output-and-how-it-may-affect-people-in-the-us/> (3 April 2025); Bruce Boyden, "Emergent Works" (2016) 39(3) Colum J L & Arts 377 (arguing that works generated by unpredictable computer programs raise authorship issues).

[44] *Feng v Zhangjiagang*, *supra* note 8; GRUR International, "Distinguishing Copyrightable", *supra* note 8; Neil Savage, "Breaking into the Black Box of Artificial Intelligence", *Nature* <https://www.nature.com/articles/d41586-022-00858-1> (29 March 2022).

[45] USCO, *Copyright and AI Part 2*, *supra* note 1 at 18.

[46] *Ibid* at 21.

or employer authors via legal fictions like works made for hire, but it has not yet fully grappled with works produced by human-machine collaboration.[47] If generative AI is viewed as akin to an apprentice or an extension of the artist's mind, one could argue that the AI's output is the artist's own original expression, simply achieved through new means. This is the argument of some proponents of AI art: the human's creativity lies in conceiving the project, guiding the AI, and curating its results, even if the machine fills in the details.[48]

Peter Yu similarly posits that a user's original selection and arrangement of a large number of prompts, parameters, and other inputs into an AI system could satisfy the threshold for copyright protection.[49] Edward Lee has also critiqued the USCO's rigid view of a linear, deterministic notion of authorship without accommodating the iterative, experimental and even serendipitous methods by which human creators actually work.[50] In his view, requiring an artist to predetermine the exact final output in order to claim authorship "locks us down" into a narrow concept of creativity and ignores the reality that many creative works emerge through a back-and-forth search between inspiration and exploration.[51] Hence, one could argue that using AI is just a new form of artistic experimentation and that the law should not deny copyright simply because the artist's process involves greater uncertainty or delegation to a tool. Indeed, copyright laws in most countries have never prescribed a single correct creative process: there is no rule that an author must maintain full predictive control over a work's every detail, so long as the overall contribution of the author meets the low threshold of originality.[52] This can be exemplified by Jackson Pollock's splash paintings, which were discussed by USCO in its recent report.[53] Lee thus suggests caution about superimposing an extra-statutory "sufficient control" test on authorship.[54] Copyright's core purpose is to promote progress by encouraging creativity, and it is not obvious that excluding an otherwise original

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47 Ryan Abbott & Elizabeth Rothman, "Disrupting Creativity: Copyright Law in the Age of Generative Artificial Intelligence" (2023) 75(6) Fla L Rev 1141 at 1144 [Abbott & Rothman] ("…other types of artificial authors – artificial persons largely in the form of corporations and sovereign nations – have qualified as authors under the Copyright Act for over a century.")

48 Michael D Murray, "Tools Do Not Create: Human Authorship in the Use of Generative Artificial Intelligence" (2024) 15(1) Case W Res J L, Tech & Int 76 at 76 ("Generative AI systems are tools – highly complex, deeply technological tools to be sure, but tools none the less. And these tools require a human author or artist – the end-user of the generative AI system – to provide the inspiration and design and often the instructions and directions on how to produce the image.")

49 Yu, *supra* note 15 at 794.

50 Lee, "Prompting Progress", *supra* note 4 at 1445.

51 *Ibid* at 1477.

52 See *Feist*, *supra* note 37 at 345 (the originality required for copyright is "extremely low; even a slight amount will suffice"). Professor Lee's argument is essentially that this low threshold – traditionally met by any modicum of creativity – should not be raised implicitly for AI-assisted works by demanding predictability or a preconceived outcome. *Cf* Lee, "Prompting Progress", *supra* note 4 at 1484–85 (criticising the Office's "traditional elements of authorship" test as lacking basis in law and potentially stifling creative experimentation).

53 USCO, *Copyright and AI Part 2*, *supra* note 1 at 20–21.

54 Lee, "Prompting Progress", *supra* note 4 at 1479; see also Edward Lee, "A terrible decision on AI-made images hurts creators", *Washington Post* <https://www.washingtonpost.com/opinions/2023/04/27/artificial-intelligence-copyright-decision-misguided/> (27 April 2023) ("the Supreme Court has never required predictability or an exacting level of control in creating works to qualify as the author.")

work from protection merely because it was generated in a non-traditional way serves that end.

2. *The Staged Decisions: Evidence Matters*

The existing proposals, such as Lee's suggestion to provide a "very thin" protection for creators of AI-prompted works[55] and the USCO's approach to ascertain users' actual contribution, seem ideal if courts have substantial evidence to distinguish AI-generated content from human-authored works. Yet, the Chinese and US cases discussed above are more like staged demonstrations: in these cases, all the plaintiffs voluntarily revealed the fact of AI involvement. They are akin to the perfect case examples provided by textbooks, which fail to adequately capture real-world complexities.

As a matter of fact, authorities seldom question the source of creativity, as it remains a widely held presupposition that complex creative production lies solely within the human domain until AI cuts in. According to copyright jurisprudence, the expression must be fixed,[56] but academics have never seriously questioned the process of fixation, as it was always the case that only human authors can make the specific creative decisions. It is also the reason why many scholars have focused on the issue of originality first, rather than control.[57] Prior to the advent of generative AI that can generate symbolic forms, only humans could produce works protected by copyright. Accordingly, where an outcome manifests itself as a symbolic expression, this fact alone justifies the inference that the act yielding it was intrinsically expressive,[58] until proven otherwise. But now, generative AI has pushed scholars to consider the meaning of "expression" and how to prove that a piece is expressed by a human being.[59]

Accordingly, even if we follow the pro-copyrightability approaches, without voluntary evidence submitted by the parties, it would be almost impossible for the authorities to verify whether a piece is purely human-authored or machine-assisted at the current stage, unless we require the courts to check that in each and every case. Of course, the argument could be that, in more than 300 years of copyright history, the courts have played a passive role by relying only on the evidence presented to adjudicate. Moreover, it should not be the judiciary's task to seek out evidence, as that would be unfair and overburdensome. Given that even rightful copyright

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55 Lee, "Prompting Progress", *supra* note 4 at 1581.

56 For example, the US Supreme Court has held that an "author" is the person who actually "translates an idea into a fixed, tangible expression". See *Community for Creative Non-Violence v Reid* 490 US 730 at 737 (1989).

57 He, "The sentimental fools", *supra* note 21 at 222–225; Samuelson, *supra* note 9 at 1197; Murray, *supra* note 48 at 79; Abbott & Rothman, *supra* note 47 at 1159; David Tan, "AI and Copyright: Death of the Author?", *Law Gazette* <https://lawgazette.com.sg/feature/ai-and-copyright-the-death-of-author/> (November 2022).

58 Chen Li, "Reconsider the Regulatory Meaning of the Concept of Expression: On the Legal Nature of AI User's Prompting Actions" (2025) 2025(5) Intellectual Property at 4 (李琛, "重思"表达"概念的规范意义——兼论人工智能用户指令行为的法律性质," 《知识产权》, 2025年第5期, 第4页).

59 *Ibid* at 3–20; He, "The sentimental fools", *supra* note 21 at 222–224.

holders can foreseeably lose cases under the current system due to insufficient evidence and courts being inherently fallible by nature,[60] why should AI-related copyrightability disputes warrant fundamentally different treatment? To answer this question, it is crucial to evaluate, first, whether copyright is a suitable host for AI-generated content, and second, whether embracing AI-assisted creativity will negatively impact our society.

3. *Artistic Language as an Internal Constraint*

Besides the "control" requirement discussed above, artistic language behind different categories of works can also serve as an internal constraint for the copyright protection of AI-generated content that is generated via a cross-category process (such as text-to-image or text-to-video).

The categorisation of works, on one hand, functions as the regulatory mechanism through which copyright law adapts to new forms of human creativity, defining the scope, duration, and nature of protection for each. On the other hand, according to Justine Pila, it also follows "the formalist theory of art", which holds that "art is an aesthetic object that exists and is perceived in virtue of its form."[61] Accordingly, as we appreciate art through "the presence of features",[62] or its "sensory surface and other non-relational properties intrinsic to the object",[63] copyright law also reflects that via statutory definitions of works, which "proceed from the existence of a generic 'work' to set conditions for its categorization as literary, dramatic, musical or artistic."[64] Further, Li Chen has pointed to the "semiotic systems" used by authors to express different types of works, arguing that "works vary in their modes of presentation and the semiotic systems they utilise, each type of work has its own language, thereby forming the foundation for categorical distinction."[65]

By extension of this reasoning, granting copyright protection to prompt-based AI creativity is in contradiction with the fundamental design of copyright law in categorisation, as it suggests that one can translate one language of art (writing) into another (painting) without losing the original message or aesthetic value. In other words, one cannot "say a painting" or "paint a song", as the underlying artistic languages behind different categories vary. Even nowadays, with the assistance of AI, one can get two types of results with one type of input. As such, copyright protection of the AI-generated content cannot be justified. Just as Suzanne Langer opined:

> Half-baked theories, such as I consider the traditional theories of the unity of Art to be, are apt to have sorry consequences when practice is based on them.

