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Emerging Jurisprudence on Intellectual Property Rights Pertaining to Generative AI: Comparative Law and Contemporary Judicial Interpretations

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ABSTRACT

The advent of generative artificial intelligence (AI) and its increasing applications in various walks of life, albeit generally perceived as utilitarian, raises a wide range of questions regarding its potential implications. Among them, legal and regulatory challenges facing generative AI gain significance due to the indispensable need for legal certainty, which is essential for developing and deploying generative AI in various professional and personal pursuits. Although significant economies worldwide have formulated aspiring policies for leadership in AI development, specific initiatives to create a congenial legal environment are sparse. Despite some regional initiatives and national regulatory standards are starting to emerge, lack of harmonization and a concerted approach are conspicuous. While more international initiatives to establish legal standards governing AI are expected, many national jurisdictions still rely on their existing general legal regimes to govern AI-related developments. However, with the faster growth of generative AI and its wider adoption and accessibility across borders, national courts are increasingly confronted with unprecedented legal claims and regulatory issues. The paper assesses some legal standards and early judicial responses related to generative AI. It identifies evidence of some diversity in national responses and its implications for the development and use of generative AI in key economies. The paper specifically focuses on the intellectual property rights (IPR) issues related to copyrights in works produced by generative AI. It compares the two significant jurisdictions of USA and China as representations of civil and common law legal systems, respectively. The paper reviews the copyright regimes and legal standards pertinent to the use of generative AI in the two jurisdictions. It closely examines the emerging judicial jurisprudence in the two jurisdictions tackling copyright claims related to generative AI and identifies its potential implications. The paper concludes by assessing the need for relevant international treaty regimes to seek a more harmonized legal framework to promote sustainable development and broader use of generative AI.

Keywords: Generative Artificial Intelligence, Intellectual Property Rights, Judicial Interpretations, Comparative Law

1. INTRODUCTION

The revival and resurgence of artificial intelligence (AI) in recent years, after its initial setbacks in the early years of its advent, has not only created a massive uproar among various walks of life but also is promising a huge potential for the future. In 2023, a giant leap of AI technology in the form of generative AI has taken the digital world by storm, which, unlike previous iterations of AI, has a much broader reach in terms of both development potential and uses. Firstly, unlike proprietary interest driving the development of certain technological frontiers, the growth of generative AI is witnessing a conspicuous construction of open-source capabilities, which enhances the broader reach and the developmental potential of generative AI. Secondly, unlike

earlier AI technologies developed for specialized technical applications, generative AI has a broader appeal to the masses due to its fundamental ability to transform common people's creative processes and typical tasks [1]. Such distinct characteristics need cognizance, and conditions congenial for nurturing the growth of generative AI technology should be cultivated.

Despite the promises generative AI offers, various obstacles remain that need to be addressed effectively to ensure that the full potential of generative AI can be tapped for the benefit of multiple stakeholders. Among them, the legal challenges facing the development and use of generative AI need immediate attention, as the uncertainty in regulatory standards and relevant legal rights and obligations will stifle the growth and broader acceptance of this promising technology. As many legal systems are still grappling with the advent of AI in recent years and only some jurisdictions, like the EU, just introduced a comprehensive legal framework governing AI, the subsequent growth of generative AI is yet to be comprehended and governed by specific legal standards in most jurisdictions. For example, the scope of the legal protection of intellectual property rights (IPR) in the process of generative AI training and its result raises several questions, which are not easy to resolve under the existing legal standards governing IPRs [2]. In the absence of specific legal provisions governing generative AI, judicial institutions in significant jurisdictions where generative AI has already started to make inroads are facing the conundrum of interpreting existing norms to address claims and disputes about generative AI. Although Courts, in general, are fully capable of engaging appropriate canons of interpretation to derive the relevant legal principles from general laws and past judicial dictums to render justice in specific cases involving generative AI, such an approach faces the risk of diversity in the development of legal standards and related remedies.

Given the ubiquitous nature of generative AI, the lack of legal harmonization governing generative AI among different countries and legal systems will result in formidable challenges in the growth and broader adoption of the technology. Examples of early reactions of certain countries imposing a ban on the access and use of the popular generative AI application ChatGPT is a case in example. Even if such an outright ban is expected to diminish over time, a diverse range of intricate questions of law and regulation facing the development and use of generative AI are bound to rise. These may not be easy to resolve unless a concerted global effort by the relevant stakeholders, including the key jurisdictions keen on the growth of generative AI, is initiated to create legal certainty through legal harmonization. Any such initiative, in turn, would warrant a clear assessment and understanding of the early interpretative approaches of the judiciary of diverse jurisdictions in resolving disputes involving generative AI.

