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COPYRIGHT CHALLENGES IN THE AGE OF GENERATIVE AI

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ABSTRACT

The emergence of artificial intelligence (AI) as a creator will change the face of copyright law. The following article looks at the various challenges associated with protecting AI-created works under copyright law and the problems that arise when you examine the idea of authorship and its application to AI. The question of who owns the rights to AI-created works will be examined from both the perspective of the developer of the program that created the work and from the perspective of the training data used to train the program. Additionally, the use of copyrighted works in the training of AI raises questions of whether or not there can be a legitimate claim of fair use and whether or not the use of copyrighted works can constitute infringement. This article aims to document how to define a copyright system that promotes innovation and protects the rights of individuals who create both AI-generated content and those who develop the AI systems that create this content.

1. INTRODUCTION

Copyright law has always been designed to protect the results of human creativity, but now, with the rise of artificial intelligence (AI) as a creative tool, copyright law faces a whole new challenge. No longer does AI have to be limited to just mundane, everyday tasks; rather, it is now able to produce more creative outputs such as music, artwork, and literature. The question must now be raised in reference to copyright principles and how they may adapt to these new inventions.

Let us start by reviewing the basic concepts of copyright. At its base, copyright exists to protect original works by that have been fixed in any physical form. Therefore, as long as an original work is "original" and "fixed" in some way, it may qualify for copyright. The term originality applies only to the expression of an original work. The United States Supreme Court defines originality as the author's own independently created work with "the mere existence of creative thought."

Copyright provides protection for specific categories of works, including literary works, music and visual arts. A major concern of authorship is related to AI as a creator. Computer-generated creative products have been produced by computer applications for many years. However, when it comes to creativity, AI has raised the threshold far higher than ever before. So the big question is this: who owns the copyright to the creations produced by AI? Is it the programmer or the AI itself? The concept of the "labour theory" of copyright states that copyright protection should be based on the effort of the creator in making the work. Is artificial intelligence (AI) merely a means to produce creative content, or does it serve as the driving force behind producing creative content? Adding yet another layer of complexity is the use of training data to develop Artificial Intelligence (AI). It is important to understand whether the use of copyrighted works as part of the training process is fair use or a violation of copyright. The complexity continues to increase when considering when an AI generates what could be classified as infringing works derived from copyrighted works.

In addition to the above, this paper seeks to identify who will ultimately be liable for the infringing works generated by an AI input. Will the programmer be liable? The user? Or will the

AI be liable? This paper will serve as the first step in understanding the legally complicated questions surrounding the intersection of Copyright Law and Artificial Intelligence Technology in order to develop a framework that promotes innovation while properly protecting the creator, whether human or AI developer.

2.THE CONCEPT OF COPYRIGHT

Copyright is a way that protects creative expression from being used without the permission of the creator. Copyright is part of intellectual property law and gives the creator exclusive rights to their creative expression. Simply put, the creator has control over who can use their creation, whether it be a song, a painting, a novel, etc. Copyright protects the creator's right to use their creative expression in a tangible medium (written, audio, or photographic expression). Copyright does not provide protection for the initial idea or notion; rather, copyright protects the way that idea or notion is portrayed through a creative work. What makes a creative work original? A creative work must be created by the creator, not copied from someone else.

There must be a bare minimum of creative expression. As stated by the Supreme Court, a creative work must have a "spark" that demonstrates creativity. This doesn't mean the work must be an innovative blockbuster; however, there must be some creativity in the way the creator presents their creative expression. Copyright protects the wide range of creative works, which can include written works (novels, poems, etc.), theatrical works (dramatic scripts, dance/mime choreography etc.), music compositions, and fine arts (paintings, photographs, sculptures etc.), through any means of transmission available. Furthermore, it includes cinema and audio recordings, films, audio books etc.

In India, computer software and databases are also protected. Computer software (source codes) can be found in PDF format. An original database consists of a compilation of unique data elements arranged in an organised manner and stored. There is no definition of a "database" or "computer database" in the Copyright Act of India. However, the Copyright Act of India recognises compilations, which are also databases, to be included as a form of literary works and subject to protection under

Copyright. Similarly, Europe has adopted a wider definition of a database in the context of the

European Commission Directive on Databases Copyright. The European Union Directive on Databases Copyright defines a database as "a collection of information, irrespective of the nature of the information, provided that the information is or can be organised effectively to facilitate electronic searching and retrieval." In addition, the Directive states that a database can also include the tools used to navigate through the database, including indices and thesaurus.