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[60] See *eg*, David Dolinko, "Three Mistakes of Retributivism" (1992) 39 UCLA L Rev 1623 at 1632 ("[S]ince any actual criminal justice system is inherently fallible, any such system will inevitably inflict punishment on some people who are actually innocent and thus do not deserve it.")

[61] See Justine Pila, "Copyright and Its Categories of Original Works" (2010) 30(2) Oxford J Leg Stud 229 at 231.

[62] Frank Sibley, "Aesthetic Concepts" (1959) 68(4) The Philosophical Review 421 at 424.

[63] Pila, *supra* note 61 at 231.

[64] *Ibid.*

[65] Li, *supra* note 58 at 9.

> Among such sorry consequences are the works that result from serious efforts to paint the counterparts of symphonies or parallel poems or pictures by musical compositions. Color symphonies are painted in the belief that the deployment of colors on a canvas corresponds to the deployment of tones in music, so that an analogy of structure should produce analogous works. This is, of course, a corollary of the proposition that the various arts are distinguished by the differences in their respective materials, to which their techniques have to be adapted, but were it not for these material differences their procedures would be the same. Oddly enough, the results of such translation, when it is really technically guided, have no vestige of the artistic values of their originals.[66]

Accordingly, if we use copyright to shelter prompt-based AI-generated works without distinction, it would undermine the foundation of the idea-expression dichotomy, as copyright law should not encourage "any act that objectively results in a symbolic form, but rather one that demonstrates the capability of deploying symbols. Only in this way can people be encouraged to learn, master, and utilise different artistic languages."[67] Moreover, the fact that we can feed the same prompts to different AI systems to get different results also verifies that the image generated does not have a close creative connection with the prompts; it is the training data behind these AI models that decides what we get.[68] Hence, granting copyright to the whole AI-generated content would be unfair, considering the countless authors whose works were used to train those AI systems.[69]

Some may argue that, in copyright infringement cases, courts around the globe do compare works of different categories. For instance, a movie can infringe a screenplay (or novel)[70] if the pattern of protected elements in the literary work is copied by the film's sequence of scenes.[71] Following the same vein, if a user inputs the text of a famous novel, scene by scene, into an AI image generator and produces a series of illustrations inspired by the novel's narrative, and, if taken together, those output images recount the novel's story, it would be a copyright infringement. However, it is crucial to note that this kind of infringement is based on the structural or sequential relationship among the AI-generated images (the linear story being told),[72] rather than the details of a single image. On the contrary, when comparing a prompt and a single AI-generated image, a one-to-one correspondence cannot be established: the

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66 Suzanne Langer, *Problems of Art: Ten Philosophical Lectures* (New York: Scribner, 1957) at 86.

67 Li, *supra* note 58 at 10.

68 Qian Wang, "On the Legal Status of AI-Generated Content Under Copyright Law: A Third Essay" (2024) 41(3) Studies in Law and Business at 187 (王迁, "三论人工智能生成的内容在著作权法中的定位", 《法商研究》, 2024年第3期, 第187页) [Wang]; USCO Review Board, *Re: SURYAST*, *supra* note 6 at 8 ("Here, RAGHAV's interpretation of Mr. Sahni's photograph in the style of another painting is a function of how the model works and the images on which it was trained on – not specific contributions or instructions received from Mr. Sahni.")

69 This is most evident in the registration for *A Single Piece of American Cheese*. See Atilla, "A single piece of US copyright", *supra* note 28.

70 See *eg*, *Zeccola v Universal City Studios Inc* (1982) 46 ALR 189 (Australia); *Wang Xiaohua v Huayi Brothers Media Corporation and Guan Hu* [2023] J0108 MC No 15687 (Beijing Haidian District People's Court) (China).

71 Zechariah Chafee, "Reflections on the Law of Copyright: I" (1945) 45(4) Colum L Rev 503 at 513–14.

72 *Warner Bros v American Broadcasting Companies, Inc* 720 F 2d 231 at 241 (2nd Cir, 1983).

image does not directly copy any specific protected text, and the text, no matter how detailed, could point to countless possible graphical expressions.

The pivotal factor, again, is that the artistic languages behind different categories of works are different. Although all copyright laws provide an exhaustive list of protectable subject matter, such as literary works, artistic works, musical works, audiovisual works, *etc*, it is not the case that the expressive form of one category of work or sub-categories of works can certainly be translated into that of another. The abolished "free use" clause under the old German Copyright Law[73] often used "transfer to another artistic genre", such as from a literary work to a musical work, as an example to explain what kinds of uses are "free" and thus not controlled by copyright.[74] Accordingly, if the artistic language of a type of work can be correctly and meaningfully translated into another, such as from a novel into a movie, the latter will then be considered a derivative work or adaptation of the former. But if the translation is impossible due to the fact that the artistic languages behind are fundamentally different, the work being created is then considered a new and independent work, or a "free use" as the German Copyright Law once put it, and the original work being "translated" is considered merely an inspiration.

The next section pushes the discussion further by explaining why granting copyright to AI-generated content poses a fundamental challenge to one basic principle of law: people should not reap where they have not sown.

III. The Windfall Dilemma

The "windfall" issue discussed in this section is essentially an ethical concern: it follows the legal principle that people should not "reap where they have not sown", which is the backbone of many legal doctrines, such as misappropriation and unjust enrichment. As discussed above, since authorities cannot efficiently verify whether a piece is AI-generated, and AI systems cannot take authorship but can generate valuable outputs, human users of generative AI are tempted to misappropriate those outputs.

This raises profound questions about the purpose of copyright. At its core, copyright law is not a system rewarding mere sweat-of-the-brow labour (at least in most jurisdictions); it protects the original expression that a human author contributes. One cannot, for example, claim authorship over the unoriginal elements of a work, nor over something one has merely found or procured by chance.[75] If a user can

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[73] Act on Copyright and Related Rights (Urheberrechtsgesetz), § 24 (before 2021). The function of this section is absorbed partly by UrhG, § 51a (after 2021), which concerns transformative uses such as caricature, parody and pastiche. See also Manfred Rehbinder, *Urheberrecht* (Germany: C H Beck, 2003) at 229–30.

[74] Philipp Beck, "German Copyright Law", *Beck-Law* <https://www.beck-law.eu/en/lexicon/german-copyright-law/> ("The opposite of adaptation is free use under UrhG, § 24. A use is free if 'in view of the peculiarity of the new work, the borrowed personal features of the protected work fade away'. Example: Transfer to another artistic genre, *e.g.*, pure setting of a linguistic work to music.")

[75] *Feist*, *supra* note 37 (rejecting a "sweat of the brow" basis for copyright protection); *Urantia Foundation v Kristen Maaherra* 114 F 3d 955 at 958–59 (9th Cir, 1997) (noting that a work "authored" by divine or other non-human sources was not protectable unless, and until, human compilers contributed original selection or arrangement, reinforcing that chance procurement or mere recording of non-human expression yields no copyright).

unfairly seize the creative labour performed by the AI (and, indirectly, the labour of the numerous human creators whose works trained those algorithms) by asserting a copyright monopoly over the AI-generated output, to many, this outcome constitutes an unwarranted windfall and a distortion of copyright's incentive structure.[76] As Justice Pitney observed long ago, it would be "endeavoring to reap where it has not sown," a form of enrichment that the law of unfair competition traditionally frowns upon.[77]

A. *The First Layer of Windfall: User v AI*

Doctrinally, the windfall problem is addressed by examining what exactly the user did and what aspect of the work, if any, can be attributed to that human effort.[78] This is implied in the design of copyright's internal structures, such as joint authorship, commissioned work, work-for-hire, derivative work and infringement analysis. In this regard, it is a different perspective on the user's control over the AI-generated content.