The present paper, to assess some of the early responses to the regulatory and legal questions arising from the use of generative AI, chooses the field of copyright rights law and makes a comparative study of two specific jurisdictions of USA and China, which represent the common and civil law legal systems respectively. The paper first examines the fundamental regime governing copyrights in the two jurisdictions. It identifies the pertinent legal standards in the general copyright legal framework, which will have implications for engaging generative AI in producing copyrightable works. Then, the paper reviews some emerging judicial approaches to determine the coherence or diversity in copyright law interpretations among national courts in the two jurisdictions. The paper makes an in-depth study of various facets involving the facts, claims, issues framed, pleadings, the dictum, and the reasoning of some of the early generative AI-related copyright cases sought for redressal. The paper concludes with an analysis of the findings from the two jurisdictions. It calls for international initiatives aimed at harmonization of the legal standards governing copyright issues arising from the increasing use of generative AI in the production of creative works.

2. COPYRIGHT IN AI-GENERATED WORKS AND JUDICIAL RESPONSE IN THE USA

Copyrights in the USA are mainly governed by the legal provisions under the United States Code and other specific enactments on copyright that form part of the Code [3]. The relevant enactments pertinent to copyright protection in artificial intelligence include the modern provisions and amendments introduced by different legislative instruments like the Copyright Act of 1976 [4] and the Digital Millennium Copyright Act of 1998 [5]. In addition to these two, a range of provisions from other statutory instruments and amendments forming part of Title 17 of the US Code are also pertinent to note. Such instruments include the Copy Rights Amendments in 1980, Berne Convention Implementation Act 1988, Judicial Improvements and Access to Justice Act 1988, Copyright Remedy Clarification Act 1990, Digital Performance Right in Sound Recordings Act 1995, WIPO Copyright and Performances and Phonograms Treaties Implementation Act 1998, Online Copyright Infringement Liability Limitation Act1988, Digital Theft Deterrence and Copyright Damages Improvement Act of 1999, and Work Made for Hire and Copyright Corrections Act 2000. It is evident from the identification of some of these relevant amendments and provisions updating the copyright protection regime under the US Code that they certainly predate the rapid expansion of AI and the more recent inception of generative AI applications, with the current legislative framework governing copyrights in the US, whether AI-produced works are copyrightable remains unsettled [6]. Under such circumstances, any copyright claims and disputes triggered using generative AI should rely on the judicial interpretations of the general provisions of the US copyright law. Therefore, it is crucial to deeply study the emerging jurisprudence of US Courts on copyright claims arising from the use of generative AI to determine some

potential IPR implications facing the development and use of generative AI technology.

The questions of what the subject matter of a copyright could be and the scope of the protected right are addressed by specific provisions of Chapter 1 of the United States Code. This includes definitions of key legal terms related to copyright protection. Specific legal terms defined in the code provide authoritative answers to relevant questions that could arise in copyright claims involving generative AI. Pertinent issues in this regard include what anonymous work is. It is defined as a work involving copies or phone records not attributable to any natural person as an author. Other notable questions and issues addressed by the definitions include what is a collective work or compilation; the definition of copies and computer programs; who could be a copyright owner; when work could be considered as created; what is a derivative work; the scope of what could be regarded as a device, a machine or process; what constitutes a digital transmission; when a work could be considered as fixed in a tangible medium; what is a joint work; what is a graphical work; when the work could be regarded as pseudonymous in nature; what constitutes a publication or public performance or display of work; how a transfer of copyright ownership could be effected; what amounts to a transmission; what is a work of visual art, and when work could be considered as a work made for hire? [7]. Although a distinct analysis of the above instruments to track their specific relevance to generative AI is not necessary, pertinent provisions arising from the US copyright law regime, in general, could be traced and critically reviewed concerning the fundamental provisions raised and dealt with by the judges in resolving specific generative AI related copyright disputes. One of the recent copyright claims dealt with by the US Courts which provided the opportunity to render a contextual interpretation of the US Copyright Law in the specific situation of use of generative AI is the case of *Stephen Thaler v United States* (*Thaler v US*), decided in August 2023 [8].

The case involved a copyright claim by the plaintiff, who owned a generative AI system that created visual art of its own volition. The plaintiff argued that even though the degenerative AI system was the author of the work in question, the copyright should be conferred upon him under his ownership of the generative AI system. However, when the US copyright office refused to admit his application for copyright registration, the plaintiff initiated the present judicial proceedings before the US Courts. The fundamental reason for the denial of the application by the US copyright office was the absence of a human author of the work sought to be protected under the copyright law. The denial triggered a key question for the Court to resolve: whether creative works generated by artificial intelligence Could be copyright-protected under US law. In dwelling on the question, the Court systematically examined various issues surrounding the creative process of generative AI and intricate legal questions arising in this unusual claim. The Court noted that the plaintiff's development of AI technology could produce an original artwork without human involvement. Still, it is comparable to creative works capable of being produced by humans.

