A Review of Research on Responsibilities and Risks of Generative Artificial Intelligence Works in Academic Publishing

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Date: 2024-01-31T00:00:00+00:00

Abstract

Objective: To analyze the legal, ethical, and social issues concerning works output by generative artificial intelligence (AI) models (hereinafter referred to as AI works) in the academic publishing domain, thereby promoting the rational application of generative AI in the academic publishing industry. Methods: Through investigating and reviewing domestic and foreign literature, this study analyzes the responsibilities and risks faced by relevant responsible entities for AI works, including authors, AI model developers, and publishing units, and preliminarily proposes coping strategies and future innovative publishing models. Results: AI cannot serve as the author of AI works. Most publishing units hold that AI may be utilized as an aid in academic paper creation, but it is necessary to disclose in appropriate sections of the main text whether and how AI is employed. AI works may involve infringements such as copyright and personality rights, ethical issues including ethical dilemmas and ethical conflicts, and social issues like social injustice. Publishing units should undertake corresponding social responsibilities, adhere to manual verification and content review of AI works, and collaborate with authors, AI model developers, regulatory departments, and other stakeholders to promote the healthy development and standardized application of generative AI. Conclusion: The emergence of AI works will inevitably guide transformation in scientific research creation and the publishing industry; publishing units must insist on manual review, encourage original output, and promote the high-quality publication of scientific research achievements.

Full Text

Preamble

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Abstract

[**Purpose**] To analyze the legal, ethical, and social issues involved in works generated by artificial intelligence (AI) models (referred to as AI works) in academic publishing, thereby promoting the rational application of generative AI in the academic publishing industry. [**Methods**] This study investigates and reviews domestic and international literature on AI works, analyzes the responsibilities and risks faced by relevant stakeholders including authors, AI model developers, and publishing institutions, and proposes preliminary countermeasures and innovative publishing models for the future. [**Findings**] AI cannot be the author of AI works. Most publishing institutions believe that AI may be used in academic paper writing, but authors must disclose whether and how AI was used in appropriate sections of the manuscript. AI works may involve infringements of copyright and personality rights, ethical dilemmas and conflicts, and social injustice issues. Publishing institutions should bear corresponding social responsibilities, insist on manual verification and content review of AI works, and collaborate with authors, AI model developers, regulatory authorities, and other stakeholders to promote the healthy development and standardized application of generative AI. [**Conclusions**] The emergence of AI works will inevitably lead to transformation in scientific research creation and the publishing industry. Publishing institutions must adhere to manual review, encourage original output, and promote high-quality publication of scientific research achievements.

Keywords: Generative artificial intelligence; Publishing institutions; Authors; Legal issues; Ethical risks; Social responsibility; Risk prevention

Introduction

In 2023, generative pre-trained Transformer (GPT) models represented by ChatGPT have sparked widespread discussion in the academic publishing industry due to their breakthrough text generation capabilities and powerful language expression. Many researchers have used GPT models to analyze data, draft papers, and revise manuscripts. For instance, Gerardo [1] used ChatGPT to

write a paper, noting that GPT can leverage its built-in mathematical and statistical capabilities to simulate and analyze physical laws and phenomena, and even composed a limerick about itself to test its linguistic abilities. Osmanovic-Thunström and Steingrimsson [2] used GPT-3 to generate ready-to-use academic papers, concluding that GPT-3 is a promising tool for academic writing.

Under current publishing models, the frequency of publishing works without adequate review is increasing, suggesting that the publishing community lacks sufficient capacity to handle the vast volume of scientific works being produced. AI may help improve the quality and efficiency of publishing by identifying reviewers, creating automated evaluations, and analyzing published works to quickly identify organizations that fail to fulfill their publishing responsibilities [3]. In recent years, publishing institutions have gradually employed GPT models for topic selection analysis, publication decision-making, peer review, detection of academic misconduct such as plagiarism and data fabrication, and copyediting [3-4].