Assume that the user wrote a particularly elaborate and creative text prompt: that prompt itself might be a literary work protectable by copyright.[79] But the image or text that the AI generates from that prompt is a separate expression – one created by the AI's analysis of countless prior works in its training set and by its autonomous associative processes. Unless the user's prompt text somehow appears verbatim or is discernible in the output (which is impossible in the text-to-image scenario), the output is not related to the user in a copyright sense. Under the idea-expression dichotomy, copyright protects the expression of ideas, not the ideas themselves. Hence, there is a strong argument that the user's contribution (the idea/prompt) and the AI's contribution (expression/the AI-generated content) must be legally separated. As the USCO suggested in its 2025 report, the final outcome is controlled by the AI rather than the user.[80] This perspective aligns with the approach the USCO took in *Zarya of the Dawn*.[81] Mark Lemley thus argues that "users are likely to want ownership of the results of 'their' prompts even if most of the creativity in the output doesn't originate with the user."[82]

Nevertheless, it will be inappropriate to generalise the problem of AI creativity, as technology is developing fast and there could be a proliferation of modalities in human-AI interplay for creative endeavours. Two scenarios help to illustrate this complexity.

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[76] Yu, *supra* note 15 at 772 ("Should copyright protection be extended to AI-generated works, such protection would provide mostly windfalls…")

[77] *International News Service v Associated Press* 248 US 215 at 239 (1918); see also Ayelet Gordon-Tapiero & Yotam Kaplan, "Unjust Enrichment by Algorithm" (2024) 92(2) Geo Wash L Rev 305 at 331.

[78] USCO, *Re: Zarya of the Dawn*, *supra* note 6 at 5–8 (recognizing only the parts of the work actually attributable to human input, like the text and compilation, and excluding the AI-generated images).

[79] USCO, *Copyright and AI Part 2*, *supra* note 1 at 13 ("prompts themselves, if sufficiently creative, may be copyrightable.")

[80] *Ibid* at 18 ("While highly detailed prompts could contain the user's desired expressive elements, at present they do not control how the AI system processes them in generating the output.")

[81] *Ibid* at 25.

[82] Mark A Lemley, "How Generative AI Turns Copyright Upside Down" (2024) 25(2) Colum Sci & Tech L Rev 190 at 209 [Lemley, "How Generative AI"].

1. *Using AI to Perfect or Refine an Existing Work*

If an artist feeds one of her own sketches into an AI image generator to enhance it, she may enjoy copyright protection, albeit indirectly, in the resulting image because her original copyrighted sketch is incorporated. However, since the AI output is akin to a derivative work of her preexisting sketch, any new elements that the AI adds are not hers to monopolise. Strictly speaking, the artist cannot claim to be the author of the new piece.[83] Similarly, if a writer has an AI expand a short story outline into a full novel, the writer can claim authorship only of the plot, characters, or text that she actually crafted (the outline and any human-written portions), and not of the fully fleshed-out piece that the AI ghostwrote beyond her original outline. This distinction is justifiable as it prevents a user from capturing a broader entitlement than his contribution justifies.

2. *Using AI to Generate Content and Refining It*

In the second scenario, a human user inputs a prompt and gets AI-generated content. Accordingly, due to the unpredictable nature of the first-round AI outputs, the user cannot enjoy copyright protection as he has only provided an idea, and the detailed aesthetic choices presented in the final result are contributed by the AI.

Nevertheless, in the refinement rounds, the user who compiles or curates AI-generated content might earn a copyright on the compilation (if it reflects minimal creativity in selection or coordination), but not on the AI-generated portions as such. The USCO has already embraced this middle ground in its recent decision on *A Single Piece of American Cheese*, where the applicant documented how he iteratively selected various AI-created visual elements and composited them into a final image – arguing that this process of selecting, coordinating, and arranging the pieces was an exercise of his creative judgement.[84] The USCO agreed to register the work while explicitly limiting the claim to the human contributions and excluding the AI-generated parts, essentially treating the work as a protectable compilation or collage. This echoes what Cui Guobin has proposed, that prompt-based AI-generated content is analogous to a collage: the overall compilation might be protected, but copyright cannot extend to the materials used.[85] Such an approach can theoretically address the windfall issue – users cannot simply claim full credit for the machine's work – while still encouraging humans to add value through curation and transformation.

Seemingly, this approach can also explain new types of AI creativity, such as KlingAI,[86] that can now combine uploaded images with the user's prompts and turn them into a video. This feature (Multi-Image Reference) references images to

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[83] Wang, *supra* note 68 at 194–95.

[84] See Atilla, "A single piece of US copyright", *supra* note 28.

[85] Guobin Cui, "Users' Original Contribution in AI-generated Contents" (2023) 6 China Copyright at 18 (崔国斌, "人工智能生成物中用户的独创性贡献", 《中国版权》, 2023年第6期, 第18页).

[86] A text-to-video AI tool developed by Kuaishou, a Chinese company. See *KlingAI* <https://www.klingai.com/global/>.

generate a video with a consistent style, ensuring that the subject remains visually consistent across multiple scenes.[87] In other words, KlingAI can make the visual elements, including pictures and clips, come alive and interact with each other as a video. If the quality of the output is as stable as KlingAI claims, the user is taking on a role similar to the director of a film *de facto* – a traditionally copyright-protected item in which the director is deemed the author. Since the director in a film need not hold the camera – that is the job of the cameraman – and can still be the author of a film, following the same logic, a user can also "direct" AI to generate a "film" using the framework/plot and materials (actors, objects or scene in the form of pictures) provided by the user via prompts and uploads. If the AI can faithfully arrange and transform the materials according to the user's instructions, it is likely that the AI-generated video can be copyrighted as well. Of course, just like in film production, for materials used in the output, such as pictures and video clips, rights clearance is necessary, as the complex copyright cross-licensing arrangements in film production projects are inapplicable in the case of AI creativity. But again, the copyright of the video lies in the creative way in which the user arranges the materials.

The real challenge lies in drawing the line between human and AI contributions. The USCO draws that line very close to the human.[88] In China, court judgments have yet to articulate such a nuanced distinction.[89] From the perspective of the idea-expression dichotomy, the USCO's position is convincing. Thus, "re-rolling the dice" will not bring copyright, but "the selection and placement of individual creative elements" after the initial generation can meet the originality requirement.[90]

However, scholars have also opined that the "dice rolling" creativity of generative AI will not be a real problem. First, there are "no competing claimants", and "giving [the author] a copyright does not deprive other authors of their due"; second, "there is no great need for public access to this particular outcome", and "anyone enamored of the idea just needs to roll their own."[91] However, this kind of argument does not deny the fact that the user is getting "windfalls"; instead, it argues from an economic perspective that the outcome constitutes a Pareto improvement[92] and is thus acceptable. True or not, such an argument obscures the deeper, systemic unfairness at play, which is discussed below.

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87 "Kuaishou Kling AI Unveils "Multi-Image Reference" Feature to Further Tackle AI Video Consistency Challenges", *GlobeNewsWire* <https://www.globenewswire.com/news-release/2025/01/23/3014233/0/en/Kuaishou-Kling-AI-Unveils-Multi-Image-Reference-Feature-to-Further-Tackle-AI-Video-Consistency-Challenges.html> (23 January 2025).

88 See the copyrighted artwork, *Rose Enigma* by Kris Kashtanova (21 March 2023); Atilla, "A single piece of US copyright", *supra* note 28.

89 *Li v Liu, supra* note 7.

90 USCO, *Copyright and AI Part 2*, *supra* note 1 at 20 ("By revising and submitting prompts multiple times, the user is 're-rolling' the dice, causing the system to generate more outputs from which to select, but not altering the degree of control over the process").

91 James Grimmelmann, "There's No Such Thing as a Computer-Authored Work – And It's a Good Thing, Too" (2016) 39(3) Colum J L & Arts 403 at 413.

92 A resource allocation is Pareto improved if there exists another allocation in which one person is better off, and no person is worse off. See *CFI*, "Pareto Efficiency" <https://corporatefinanceinstitute.com/resources/economics/pareto-efficiency/>.

B. *The Second Layer of Windfall: AI Providers v Authors*

Obviously, courts and copyright registries can only partially address the windfall problem: as copyright arises automatically for any qualifying work and machines lack legal personhood, it creates a loophole for humans to misappropriate machine-made outputs as their own. The traditional approach to discern human contribution thus risks rewarding those people who merely exploit AI systems rather than engaging in genuine creative labour. However, we lack effective mechanisms to distinguish between creative users of AI and bad-faith actors who use AI to circumvent intellectual effort and secure windfalls. Indeed, some individuals have attempted to obtain copyright registrations on AI-generated artworks while concealing the AI's role within, essentially "passing off" the machine's work as their own to secure an undeserved monopoly.[93]

Meanwhile, AI platforms have also been taking unfair advantage of pre-existing works.[94] AI companies have provided generative AI services that exploit artists (whose works were used to train the AI) by allowing users to generate content that mimics the style of a certain artist.[95] Users can indeed employ AI to generate a picture imitating the style of a particular artist or studio.[96] However, unless the output substantially replicates the protected elements of that artist's work, it is not copyright infringement, as substantial similarity cannot be established based solely on stylistic overlap,[97] even if it raises moral questions of style appropriation or violates

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[93] See USCO Review Board, *Re: Théâtre D'opéra Spatial*, *supra* note 6; see also "China finds itself in copyright storm as creatives protest issues with AI-generated content", *KrAsia* <https://kr-asia.com/china-finds-itself-in-copyright-storm-as-creatives-protest-issues-with-ai-generated-content> (29 February 2024); Ioana Gorecki, "FTC Warns That Deceptive AI Content Ownership Claims Violate the FTC Act", *Kelly Drye* <https://www.kelleydrye.com/viewpoints/blogs/ad-law-access/ftc-warns-that-deceptive-ai-content-ownership-claims-violate-the-ftc-act> (22 August 2023) ("Passing off AI content as human-generated content. Advertising a digital product as created by a person when it was generated through AI would be a clear example of false advertising and, again, aligns with decades of FTC enforcement activity. The prohibition stands even though some platforms may assure users that the generated content 'belongs' to them.")