Copyright law in India identifies who has authorship of a creative work depending on what kind of work is being created. When it comes to literary and dramatic works, the author is the person who creates that kind of creative expression (writer or playwright). When it comes to musical works, the composer who created the music is considered the author. When it comes to artistic works like paintings or sculptures, the person creating the visual artwork is considered the author. With respect to photographs, the person taking the photograph is regarded as the author. With respect to films or audio recordings, the producer responsible for the creation is the author. In the case of computergenerated creative works (literary, dramatic, musical, or artistic works created by computers), copyright law identifies the author as the person who commissioned the work.

3. ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) is a subset of computing focused on building machines that can emulate human cognitive processes. An AI-equipped machine will usually have no need for

a person to intervene.AI can function on its own, in conjunction with other technologies, such as sensors, robotics, etc., to perform significantly more challenging functions.

AI is present in many everyday examples, such as virtual assistants on phones, GPS navigation systems, and autonomous vehicles. Machine learning (ML) and deep learning (DL) are two areas of AI research within computer science where algorithms are created based on neural networks. Algorithms are built in a manner that provides the capability for ML and DL systems to "learn" and subsequently use that learning to improve over time by assessing large amounts of historical data and using statistical models to generate predictive models.

The AI technology that we see and work with today is primarily classified as weak AI or narrow AI (or Artificial Narrow Intelligence - ANI), meaning it specialises in a small number of areas, similar to an expert or a specialist; narrow AI enables the development and implementation of very pronounced technological applications. Example of this type of AI are Virtual Assistants (Siri, Alexa), Medical Diagnostic Systems (IBM´s Watson), and Autonomous Vehicles. The more advanced area of artificial intelligence is Strong AI; however, this is still only a concept as depicted in many movies and television shows.

There are two main categories of Strong AI; Artificial General Intelligence (AGI), which is a hypothetical machine with the same level of intelligence as that of humans, with the ability to be creative, solve problems independently, learn from experiences, and plan for the future; and Artificial Superintelligence (ASI), which is a concept that envisions a time when machines will become smarter than humans, like HAL 9000 in the movie "2001: A Space Odyssey. "Although we have not yet reached a level of development with Strong AI, many researchers are continuing to develop and investigate the possibilities of Strong AI.

4. PROTECTION OF AI-GENERATED CONTENT UNDER COPYRIGHT

According to the Lockean labor theory, all production results from labour: we all have a right to ownership of our labour products. Under this theory, ownership arises when a body mixes their labour with that which already exists in nature. The human contribution is regarded as the best source of originality under the Lockean labour theory (and therefore the basis for copyright).

As stated, the Lockean theory is a better fit for human created works than for works written by artificial intelligence (AI). Since AI authors use programmed algorithms rather than human emotions to create their output and because AI-generated output is generated based on programmed data and prompt usage parameters, AI outputs are inherently repetitive and predictable. Hence, if anything is to be copyrighted, AI creators will have to demonstrate originality, and thus the Lockean theory will need to be adapted to evaluate whether or how AI generated works might be eligible for copyright.

Many believe the data used to train an AI is copyrighted by the original owner, causing potential copyright infringement when AI creates outputs from that training; however, even in the case of humans who compile or process these types of materials in a creative way, the result of their work is considered an original database and therefore may also be copyrighted material owned by someone else. In essence, while the data created and produced by humans through inspiration from other sources contains elements of creativity that allow for the creation of what appears to be new content, AI creates its own version of that same content using the same processes.

4.1 India

With India's Copyright Act 1957, it is very clear that a person is the author of the work. Section 17 (b) of the Copyright Act 1957 states that: "If a photograph is created in exchange for

something of value from another person (such as a payment), then this person will own the copyright unless otherwise stated". What does this mean, if an artificial intelligence creates the work then the person who shows that certain type of work to the AI has created the AI generated creative works; thus, the AI user will be considered the owner. In effect, the AI user will be granted ownership based upon the fact that he/she was the one who asked for the creation to occur. Essentially, the person who requested the item will hold all rights to it, unless there is a specific agreement stating otherwise by either party.

4.2 Outside India

Copyright laws have Different in Different Parts of the World Regarding Artificial Intelligence Creativity.Japan and Germany currently limit copyright to human-generated works. AI-generated works with human input may not qualify. China provides protection for AI-created works only because humans are heavily involved in creating the works. This may include making choices about formats for the data the AI uses or setting up parameters through which the AI works.

A recent court case in China (Shenzhen Tencent versus Shanghai Yingxun) clarifies how copyright regards AI-created works. The court ruled that AI-created works produced using programs like Dreamwriter are protectable by copyright. To establish copyright on an AI-created work, however, the individual asserting copyright must demonstrate to the court that her/his AI-created work meets the requirement of minimal creativity or originality as pertain to Chinese law.