The Court categorically acknowledged the emergence of new trends in the use of AI in the generation of creative works. The Court pointed out that several inevitable questions would arise, including the following four that the Court expressly identified. Firstly, one of the pertinent questions in this regard would be the scope and extent of human input in the underlying process to determine whether the user of a generative AI system could be considered the author of the resulting work. Secondly, should the scope of copyright protection for AI-generated works be the same as the protection granted to creative human works? Thirdly, how could the work resulting from generative AI be confirmed as original works because generative AI systems are usually trained with an indeterminant amount of already existing works? Finally, how could a balance be achieved by strictly construing the confines of copyright law and yet encouraging the development and use of generative AI in producing creative works? Regarding the last question, the Court also cited certain senators' proposals for establishing a joint national commission on AI to study how IPR law could be adapted to serve as an incentive for promoting creative and innovative works using AI [9]. It is relevant to note that the US offices on copyright, patent, and trademark, in jointly responding to the proposal, admitted that the IP issues arising in AI are complex and crucial and require urgent attention. The offices also affirmed their action in developing relevant legal and policy measures to address questions of authorship and inventorship in AI-generated works and inventions, respectively. [10]

The Court in the present case, however, did not consider the claim to involve much complexity compared with other potential questions of copyright that may arise, as indicated by the senators and admitted by the US copyright office in their mutual communication discussed above. The conclusion of the Court that the present claim did not involve any complexity could be attributed to a legal technicality arising from the application of the Administrative Procedure Act (APA) of the United States [11]. The Court defied the attempt of the plaintiff to articulate a distinct set of arguments from those he propounded before the administrative agency of the United States copyrights office while challenging its decision not to recognize the plaintiff's copyright in the works produced by his generative AI mechanism. The Court held that the judicial review procedure provided by the APA requires the Court to determine the legality of the decision of the copyright office only based on the grounds of claim furnished by the applicant of the copyright at the time of application before the US Copyrights Office.

The Court pointed out that the plaintiff propounded a categorical argument before the US Copyrights Office that the generative AI mechanism autonomously created the work in question, and his entitlement to the copyright arose solely on the grounds of his ownership of the said mechanism. The

Court held that its assessment under the judicial review of whether the administrative agency's rejection of the copyright claim would be solely based on the categorical argument mentioned above, and the plaintiff would be precluded from forwarding any distinct grounds of claim before the Court. The Court believed the grounds of claim before the copyright office did not render the claim complex due to the plaintiff's clear stand that the generated AI mechanism autonomously created the work without any human Involvement. Under such circumstances, the Court concluded that the refusal of the copyright office should be upheld based on the reasoning that the plaintiff did not play any role in using the generative AI mechanism to produce the work in question. The Court concurred with the decision of the US copyright office that the plaintiff's claim lacked human authorship, an essential trait required in any copyright application. The Court reaffirmed the position through its clear dictum that the absence of human involvement in the creative process of works sought to be protected under the US copyright law is bound to fail.

In the process of reaching its conclusion, the US District Court highlighted the essential elements of the grounds constituting the claim. It made vital interpretations of copyright legal standards and provided various reasons supporting its conclusion. Some of the crucial US legal positions on the copyrightability of the works produced by generative AI could be derived from the process and the dictum of the Court in the present case. The remaining section will selectively address the critical legal issues arising before comparing the judicial response in other jurisdictions in the subsequent sections. It is important to note that the fundamental ground on which the plaintiff sought copyright protection before the administrative agency, namely his ownership of the generative system, was based on the premise that it was analogous to a 'work-for-hire.'

The plaintiff argued that the AI-produced work in the present case fulfilled the authorship requirement under US law. Hence, the AI should be recognized as the work's author, and the resulting copyright should ultimately be vested in the plaintiff because he owned the AI system. However, the US Copyrights Office refused to accept his argument. It refused to register the copyright because the human being was not the creator of the work in question. Even a second attempt by the plaintiff before the US Copyrights Office resulted in denial of registration because the US copyright law does not protect the creative works of non-human entities. In its judicial review, the Court chided the plaintiff's attempt to invoke the grounds of ownership and work-for-hire doctrine as a valiant attempt to complicate the claim. The Court reaffirmed the refusal of the US Copyrights Office, which was made on the basis that no copyright ever existed on the work sought to be registered due to the lack of human authorship. Consequently, the Court held that the question of the plaintiff's entitlement to the registration based on the ownership of the generative AI system became redundant.