[94] Frank Pasquale & Haochen Sun, "Consent and Compensation: Resolving Generative AI's Copyright Crisis" (2024) 110 Virginia Law Review Online 207 at 232 [Pasquale & Sun] ("Massive technology firms have become rich in part based on uncompensated, or under-compensated, contributions from both users and content providers."); Rachel Kim, "The Largest IP Theft in History: Takeaways from the Senate Hearing on AI and Copyright Piracy", *Copyright Alliance* <https://copyrightalliance.org/takeaways-senate-hearing-ai-copyright-piracy/> (17 July 2025) (quoting Senator Josh Hawley: "Today's hearing is about the largest intellectual property theft in American history . . . Here is the truth that nobody wants to admit. AI companies are training their models on stolen material. Period. That is just the fact of the matter . . . We're talking about piracy. We're talking about theft.")

[95] Berry Wang & Jessie Yeung, "Chinese artists boycott big social media platform over AI-generated images", *CNN* <https://edition.cnn.com/2023/09/28/tech/chinese-artists-boycott-ai-generator-intl-hnk> (28 September 2023).

[96] For example, ChatGPT provide users the channel to turn their uploaded photos into cartoons inspired by real animators, such as the famous Ghibli Studio. See Osmond Chia, "Will users, organisations be in trouble for posting Ghibli-style AI pictures?", *The Straits Times* <https://www.straitstimes.com/tech/will-users-organisations-be-in-trouble-for-posting-ghibli-style-ai-pictures> (9 April 2025).

[97] *Richard Kadrey v Meta Platforms, Inc* (ND Cal, 2025) <https://www.govinfo.gov/content/pkg/USCOURTS-cand-3_23-cv-03417/pdf/USCOURTS-cand-3_23-cv-03417-37.pdf> ("…Meta wanted Llama to be able to generate text in certain styles. But style is not copyrightable – only expression is."); *cf Mattel, Inc v MGA Entertainment, Inc* 616 F 3d 904 at 916 (9th Cir, 2010) (pointed out that the district court did err in failing to filter out all unprotectable elements, such as the "unique style" and "youthful style" of the doll, as the plaintiff "can't claim a monopoly over fashion dolls with a bratty look or attitude, or dolls sporting trendy clothing – these are all unprotectable ideas.")

terms of service. In other words, handing the prompter a copyright in that output would grant a monopoly in something heavily indebted to prior art and algorithmic recombination, with no accountability to those sources.[98] In effect, we risk endorsing a system where many pseudo-derivative works are privatised by those who did not author the underlying creative elements. Building on this, it is problematic that AI platforms commercialise this collective creativity (the mass of works used to train their models) without compensating the original creators.[99] Such an outcome is widely viewed as unfair and detrimental to the creative ecosystem, threatening to undermine the very community of artists and writers on which generative AI relies.[100]

This holistic assessment echoes the rationale of the "clean hands" doctrine, asserting that a foundational lack of legitimacy in the acquisition of copyrighted resources vitiates any claim to legitimacy for the subsequent outputs.[101] This issue is exemplified by the unauthorised appropriation of copyrighted works for AI training, which has triggered copyright litigation across numerous jurisdictions.[102] The key is whether the training of AI models using copyrighted works can be considered a fair use or a copyright exception in different jurisdictions.[103] The unauthorised nature of the copyrighted training data may render a negative result in terms of fair

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[98] Harvard Law Review, "Chapter Two: Artificial Intelligence and the Creative Double Bind" (2025) 138(6) Harv L Rev 1585 at 1591 ("Here, even if there was little similarity between two works, the final output of the LLM would clearly depend on the use of IP owned by the Times.")

[99] Martin Senftleben, "Win-Win: How to Remove Copyright Obstacles to AI Training While Ensuring Author Remuneration (and Why the AI Act Fails to do the Magic)" (2025) 100(1) Chicago-Kent L Rev 7 at 10; Artha Dermawan & Péter Mezei, "Emotional AI and the Consensus-Based Remuneration Regime in Southeast Asia" in Rosa Ballardini, Rob van den Hoven van Genderen & Sari Järvinen (eds), *Emotional Data Applications and Regulation of Artificial Intelligence in Society* (Switzerland: Springer, 2025) 221 at 222.

[100] Giancarlo Frosio, "The Artificial Creatives: The Rise of Combinatorial Creativity from Dall-E to GPT-3" in Martha Garcia-Murillo, Ian MacInnes & Andrea Renda (eds), *Handbook of Artificial Intelligence at Work: Interconnections And Policy Implications* (UK: Edward Elgar, 2024) 225 at 225–27; Pasquale & Sun, *supra* note 94 at 207 ("AI thus threatens not only to undermine the livelihoods of authors, artists, and other creatives, but also to destabilize the very knowledge ecosystem it relies on."); Ben Thompson, "An Interview with Cloudflare Founder and CEO Matthew Prince About Internet History and Pay-per-crawl", *Stratechery* <https://stratechery.com/2025/an-interview-with-cloudflare-founder-and-ceo-matthew-prince-about-internet-history-and-pay-per-crawl/> (4 September 2025) (From a different perspective, Matthew Prince argued that the web is shifting from traditional search engines toward "answer engines," which changes the foundation of the online business model. And this shift would have serious consequences for content creators who rely on visibility and clicks for financial support, as they may find themselves unable to sustain their work. Prince further argued that powerful AI companies may step in as the new patrons of content creation. This could fragment content into ideological or regional silos, while limiting diversity and openness.)

[101] *Bartz v Anthropic PBC* (ND Cal, 2025) [*Bartz*] ("Anthropic is wrong to suppose that so long as you create an exciting end product, every 'back-end step, invisible to the public,' is excused.")

[102] Chat GPT Is Eating the World, "Master List of lawsuits v. AI, ChatGPT, OpenAI, Microsoft, Meta, Midjourney & other AI cos.", *ChatGPT is Eating the World* <https://chatgptiseatingtheworld.com/2024/08/27/master-list-of-lawsuits-v-ai-chatgpt-openai-microsoft-meta-midjourney-other-ai-cos/> (27 August 2024).

[103] Matthew Sag & Peter K Yu, "The Globalization of Copyright Exceptions for AI Training" (2025) 74(5) Emory LJ 1163; Tianxiang He, "Copyright Exceptions Reform and AI Data Analysis in China: A Modest Proposal" in Lee, *Artificial Intelligence and Intellectual Property*, *supra* note 13 at 213; USCO, *Copyright and Artificial Intelligence Part 3: Generative AI Training (Pre-publication version)* <https://www.copyright.gov/ai/Copyright-and-Artificial-Intelligence-Part-3-Generative-AI-Training-Report-Pre-Publication-Version.pdf> (May 2025).

use findings. For instance, in *Bartz v Anthropic PBC*, Judge Alsup took a strong view against Anthropic's use of pirated copies of copyrighted books to train its AI, stating that "[s]uch piracy of otherwise available copies is inherently, irredeemably infringing even if the pirated copies are immediately used for the transformative use and immediately discarded."[104] Viewing from this point, any proposed solution to the copyrightability issue of AI-generated content will have to consider whether the AI assistant is trained with legitimate sources. Ironically, this "legitimacy chain", at least in the text generation scenario, will also lead to unreliability and bias due to the incomplete training data set.