In the UK and the United States, there is no explicit prohibition of copyright on AI-created works. The

UK defines authorship of an AI-created work to be that of whoever programs the AI. In the United States, copyright attributable to computers or machines is dependent upon human authorship and so long as a human used the AI machine/tool, the human may be eligible to file for copyright. The AI is not considered the author for purposes of copyright.

5. KEY ISSUES

Copyrighting AI-generated works raises important issues regarding originality and authorship. No matter how advanced, no AI is able to generate a completed product without human involvement; however, given the variety and intensity of that involvement, determining where human input ends and machine creativity begins poses serious challenges. Copyright law does not provide answers to these questions. Consequently, the law leaves many issues unresolved and many people who have created AI-generated works without having received proper credit.

Scholars have put forward several possible solutions to this problem, including creating additional categories of copyright protection for AI-generated works, such as joint authorship or work-for-hire.

While each has its own set of limitations, and many also have loopholes, they provide starting points to further develop copyright protections for AI-generated works. How AI-generated works can be commercially utilized through the A direct link exists between who owns an item made with an artificial intelligence program and how that item will be used commercially. For example, if there are no direct links established on clear ownership of these items, who is going to benefit from them? Not knowing this creates barriers inhibiting the overall growth and acceptance of A.I. If creators and/or investors are unsure about obtaining legal protection for their creations and the number of financial rewards they may earn, they may not want to get involved in A.I. projects. Traditionally, Copyright Law protects only original works (i.e., works that have been independently created and contain some degree of authorship).

This creates confusion regarding the status of AI-Generated Works, which are typically created through the analysis and combination of

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already-existing data. Furthermore, the current legal systems surrounding Copyright Protection, which are established by and for human authors, struggle to evaluate the originality of AI-Generated Outputs. As such, the ambiguity surrounding the Copyright Status of AI-Generated Works may leave them without adequate protection and impede the growth of creative expression within the AI-Generated Art Community.

"Legal Status of AI": The legal status of AI as an author and whether or not they are eligible to receive Copyright Protection is a highly controversial topic. On one hand, some individuals assert that bestowing Copyright Protection upon AI-Generated Works is untenable because AI does not possess many of the same characteristics as a human author (e.g., fatigue, mortality). On the other hand, the amount of human involvement in the creation of an AI-Generated Work profoundly impacts many of the present-day Copyright Considerations. Therefore, finding a way to protect both the contributions of human authors and encourage future innovation through the use of Artificial Intelligence will be an undeniably important task.

Copyright Infringement: The issues that arise related to Copyright Infringement by AI-Generated Content is two-fold. The first issue, or the Training Phase, involves utilizing a substantial quantity of Copyrighted Intellectual Property to educate/training AI Models.

CONCLUSIONS

AI is a form of technology that will have a long term impact on all areas of life. AI will allow humans to work with greater efficacy and create things with greater ease. AI will likely increase the overall amount of knowledge available to humans and also enhance the speed of innovation and research in many different fields, including science, health, medicine, education, creative and entertainment industries. The growth of AI technology presents an unprecedented opportunity for many people and will eliminate the barriers associated with obtaining quality jobs.

The rise of generative AI is also creating a real sense of anxiety among many people. This includes anxiety about the loss of their job, reduced opportunities to be creative or express themselves and to lose out on the platforms that support their creative endeavors.

These anxieties should not be dismissed as frivolous, and therefore must there be mechanisms and structures in place to help ease these anxieties. As noted in earlier parts of this report, the traditional copyright systems, laws and doctrines are under tremendous strain as a result of the rapid proliferation of generative AI. The way current copyright laws and practices are set up around physical copies and traditional recording methods (analog reproduction) is increasingly becoming incompatible with large-scale, automated, and non-expressive usages of protected works as training data used by artificial intelligence (AI) systems.

Copyright owners—including authors—are having their rights eroded while the technological advancements made possible through innovations in machine learning occur. The courts and legislatures are struggling to develop laws that appropriately balance the rights of authors and the technological needs for innovation. As a result, the courts and legislatures are currently creating different solutions across multiple jurisdictions that lack consistency with each other.

As such, there is a pressing need for creating a legal framework that is both adaptable and harmonized to ensure the protection of the rights and interests of authors while allowing for continued technological advancement.

An overloaded copyright system intended to protect creators by regulating the way machines learn will suppress further development; therefore, establishing a unified international framework for the lawful use of text and data mining materials (TDMs) is essential

to providing the means for author rights and interests to be protected and ensuring the continued viability of AI applications.

A consistent international framework that sets the ground rules regarding text and data mining provides rules regarding how authors will be compensated for their creative output while allowing for the re-use of the author's data to drive innovation. Without the synergistic relationship between the author and the users of their work, both will ultimately fail and result in the strangling of creativity.

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