However, Osmanovic-Thunström and Steingrimsson [2] also noted that GPT-3 may be unable to generate novel ideas or perspectives that humans could propose, recommending that researchers closely monitor the writing process when using GPT models to mitigate potential negative consequences. AI works may also harm the transparency and credibility of scientific research, with accompanying infringement issues, ethical problems, and social risks becoming increasingly serious [5-7].

In 2023, China' s *Interim Measures for the Management of Generative Artificial Intelligence Services* proposed taking effective measures to encourage the innovative development of generative AI while implementing inclusive, prudent, and classified supervision of generative AI services [8]. Therefore, the application of AI technology in academic paper writing may increase in the future, raising questions about how academic publishing institutions should respond and fulfill their social responsibilities. This study reviews domestic and international literature on AI works, discusses the legal, ethical, and social responsibilities and risks faced by relevant stakeholders including authors, AI model developers, and publishing institutions, and proposes preliminary management strategies to promote the rational application and healthy development of generative AI in academic publishing.

1.1 Copyright Attribution Issues

Many publicly released AI works, such as the experimental novel *1 The Road* [9] and preprints like "Can GPT-3 write an academic paper on itself, with minimal human input?" and "Open artificial intelligence platforms in nursing education: Tools for academic progress or abuse?"[2,10], have listed AI or GPT as an author. Although some of these papers removed GPT from the author list upon formal publication, they have nevertheless prompted reflection on copyright ownership of AI works.

AI works are "combinatorial" outputs produced and recreated by large computer language models after "learning" and "training" on vast amounts of data. The viewpoints they express derive from literature and materials already produced or created by others, lacking "originality." Copyright laws in many countries stipulate that works eligible for copyright protection must possess originality [11-13]. An author, as one of the copyright holders, is an individual or organization that completes the creative work and can assume direct responsibility for it [14]. China' s *Copyright Law* also provides that copyright belongs to the author, and the author is limited to two categories: (1) natural persons who create the work; and (2) legal persons or unincorporated organizations that create the work and assume responsibility. Moreover, AI has clear tool attributes and cannot become a true legal subject bearing corresponding rights and obligations [15]. Therefore, from a legal perspective, AI cannot be a copyright holder.

Both *Science* and *Nature*, leading international academic journals, disagree with listing AI as an author. *Science* Editor-in-Chief Thorp [16] argues that while AI models may play important roles in the publication of research results, they are merely tools used by researchers to propose hypotheses, design experiments, and interpret results; the final research findings must originate from and be expressed through the marvelous workings of the human mind. *Nature* Editor-in-Chief Magdalena Skipper also believes that authorship entails responsibility for the work, and AI models are clearly unsuitable as authors [17]. Therefore, from an academic research perspective, AI also cannot be listed as an author.

Since AI cannot be an author, can GPT and other AI models still be used in creative work? And if AI is used, how should its contribution be defined in papers? In response, *Science* magazine specifically emphasizes that text generated by AI models such as GPT, including various illustrations, cannot be used in papers, as such use would constitute academic misconduct [16]. However, on February 3, 2023, multiple professors from the University of Amsterdam published a joint article in *Nature* arguing that banning GPT and other AI models in academic publishing is unfeasible; the current priority is to seize opportunities and manage risks [18]. *Nature* magazine also explicitly stipulates that authors may use GPT and other large language models in paper writing, but must be transparent about how the paper was formed and what tools were used. Additionally, if GPT or other large language models were used in the writing process, authors must clearly describe the specific usage in sections such as "Methods" or "Acknowledgments" [17,19]. Elsevier, publisher of leading international journals such as *Cell* and *Lancet*, agrees with *Nature*' s approach but further proposes that AI-generated text cannot replace key work that should be completed by authors, such as interpreting data and drawing scientific conclusions [20].