In sum, the windfall critique resonates with concerns about over-protection and enclosure of what might otherwise remain a rich commons of AI-generated art and text. We must also consider the impact of embracing a more liberal understanding of creative control, or of turning a blind eye to the potential issue of misappropriation of AI outputs by human users. Would we encourage a flood of such claims and infringement cases, essentially privatising a vast amount of machine-made creativity under a small number of individuals or corporations?[105]

IV. Broader Impacts and Risks

Copyright law does not operate in a vacuum – it both shapes and reflects the needs of the creative economy and our cultural norms. Just like Pamela Samuelson once warned, "[w]hatever ownership allocation decision is made, it should be one that makes 'sense' not only in terms of doctrine, but also in terms of the realities of the world in which the question will have to be addressed."[106] Moreover, the copyrightability issue of AI-generated content is a fragment of the problem of AI regulation as a whole. Therefore, any proposed solution should consider the potential impact on the other fragments.

A. *Is the Democratisation of Creativity by AI a Good Thing?*

Generative AI is often hailed as democratising creativity by lowering barriers to entry in the arts and literature.[107] Tasks that once required years of practice – painting realistic portraits, composing music in a certain style, writing competent code – can now be handled by inexperienced newcomers armed only with a powerful AI tool. This democratisation promises a more inclusive creative landscape, enabling

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[104] *Bartz*, *supra* note 101.

[105] For the issue of concentration of power of platforms, see Tianxiang He, "Online Content Platforms, Copyright Decision-making Algorithms and Fundamental Rights Protection in China" (2022) 14(1) Law, Innovation and Technology at 71.

[106] Samuelson, *supra* note 9 at 1192.

[107] Pasquale & Sun, *supra* note 94 at 207 ("Generative artificial intelligence (AI) has the potential to augment and democratize creativity."); Federico Donelli, "Generative AI and the Creative Industry: Finding Balance Between Apologists and Critics", *Medium* <https://medium.com/@fdonelli/generative-ai-and-the-creative-industry-finding-balance-between-apologists-and-critics-686f449862fc> (3 September 2024).

new voices and ideas to emerge without the traditional filters of technical skill or gatekeepers. From a social perspective, "everyone can be a creator" is an appealing prospect. Indeed, some scholars argue that extending copyright-like protection to AI-generated content could further encourage people to explore creative endeavours with these tools,[108] thereby adding "the fuel of interest to the fire of genius."[109]

However, any cost-benefit analysis can only deliver a meaningful answer by first considering the aim of copyright: even if the cost of a solution is bigger than its benefit, it is still worth pursuing if it accords with the set aims. For example, scholars have pointed out that the US Constitution prioritises "learning"; only then comes the "preservation of the public domain", and lastly the "protection of the author."[110] Accordingly, some scholars have argued that protection is favourable "because the public interest trumps any direct benefit to authors", and "allowing protection will encourage people to develop and use creative AI to generate and disseminate socially valuable works, thereby achieving the goal of copyright law."[111] However, following that logic, incentives ought to push AI toward "socially valuable work", rather than handing out easy windfalls. And what is socially valuable cannot be solely determined by its economic value. Next, copyright should treat all creativity equally. If AI makes production easy, the justification for promoting more of that production gets weaker, not stronger. Law should nudge effort toward what is scarce – human judgement, originality, and craft – and, at the margin, create incentives for traditional or clearly human-directed creation rather than one-click outputs. These all require the separation of AI and human contribution. Moreover, as discussed above, viewing from a holistic angle, granting copyright to the "dice rolling" creativity of generative AI does deprive other authors of their due, as we must consider fairness on both front and back ends.

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[108] See *eg*, Abbott & Rothman, *supra* note 47 at 1201 ("Encouraging the creation and dissemination of such content is the main purpose of the copyright system, and allowing copyright protection for AI-generated works will achieve this purpose."); Daniel Chia Matallana, "Perspective from Creators: Art vs Tech", *The Digital Constitutionalist* <https://digi-con.org/perspective-from-creators-art-vs-tech/> (8 November 2024) ("some participants saw AI as a 'doorway into possibilities' – a tool with the potential to democratize creativity by making resources more accessible, saving time, and allowing artists to build on the collective legacy of those who came before.")

[109] Abraham Lincoln Online, "Lincoln's Patent" <https://www.abrahamlincolnonline.org/lincoln/education/patent.htm>.

[110] See L Ray Patterson & Stanley W Lindberg, *The Nature of Copyright: A Law of Users' Rights* (Athens: University of Georgia Press, 1991) at 49 [Patterson & Lindberg] ("The ordering of the policies in the clause indicates their priority: the first is that copyright promote learning…"); In China, Article 1 of the Copyright Law of China similarly provides three aims: to protect "the copyright of authors in their literary, artistic and scientific works and the rights and interests related to copyright", to encourage "the creation and dissemination of works conducive to the building of a socialist society that is advanced ethically and materially", and to promote "the progress and flourishing of socialist culture and sciences." See Tianxiang He, "Control or promote? China's cultural censorship system and its influence on copyright protection" (2017) 7(1) Queen Mary Journal of Intellectual Property at 96.

[111] Abbott & Rothman, *supra* note 47 at 1183.

B. *The Bittersweet Training Process*

Every coin has its flip side. If anyone could instantly generate art or text without exerting control and get copyright, the value placed on human creativity and expertise may be eroded, as there would be a flood of AI-generated content of "acceptable" quality inundating the market and public sphere. As such, consumable content could become superabundant and cheap, making it much harder to distinguish truly original, human-crafted works from the glut.[112] Skilled traditional creators who have spent years honing their craft would find themselves undercut by AI outputs that are "good enough" for most consumers and far cheaper to produce. This raises obvious concerns about job displacement and the long-term viability of creative professions.[113] While some argue that the loss of jobs might be offset by the emergence of new roles in an AI-driven creative economy (such as prompt engineering), even if displaced employees eventually find work, there are intangible losses to consider: a new role fundamentally different from the original craft may not offer the same satisfaction, creative joy, or sense of human dignity that the old work provided.[114]

Some might suggest that the answer is for traditional creators to embrace AI creativity, treating these systems as collaborative tools rather than existential threats. In practice, many creators are beginning to use AI as just another instrument in their toolkit, leveraging it to accelerate workflows or overcome creative blocks.[115] The debate, then, is not only about whether generative AI can be integrated into the creative world and be formally recognised by copyright law, but on what terms, and whether AI's "democratising" benefits can be realised without hollowing out the value of human creativity in the process.

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[112] Pasquale & Sun, *supra* note 94 at 221 ("Much of an entire generation of writers, composers, journalists, actors, and other creatives may be missing, dissuaded from even trying to publish, disseminate, or profit from their expression, given how easily their work can be copied (or aspects of their expression can be mimicked) via AI, and how rapidly their own contributions may be occluded or overwhelmed by AI expression."); Dan L Burk, "Cheap Creativity and What It Will Do" (2023) 57 Ga L Rev 1669 at 1680 ("AI threatens to lower the costs of creation itself, so that creative works – however easy to access – are cheap to produce in the first place.")

[113] Harry H Jiang *et al*, "AI Art and its Impact on Artists" AIES '23: Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society (2023) 363 at 368; Gustaf Kilander, "AI is already replacing thousands of jobs per month, report finds", *Independent* <https://www.independent.co.uk/news/world/americas/artificial-intelligence-replacing-jobs-report-b2800709.html> (2 August 2025); Riju Mehta, "Is your job at risk?", *The Economic Times* <https://economictimes.indiatimes.com/wealth/earn/can-you-lose-your-job-to-ai-identify-the-red-flags-and-here-are-5-things-you-can-do-to-tackle-job-uncertainty/articleshow/123332508.cms> (21 August 2025); Justin Lahart, "There Is Now Clearer Evidence AI Is Wrecking Young Americans' Job Prospects", *The Wall Street Journal* <https://www.wsj.com/economy/jobs/ai-entry-level-job-impact-5c687c84> (26 August 2025); Guy Lichtinger & Seyed Mahdi Hosseini Maasoum, "Generative AI as Seniority-Biased Technological Change: Evidence from U.S. Résumé and Job Posting Data", *SSRN* <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5425555> (31 August 2025).

[114] Lemley, "How Generative AI", *supra* note 82 at 190 ("Increasingly, creativity will be lodged in asking the right questions, not in creating the answers.")

[115] Michael Epelboim, "Who Owns Creativity? The Ethical Battle Over AI-Generated Content", *Medium* <https://sdrmike.medium.com/who-owns-creativity-the-ethical-battle-over-ai-generated-content-0d19984333e0> (30 March 2025) ("Independent game developers, for example, use AI to quickly prototype character designs – saving both time and resources. Writers experiment with ChatGPT to overcome creative blocks, and educators generate custom illustrations for their students.")

