

The Role of Copyright Authentication in AI-Generated Visual Content: Constructing Trust in AIGC Media Environments and the Impact of Copyright Ambiguity on Perceived Authenticity

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Abstract

The rise of AIGC (Artificial Intelligence-Generated Content) content has changed the way of generating digital media, and a series of questions about authorship, copyright verification, and trust have emerged. AI avatars or visual content and their implications for IP law, generative models like DALL·E and Stable Diffusion challenge classical thinking on the topic of authorship and therefore protection needs to adopt different approach. This work explores the implications of copyright authentication for the nurturing of trust and perceived authenticity in AI-facilitated media ecologies. Through qualitative methodologies, content analysis and audience perception studies, this research examines whether digital watermarking, blockchain verification and metadata tracking lead to enhanced public trust in AI-generated media. The study also points to legal, technological and ethical barriers to standardizing copyright frameworks for AI-generated content. A synthesis of Media Trust theories, Intellectual Property Law and Posthumanism mapping insights, this research provides identities and actionable policy suggestions specifically for digital creators, platform providers, and policymakers. It recommends putting effective authentication systems in place so that we bring about an open, legal, and ethical media environment in the age of generative AI.

Keywords: AI-generated content, copyright authentication, artificial intelligence, generative AI, deepfake, digital content regulation, audience perception, AIGC

1. Introduction

Artificial intelligence-generated content (AIGC) is a fundamental breakthrough that reshapes fundamental concepts (such as authorship, creativity, and ownership) and then revolutionizes digital media. AI-produced visual material such as photos, illustrations, and digital art is emerging more readily on different sites, from social networks to advertising and journalism (Caldeira & Simões, 2024). With the advent of generative models such as DALL·E, MidJourney, and Stable Diffusion, AI-generated artwork, and creative tools have reached a point where hyper-realistic artistic visual content can be generated with little human input. While the times ahead offer previously uncharted avenues for creative exploration, they also pose significant challenges around intellectual property rights, copyright attribution, author attribution, and the truthfulness of AI-generated media overall. Then there's the question of copyright ownership, one of the biggest issues surrounding using AI to create images. However, conventional copyright frameworks are based on the premise that creative works are produced by human authors who can assert legal rights over their intellectual property. As AI only continues to play a larger role in content creation, determining rightful ownership is tricky.

The rights of ownership regarding the content they generate remain as such because there currently exists no copyright law in some jurisdictions explicitly recognizing AIs as the authors of works of art. Such ambiguity is no mere afterthought; it has repercussions for artists, designers, video game developers, and other individuals and organizations who use AI to create visual media (Mitkus et al., 2023). However, without proper copyright authentication systems, ownership and fair use disputes arise, potentially leading to legal conflicts and ethical quandaries regarding the use of AI content. Also, the absence of a standardized authentication system for copyrights on images produced through AI has increased the audience's skepticism. Individuals interacting via digital communication have become more conscious of how AI-generated artifacts could be manipulated, misrepresented, and/or co-opted to deceive people regarding a broad spectrum of issues (from misinformation to synthetic (deepfake) media). Consequently, the presence or absence of clear copyright attribution and verification are becoming increasingly prominent dictates of perceptions around authenticity and

credibility in digital media. Without clear indicators of whether content is humanly created or generated by AI, audiences struggle to separate authentic visuals from artificial ones, complicating trust-building mechanisms in digital environments.

This paper investigates the importance of copyright authentication of AI-generated visual content on trust formation in digital media ecosystems. In particular, it addresses two main research questions:

1. What is the impact of copyright authentication on trust in AI-generated visual content?
2. How does the ambivalence surrounding copyright inform the perceived authenticity of AI-generated images in digital culture?

To answer these questions, this study uses a qualitative approach and uses the content analysis of AI-generated images or perception studies based on the audience through interviews or focus groups. It will analyze how various copyright verification methods like digital watermarks, blockchain verification, and metadata tracking build or erode audience trust in AI-generated visuals. It also examines the larger implications of copyright ambiguity both in shaping audience understandings of legal indeterminacy and impacting the legitimacy of digital media industries, as well as informing the embrace or avoidance of AI-generated output in creative sectors. This paper contributes to the growing literature on digital credibility, copyright law, and the ethics of AI by analyzing existing authentication approaches and audience responses. The results will provide insight into the need for universal copyright authentication approaches and suggest how we might get there for transparent, property-sharing, legally responsible attribution of AI-generated visual content. In addition, this research seeks to provide feedback to policymakers, digital creators, and media platforms on how rules and laws should be created regarding the role of AI in creative industries. In doing so, this study aims to link technological advancements and regulatory adjustments to ensure a media landscape where AI content generation is reliable and within legal bounds.

2. Theoretical Framework

This inquiry is theoretically framed by a range of perspectives to reflect on the complexities in the depth of the ability of AI-generated content to act as a facilitator to the interface of copyright authentication and trust. Consequently, the framework uses many approaches to understand the challenges and ramifications of AI art, including concepts from media studies, intellectual property law, and posthumanism.

2.1 Media Trust and Digital Authenticity

For audience theories of media trust and digital authenticity to explain how audiences engage and make sense of digital media. In the age of deepfakes, AI-facilitated media manipulation, and misinformation, the credibility of visual content hinges on transparency, verifiability, and perceived legitimacy (Samuel-Okon et al., 2024). Information is used in a theoretical sense for compressing, producing, organizing, and disseminating information through particular media and relying on outside features, like the correlation of information supplied, the demonstrated reliability of the anchor, the purpose of the respective media, etc., the media trust theory suggests that the information's reliability is based on external factors. This could involve developing copyright authentication mechanisms that allow for the verification of AI-generated works, like through digital watermarks, blockchain-based verification, and AI-generated metadata. Digital authenticity theories reinforce, in the digital space, the need for provenance, attribution, and responsible deployment of AI to engender trust in AI-produced media. As AI systems undertake more media production, copyright authentication will be an important component to ensure audience trust through transparency in content creation and distribution.