In summary, in AI works, unsupervised GPT and other AI models merely determine the big data tendencies of research content; the true research findings and viewpoints should be entirely determined by human thinking. For AI works, AI cannot be the copyright holder, nor can it be listed as an author in paper publication. Regarding whether AI models may be used in paper writing, most

publishing institutions currently tend to support their use.

1.2 Infringement Issues

GPT-generated text and illustrations are produced through learning and training on massive amounts of internet data, not specified by programmers. The exact reasons for GPT' s behavior and its production mechanisms are even unknown to its own developers, let alone users, resulting in uncertain and incomplete outputs [21-22]. Precisely because of this, works created with GPT and other AI models carry high infringement risks, potentially violating not only others' copyright but also their personality rights, and even causing market monopolies or unfair competition.

First, GPT may directly copy existing academic papers or other materials, violating copyright law and infringing upon original authors' copyright [23]. Second, GPT may generate papers in a researcher' s name, possibly including that researcher' s viewpoints and research findings when the researcher was not actually involved. This creates false research results, damages the researcher' s reputation, and infringes upon their personality rights including name rights, reputation rights, and honor rights. It may even incorporate the researcher' s personal profile and other information into the paper, violating their privacy rights [24]. Such works may circulate in the market, reducing the market value of original works and adversely affecting the economic rights of original authors and publishing institutions in their copyrights. Additionally, GPT may combine content from multiple papers through synthesis, rewriting, or reorganization, simultaneously infringing upon the rights of multiple individuals or organizations. Finally, if GPT analyzes and discloses information such as other publishers'topic selection or pricing strategies, this may lead to market monopolies and unfair competition, affecting fair competition in the publishing market and consumer rights [25].

When AI works are published, copyright holders and related publishing institutions may face infringement issues. Regarding infringement, ChatGPT' s developer OpenAI specifically states that it assumes no legal responsibility for any intellectual property infringement that may occur from using ChatGPT [26]. The AI language model Wenxin Yiyan also declares in its user agreement that if users infringe upon others' intellectual property rights, portrait rights, reputation rights, etc., while using Wenxin Yiyan, the users bear the infringement risks and responsibilities. Publishing institutions are intermediaries that bring AI works to market. If published AI works contain infringements and contractual responsibilities are not clearly defined in advance, publishing institutions must assume corresponding legal responsibilities. Therefore, for works generated by GPT and other AI models, both copyright holders and publishing institutions should insist on manual verification and content review to effectively avoid potential infringement caused by using AI models.

1.3 Legal Risk Prevention Strategies

If AI works infringe upon others' copyright, personality rights, or other interests, the first step is to determine liability attribution. This may involve multiple parties including AI model developers, training data providers, and AI model users.

1.3.1 Strengthening Developer Supervision Laws and regulations related to generative AI models such as GPT are still incomplete. China's *Interim Measures for the Management of Generative Artificial Intelligence Services* [8], the EU's *AI Liability Directive* [27], and the *AI Act* [28] do not stipulate whether AI models may use personal data and information during training. Therefore, for the foreseeable future, legal issues arising from AI works will remain a challenge for relevant copyright stakeholders. To reduce potential infringement risks, developers of generative AI models must improve technical supervision mechanisms, formulate relevant technical service standards, strengthen source tracing and verification of GPT-generated text and illustrations to reduce the possibility of misappropriating others' original works, and establish effective complaint handling mechanisms. If user infringement complaints arise, developers must respond promptly, investigate and verify, and then take reasonable remedial measures such as contacting original authors of training data for authorization or deleting/modifying relevant content. In addition to developers' self-supervision, the *Interim Measures for the Management of Generative Artificial Intelligence Services* also stipulates that cyberspace administration, development and reform, education, science and technology, industry and information technology, public security, radio and television, press and publication, and other departments should strengthen supervision and management of generative AI services according to their respective responsibilities to promote healthy development and standardized application of generative AI, safeguard national security and social public interests, and protect the legitimate rights and interests of citizens, legal persons, and other organizations [8].

