Indonesia Berdaya, 4(4) 2023: 1405-1412
https://doi.org/10.47679/ib.2023573

P-ISSN 2502-4825
E-ISSN 2502-9495

Law in the New Era of Emerging Technologies: Can Creation Made by an Artificial Intelligence be Protected by Copyright?

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Published online: 12 Juli 2023

ABSTRACT

Despite the fact that Artificial Intelligence (AI) has a long history in the twentieth and twenty-first centuries, there are many unsolved challenges. AI is a rapidly growing, promising area of research that is reaching its prime. Contemporarily, AI is used in a wide range of tasks, from virus detection, e-commerce chat boxes, to law-making. Subsequently, AI is not only designed to perform a particular and limited task (Narrow AI), but also to generate new creations based on cognitive skills and advancements in that spectrum (General AI). The topic discussed further in this paper is the second type of AI. This paper will attempt to answer the following questions. First, can creation made by an AI be protected by copyright? Second, who is the creator of the creations made by an AI? Third, how do we determine the holders of moral rights and economic rights for creations made by an AI? This paper used legal research, emphasizing literature study. In so doing, the data were analyzed with the deductive method to construct conclusions. This paper shows that creations made by an AI can be protected with copyright, with the creator being the person or people who contribute the most to the basic code of the AI, as well as the training data used, so that the creation can be produced. Furthermore, the person as creators also become moral rights holders and economic rights holders.

Keywords: Artificial Intelligence; Copyright; Creator; Intellectual Property

INTRODUCTION

The very rapid development of technology has created a new revolution in people's daily lives. This is then called the industrial revolution 4.0 or (on the other hand) the era of society 5.0. The basic theme of this era is the emergence and use of Artificial Intelligence (AI) in people's daily lives (Hidayat, 2020). Artificial intelligence or AI is a branch of computer science that studies and imitates human thinking and implements it on machines (computers). McCarthy concluded that being intelligent means having knowledge plus experience, reasoning (how to make decisions and take action), and good morals.

There are two types of AI, namely Narrow AI and General AI. Narrow AI or “Weak AI" is focused on one narrow task. The type of Narrow AI is also the type of AI that we recognize the most, such as one of them is GeNose invention, then the ones that may be on your cell phone which are SIRI or Alexa, even self-driving cars (Duin & Bakhshi, 2018: 6). In contrast, the second type of AI is General AI or "strong AI", others also call it "full AI" is the ability of an intelligent agent to understand or learn any intellectual task that a human being can. General AI can perform human-like cognitive abilities and personality (Strelkova & Pasichnyk, 2021: 3). The latest development of AI is called Artificial Super Intelligence, where experts predict that AI will reach machine consciousness which is

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estimated to be much smarter than the best human brains (Duin & Bakhshi, 2018: 6). One of the uses of this type of AI in the 4.0 industrial revolution or society 5.0 era is to create creations. The creation is then protected by intellectual property rights.

Intellectual property rights are a part of law that is closely related to the protection of creative ventures and economic investment in creative endeavors (Fauzia et al., 2021). Based on the Trade Related Aspect of Intellectual Property Rights (TRIPs), which is an agreement on intellectual property rights related to trade in the World Trade Organization (WTO), these intellectual property rights include copyrights (copyrights), and industrial property (patents, brands, designs). industry, protection of integrated circuits, trade secrets and geographical indication of the origin of goods). Among these rights, Copyright which was originally called author rights is a study of Intellectual Property Rights which aims to protect creative works produced by writers, artists, composers and music players, playwrights, as well as filmmakers and software (software) (Syahdeini, 2009: 59).

Google has just started funding an artificial intelligence program that will write local news articles (Gregory, 2017). In 2016, a group of museums and researchers in the Netherlands unveiled a portrait entitled The Next Rembrandt, a new artwork generated by a computer that had analyzed thousands of works by the 17th-century Dutch artist Rembrandt Harmenszoon van Rijn (Brown, 2016). A short novel written by a Japanese computer program in 2016 reached the second round of a national literary prize (Olewitz, 2016). And the Google-owned artificial intelligence company DeepMind has created software that can generate music by listening to recordings (Coldewey, 2016). Other projects have seen computers write poems (Burgess, 2016), edit photographs and even compose a musical (Brown, 2015).