2.2 Copyright and Intellectual Property Theories

Intellectual property (IP) and copyright theories form the basis for understanding interactions between traditional copyright regimes and AI-generated content. Copyright law protects human creators' rights, barring unauthorized use or re-distribution of a creator's work (Mičunović & Balković, 2015). However, AI-generated content challenges these legal assumptions, forcing legal authorities to question whether AI can be considered an author and, if not, the identity of the rights-holder to AI-generated works. Copyright laws developed a great deal to consider various digital and AI-created content, and this study focuses on existing problems with these laws looking to the future. For example, while some jurisdictions have outright held that AI-generated works are not copyrightable, others have suggested hybrid CP systems where AI-aided work gets limited rights under human oversight. Through these dynamics, this theoretical framework can help readers understand the challenges in enforcing ownership rights related to AI-generated works (including, but not limited to, implications concerning human-AI collaboration, creative intent, and legal responsibility).

The copyright law and AI-generated content are intertwined to present the challenges of unfairness never seen before, in which a thorough review of current intellectual property structures is necessary. The classical copyright doctrine is based on the human authorship idea, a case that was determined in the epochal cases like - *Burrow-Giles Lithographic Co. v. Sarony* (1884) and later on confirmed in *Feist Publications, Inc. v. Rural Telephone Service Co.* (1991). Nonetheless, the advent of AI systems of generative art that are able to generate seemingly original artworks without the direct input of a human creative mind clearly undermines the core assumptions (Grimmelmann, 2016). The current legal research has

started discussing the issue of whether AI-generated works can receive copyright protection, the issue of their ownership, and the question of how liability should be allocated in case of potential infringement (Ginsburg and Budiardjo, 2018).

The jurisdictions have already taken the position that AI-generated works that lack a significant input of human creativity should stay in the public domain, and the hybrid models are given, under which the limited protection should be provided under the influence of the extent of human input in training, prompting, and curating AI outputs (Ramalho, 2017). The Digital Single Market Directive and the suggested AI Act by the European Union are trying to find a middle ground between innovativeness and protection of creators, creating a system of transparency and responsibility in the AI-generated content (Margoni and Kretschmer, 2022). In a similar manner, the United States Copyright Office has also provided clarifications that copyright registration requires a human authorship, but the precise amount of human creativity sufficient to qualify as the subject of copyright remains the subject of active legal discussions (Yu and Ali, 2023). Such advancements suggest the criticality of new adaptive copyright models that reflect the collaborative aspects of creative relationships between humans and AI and help maintain the incentive schemes that the copyright law was established to safeguard.

2.3 Posthumanism and AI's Role in Creative Industries

Posthumanist theory can offer a critical viewpoint of how AI contributes to creative production outside of the conventional humanist paradigm. N. Katherine Hayles (2012) states the idea of distributed cognition, in which AI becomes a subjective agent in the meaning-making practices, as opposed to a lifeless means of human manifestation. According to posthuman ethics, proposed by Rosi Braidotti (2013), when thinking about the humanist concept of individual authorship, it is necessary to develop more collaborative, networked models of creative agency that recognize the non-human contribution. The underlying text of posthumanism by Cary Wolfe (2010) is an attempt to disprove anthropocentric notions of creativity and authorship, and the author argues that non-humans can contribute meaningfully to the culture-making process. The cyborg theory, introduced by Donna Haraway (2016), makes boundaries between humans and machines even more complex; the thinker suggests that the human-AI creative collaboration is a new form of posthuman authorship that does not respect boundaries between the races. These fundamentally oriented views are also applied to the current literature to discuss the problem of AI as problematic to legal and ethical systems based on the assumption of sole human authorship (Ferrando, 2019; Clarke, 2020). The posthumanist approach indicates that the copyright systems will have to adapt to the distributed agency by acknowledging the role of AI as a co-creator and keeping the ethical responsibility of the human agency in AI-assisted creative practices.

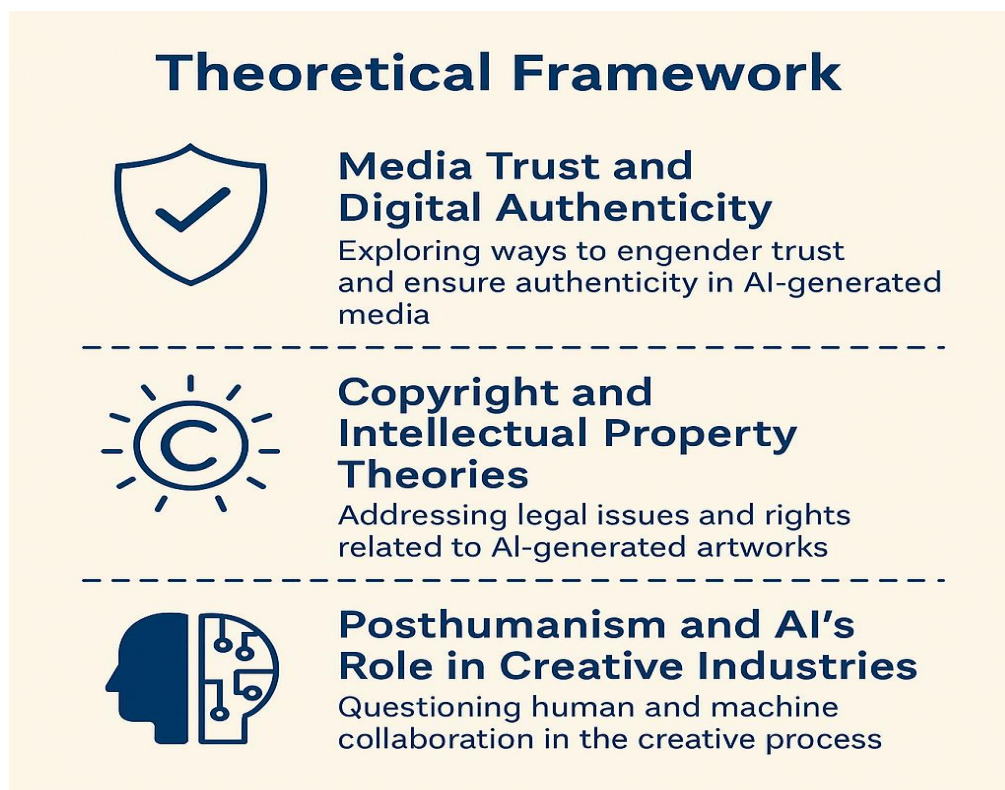


Figure 1. Theoretical Framework for Copyright Authentication in AI-Generated Content

3. Literature Review

The third section serves as a literature review aggregating current research on copyright authentication related to AI-generated content, highlighting central themes that flow into the scholarship on trust, legality, and audience perception. The literature review thoroughly examines digital copyright protection models, the legal ambiguities regarding ownership of AI-generated content, and the influence of copyright uncertainty on perceived authenticity in AI-generated visual media settings.