This article argues that granting prompt-based AI-generated content copyright without distinction and suggesting that AI can replace all traditional creative methods[116] pose two profound latent threats that may contravene the aims of copyright:

1. *Cognitive Offloading*

Cognitive offloading describes the phenomenon whereby people use "physical action…to reduce the cognitive demands of a task".[117] The Economist recently reported that studies by the Massachusetts Institute of Technology ("MIT"),[118] Microsoft Research,[119] and the Swiss Business School[120] are all concerned that "the impressive short-term gains afforded by generative AI may incur a hidden long-term debt" that will lead to many mental problems such as "cognitive miserliness."[121] Perhaps society could benefit from a productivity leap that frees humans from routine creative labour and that allows people to focus on higher-level creativity, but there is a cultural and educational cost to consider: much of human creativity is not just about getting the final output, but about the process of learning, experimenting, and perfecting one's skills. AI tools, as powerful shortcuts, risk depriving us of the formative journey that shapes not just artists and thinkers, but almost everyone as a learner. If upcoming generations rely heavily on AI to generate content, they might never undergo the traditional training that not only imparts technique but also fosters originality and critical thinking. If that is the case, granting copyright to AI-generated content as an extra incentive may eventually contravene the constitutional foundation of copyright law.[122]

Researchers from different scientific fields shared the same concern. For example, the abovementioned MIT research on the impact of AI tools on educational tasks such as essay writing has pointed out that tools like ChatGPT will bring "a cognitive cost, diminishing users' inclination to critically evaluate the LLM's output or 'opinions' (probabilistic answers based on the training datasets)" if the user uses AI to write.[123] Educational psychologists believe it is an example of cognitive

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[116] Jess Weatherbed, "Adobe execs say artists need to embrace AI or get left behind", *The Verge* <https://www.theverge.com/2024/10/25/24278715/adobe-artists-embrace-generative-ai-creative-community> (25 October 2024).

[117] Evan F Risko & Sam J Gilbert, "Cognitive Offloading" (2016) 20(9) Trends in Cognitive Sciences at 676–688.

[118] Nataliya Kosmyna *et al*, "Your Brain on ChatGPT: Accumulation of Cognitive Debt when Using an AI Assistant for Essay Writing Task", *arXiv* <https://arxiv.org/pdf/2506.08872v1> (2025).

[119] Hao-Ping (Hank) Lee *et al*, "The Impact of Generative AI on Critical Thinking: Self-Reported Reductions in Cognitive Effort and Confidence Effects From a Survey of Knowledge Workers" CHI '25: Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems <https://doi.org/10.1145/3706598.3713778> (2025).

[120] Michael Gerlich, "AI Tools in Society: Impacts on Cognitive Offloading and the Future of Critical Thinking" (2025) 15(1) Societies at 6.

[121] The Economist, "Will AI make you stupid", *The Economist* <https://www.economist.com/science-and-technology/2025/07/16/will-ai-make-you-stupid> (16 July 2025) [The Economist].

[122] Patterson & Lindberg, *supra* note 110 at 49.

[123] Kosmyna, *supra* note 118; A similar study was conducted by a group of Chinese researchers from Shanghai University and the conclusion is almost the same. See also Weiwei Huo *et al*, "Why Use AI more, we live more like an AI", *China Science Daily* <https://news.sciencenet.cn/html news/2024/5/522304.shtm> (9 May 2024).

offloading, pointing out that over-reliance on AI to create writing will negatively affect the user's cognitive development and critical thinking.[124]

From a practical standpoint, AI could deny its users the opportunity for training. Of course, the crux of the matter is that AI affects different people differently.[125] As recent research reveals, "[t]he speed of 'thinking' provided by AI can be a great tool for seasoned problem-solvers."[126] But for "those who are still developing divergent thinking skills and lack creative confidence, there is a danger of AI hindering human thinking…showing a concerning potential for cognitive fixation and reduced self-efficacy."[127] While the educators are aware of such a risk and are committed to using AI cautiously in the classroom, granting copyright to prompt-based AI-generated content might amplify the risk by yielding a populace of surface-level creators who have impressive tools like generative AI, but shallow skills as this type of creativity often happens in places other than supervised classrooms. The above concerns may be addressed as researchers are working on technical solutions, but so far, the results are not ideal.[128]

2. *Stagnated Creativity*

Even for experienced creators, over-reliance on AI could lead to a homogenisation of style and even a stagnation of creative evolution.[129] If everyone starts relying on AI outputs that remix existing works, truly novel creations might become rarer.

Research findings support this "homogenization effect".[130] Specifically, a recent study points out that, even though individual creators are "better off" with AI, "collectively a narrower scope of novel content is produced."[131] Another research

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[124] Gerlich, *supra* note 120 at 3; Chunpeng Zhai, Santoso Wibowo & Lily D Li, "Smart Learning Environments" (2024) 11 Smart Learning Environments 1 at 31–2; Aniella Mihaela Vieriu *et al*, "The Impact of Artificial Intelligence (AI) on Students' Academic Development" (2025) 15(3) Education Sciences at 343.

[125] The Economist, *supra* note 121 ("In Dr Gerlich's study, for example, it is possible that people with greater critical-thinking prowess are just less likely to lean on AI."); Gerlich, *supra* note 120; Venkatesh Rao, "Texts as Toys", *Contraptions* <https://contraptions.venkateshrao.com/p/texts-as-toys> (28 July 2025) ("Players though, should have at least a minimal understanding of the toy-making side in order to cultivate their tastes and capacities for ludic immersion beyond a point. You can't have the right expectations and relationships with a thing if you don't quite know what it is or how it was made.")

[126] Sabrina Habib *et al*, "How does generative artificial intelligence impact student creativity?" (2024) 34(1) Journal of Creativity at 5.

[127] *Ibid*.

[128] Suggestions include fine-tuning AI so that it can bring "cognitive forcing" on users, but these often come with costs. See The Economist, *supra* note 121.

[129] Kyle Chayka, "A.I. Is Homogenizing Our Thoughts", *The New Yorker* <https://www.newyorker.com/culture/infinite-scroll/ai-is-homogenizing-our-thoughts> (25 June 2025).

[130] Barrett R Anderson, Jash Hemant Shah & Max Kreminski, "Homogenization Effects of Large Language Models on Human Creative Ideation" C&C '24: Proceedings of the 16th Conference on Creativity & Cognition Pages 413 (2024) at 422 ("We have presented evidence that LLM-based CSTs exert a stronger homogenization effect on human-in-the-loop divergent ideation processes than at least some plausible alternative CSTs.…these systems are not currently well-suited to helping users develop truly original ideas.")

[131] Anil R Doshi & Oliver P Hauser, "Generative AI enhances individual creativity but reduces the collective diversity of novel content" (2024) 10(28) Science Advances at 1.

suggests that "there is a risk of decreased diversity in the produced content, potentially limiting diverse perspectives in public discourse."[132] More directly, one study analysed over four million artworks from more than 50,000 users to assess the impact of text-to-image AI on creativity. It found that while AI increases creative productivity by 25% and the likelihood of receiving positive feedback by 50%, it reduces both peak and average visual novelty (measured by pixel-level stylistic elements). Additionally, average content novelty declines, suggesting an inefficient expansion of the idea space.[133] In terms of craft education, researchers found that replacing the traditional creative tools with AI homogenises perspectives and repeats ideas and styles as well.[134] Just as Biao Xiang opined, generative AI will render a "perfect" result according to your request, but it does not show "individuality".[135]

Furthermore, the development of AI models themselves depends on a sustainable supply of human creative outputs. Researchers have warned of the risk of "model collapse": a degenerative spiral where AI systems trained on AI-generated data begin to lose touch with the true diversity and nuance of human-created data, leading to progressively degraded outputs.[136] If the world becomes saturated with AI-generated content displacing human content, future models might inevitably be trained on the outputs of their predecessors rather than on fresh human expressions. This suggests that for AI to continue to be useful and innovative, we still need a robust supply of original human creations in the ecosystem. Thus, paradoxically, over-reliance on generative AI could hamper the development of AI itself. Copyright's role in this is subtle but significant: by incentivising human creativity and giving human artists exclusive rights, copyright helps ensure that creating works without AI remains worthwhile.

C. *The Authenticity Issue*

Beyond the above risks, there is the issue of authenticity if we fail to separate AI and human contributions in AI-generated content. Putting the same "copyrighted" stamp on them would only make the situation worse. Creative expression is not valued merely for technical proficiency or market price; it is the true human communication

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[132] Vishakh Padmakumar & He, "Does Writing with Language Models Reduce Content Diversity?", *arXiv* <https://arxiv.org/abs/2309.05196> (2024).

[133] Eric Zhou & Dokyun Lee, "Generative artificial intelligence, human creativity, and art" (2024) 3(3) PNAS Nexus at 1.