The Court also made a necessary clarification regarding the moment in which the copyright protection of a creative work will be bestowed. The Court affirmed that seeking a copyright registration is not an essential requirement for the entitlement of legal protection. Such protection under US law will be automatically conferred upon any qualifying original work of human authorship from the moment it is fixed on a tangible medium of expression. The registration process, therefore, is only aimed at facilitating the enforcement of copyright in situations of infringements. Although this distinction clarifies the independent nature of copyright entitlement, it is essential to note that any refusal of the US Copyright Office to register a work on justifiable grounds could be construed as a lack of copyrightability of the work in question from the moment of its creation and attachment on a tangible medium.

The Court also alluded to the vibrancy of the US copyright law, which can adapt to the changing circumstances of technological developments. The Court specifically pointed out the foresight of the US copyright regime in expanding the tangible medium of expression to which a creative work could be fixed to include mediums currently known and those developed in the future [12]. However, the Court was quick to emphasize that despite any technological development and its use for the creative process, the fundamental requirement of human authorship is indispensable for the legal protection of copyright. The District Court cited the relevant Supreme Court precedent supporting the legal proposition in granting protection to photographic works when camera technology was invented and adopted to produce creative images.

The Court also highlighted the need to fix a copyrightable work in a tangible medium to be carried out by the author or under his authority, underscoring the need for the author's involvement. However, the plaintiff argued that the lack of a definition of the term 'author' under US law should be construed as a bar to limit authorship to humans. But the Court clarified that the work sought to be protected should be traced to an originator, and it will not suffice if such an originator possessed intellectual, creative, or artistic capabilities but should essentially be a human being. The Court provided a range of evidence from the US legal history and past judicial decisions to support the conclusion that authorship should essentially have the human attribute. It is interesting to note that the Court even cited cases denying copyright recognition in works attributed to divine origin or celestial creation [13] [14]. The Court was also keen to point out cases of denial of copyright claims involving situations of nature and acts of animals [15] [16] .

The Court noticed that the plaintiff could not cite any cases of recognition of the copyright of works without human authorship. Based on several reasoning and legal interpretations examined, the US Court came to the categorical conclusion that human authorship is a bedrock requirement under US copyright law. The Court was also critical of some late attempts made by the plaintiff before the Court to argue how the human contribution was involved in the training and

prompting of his generative AI system that produced the work sought to be copyright protected. Despite the decision of the US court in this case, the desirability of making the US copyright regime generative AI friendly is noticeable among legal scholars [17]. The detailed analysis of the emerging judicial thought and interpretation relating to the copyrightability of generative AI works in the US creates the need to review similar claims and judicial responses in other jurisdictions. In this regard, it is relevant to note that the judicial approach in another prominent common law jurisdiction, namely in the UK, the court has taken a similar interpretative approach regarding the question of IPR arising in the context of generative AI.

The plaintiff's reluctance to extend patent protection for certain products and processes resulting from generative AI was also witnessed in a recent decision of the Apex Court of the UK in December 2023. In this instance, the Supreme Court of the UK denied the same plaintiff, Stephen Thaler, to register a patent in his name for the products and processes produced by a generative AI mechanism he developed [18]. Although the type of IPR claims and the grounds of those claims in the American and the British cases were different, the seemingly similar outcome of denial of grant of IPR protection could cause a concern that common law courts are taking a conservative approach without much deference to the developments in technological frontiers of AI. Examining and comparing the response in a civil law jurisdiction is essential in light of the situation arising from the judicial response in the two familiar law territories. The next section of the paper will investigate the situation in China as a civil law legal system and closely analyze the emerging judicial response to a copyright claim arising from engaging generative AI to produce creative works.

3. CAN THE USE OF AI-GENERATED WORKS CAUSE COPYRIGHT INFRINGEMENT IN CHINA?

Copyright protection in China is mainly governed by the legislation enacted in 1990, which was subsequently amended in 2001, 2010, and 2020 [19]. The legislative protection is granted to the copyright of authors of creative works and their related rights and interests to encourage creativity and enhance dissemination to promote a socialist society, its culture, and science. It is relevant to note that the protection is extended to the works of natural persons and legal entities irrespective of the question of its publication. Although the publication is not a pre-requirement, the Chinese Copyright Law extends protection to works of foreign or stateless authors if such works are first published in China.