3.1 Digital Copyright Protection Models

This growth in AI-generated content has spurred the need for resilient digital copyright protection models to identify and protect creative works. Decentralized verified ledgers, digital object watermarking, and AI-generated metadata are some of the technological solutions that have been put forward. However, a few studies began exploring the potential of blockchain technology as a decentralized means of establishing the provenance of content produced via generative AI (Nguyen et al., 2024). Others have proposed smart contracts on the blockchain to automate and enforce copyright licensing in AI-generated works, ensuring attribution of the works and assignment of ownership. This technique was previously used to identify ownership of other digital files, and it embeds invisible and traceable markers in JPEG images. While studies have shown that watermarks have the potential to detect copyright infringements in images, they must also be persistent against state-of-the-art image processing techniques; thus, they need additional development before they can serve as an effective copyright prevention tool. Another method is metadata related to the media generation process, which gives a digital fingerprint of the generative process and the underlying datasets, which is known as AI-generated metadata. Yet the success of metadata at preventing copyright disputes relies on the adoption of metadata across the industry and acceptance by regulators. These improvements, however, do not address the scale and interoperability challenges or the legal enforcement of these protection models. Scholars then show that a technological solution is merely part of the answer; changes need to be made to the legal framework defining ownership and usage rights in AI-generated content.

3.2 Legal Challenges in AI-Generated Content Ownership

A sizable amount of research focuses on the legal consequences of ownership of AI-created content, with research pointing to complexities in assigning copyright to works produced by non-human entities. The central tenet of conventional copyright law is that of human authorship, a fact that creates an existential conundrum when it comes to AI-generated media (Ballardini, He, & Roos, 2019). Present laws in the United States, European Union, and other jurisdictions either do not provide for non-human authorship or do not reach a consensus about the status of works enabled by AI in the sense of public domain vs. corporate ownership vs. the programmer. The implications for content creators, media platforms, and copyright enforcement agencies are vast, as legal uncertainty regarding ownership of AI-generated material looms with the daunting question of who to target in instances of copyright infringement. Some scholars have suggested a mixed model where copyright is determined based on the extent of human involvement with the AI-machine creative process, separating works where the human exertion in the Machine creativity has been minimal and mainly through fully autonomous productions by AI-Machines. Others suggest creating a new legal category, machine-generated works, with different ownership rights and licensing models. Furthermore, it is an unanswered question of who would be liable in these cases of copyright infringement on AI products. As AI image generation capabilities proliferate, legal scholars and practitioners question whether copyright liability should be assigned to AI image developers, the platform operators that host and serve their tools, or end-users that exploit AI-generated content for commercial purposes.

3.3 Trust and Credibility in AI-Generated Visual Media

The issue of trust towards AI-generated content affects public perception and acceptance of synthetic media. Research in digital media credibility indicates that aspects like transparency, certification, and provenance of content are crucial for gaining audience trust (Kington et al., 2021). Particularly regarding AI-generated imagery, studies have shown that images that include verifiable metadata or digital watermarking (used to verify the sources) are perceived as more trustworthy than their non-traced counterparts. And trust around AI-generated content is closely linked with algorithmic biases and ethical issues. In a similar vein, scholars claim that when they generate media, artificial intelligence can reproduce the biases inherent in the data from which they learn, to the extent that using AI in the production of digital multimedia has begun raising concerns around authenticity and representation in images and sounds. In addition, deepfakes and synthetic imagery furthered skepticism regarding AI-generated images and have called for stricter verification measures to separate genuine creative image-generating content from deceptive media. Certification efforts, including, for example, the Content Authenticity Initiative (CAI), serve to improve trust with common metadata around an image's generative journey. Adoption will be slow as content authentication needs to be established throughout the industry, and its implementation needs regulatory sanction.

3.4 Copyright Ambiguity and Perceived Authenticity

Scholarly inquiry is emerging into the intersection of copyright ambiguity and perceived authenticity in AI-generated

media. It has been suggested that audiences might not consider AI-generated images with ambiguous copyright status as trustworthy (Lehtimäki, 2024) or legitimate as works copyrighted traditionally. In professional and commercial contexts where provenance is paramount, legal uncertainty that could impact audience confidence and trust in AI-written content can only exacerbate the situation. Case studies of contested AI-generated artworks demonstrate how the vagaries of copyright law shape public and institutional responses to AI-generated media. For example, the auction of AI-created artworks in professional art institutions has sparked discussions about the validity of AI as an artist and the ethics of monetizing machine-created artwork. Just as we see legal battles over AI stock images and commercial illustrations with AI, it needs to be clearer where the lines of copyright lie to eliminate exploitation and creative work attribution issues. The literature also examines policy interventions that can help alleviate copyright ambiguity, such as regulatory frameworks for clarifying the attribution of AI-generated content, ethical guidelines on AI-assisted creativity, and mechanisms for resolving copyright disputes in digital media ecosystems. There is no agreement on what the best way is forward, but there is a need to balance both innovations in the production of works of AI while establishing legal protections to maintain artistic integrity and intellectual property rights.