[134] Henriikka Vartiainen & Matti Tedre, "Using artificial intelligence in craft education: crafting with text-to-image generative models" (2023) 34(1) Digital Creativity at 14–16.

[135] "Xiang Biao: It's not that we don't want to socialize, but that AI has made "others" disappear", *36Kr* <https://eu.36kr.com/en/p/3428033646955905> (18 August 2025) ("Why do we use the term 'human touch'? Obviously, it is in contrast to AI, which is relatively a perfect non-human entity. Currently, AI mainly relies on large language models, which collect as many existing languages in the world as possible. It takes the most frequently-appearing expressions as the main model. Of course, it looks very pleasing to the eye because you've seen such expressions a lot. What standard do we use to define something as perfect? It's nothing more than conforming to the least-reflective habits of the majority. It is aimed at the so-called public view of perfection but does not show individuality.")

[136] Ilia Shumailov *et al*, "AI models collapse when trained on recursively generated data" (2024) 631 Nature at 755.

behind it that makes it meaningful. If the law starts treating AI-generated content no differently than human-authored works, and without distinguishing one-click outputs from truly creative AI-assisted works, we could end up flooded with content that is superficially engaging yet devoid of any human voice or genuine message.[137]

Accordingly, granting copyright to prompt-based AI-generated content without distinction aggravates the problem of AI ghost-writing and contaminated speech (speech presented as human expression but at least partly generated by AI). If the human user does not fully control or even understand the message in the AI-generated content, the work effectively becomes a channel for the AI (or its developer) to inject information into public discourse under a human's name. If this practice became commonplace, and if the law, by granting copyright to such works, effectively certified them as human expressions, we would face a profound challenge to the integrity of communication.[138] The danger here is not just plagiarism[139] or audience deception: society could become saturated with polished, attributable works that were never truly "spoken" by a human mind, but rather assembled by AI. The "hallucination" problem of AI would only exacerbate the issue.[140]

The very risk can be identified in discussions related to "deepfake" technology, which is "a specific application of AI capable of altering images and audio to produce counterfeit content".[141] Deepfake technology undermines the foundation of social trust, contributes to the collective erosion of democracy, exacerbates social divisions, causes public safety concerns, and even endangers national security,[142]

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[137] Jacob Noti-Victor, "Regulating Hidden AI Authorship" (2025) 111(1) Virginia Law Review 139 at 146 ("The undisclosed use of generative AI in authoring a work fundamentally destabilizes this dialogue between author and reader, robbing art of its social value and turning it into an exclusively entertainment-focused commodity.")

[138] Seana Valentine Shiffrin, *Speech Matters: On Lying, Morality, and the Law* (Princeton: Princeton University Press, 2014) at 182 ("I have argued that we have a basic, compulsory responsibility to establish and maintain feasible conditions under which we can understand and carry out our moral duties… Creating and maintaining free, open, and reliable channels of communication is an important component of that responsibility."); Jeffrey T Hancock, Mor Naaman & Karen Levy, "AI-Mediated Communication: Definition, Research Agenda, and Ethical Considerations" (2020) 25(1) Journal of Computer-Mediated Communication 89; also, researchers discovered that generative AI shows "cultural tendencies" when the language used is different. See Jackson G Lu, Lesley Luyang Song & Lu Doris Zhang, "Cultural tendencies in generative AI" (2025) Nature Human Behaviour <https://doi.org/10.1038/s41562-025-02242-1>.

[139] Holly Else, "Abstracts written by ChatGPT fool scientists" (2023) 613 Nature 423; Ananya, "What counts as plagiarism? AI-generated papers pose new risks", *Nature* <https://www.nature.com/articles/d41586-025-02616-5> (20 August 2025).

[140] Amr Adel & Noor Alani, "Can generative AI reliably synthesise literature? exploring hallucination issues in ChatGPT" (2025) AI & Society <https://doi.org/10.1007/s00146-025-02406-7>; Dingding Wang, "On the underlying drawbacks of currently popular large language models", *Caixin* (汪丁丁, "关于目前流行的大语言模型的深层弊端", 财新网2025年8月10日) <https://wangdingding.blog.caixin.com/archives/283635> (10 August 2025).

[141] Mousa Al-kfairy *et al*, "Ethical Challenges and Solutions of Generative AI: An Interdisciplinary Perspective" (2024) 11(3) Informatics at 58.

[142] See Danielle K Citron & Robert Chesney, "Deep Fakes: A Looming Challenge for Privacy, Democracy, and National Security" (2019) 107 California Law Review 1753 at 1777–1786; Nick Robins-Early, "Disinformation Reimagined: How AI Could Erode Democracy in the 2024 US Elections", *Guardian* <https://www.theguardian.com/us-news/2023/jul/19/ai-generated-disinformation-us-elections> (19 July 2023).

as AI deepfakes can manipulate contents communicated to people to generate any desired political impact.[143]

Moreover, the authenticity issue also concerns consumer protection, as most copyrighted works are also cultural commodities, and producers have the incentive to conceal the fact of AI-assistance due to the uncertainty of copyright protection[144] and consumer preference for human-authored works.[145] Consumers are thus precluded from making an informed decision, and from engaging in "ongoing 'dialogic' processes of self-definition, ethical development, and political engagement."[146] Counterintuitively, the failure to identify AI-generated content can also harm online merchants. As reported, malicious actors have exploited this by generating images of non-existent product flaws to fraudulently claim refunds under Chinese e-commerce platforms' "refund-only" policies, thereby obtaining goods without payment.[147] Furthermore, a Chinese court has ruled that a domestic AI platform, which provides a service for generating fabricated user review posts to be disseminated on social networks, has engaged in unfair competition against the e-commerce platform where these posts were published.[148]

In light of these impacts, one might conclude that a restrictive approach toward AI-generated works is prudent. Otherwise, we may encourage people to use AI to shirk their creative and communicative responsibilities, eventually resulting in a cultural sphere where nothing authentic is actually communicated, or at least where the true source of expression is obscured. However, such an approach must be balanced against the undeniable benefits of AI as a creative aid and the rights of those who do incorporate genuine human authorship in AI-assisted creations.

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[143] Kyle Mattes *et al*, "Predicting Election Outcomes from Positive and Negative Trait Assessments of Candidate Images" (2010) 31(1) Political Psychology at 41 (suggests that traits like attractiveness can be used to predict electoral outcomes); Casey A Klofstad, Rindy C Anderson & Susan Peters, "Sounds like a winner: voice pitch influences perception of leadership capacity in both men and women" (2012) 279 Proceedings of the Royal Society B: Biological Sciences at 2698 (discusses the possibility that vocal pitch can improve leadership perception).

[144] Noti-Victor, *supra* note 137 at 143.

[145] For example, the mascot for the 2024 Spring Festival Gala, Long Chenchen, released by China Central Television ("CCTV"), raised suspicions of being AI-created due to its apparent AI-generated content characteristics, leading to public discontent. It was reported that netizens believe "the Spring Festival Gala is the gala of the year for all of us in China. It deserves a professional team to design a character for it." See Global Times, "Mascot for Spring Festival Gala released, showing Chinese cultural connotations", *Global Times* <https://www.globaltimes.cn/page/202312/1303259.shtml> (8 December 2023); Kobe Millet *et al*, "Defending humankind: Anthropocentric bias in the appreciation of AI art" (2023) 143 Computers in Human Behavior at 1–9; Matan Rubin *et al*, "Comparing the value of perceived human versus AI-generated empathy" (2025) Nature Human Behaviour <https://www.nature.com/articles/s41562-025-02247-w>.

[146] Noti-Victor, *supra* note 137 at 145.

[147] Kaiyin Chen, "Refund-Only Fraud: AI-Generated Fakes Become a New Tool for Scamming", *XinhuaNet* (陈凯茵, "'仅退款'新骗术：AI造假成'薅羊毛'利器", 新华网2025年8月15日) <https://www.news.cn/fortune/20250815/0d0e0d2a84cb474c971d71be0a2c9821/c.html> (15 August 2025).

[148] *Xingyin Information Technology (Shanghai) Co, Ltd v Hefei Ming Yang Technology Co, Ltd* [2024] Hangzhou Internet Court (first instance) Z0192MC No 3396; [2025] Hangzhou Intermediate People's Court (second instance) Z01MZ No 3998.

V. The Future Path: AI-generated Content at the Crossroads

In an era where copyright theories are turned "upside down" by generative AI, Lemley opined that copyright is a "poor fit" for AI-generated content.[149] Legislators need to seriously consider to what degree copyright should adapt to such a challenge and whether copyright is still a suitable solution.[150]

As discussed in Part II, the traditional interpretation of copyright doctrines is inherently constrained from granting full copyright protection to AI-generated content due to its internal logic and design. The solution provided by the USCO is to require and reward demonstrable human creativity. However, as demonstrated in Part III, it is difficult for copyright law to address the real problem of unjustified windfalls unless the human individual reveals to the courts or the registries that generative AI was used in the creation of the works. In asserting a claim to authorship and hence copyright, one can easily conceal the creative process.