1.3.2 Strengthening Training Data Authorization Management As an emerging technology, generative AI has triggered several serious legal and security issues. For example, Italy announced that ChatGPT's developer OpenAI violated Italian privacy rules and data protection laws, resulting in user data loss without informing users [29]. Data protection regulatory agencies in Italy, Germany, France, Spain, and many other countries have expressed concerns about or launched investigations into AI models such as ChatGPT. While generative AI models indeed bring convenience to people's lives, they also pose real risks. To build increasingly safe AI systems, strict training data authorization management is essential. Currently, training data for generative AI models mainly comes from public corpora, social media, disciplinary databases, and other platforms. These data-providing platforms should establish stricter data management mechanisms and adopt necessary measures to ensure that only authorized personnel can access data. AI model developers should also review

the authorization status of relevant data when obtaining training data, clarify whether it is restricted-access or unpublished material, and ensure it is not confidential information, thereby guaranteeing that training data is legal, compliant, and free from leakage risks. Data providers should also formulate usage principles for sensitive personal information, such as requiring anonymization and de-identification when using such information. AI model developers must also improve protection requirements for sensitive personal information throughout the industrial chain and regulate the lawful use of such information by AI models.

1.3.3 User Risk Prevention Users should enhance their security awareness and use GPT and other AI models cautiously. If authors use GPT in their writing, they must always insist on manual verification, trace important viewpoints to their sources and cite original materials, carefully verify illustrations, and ensure they have obtained authorization from original authors. For AI works, publishing institutions need to establish standardized and reasonable manual verification procedures, requiring authors to clearly specify what content used GPT and how it was used, and even requiring authors to provide documentation on the generation process of illustrations and related authorization statements [18]. When receiving AI works, publishing institutions must carefully verify the sources of all cited materials, cases, and literature in the paper to ensure transparency and credibility of research information and protect the legitimate rights and interests of publishing institutions. To fully protect user rights, legislative departments in various countries are gradually improving laws and regulations on AI works. Both China' s *Interim Measures for the Management of Generative Artificial Intelligence Services* [8] and the EU' s *AI Act* [28] have proposed requirements for AI model developers regarding training data sources, scale, algorithmic mechanisms, transparency, and risk assessment. Developers of AI models such as OpenAI, Google, and Microsoft need to declare whether copyrighted materials were used to train their models. As laws and regulations improve, it will become increasingly easy for users to trace research viewpoints and original sources in AI-generated text.

2.1 Ethical Misconduct Issues

AI works may involve a series of ethical misconduct issues, including ethical rights problems, ethical dilemmas, ethical conflicts, and ethical risks. DeVoss, one of the developers of the paper review tool StatReviewer, believes that the automated creation process of GPT and other AI models is fraught with ethical dilemmas, and humans must remain vigilant about what values GPT-generated works may convey [3]. First, can AI possess the same ethical rights and status as natural persons? Chinese scholar Lan Jiang [30] believes that, at present, the answer is negative. Due to the Polanyi Paradox, AI cannot truly achieve the complete level of practical ethics; implanting ethical norms and moral imperatives into AI models will also encounter the Polanyi Paradox in exceptional states. Ford, editor of the *Journal of Healthcare Management*, attempted to

use the GPT-3 model to answer editorial questions about submitted papers and ultimately gave GPT-3 a low score (grade F) for its ability to consider human conditions [31]. These results indicate that AI currently cannot achieve ethical status equal to that of natural persons.

Second, who is responsible for harmful outcomes when AI models produce works containing false research results, misleading information, or other harmful content? Is it the AI model developer, data provider, or user? This is a complex ethical dilemma that will gradually be clarified as AI-related ethical guidelines improve.