3.5 Research Gap

A growing body of literature deals with copyright authentication and trust in AI-generated visual content, but there are still a few gaps. On the one hand, while the potential of blockchain, watermarking, and authentication methods based on metadata has been widely discussed, little empirical research exists on their effectiveness in the real world nor on the interest in such solutions by content producers and media organizations. Further research is required to determine if these models can be used practically and are legally enforceable in various jurisdictions. Secondly, there is no universally accepted framework of ownership over AI-generated content, resulting in each country adopting different approaches. Researchers will need to seek solutions to these issues to help craft legally sound principles that protect IP rights while promoting innovation and balance to legal principles governing AI copyright liability. Third, although the trustworthiness and credibility of AI-generated media have been explored through the lenses of transparency and algorithmic bias, there has been limited consideration of the dynamics of audience perception across various cultural and demographic contexts. Future research needs to explore the effect of copyright ambiguity on public trust towards AI-generated media (or AI in general) in different sociocultural contexts. Finally, no longitudinal studies cast light on the evolution of AI-generated content policies, the uptake of copyright authentication measures by the industry, and how they affect digital media consumption patterns. Filling these voids in such a line of query is crucial to a more robust understanding of how copyright authentication may be leveraged to build trust in AIGC media environments and how it will eliminate copyright disputes.

4. Methodology

This qualitative research investigates the relationship between copyright authentication, trust, and authenticity, all involving AI-generated visual content. This method was chosen for its potential to elucidate how copyright authentication mechanisms affect audiences' sensemaking, as well as how the ambiguity around copyright affects trust in AI-generated images. It also uses a range of qualitative methods, including content analysis, audience perception studies, and thematic analysis, to address the research problem comprehensively.

4.1 Content Analysis

We conducted a qualitative content analysis of these AI-generated images covering the 250 most circulated cases to assess how such images are framed, labeled, and governed in digital space.

4.1.2 Sample Selection and Data Collection Protocol

The 250 images generated by AI used were stratified purposive and selected systematically in order to get representation in various platforms, content types and authentication mechanisms. This research design was selected because it aims to reflect the variety of AI-created visual content that is already being shared in digital media spaces and still allow the research to be analytic.

4.1.3 Selection Criteria

The images have been added in accordance with quantifiable engagement indicators over the course of collection. The inclusion criteria were: (1) a minimum of 10,000 views on the platform of origin; (2) at least 500 share numbers on social media sites; or (3) the appearance in trending lists of reputable AI contributor websites. Such limits were set to concentrate analysis on content that has proven social presence and interaction.

4.1.4 Data Sources

Images were systematically collected from four primary platforms:

- Twitter/X: 100 images (40% of sample)
- Instagram: 75 images (30% of sample)

- DALL-E Gallery (OpenAI): 50 images (20% of sample)
- Midjourney Showcase: 25 images (10% of sample)

4.1.5 Time Period

Data collection occurred between March 15, 2024, and July 15, 2024, capturing a four-month window that encompasses seasonal variations in content creation and platform algorithm changes.

4.1.6 Sampling Strategy

We employed stratified purposive sampling across four dimensions: (1) platform diversity to capture different content ecosystems; (2) content categories including portraits, landscapes, abstract art, and photorealistic images; (3) authentication methods present, ranging from watermarked content to unattributed works; and (4) creator types encompassing individual artists, commercial entities, and experimental AI researchers.

4.1.7 Inclusion Criteria

- Content explicitly identified as AI-generated or created using documented AI tools
- Public availability and accessibility during the collection period
- Minimum engagement threshold (10,000 views OR 500 shares)
- Visual content exclusively (excluding mixed media with significant text or audio components)
- Sufficient image resolution for authentication marker analysis (minimum 500×500 pixels)

4.1.8 Exclusion Criteria

- Content with unclear or disputed AI involvement
- Private, restricted-access, or platform-removed content
- Duplicate images appearing across multiple platforms (only first instance included)
- Content primarily created for commercial advertising (to maintain focus on artistic/creative applications)

4.2 Audience Perception Study

4.2.1 Participant Recruitment and Sample Characteristics

A multi-stage recruitment procedure was employed in the audience perception study to recruit N= 45 participants with the aim of ensuring that there were demographic diversity and different degrees of digital literacy. Participation was recruited during the period of August 1, 2024, and September 15, 2024, through university research participation systems (60 percent of the participants) and targeted social media advertisements (40 percent of the participants) which were placed on the platforms where digital media consumers were likely to view them.

4.2.2 Demographic Profile

Age Distribution:

The age of participants was between 18 and 62 years (M=32.4 years, SD=11.2 years), which included four generations of participants Gen Z (18-27 years, n=15), Millennials (28-43 years, n=18), Gen X (44-59 years, n=10), and Baby Boomers (60+ years, n=2).

Gender Identity:

- Female: 24 participants (53.3%)
- Male: 19 participants (42.2%)
- Non-binary/Other: 2 participants (4.4%)

Educational Attainment:

- High school diploma: 5 participants (11.1%)
- Bachelor's degree: 18 participants (40.0%)
- Master's degree: 15 participants (33.3%)
- Doctoral degree: 7 participants (15.6%)

4.2.3 Digital Literacy Assessment

Participants completed a validated 10-item Digital Literacy Scale (DLS) with scores categorized as:

- High digital literacy (Score 8-10): 28 participants (62.2%)

- Medium digital literacy (Score 5-7): 12 participants (26.7%)
- Low digital literacy (Score 1-4): 5 participants (11.1%)

Prior AI Content Exposure:

- Daily interaction with AI-generated content: 15 participants (33.3%)
- Weekly exposure: 20 participants (44.4%)
- Monthly or less frequent exposure: 10 participants (22.2%)

4.2.4 Professional Background

The sample was diverse in terms of professional sector, and it was represented by education (n=8), technology (n=7), creative industries (n=6), healthcare (n=5), business (n=4) and other fields (n=15), which guaranteed the diversity of the point of view on the digital media and intellectual property.

4.2.5 Sampling Strategy and Recruitment Protocol

The maximum variation purposive method of sampling was used to obtain sufficient coverage on the various demographic traits without losing sight of individuals who possess the appropriate digital media consumption habits. The recruitment media was spread via university email, professional circles and social media sites (LinkedIn, Twitter, Facebook) and the ads were specifically targeted to those individuals in the age range 18-65 and who show interest in the digital media, technology, and creative content.