As Daryl Lim has argued, "generative AI reproduces extractive dynamics unless countered by legal and technical frameworks that embed transparency, accountability and recognition of distributed authorship."[151] Considering the impacts discussed above, providing an ideal solution under the current copyright theoretical framework requires a holistic regulatory approach rather than a piecemeal solution.

Going forward, we should require that claimants disclose the degree of AI involvement, and, if AI was employed, detail their own contributions in copyright registration practice or litigation.[152] This transparency requirement would allow examiners and courts to carve out the unprotectable portions generated by AI and uphold the protectable portions contributed by the human user. The USCO has already required applicants to exclude AI-generated material from their claims and to describe what material is human-authored.[153] In a recent court order issued by the Xiamen Maritime Court concerning an international maritime dispute, the court suspected that some of the key evidence and litigation documents submitted by the claimant were generated by AI. The court thus, for the first time, ruled that the claimant must reveal the degree of AI usage, as that affects the authenticity of evidence and the originality and reliability of the written submission.[154] But even if the

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[149] Lemley, "How Generative AI", *supra* note 82 at 212.

[150] Micaela Mantegna, "ARTificial: Why Copyright Is Not the Right Policy Tool to Deal with Generative AI" (2024) 133 Yale Law Journal Forum 1126 at 1174; Tianxiang He, "AI Originality Revisited: Can We Prompt Copyright over AI-Generated Pictures?" (2024) 73(4) GRUR International at 307 ("It would be preferable for legislators to engage in thorough discussions with stakeholders to develop a considered regulatory plan first, which does not necessarily have to revolve around copyright.")

[151] Daryl Lim, "Banana republic: copyright law and the extractive logic of generative AI" (2025) 20(9) J Intell Prop L & Prac at 573.

[152] Yu, *supra* note 15 at 808 ("To the extent that countries offer different levels of protection to these two types of works – whether provided expressly in the statute or through case law interpretations – having an ability to make a proper distinction between these two types of work will be quite important.")

[153] USCO, *Copyright Registration Guidance*, *supra* note 1 at 3–4 (instructing applicants to disclose AI content and to "provide a brief statement in the 'Author Created' field... that only the human-authored aspects of the work are claimed," and noting the Office will issue registrations covering only the human-authored portions).

[154] *STS Seatoshore Group Pte Ltd v Smooth Ocean Pte Ltd* [2025] M72MT No 76 (Xiamen Maritime Court) (China).

law were to distinguish the two, the free-riding problem would likely persist, given the current absence of any reliable technical means to tell AI-generated material apart from human work. Thus, it is clear that, due to the Berne requirement of "no formality", the above suggestions would have only a limited impact.

Accordingly, solutions outside the judiciary and registry, such as technological solutions like watermarking or a certification mark that can help differentiate content, must be introduced.[155] For instance, a mandatory watermark requirement has been implemented by Chinese authorities to counter issues like deepfakes since September 2025.[156] It is also highly possible that, if the demand for evidence becomes a must, AI platforms or software will develop mechanisms to preserve logs that can be submitted to courts as evidence.[157] In the future, a holistic approach that combines industry self-regulation and the law could provide the transparency needed by mandating that those who conceal the sources of content will face legal consequences.[158] For those who argue that the cost of distinction is too high, the most compelling rebuttal is that, within the broader framework of AI governance, the risks of non-distinction have already manifested in severe consequences extending far beyond copyright. Since other issues, such as deepfakes and consumer protection concerns, have necessitated differentiation, the technical and

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[155] Lemley, "How Generative AI", *supra* note 82 at 210 ("We will need either an actual (not virtual) identity standard or some sort of tracking or watermarking system to show that you copied the output from me after it was generated rather than generating your own prompt."); He, "The sentimental fools", *supra* note 21 at 235–236 ("If we require each and every piece of AI-generated content to bear a digital signature that indicates the details of the piece when produced, just like the EXIF information of a digital photograph, then we will be able to distinguish the two and prevent free riders from claiming AI-generated works as their own."); It should be noted that, as a technical solution, even invisible watermarks are facing the risk of being circumvented. But this "attack and defend" competition will never end. See Andre Kassis & Urs Hengartner, "UnMarker: A Universal Attack on Defensive Watermarking", *arXiv* <https://arxiv.org/html/2405.08363v1> (14 May 2024).

[156] Article 16, the Provisions on the Administration of Deep Synthesis of Internet-based Information Services issued by the Cyberspace Administration of China (2023); Measures for Identification of Artificial Intelligence-Generated Synthetic Contents, issued jointly by the Cyberspace Administration of China, the Ministry of Industry and Information Technology, the Ministry of Public Security, and the National Radio and Television Administration (2025); Cybersecurity technology – Labeling method for content generated by artificial intelligence, National Standard GB 45438-2025 (2025).

[157] Guobin Cui, "Review of judicial decisions related to AI-generated content copyrightability" (2025) 2 Digital Law at 54 (崔国斌, "人工智能生成物可版权性司法案例评述", 《数字法治》, 2025年第2期, 第54页) [Cui]; Danny Friedmann, "Creation and Generation Copyright Standards" (2025) 14(1) NYU J Intell Prop & Ent L 51 at 59.

[158] Cui, *supra* note 157 at 54; see also He, "The sentimental fools", *supra* note 21 at 236 ("if the right owner evaded the 'signature' obligation wilfully by free-riding on the machine, it may then be solid evidence that the right owner was aware of the existence of his neighbouring rights over the AI-generated contents and intended on relinquishing them by erasing the signatures"); Noti-Victor, *supra* note 137 at 146–147 (arguing that industry self-regulation and existing (such as copyright misuse, trademark and the right of publicity) and new legal mandates could help to foster transparency.); Cuijuan Wang, "Ethical Governance for Content Generation in the Artificial Intelligence Era – Interview of Prof. Lan Xue, Dean of the Institute for AI International Governance of Tsinghua University", *Study Times* (王翠娟, "人工智能时代内容生成的伦理治理——访清华大学文科资深教授、人工智能国际治理研究院院长薛澜", 学习时报2025年4月21日) <https://www.studytimes.cn/llly/202504/t20250421_79018.html> (21 April 2025) (Xue argued that it is necessary to establish a "dynamic regulatory framework" in which government, corporations and users/consumers all play a crucial part).

legal frameworks created for this purpose can, and should be, effectively adapted to resolve copyright-specific dilemmas.

At this point in time, it is still too early to foretell the future path of AI-generated content regulation. We should be extra cautious about creating any *sui generis* rights for AI-generated content if the current regulatory framework is workable.[159] In "a world without scarcity",[160] further empowered by AI creativity, the most pressing task lies not in the new "enclosure movement", but in devising ways to unleash the potential of human creativity without impeding technological progress. To achieve this, we must not only "make it easier for creators to opt out of the IP regime",[161] but also ensure that most AI-generated content remains free for everyone to build upon. To do that, we could either lift the threshold of copyright protection or reinstitute the copyright registration.[162] But neither is easy.

Nothing in copyright law stops creators from using AI as much as they like – they simply should not receive exclusive rights in everything that results. By sticking to a human-centred conception of authorship and carefully delineating the scope of protection, we can navigate the challenges of generative AI without stifling technological progress or undermining the very purpose of copyright. In doing so, we can uphold a principle that remains as true as ever: it is the mind of the human creator, fallible and inspired, that copyright law was built to protect and incentivise.

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[159] Leistner & Jussen, *supra* note 21 at 324 ("pure algorithmic 'creativity' at least should not be promoted additionally by granting new rights but rather, on the contrary, (if anything were done in the field) cautiously disincentivized, in order to prevent an increasing crowding out of human creativity in certain markets and to reduce the potential for an indirect negative effect on the remaining leeway for the freedom of human creativity in the areas concerned.")

[160] Mark Lemley, "IP in a World without Scarcity" (2015) 90(2) NYU L Rev 460.

[161] *Ibid* at 510.

[162] Robin Feldman, "Artificial Intelligence and Cracks in the Foundation of Intellectual Property" (2024) 76(1) UC LJ 47 at 54–56 (proposes recalibrating copyright law to preserve value by limiting protection to works that embody exceptional human contribution, while allowing more machine-generated outputs to circulate freely.); Christopher Sprigman, "Reform(aliz)ing Copyright" (2004) 57 Stan L Rev 485 at 531.