The term work was initially defined to include works in different fields expressed in various forms. The notable ones are photographic works, cinematic works (which interestingly is defined futuristically to include works produced by the use of any analogous method of making films), computer software, and other works as recognized by different laws and administrative regulations (which arguably is an enabling provision for expanding protection to other categories of works like AI produced works through special legislation if the legislator so desires). Notably, the more recent amendments to the Chinese Copyright Law have qualified the works to be intellectual achievements with originality characteristics [20]. The two essential characteristics of scholarly output and originality, which are now read into the qualification of a work to be protected under the Chinese Copyright Law, will necessarily have implications in seeking copyright protection for AI-produced works in China.

It is also interesting to note that the Chinese Copyright Law imposes an important mandate on the right holders to ensure that exercising the right does not infringe on the public interest. Equally, the law prescribes the state's distinct role in the supervision and management of the publication or distribution of copyrighted works. Copyright holders are defined by the law to include authors, citizens, legal entities, and other organizations entitled to enjoy copyrights legally. Copyright is widely defined to include several types of personality and property rights [21]. Notable rights in this regard include typical rights like the right to publication, authorship and attribution, alteration, etc., and other rights that will be specifically pertinent for our focus, like the right to integrity, reproduction rights, transmission rights over the networks, adaptation rights to change work to create new original work, translation rights, and right of compilation to compile works or its parts to create new work through the process of selection and arrangements.

On the issue of ownership, the Chinese Copyright Law provides a general rule that it shall belong to the author of the copyrighted work. The author of a work could be a natural person creating the work or a legal entity or other organization whose intention, supervision, and responsibility were instrumental in developing the work. The law also prescribes specific rules to determine who shall be entitled to the copyright in different scenarios when creating a work. Relevant ones for our purpose include the rules governing works created by compilation of several preexisting works or their parts or any data that do not qualify as a work. While conferring the copyright to the compiler of such works, the law imposes the condition that the granted copyright in the compiled work should not be exercised prejudicial to the copyright initially vested in the preexisting work. The situations contemplated in these rules are reminiscent of the use of generative AI in producing copyrightable works. Similarly, the rules also recognize that the work created by a natural person in fulfilling tasks assigned by a legal person or other organization will qualify as work produced during employment and provide special rules governing such situations [22].

The rule clarifying that the transfer of ownership of an original copy of a work does not deprive the author of their copyright in the work so transferred is also pertinent to note. The Copyright Law of China also categorically demands that any exploitation of a protected work created by others should be preceded by a

licensing contract with the copyright owner or their explicit permission. The Chinese Copyright prescribes a detailed set of rules governing the publication of printed materials, exploitation of protected works in performances, sound and video recordings, and broadcasting of protected works. The 2020 amendments to the Copyright Law have introduced an essential set of rules recognizing the right of the copyright holders to introduce technical measures to protect their copyrighted works.

A general prohibition of circumvention of such protective measures is imposed albeit explicitly enlisting exceptional circumstances in which circumvention of technical measures is permitted. Specific rules in this regard will be very pertinent in the context of the exploitation of protected works by generative AI. The law sanctions any acts of infringement of copyrights with civil or criminal liabilities and recognizes the possibility of granting injunctive relief in prescribed circumstances. Finally, it is interesting that the law recognizes the need for the state to establish a separate set of regulations explicitly governing software protection and the right to communicate information through networks.

From the analysis above, it is arguable that specific provisions introduced in the 2010 amendment addressed copyright protection in a digital age. At the same time, however, it should be admitted that the 2010 amendment predated the times of AI revival. Moreover, even the most recent 2020 amendment was introduced before the onset of generative AI in 2023. Therefore, it is conceivable that the copyright challenges arising from the generative AI's introduction could not have been contemplated by the legislative will when the 2020 amendments were promulgated. This is also confirmed by the conspicuous absence of any specific reference or provisions related to the characteristics or scenarios that could potentially arise using generative AI. Although the legislative changes specifically addressing generative AI will be slow, the increasing use of technology in China for creative works has already started to trigger copyright claims and disputes related to generative AI-produced works. Under such circumstances, as seen in the case of the USA, the onus of interpreting the existing legal standards to render justice in generative AI-related copyright disputes fell upon the Chinese judiciary. A closer review of one of the early disputes in this regard, namely in *Li v Liu* 2023, and how the Court in China responded will reveal key distinctions in the interpretative approach and the remedy granted by the Courts of the two jurisdictions.