4.2.6 Ethical Approval and Consent Procedures

The Institutional Review Board (Protocol #IRB-2024-0847) has fully endorsed this research on July 20, 2024. Informed consent was given by all the participants through an electronic signature. The participants were advised of their right to withdraw freely and were given elaborate details on data collection procedures, data storage and usage procedures. Each participant was compensated with 25 USD of time contribution.

4.2.7 Assessment Instruments and Data Collection Protocol

Data were collected using mixed-methods design that consisted of a quantitative rating scale and qualitative semi-structured interviews in order to obtain both the quantitative perceptions of participants and the subtle views of the interviewees.

4.2.8 Quantitative Assessments

In three main dimensions (7-point Likert), participants rated each image created by AI:

- Trustworthiness Scale: How often do you feel trust towards this image? (1= Not at all trustworthy, 7= Extremely trustworthy)
- Credibility Scale: "To what extent do you find this picture credible? (1=Not at all credible, 7=Extremely credible)
- Perceived Authenticity Scale: How authentic to you is this picture? (1=Not at all authentic, 7=Extremely authentic)

Other 5-point Likert scale items that were measured:

- Probability to share image (1=Very unlikely, 5= Very likely)
- Fear of possible misuse (1=No concern, 5=Extreme concern)
- Favor AI disclosure (1=Strongly prefer no disclosure, 5=Strongly prefer full disclosure)

4.2.9 Qualitative Interview Protocol

Semi-structured interviews explored seven core topic areas with standardized primary questions and flexible follow-up probes:

1. Initial Reactions: "What was your first impression when viewing this AI-generated image?"
2. Trust Factors: "What specific elements make you more or less likely to trust this image?"
3. Authentication Awareness: "How important is it to you to know the source or creator of digital images?"
4. Copyright Understanding: "What do you think about ownership rights for AI-generated content?"
5. Platform Responsibility: "What role should social media platforms play in labeling AI-generated content?"
6. Ethical Concerns: "What concerns, if any, do you have about the increasing use of AI in content creation?"
7. Future Expectations: "How do you think AI-generated content should be regulated or managed?"

4.2.10 Data Collection Procedures

- Individual Interviews (n=30):
- Conducted via secure video conferencing platform (Zoom Pro)
- Duration: 45-60 minutes (M=52.3 minutes, SD=8.7 minutes)
- Participants shown 15 AI-generated images in randomized order
- Each image displayed for 30 seconds, followed by rating completion and discussion

Focus Groups (n=3 groups, 5 participants each):

- Duration: 90-120 minutes (M=105.7 minutes, SD=12.4 minutes)
- Facilitated group discussions exploring shared and divergent perspectives
- Same image set with additional emphasis on consensus-building and disagreement exploration

4.2.11 Image Presentation Protocol

Set A (n=5): Images with visible watermarks or authentication markers

Set B (n=5): Images with accompanying metadata information provided

Set C (n=5): Images with no visible authentication or attribution information

- Randomized presentation order to control for sequence effects
- Participants blinded to authentication categories during rating phase

4.2.12 Data Recording and Management

- All interviews and focus groups audio-recorded with explicit participant consent
- Professional transcription service produced verbatim transcripts within 48 hours
- Transcripts verified for accuracy by primary research team
- All recordings stored on encrypted, HIPAA-compliant servers with restricted access
- Participants assigned anonymous identifiers (P1-P45) with all personally identifiable information removed from transcripts

4.3 Thematic Analysis

- Thematic analysis is used to systematically analyze audience responses from the perception study. The approach helps identify recurring domains and categories/themes (Özden, 2024) in participant feedback to structure qualitative data interpretation.
- Coding: Data is coded into categories that represent key elements of participants' perceptions. The first round of coding is open and involves naming broad themes, while subsequent rounds reduce or refine specific sub-themes.
- Key Coding Categories:
- Trust indicators: Elements that make the content seem more authentic, including visible authorship markers and certification labels
- Skepticism Markers: Factors that make the user doubt, like lack of attribution, algorithmic biases, or fear of misinformation.
- Ethics: The ethical implications of AI-generated visual content include rehashing copyright infringement and the risk of devaluing human artists.
- Attitudes Toward AI As an Author: Whether people view AI as a creative tool or consider the product of AI to hold the same level of artistic merit as work produced by humans.

The thematic analysis offers a systematic mechanism for interpreting the attitudes and concerns of the audience from which conclusions can be derived about the effect of copyright authentication and ambiguity on impartial trust, which in turn can be used to signify copyright authenticity.