Robotic artists have been involved in various types of creative works for a long time. Since the 1970s computers have been producing crude works of art, and these efforts continue today. Most of these computer-generated works of art relied heavily on the creative input of the programmer; the machine was at most an instrument or a tool very much like a brush or canvas. But today, we are in the throes of a technological revolution that may require us to rethink the interaction between computers and the creative process. That revolution is underpinned by the rapid development of machine learning software, a subset of artificial intelligence that produces autonomous systems that are capable of learning without being specifically programmed by a human (Guadamuz, 2017).

A computer program developed for machine learning purposes has a built-in algorithm that allows it to learn from data input, and to evolve and make future decisions that may be either directed or independent. When applied to art, music and literary works, machine learning algorithms are actually learning from input provided by programmers. They learn from these data to generate a new piece of work, making independent decisions throughout the process to determine what the new work looks like. An important feature for this type of artificial intelligence is that while programmers can set parameters, the work is actually generated by the computer program itself - referred to as a neural network - in a process akin to the thought processes of humans (Guadamuz, 2017).

This paper will attempt to answer the following questions. First, can creation made by AI be protected by copyright? Second, who is the creator of the creations made by an AI? Third, how do we determine the holders of moral rights and economic rights for creations made by AI?

RESEARCH METHOD

The research method used in this paper is normative juridical legal research, or often referred to as dogmatic legal research or theoretical legal research. This normative legal research provides written emphasis on research on library law materials. In analyzing legal materials, this study uses descriptive qualitative analysis, which describes existing data or cases descriptively to draw conclusions from the data. Drawing conclusions using the deductive method, namely by drawing

conclusions from general questions to reach specific conclusions. The legal materials used consist of primary and secondary legal materials. Primary legal materials are binding legal materials such as basic norms or rules, while secondary legal materials are legal materials that provide an explanation of primary legal materials.

FINDINGS AND DISCUSSION

Copyrightability of Artificial Intelligence Generated Creations

The discussion regarding whether or not AI creations can be copyrighted is a relevant discussion, especially in Indonesia. In Law Number 28 of 2008 concerning Copyright, copyright is defined as "the exclusive right of a creator that arises automatically based on the declarative principle after a work is manifested in a tangible form without reducing restrictions in accordance with the provisions of legislation." Then, the creator is defined as "a person" or "some people" who individually or collectively produce a creation that is unique and personal. This means that the Indonesian Copyright Law is still silent on AI creations.

Not only Indonesia, most jurisdictions do not recognize the existence of AI creations in their copyright regime. An example is Copyright Law in China, creation means "work of citizens, legal persons, or entities without legal personality." Then, based on Malaysian copyright law in CA 1987, the phrase “author” also only means a natural person. Some jurisdictions in the world that have known AI creations in copyright-like protection are England, Ireland, and New Zealand. In the UK, based on the Copyright, Design, and Patents Act (CDPA) 1988, the author is "person" but in the case of a literary, dramatic, musical or artistic work which is "computer-generated", the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken. Therefore, based on the CDPA, computer-generated nomenclature instead of AI is used. Furthermore, section 178 defines computer-generated work as "is generated by computer in circumstances such that there is no human author of the work." Consequently, it is clear that the phrase computer-generated work includes AI.

Internationally, the World Intellectual Property Organization (WIPO) has raised the topic of AI and IP in the WIPO Conversation on Intellectual Property (IP) and Artificial Intelligence (AI) from 7 July to 9 July 2020. The European Parliament has already said that the existing copyright system has to be modified to accommodate AI-generated works: “the elaboration of criteria for "own intellectual creation" for copyrightable works produced by computers or robots is demanded.”

As previously mentioned, China's copyright law recognizes no AI legal subjects or exceptions as in the UK. However, the debate over whether copyright law can cover AI creations has evolved through court cases, namely the groundbreaking case of Tencent Technology Co., Ltd. (Tencent) v. Shanghai Yingxun Technology Co., Ltd. (Yingxun), the case adjudicated by the Nanshan District People's Court (Bao, 2020). This case started in 2015 when Tencent Technology (Beijing) developed Dreamwriter and licensed it to Tencent software (Brown, 2020). Tencent then uses this Dreamwriter software to produce or create around 300,000 articles each year. On August 20, 2018, Tencent published an article about the analysis of stock market data which was marked "*automatically written by tencent's robot, Dreamwriter*" (Brown, 2020). Then Yingxun, without Tencent's permission and authorization, reprinted the website article on the day it was published (Bao, 2020).