The case of *Li v Liu* involved a claim of copyright for a work produced by a generative AI system used by the plaintiff and an allegation of infringement of such copyright by the defendant, leading up to an entitlement for compensation. The work in question in the present case was a picture produced by the plaintiff using an open-source generative AI system, subsequently published on a social media platform by the plaintiff. However, the plaintiff later discovered that the picture was used in an article published by the defendant on another online platform. In using the image, the defendant failed to seek permission or license from the plaintiff and removed the watermark on the picture, which triggered a false belief that the photograph's author was the defendant. The plaintiff initiated an infringement action against the defendant before the Beijing Internet Court, arguing that his copyright, particularly the rights of authorship and network dissemination of information, have been infringed by the defendant's unauthorized use of the AI-produced picture.

The defendant argued that given the circumstances of the present case, it was uncertain whether the plaintiff had a right over the picture in question. The defendant contended that the picture was not the main content of the publication, and it was only used as an illustration while publishing an original poem. Moreover, there was no apparent intention to infringe, and the picture was not used commercially. Finally, even if the acts of the defendant were to be concluded as an infringement, the defendant argued that the amount of compensation claimed by the plaintiff was relatively high because, in the opinion of the defendant, the market value of the AI-generated images was low. Based on the arguments of both parties, the Court formulated three significant issues that called for determination in the present dispute. The first and foremost issue was whether the picture produced by the generative AI system could be considered a work for copyright law and how any such work could be classified. Secondly, the issue faced by the Court was whether a copyright persisted on the image and whether its ownership could be conferred upon the plaintiff; thirdly, the defendant's acts amounted to an infringement of the protected copyright.

In determining whether the picture produced using generative AI works, the Court had the opportunity to interpret some of the new legal standards incorporated under the latest amendments to the Chinese Copyright Law, which were identified earlier in this paper. The new standards read into the interpretation of the Court include the legislative requirements that emphasize the qualities of 'intellectual achievement' and 'originality' in determining whether the AI-generated picture constituted a work. In addition to the above, the Court tested two other existing elements, namely whether the picture was expressed in a particular form and in which field or category it can be classified.

The Court was relatively swift in concluding that the AI-generated picture can be classified as an art and was undoubtedly expressed in a particular (electronic) form. In verifying the 'intellectual achievement' requirement, the Court emphasized that the presence of intellectual input from a natural person should be established. The Court found that in the present case, since the plaintiff, being a natural person could reproduce the picture by engaging the generative AI by inputting his own prompt words and parameters; it can be classified as generated by the plaintiff using the AI.

The Court meticulously pointed out how the generative AI system was trained using a large data set consisting of pictures and their relevant textual descriptions or tags and that training was used to respond to producing the image in question when the plaintiff prompted it. The Court categorically distinguished the picture created with AI from those readily available on the web that could be retrieved using any search engine. The Court also pointed out that generative AI producing the picture was not analogous to arranging or combining certain preset elements as programmed by a software expert.

Distinctly, the generative AI was found to be capable of utilizing the corresponding link between the pixels and textual information attached to the pictures in a data set and producing an original output matching the prompts and directions of the plaintiff. The Court equated this process to the functioning of a human, who has the traits of acquiring skills through learning and accumulating knowledge. The Court explained that the role of generative AI in this regard was mainly the presentation of human creative ideas in a tangible manner. The Court detailed the output objective conceived by the plaintiff and various prompts and parameters set by him at different stages of the process and refinements in ultimately producing the work in question [23]. The Court was convinced that the plaintiff made intellectual investments during various stages of the process, including in the conception of the character of the work produced, selection and ordering of the sequence of the prompt words, parameter setting, and picture selection from the produced outputs. Therefore, the Court was not hesitant to hold that the work in question satisfied the requirement of intellectual achievement prescribed by copyright law.

Having been satisfied with fulfilling the intellectual achievement requirement, the Court enquired whether the originality requirement was also met. In exploring the originality nature of the work in question, the Court outrightly pointed out that any intellectual output resulting from a mechanical process without an independent, personalized expression of an author will not qualify as a protected work under copyright law. The fundamental reason for such an exclusion was the possibility that a mechanical process incorporating a standardized method may only produce the same result irrespective of the persons using the process. The nature of the expression of the resulting output in such a process being singular will render the output falling short of originality and not qualify as work protected under copyright law. However, interestingly, in judging the instance of using the generative AI, the Court did not consider its underlying process to suffer from such a disability.

Under the Court's assessment of the generative AI system used by the plaintiff, it possessed the inherent capacity to produce different outputs of very personalized pictures, reflecting the diverse needs of the users that could be customized by prescribing a distinct set of specific elements as input to the system. Moreover, the Court found significant differences between the prior pictures (used as an input to the generative AI system) and the picture that was ultimately produced (as an output). The Court pointed out that even though the generative AI system drew the lines and colored the content to develop the picture, the plaintiff's inputs were fundamentally instrumental in influencing those acts, and the whole process should be construed as reflective of the plaintiff's choice and arrangement. In this regard, the Court also emphasized that the process of producing the ultimate picture using different stages of review and finetuning on the part of the plaintiff should be considered as the reflection of his personal judgment and aesthetic choice. Based on the finding that different persons can produce different results using the generative AI system, the Court concluded that the picture in question cannot be categorized as mechanical work and should qualify as a work of originality reflecting the personalized expression of the plaintiff.