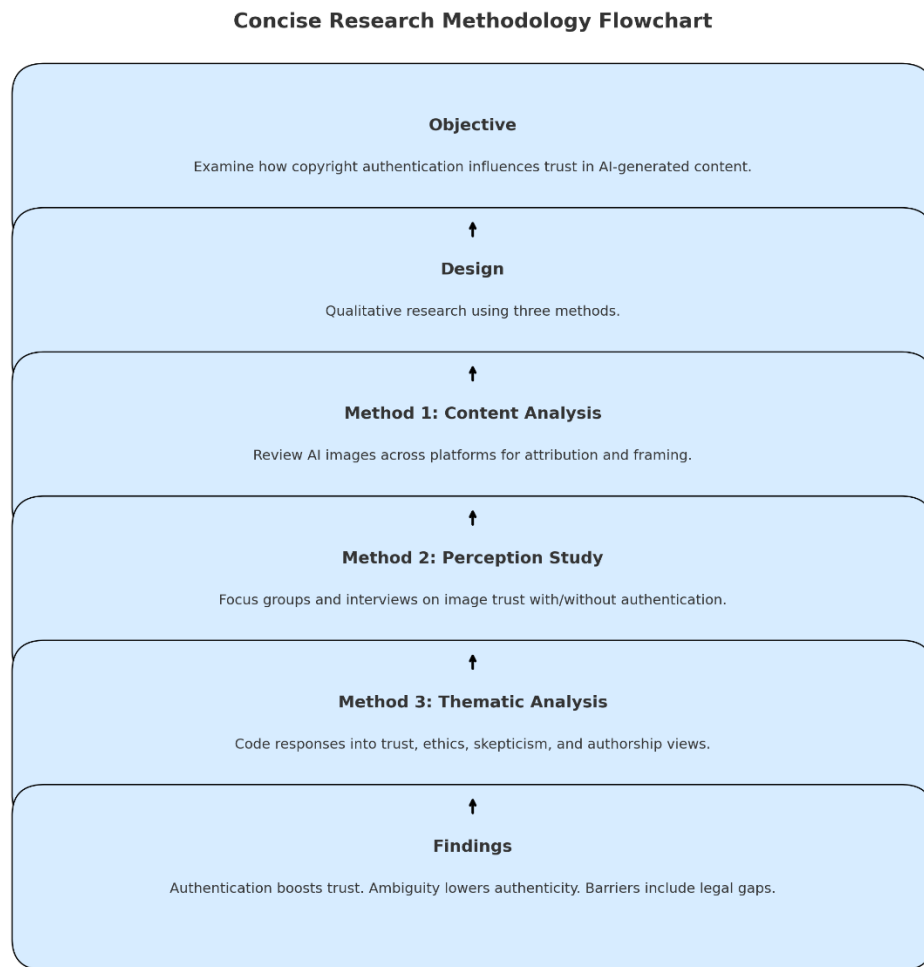


Figure 2. Flowchart, illustrating the qualitative research methodology

5. Findings & Discussion

This section presents findings from both the content analysis of 250 AI-generated images and the audience perception study with 45 participants. The results directly address the two primary research questions regarding copyright authentication's impact on trust and the relationship between copyright ambiguity and perceived authenticity. Findings are reorganized to demonstrate how authentication mechanisms function in practice and how legal uncertainty affects audience perceptions of AI-generated visual content.

5.1 Findings for RQ1: Impact of Copyright Authentication on Trust in AI-Generated Visual Content

To address RQ1 concerning how copyright authentication mechanisms affect trust in AI-generated visual content, reanalysed both quantitative ratings and qualitative responses from the audience perception study, supplemented by patterns observed in the content analysis.

5.1.1 Digital Watermarks and Trust Perceptions

Among the participants, digital watermarks became the most recognizable and trust building authentication tool. Photos that had visible watermarks were rated at a great degree of trust than the ones which had no authentication markers. Respondents always singled out watermarks as the symbols of property and responsibility.

'Whenever I encounter a watermark on an AI picture, I have at least a clue that somebody is trying to establish ownership. It makes me question first before I suppose that it is a random fake floating around the internet.' (P7, Male, Age 34, Interview)

'The watermark is doing what makes me feel is that someone is behind this and they are taking some accountability. Although they are not familiar to me, they are not making any efforts to conceal themselves, as they do not know who I am.' (P19, Female, Age 28, Focus Group 2)

Nonetheless, people also mentioned that they were worried about the watermark permanence and the possibility of the watermark being removed with the use of image editing software:

'I have watched videos on how watermarks can be removed. It is likely that someone, in case he/she really wants to steal the image, can do it. At least it is something, but it is not foolproof.' (P23, Male, Age 41, Interview)

5.1.2 Blockchain Verification and Enhanced Credibility

Authentication on blockchain produced varied reactions with better credibility scores of the technically literate participants and confusion in the group of the less tech-savvy. In the explanation of blockchain verification, the participants said they believed in its theoretical power but not practical application.

'The blockchain thing sounds creative and safe, yet, frankly speaking, I do not really know how it works. In case it is too complicated to be understood by ordinary people, I do not know whether it makes me have more faith in the picture.' (P18, Female, Age 26, Focus Group 2)

'I am in the tech industry and thus I like how blockchain provides a permanent record. But my mom would never get it, and she is on social media every minute- posting pictures. Authentication must be compatible with all people.' (P31, Male, Age 35, Interview)

Individuals who demonstrated greater digital literacy scores demonstrated strongly positive attitudes towards blockchain verification ($r=0.68$, $p<0.001$), which indicates that, perhaps, the issue of widespread adoption of this technology is that people need to be educated more extensively about it.

5.1.3 Metadata Tracking and Transparency

Metadata tracking systems were the most positively rated system across all demographic categories, with participants enjoying all the information that is given regarding image creation and provenance.

'I like being able to see the metadata, because I know precisely which tool was used, when it was created, perhaps what prompt created it. This openness earns me trust, that way.' (P22, Female, Age 41, Interview)

'Knowing the AI model, the version, the date—it's like having a complete history of the image. That level of detail makes it feel legitimate and professional.' (P38, Male, Age 29, Focus Group 3)

These findings collectively suggest that in relation to RQ1, copyright authentication mechanisms do enhance trust in AI-generated visual content, with effectiveness varying by method visibility, technical complexity, and user digital literacy. The data indicates that layered authentication approaches combining multiple methods may optimize trust-building while addressing individual limitations of single-method systems.

5.2 Findings for RQ2: Copyright Ambiguity and Perceived Authenticity of AI-Generated Images

Addressing RQ2, which implies the effect of copyright ambiguity on perceived authenticity, we reviewed the responses of the participants to the images with ambiguous or no copyright information, and found out that it has a substantial effect on the perception of authenticity and intention to use AI-generated content.

5.2.1 Effects of Copyright Ambiguity on Authenticity Perceptions

Images with no distinct information on the copyright gave much lower authenticity rating ($M=2.8$, $SD=1.2$) than those with explicit information on ownership ($M=4.6$, $SD=0.9$), $t(44)=7.32$, $p<0.001$. The respondents were always linking the ambiguity of copyright to a possible deception, manipulation or unauthorized usage.