Generative AI models such as GPT may also cause ethical conflicts due to their creation mechanisms. First, generative AI models require training and improvement on massive amounts of data, raising issues of personal privacy and data protection. Users also worry that their personal information may be misused, such as for advertising or political purposes. Second, GPT and other AI models may generate works reflecting the values and biases of training data providers, potentially amplifying sociocultural biases such as gender discrimination and racism [19]. If AI-generated text containing bias and harmful information is disseminated by readers, it will have serious impacts on society, economy, culture, and politics [32].

Ethical risks posed by AI works cannot be ignored. AI works are new works generated by AI models through learning and imitating existing materials, and their information sources depend on others' original works. This demonstrates that AI works lack true creativity and originality, which may affect creativity and innovation in the academic publishing industry. Human creativity is an important driving force for social progress, and the use of AI models may negatively impact human creativity. If researchers over-rely on GPT and other AI models, it may lead to the decline of their own creativity and innovation capabilities. Professor Hu Yong of Peking University' s School of Journalism and Communication believes that while AI should greatly help enhance human creativity, paradoxically, due to reliance on generative AI, human creativity may enter a low point [33]. In view of this, people should actively use generative AI to help them realize their potential rather than passively using AI works, because generative AI cannot replace human wisdom and insight, and the development of GPT and other AI models always depends on training data input by human developers.

2.2 Ethical Assessment Framework

Currently, the application of generative AI in paper writing and publishing processes will likely increase, triggering a series of ethical issues. To address potential ethical problems caused by AI, a corresponding ethical assessment framework needs to be established.

2.2.1 Insisting on Manual Verification Else' s research shows that articles generated by ChatGPT appear to bypass traditional plagiarism detection methods [34]. Therefore, for AI works, authors need to verify the authenticity and credibility of content and preserve relevant verification materials for submission to publishing institutions for review. Publishing institutions must insist on only disseminating AI works that have undergone manual verification to the public and formulate and implement strict review systems for AI use in academic papers [35].

2.2.3 Fostering Creativity and Encouraging Original Output Through education and training, researchers should be encouraged to rationally understand and correctly use GPT and other AI models to avoid over-reliance on AI. Incentive mechanisms or creative support measures should be adopted to encourage original output and motivate researchers to exert their own creativity and innovation capabilities in academic paper writing.

3.1 Social Acceptance

AI works should bear social responsibility for disseminating healthy information and values. The social acceptance of generative AI works in publishing is a relatively new issue, with different attitudes among readers and social groups. Leading international journals *Nature* and *Science* maintain different stances on AI works [16-17]. Some readers hold an open attitude toward AI works, viewing them as a novel and interesting reading experience. Other readers, considering that AI models may produce works containing "misinformation presented as facts" [38], which could negatively impact research integrity in academia, maintain a rejecting attitude toward AI works. Some organizations have already banned the use of generative AI tools like ChatGPT for writing papers [39]. In summary, public acceptance of AI works is influenced by many factors, but as time passes and technology develops, public acceptance of this new creative method may increase. The key lies in whether AI works can fully consider ethics, law, and social values, as well as meet readers' expectations and needs.

3.2 Social Issues and Prevention

Although AI works bring many innovations to creative work and publishing models, their social issues must be taken seriously. The technical and instrumental advantages of GPT and other AI models may be exploited by people with malicious intentions who use generative AI to produce false information, text, and images, creating fake news, rumors, and false advertisements to engage in fraud, counterfeiting, and other improper behaviors [38], which will negatively impact social fairness. If generative AI systems are hacked, with sensitive data accessed or models tampered with, this may lead to the output of leaked content, posing threats to society, publishing institutions, and research organizations and causing serious negative social impacts [25].