The Court made extra efforts to extrapolate the status of AI-produced works by comparing and distinguishing them from other technologies or processes in the historical context. The Court drew some analogy in this regard from the period of the advent of cameras, pointing out that photos taken by cameras, despite being the result of the camera process, still considered to confer copyright on the photographer, based on the notion that the shot set by the photographer is instrumental in the aesthetic output of the photo. The Court also distinguished the use of generative AI in producing pictures from someone engaging an artist to paint a picture. Distinct from the situation of the latter, where the artist's expression is independent of the person who commissioned the work, in the opinion of the Court, the generative AI system did not have the free will to act on its own. In addition to the above distinction, the Court held that the lack of status of AI as a legal subject should also be considered in concluding that the copyright of the work in question should be conferred upon the plaintiff in the present case. The Court was categorical in observing that in the use case scenario of people engaging AI systems to generate pictures, there should be no doubt regarding who the creator is, and such an engagement should be treated as a process of humans using tools to create works. Pointing out the primary objective of copyright law being the encouragement of creation, the Court recommended that more people should be encouraged to use the latest tools of AI to create through appropriate recognition and protection of resulting works under the copyright regime. Finally, the Court deliberated on the nature of the work in question, placed the picture under the fine arts category [24], and held that the same should be the subject of copyright protection under Chinese law.

After determining that the picture was a work, the Court had to examine whether the plaintiff could be considered the work's author to confer the copyright ownership. As the Chinese Copyright Law mandates the author to be a natural or legal person, the Court first held that the AI system cannot be considered its author despite drawing the picture. Secondly, the Court also ruled out the possibility of the designer or the developer of the generative AI system being considered an

author, as he was only the creator of the tool (the AI System) and not its output, namely the work (picture) in question.

In reaching the above conclusion, although the Court acknowledged that the developer of the generative AI system had designed the algorithm, created the system, trained it using extensive data, and given it the ability to generate content in response to diverse needs autonomously, it held that all those intellectual contributions were directed towards producing the generative machine and not the picture it created. In contrast, it was the plaintiff who was found to have made the necessary setup of the machine according to his needs and taste and made the final choice of the resulting picture, prompting the Court's conclusion that he should be confirmed as the author and conferred with the ownership of the copyright. Finally, the Court also found that various behaviors of the defendant complained against constituted infringements of the plaintiff's copyright and sanctioned them with relevant liabilities prescribed under the Chinese Copyright Law. The analysis of the judicial responses to IPR protection in generative AI-produced works in the common law jurisdictions and the civil law legal system so far provides a prima facie indication of growing diversity. Although the analysis of a few early cases alone may not be conclusive, the emerging trend should be taken as an early warning of potential barriers that any continued diversity in IPR recognition could cause to the worldwide development and use of generative AI systems. To avert such a situation, key economies keen on developing and integrating generative AI into their economic growth should initiate necessary international action. The relevance of the works of the World Intellectual Property Organization (WIPO) and some of its more recent initiatives relating to IPR in generative AI should provide a necessary lead [25].

4. CONCLUSION

The findings evident from the analysis of the copyright regime and judicial interpretations in two jurisdictions, although has many similarities, reveal distinct outcomes. Although the legal regimes governing copyrights in the USA and China are based on their respective international copyright protection obligations arising from the Berne Convention, specific notable differences can be derived. However, since the focus of the present paper is to identify how the new provisions of the copyright law could be utilitarian in governing copyright issues arising out of the use of generative AI, a systematic engagement of comparative law to distinguish the basic features of the copyright law of the two jurisdictions was not necessary. Based on the purpose of the present paper, several specific provisions pertinent to governing generative AI-related copyrights could be discerned from the analysis of the domestic copyright laws of the USA and China. Pointing out some of those key findings in the conclusion would suffice mainly to indicate their utility.

The review of the fundamental provisions of the copyright regimes in the USA and China and their subsequent amendments periodically promulgated reveal that the inherent legal standards in both jurisdictions predate the surge in the use of generative AI. Even in the case of China, where the latest significant amendment to the Copyright Law was in 2020, a review of the new elements introduced does not provide convincing evidence of any custom-made provisions targeting the recognition or enhancement of copyright protection in generative AI-produced works. Nevertheless, the utilitarian nature of the new provisions could not be denied by the findings related to the subsequent interpretations of those provisions by the Chinese Court while resolving the copyright dispute involving generative AI in the case of *Li v Liu* in 2023.