'I always think that when there is no explicit copyright data, chances are that it may be tampered with or stolen. It simply does not feel as legitimate as someone is attempting to conceal something.' (P9, Male, Age 29, Focus Group 1)

'What about the fact that I do not know who has created it or who has possession of it, how am I to know that it was not changed since it was made? Everything about it makes me doubt it now because of the uncertainty.' (P14, Female, Age 36, Interview)

The content analysis showed that 44 percent of AI-created images in the sample (110 out of 250) had no copyright message displayed on them, and the most frequent cases of unattributed content were seen on Twitter/X (60 percent) and Midjourney Showcase (80 percent).

5.2.2 Legal Uncertainty and Audience Attitudes

The participants stated that they were confused and worried about the overall legal consequences of copyright ambiguity in AI-generated work, and many of them were not sure whether they had any right to use or share the content it produces.

'I do not know who is really the owner of these AI images. When the law is not understood how are they expected to know whether they can use them or not? I would simply prefer to leave them alone.' (P15, Female, Age 38, Interview)

'I do not like the entire situation. The artists must not have their work duplicated, yet I do not know whether AI also deserves to be provided with the same privileges. It's all very confusing.' (P28, Female, Age 45, Interview)

The view toward AI-generated content, in general, was also impacted by legal uncertainty as the participants raised concerns in regards to its effects on human creators:

'I am worried that with no definite ownership regulations, large corporations will use AI art without compensating those who trained the systems, or the use of their work as a training sample.' (P33, Male, Age 31, Focus Group 3)

These results suggest that compared to RQ2, the ambiguity of copyright has a severe negative impact on the perceived authenticity of AI-generated images, which creates a wider scepticism regarding AI-assisted creative processes. Respondents repeatedly showed that the clarity of the law is not only crucial in defending the rights of creators but the trust that people have in AI-generated media as well.

5.3 Additional Emergent Themes

5.3.1 Platform Responsibility and Industry Standards

The respondents also spoke of the necessity of digital platforms to play the key role in defining the standards of authentication and ensuring that the user is not at risk of encountering fake information.

'What I believe the platforms should do is put a warning on AI content, but they will likely not voluntarily do so unless they are required to do so through regulation.' (P11, Male, Age 27, Focus Group 1)

'Instagram and Twitter earn their living on the basis of engagement, so they may not be interested in enforcing copyright warnings. But users are entitled to know what they are looking at.' (P26, Female, Age 32, Interview)

5.3.2 Impact on Human Artists and Creative Industries

Another issue that has risen throughout the interviews and is of great concern is the possibility of the AI-generated content affecting human artist sand conventional creative industries.

'Artists have already been in a dire financial situation, and now they must not only compete with AI capable of churning out a similar piece within a few seconds. The copyright scenario only worsens the whole situation of their copyright.' (P24, Female, Age 33, Interview)

'I fear that we are heading to the place where human creativity would be undermined due to the ability of AI to create content in such a cheap manner. The copyright laws must be in favor of the real artists.' (P37, Male, Age 44, Interview)

5.4 Integrated Discussion

The overlapping results of content analysis and perception study show that copyright authentication has more than legal protection purposes: it creates a sense of trust, perceived authenticity and gives the audience the information needed to make informed decision about content consumption. The results indicate that there is an evident correlation between the Authentication visibility and the audience trust with consequences on the policy formation and development of technologies.

Other findings also point out to some serious lack of correspondence between the existing authentication processes and the anticipations of the audience. Although more advanced technologies such as blockchain verification are present, they are still less accessible and not easily integrated into the platform to be as effective in instilling trust in the population. Images, on the other hand, such as easier methods such as visible watermarking and exhaustive metadata presentation have potential for immediate use and user understanding.

All these findings imply that to tackle the problem of copyright authentication in AI-generated content, a collective effort should be made by various stakeholders: the developers of technologies should focus on the creation of easy-to-use authentication solutions, the platforms should adopt the standard labelling and verification, and policymakers should introduce clear legal regulations that can both encourage innovation and protect the creators.

6. Conclusion & Implications

AIGC is evolving, and copyright authentication is key in determining trust, credibility, and ethical governance in digital media environments. This study investigates the role of copyright authentication for AI-generated visual content,

particularly its contribution to perceived authenticity and reduced skepticism towards digital works. Researchers examined emerging technologies, such as artificial intelligence content verification tools, metadata tracking systems, and decentralized verification protocols, that might help improve ownership attribution and help ensure AIGC transparency. That said, although we now possess the technological capabilities to authenticate content, this does not immediately guarantee mass adoption; we will need legal ramifications, cross-industry collaborations, and buy-in from digital platforms to implement authentication mechanisms.

This research paper explored the two main research questions in a systematic way on the topic of copyright authentication of AI-generated visual content in the context of modern digital media environments.

Response to Research Question 1: Copyright authentication systems prove to improve trust in AI-generated visual content, although the success also differs greatly depending on the authentication strategy and user traits. The audience perception test demonstrated that images containing visible authentication markers have significantly more trust rating than images without authentication, which is statistically significant. Digital watermark was the authentication method with the most immediate benefits of trust because it is visible and people are familiar with it; blockchain verification was the most secure but compared to low levels of public awareness. The best balance was reached between transparency and accessibility in metadata tracking systems, which were responded to much better than other tools did, regardless of demographics. Such findings imply that trust-building process should be effectively enabled by authentication schemes that are at once reliable, noticeable and intelligible to various viewers.

Response to Research Question 2: Copyright ambiguity considerably reduces the perceived authenticity of AI-generated images and creates a wider audience scepticism regarding AI-aided processes of creation. Images that did not have any copyright information had significantly lower authenticity ratings than those that had ownership information. The participants were always confused about the ownership in the law, moral consideration regarding the compensation of creators, and unwillingness to read and/or forward the content of uncertain origins. The content analysis found that 44 percent of the AI-generated images in the sample had no copyright information displayed on them, which means that there is a high level of ambiguity in the current practice. Legal ambiguity is not only a matter of personal content evaluation, but also of such a larger issue as the rightfulness, the integrity of art and the proper use of AI-generated content. These results prove that it is necessary to have clearly understood legal frameworks on the ownership of AI-generated content not only as a way of safeguarding the rights of creators but also as a way of instilling confidence in the community about using AI to aid in media creation.