Therefore, we must remain vigilant and rational when using GPT and other generative AI models. Furthermore, false information and biased content generated by AI models may affect the authority of scientific research and social credibility. GPT and other AI models can only serve as auxiliary tools in scientific research, so research departments need to strengthen supervision of AI model applications to ensure the originality and authenticity of scientific research viewpoints. Publishing institutions should adopt stricter review processes to carefully examine academic papers and protect the authority and reliability of scientific research. While AI models can provide customized service experiences and their generated biased content may meet researchers' needs, their social trustworthiness remains questionable. Relevant functional departments should actively carry out public education and promotion, popularize the limitations of AI models among readers, and call on the public to rationally understand AI creation. Reasonable use of generative AI and promoting its healthy development may generate significant social benefits, such as helping researchers obtain literature and solve problems more quickly, improving scientific research efficiency, and providing more intelligent and efficient service platforms for publishing institutions and readers, thereby promoting social progress and development.

4 Publishers' New Models for Fulfilling Social Responsibilities

In the future, the relationship between humans and machines will become closer, and publishing institutions must assume corresponding social responsibilities when using AI-generated works. Publishing institutions will fulfill their social functions through publishing models combining AI technology and human practice: (1) Publishing institutions formulate review standards and processes for AI works to prevent the dissemination of improper, illegal, or misleading information. (2) Publishing institutions indicate AI-generated content in their published works to provide readers with more objective understanding during reading. (3) Publishing institutions use AI technology to understand reader preferences, feedback, and market demand information to assist in topic planning and achieve personalized publishing, enhancing reader satisfaction [4]. (4) Editorial staff use AI technology for academic paper editing and proofreading, such as correcting grammar and spelling errors, to improve editing quality and efficiency. (5) Publishing institutions use AI technology to make digital publishing platforms more intelligent, enabling instant updates and customized delivery of published content, making the dissemination of scientific research achievements faster and more accurate. (6) Through virtual reality and augmented reality technologies, virtual editorial roles are established to provide personalized guidance to authors and reviewers throughout the submission and review process, create immersive reading environments, or intelligently add multimedia elements such as audio and video to books, providing readers with richer reading experiences [40].

5 Conclusion and Outlook

The emergence of AI works will inevitably lead to transformation in scientific research creation and the publishing industry, involving a series of legal and ethical issues. From both legal and academic research perspectives, AI cannot become the author of AI works. Most publishing institutions believe that AI may be used in academic paper writing, but authors must disclose in appropriate sections of the manuscript whether and how AI was used. Due to their automated generation process, AI works carry serious risks of infringing upon copyright and personality rights, and have a high possibility of ethical misconduct such as ethical dilemmas and conflicts. To avoid these legal and ethical issues, developers of GPT and other AI models must establish more complete technical supervision mechanisms in the future; cyberspace administration, science and technology, press and publication, and other departments should strengthen supervision and management of generative AI services according to law; and publishing institutions and authors should also attach importance to manual verification and content review of AI works to jointly promote the healthy development and standardized application of generative AI and protect the legitimate rights and interests of users and relevant legal persons.

Different readers and social groups hold varying attitudes toward AI works, and social acceptance of AI works is influenced by factors such as reader experience and needs, ethics, and social values. AI works may trigger social issues such as social injustice and negative social impacts, and may also threaten academic authority and social credibility. This requires us to remain vigilant and rational when using GPT and other generative AI models. Only reasonable use of generative AI can benefit society. Publishing institutions should also assume corresponding social responsibilities and may fulfill their social functions through publishing models combining AI technology and human practice in the future.

It must be emphasized that human creativity is the foundation of social development and technological progress. Regardless of how advanced AI technology becomes, the originality of scientific research cannot be ignored, and humans remain the responsible subjects of AI products. The publishing industry should always insist on manual verification and content review, encourage original output, maintain research order, and promote high-quality publication of scientific research achievements.

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[**Author Contribution Statement**] YANG Yahong: Conceptualized the framework, conducted literature research, wrote and revised the manuscript; SUN Yan: Conducted literature research and revised the manuscript; YU Danghui: Conceptualized the framework and proofread the manuscript.

Note: Figure translations are in progress. See original paper for figures.