The analysis of the legal regime governing copyright in the USA reveals that despite some enactments like the Digital Millennium Copyright Act 1998 and the WIPO Treaties Implementation Act 1998, which were aimed at modernizing the provisions, they were not explicitly designed to cater to the needs of AI-generated copyright works. Despite such a limitation, the paper extrapolated various provisions in the existing legal framework and articulated their relevance for the generative AI era. In this regard, the utility of some of the identified provisions, like those governing the issues of anonymous work, collective work or compilation, derivative work, digital transmission, joint work, graphical or pseudonymous work, work of visual art, and work made for hire under the US Copyright Law should not be underestimated. However, when the lack of revision of the Copyright Law from the perspective of AI-related copyright works continues to linger, the judicial will to seek a purposive interpretation of the existing general legal standards to meet the needs of the AI era is the only hope. As a common law jurisdiction, the role of the Courts in this regard is significant. However, a cursory review of the recent dictum of the American Court in the case of *Thaler v US* 2023 seems to have dashed that hope. Although, from the outset, the decision of the Court in refusing to recognize the copyright claim of the plaintiff using the generative AI could be seen as a lack of judicial will to embrace the new era, the closer introspection of the dictum in the present paper should quell the concern.

As found in the detailed analysis of various aspects of the decision in *Thaler v US*, especially the reasoning of the Court, the reluctance of the Court to recognize the scope of application of the legal protection to the works of generative AI system had to do with the procedural limitations rather than substantive will. It can be concluded that the fundamental ground on which the Court overthrew the claims of the plaintiff was because of the procedural limitation imbibed in the US Administrative Law, which stringently mandates the Court to limit its review based on the grounds raised and considered by the administrative authority in question only. Such an insurmountable limitation is arguably the Court's fundamental reasoning in denying the plaintiff's valiant attempt to establish his authorship and human contribution to the generative AI process-produced work. On this occasion, the Court was mainly called upon to sit on judgment over the legality of the acts of the Copyright Registrar and related administrative agencies. It was impossible to independently

pronounce the scope of the US copyright regime to protect AI-produced works. An objective assessment of several holdings and related reasoning of the Court in the instant case would not permit any finding of fundamental disagreement or lack of will on the part of the Court regarding the need or possibility of recognizing the protection of generative AI-produced work within the confines of the current copyright regime in the US. Therefore, it can be concluded that the judicial dictum in *Li v Liu* cannot be construed as a conclusive rejection of copyright protection for generative AI works in the US.

Finally, in the case of China, two relevant phenomena are noticeable from the findings of the present paper. Firstly, the legislative drive to periodically update the relevance of the copyright regime to the changing economic and technological realities is visible. The first significant update of the copyright law in 2010, in response to the need for harmony with the international trade law regime, as well as the more recent amendments in 2020 aimed at modernizing the underlying standards to cater to creativity and originality are some of the evidence demonstrating the legislative disposition to evolve with the changing times. Arguably, any future demands for specific copyright standards congenial for nurturing the use of generative AI in the production of creative works should receive a positive legislative response. Given the State Policy of China aimed at achieving global leadership in AI and various ongoing national efforts in nurturing the growth and engagement of AI technology, legislative efforts to enhance intellectual property rights protection, including copyrights in generative AI development and use in China, should always receive conclusive support.

Meanwhile, as found in the paper, the evidence of the judicial will in China to progressively interpret the general standards of copyright law, responding to the recent momentous growth in generative AI technology, is highly commendable. Especially considering the reluctance of their counterparts in major common law jurisdictions like the USA and the UK, distinct holdings and convincing reasoning of the Chinese court in *Li v Liu* evidence the foresight and the futuristic attitude of the judicial thought in China. Dissuading the temptation to be caught in the clutches of procedural or other potential limitations, the determination of the dictum in *Li v Liu* to be fully responsive to the needs of IPR protection to nurture the growth and use of generative AI in China deserves distinct recognition. In any case, the discovery of diversity in judicial response to the IPR protection in generative AI in the present paper should raise a necessary caveat among the international community to initiate some early intervention in developing harmonized international legal standards providing the essential benchmarks of IPR protection in development and use of generative AI. It is highly recommended that such an intervention is initiated under the auspices of the intergovernmental platform of WIPO. Based on its earlier experience in positively responding to the needs of digital evolution through its Internet Treaties, as well some of its recent efforts relating to generative AI alluded earlier in this paper, the role of WIPO to take a lead should be fostered.

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