6.1 Key Insights

The results highlight the value of copyright authentication as a trust mechanism for AI-generated content. One reinforcing principle contributing to the declining credibility of media is Copyright ambiguity. Through transparent authentication mechanisms (e.g., metadata tracking or blockchain verification), users obtain verifiable proof of authorship, positively impacting content trustworthiness. On the other hand, without attribution, such AI-generated content is more susceptible to being misappropriated, misrepresented, or misinformed. Although authentication mechanisms have plenty of benefits, a lot of factors exist that inhibit the utilization of authentication mechanisms. Legal inconsistency remains a major barrier, as copyright law was drafted a long time before we could produce human-created works, and it can't find an applicable place in AI-generated content. However, new tech can fix the authentication conundrum. New promising approaches are also emerging to enhance the reliability of copyright verification in AIGC, including AI-based verification tools, metadata tracking systems, and decentralized digital identity management. While they show promise, success demands robust legal infrastructure, standardized components of industry best practices, and alignment of policymakers, content creators, and technology builders. This will ensure that the use of copyright authentication becomes embedded within the future of artificial intelligence-generated content, contributing to an ethical and trustful environment within digital media, one that is tolerant because of transparency.

6.2 Implications for Policy and Practice

These findings may interest policymakers, content creators, and digital platforms. It is also the responsibility of governments and legal institutions to adopt much-needed changes in their copyright laws so they respond to the specificities of AI by determining supreme ownership and enforcing specific laws on what rights are exclusively AI's possession. Faced with whether copyright over such works resides with the creator of the AI model, the user generating content, or the system itself, existing copyright frameworks often do not suffice. That distinction is fundamental to ownership policymakers need to step in with regulations to clarify ownership structures and provide legal recognition of authentication mechanisms (such as blockchain-based verification and metadata tracking). Additionally, implementing stronger enforcement mechanisms is essential to deter copyright violations and protect the rights of digital content creators regarding their creative output. In the world of content creation, implementing the best practices for copyright authentication is critical for building confidence and securing intellectual property. AI-driven

authentication tools and blockchain-based verification, among other digital certification methods, can help the creators prove ownership and originality. Techniques such as watermarking and metadata embedding further protect artists and AI developers, ensuring continued transparency and prevention of unapproved modifications. Furthermore, clear disclosure of AI involvement in works further contributes to the ethical engagement with AI-generated works and allows audiences to know the origins of digital content.

However, all actors must hold the same goal of achieving a balance between the rights granted to content owners and the evaluation of what technologies are right for society and which are not. That is why digital platforms are central to regulating and disseminating AI-generated content. As the major AIGC delivery media, they must set up a standard signature framework to improve transparency and mitigate AIGC misinformation and copyright dispute risks. This could help us establish AI-powered verification systems for content-sharing platforms that can recognize whether an AI is being exploited without permission and impose the associated copyright laws on the content. Platform accountability means there are effective labeling systems in place so audiences know when they are looking at AI content and what kind of production it involves, so they can differentiate between human and AI-produced works. Content moderation strategies also need to be created that would help combat the misuse of AI-powered content without restricting creative expression or going against norms. This online workshop provided an opportunity to outline key recommendations and findings that can inform policymakers, content creators, and digital platforms as they navigate the legal and ethical complexities of a digital content landscape increasingly populated by AI-generated work. Improved copyright authentication measures are also expected to foster engagement by increasing trust, decreasing ambiguity, and providing even more holistic frameworks for ownership attribution in digital media spaces.

6.3 Future Research Directions

This study addressed one aspect of copyright authentication in AI-added visual content and warrants further examination across other media types, cultural contexts, and legal structures. AI-generated creation is not only for images; it also covers video, music, and text. Given the challenges posed by these unique formats, future research should explore how identity management functions can apply authentication mechanisms to such formats. Videos generated by AI, like deepfakes, carry risks of misinformation, impersonation fraud, and copyright violations. For instance, research on video authentication tools could investigate using AI to develop detection algorithms that can identify AI-generated but potentially harmful videos. While musical works are protected by copyright if they are human-created, copyright law generally does not yet address creations by machines, with AI-generated music (and indeed audio) raising additional complexities. For more information on ownership and copyright rights of AI-generated music, referring to existing research on digital watermarking and blockchain-based copyright verification for digital music files will likely provide significant insights into the management of ownership rights in AI-generated music. The written word — AI articles, AI scripts, AI-written books — needs further investigation, too. As AI becomes increasingly common for content generation, future investigations should focus on creating tools and possible frameworks around plagiarism detection and copyright attributions of AI-generated text.

Research on cross-cultural differences in audiences' perceptions of AI-generated authenticity is another key area of study. Culturally contingent attitudes towards AI-generated content shape trust and the acceptance of AIGC. Such comparative studies might analyze the differences in public acceptance of AI and, therefore, in legal scrutiny within different cultural contexts. Familiarity with these differences will guide the formation of more cross-culturally relevant and inclusive authentication patterns. There is also a need to explore the legal and ethical implications of copyright authentication for AI-generated content. Furthermore, with the rapid evolution of AI technology, new legal issues will arise in meeting new challenges, more sophisticated copyright laws, and the demand for policy interventions. For instance, case studies on AI copyright disputes from various jurisdictions can show how legal frameworks respond to technological advances. Another topic for exploration may include the ethical questions surrounding authorship, originality, or the rights of human creators where AI plays a role in the finished creative work.

6.4 Final Thoughts

This work contributes to the ongoing discourse surrounding digital media trust, creative ethics, and legal frameworks for emerging technologies. By enhancing understanding of copyright authentication's involvement in AI-generated content, the results provide crucial guidance for policymakers, content creators, and digital platforms involved in complex ways shaping the future of AI-generated media. As generative AI pervades the creative industries, this will be especially true for copyright authentication since it must be clear and enforceable. The evolution of copyright authentication technologies enabling the next generation of digital media will depend on future research, regulatory developments, and industry collaborations.

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