Tencent claims that the article was written and published through the following processes (Brown, 2020): Dreamwriter software collects historical and real-time stock market data then analyzed through machine learning. Then, the data is analyzed to achieve certain conditions for writing an article. When these conditions have been met, the software will write the article based on the data based on the article template. The last stage is Dreamwriter will proofread the article and publish the article on the Tencent website. But before that, Tencent employees are responsible for selecting the

data that will be entered to meet the criteria. Finally, Tencent sued Yingxun for copyright infringement and unfair competition.

The focus of this case is whether the article produced by Dreamwriter is a "work" under copyright law “and whether the generation process is a "creation"” (Chen, 2020). The court found that the arrangement and selection of the data input, trigger conditions setting, as well as the template and corpus style selection of the Dreamwriter development team, were intellectual activities that were directly related to the specific expression of the article (Chen, 2020). In order to argue that an AI generated object constituted a work, the court specifically emphasized that the article in question was generated by the creative team of Tencent using Dreamwriter software (Bao, 2020). According to the court, the Dreamwriter development team's data input arrangement and selection, trigger condition setting, template and corpus style selection, and template and corpus style selection were all found to be intellectual activities that were directly related to the specific expression of the article (Chen, 2020). Furthermore, the automatic function of Dreamwriter is not for no cause or self-consciousness: the way the software runs automatically reflects the Plaintiff's development team's preference (Chen, 2020).

Apart from the Tencent v Yingxun groundbreaking case, the Beijing Intellectual Property Court verdict in the Gao Yang v Youku case is also a useful source to analyze whether AI works can be protected by copyright. In the case of Gao Yang v. Youku, the plaintiff put the camera on the hot air balloon. After the balloon is released, the camera will take a photo automatically (Bao, 2020). In the case of Gao Yang v. Youku, the judge granted the plaintiff's petition and considered that even though the camera was beyond human control in the recording process, there was still human intervention in the selection and assessment, for example camera point of view, sensitivity, video recording mode, and others (Bao, 2020).

For existing AI, AI is a form of combination between machines and systems that includes many pre-programmed human algorithms. This means that human contributions, such as in the case of Tencent staff in controlling the Dreamwriter software or in the operation of cameras taped to hot air balloons, are still very visible. Based on the Tencent v. Yingxun and Gao Yang v. Youku verdicts, it can be concluded that the consideration of whether or not AI creations are protected by copyright is still heavy on whether there is human intervention in the creation process. Then, what if the creations are made autonomously by the AI itself? This is very relevant to the question because the possibility of AI with complete autonomy will emerge in the future. According to practice in China's judicial courts, there has not been a case yet to question whether a product created autonomously by AI can be protected under the Copyright Law. Some courts still emphasize the consideration that "The creation of a natural person should still be a necessary condition for a work to be copyrighted under the Copyright Law" (Bao, 2020).

Works that are not protected by copyright solely because they are created by AI can be harmful to the creative industry and have significant commercial consequences. As in the previous case, it is known that the use of AI to create works of art has become common practice in the world. If this work is not protected by copyright, it can be easily used and used free of charge by everyone (Bao, 2020). In addition, the vacuum of copyright law will also have implications for investment in AI. This is in accordance with the philosophical basis of countries with the common law tradition, the philosophical basis of copyright law is innovation will take place because copyright law incentivizes people to create and typically used to justify IP rights (OseiTutu, 2017). Based on this utilitarian notion, the public must accept some benefits in exchange for protecting the interests of the creator (OseiTutu, 2017).

Copyright’s Holder of Creation Made by Artificial Intelligence

When a work made by AI is declared to be entitled to copyright, then, as the essence of copyright is to give exclusive rights to rights holders to exploit the work and get incentives, the next issue that becomes the problem is who has the right to obtain exclusive rights to the work.

Even though in the Indonesian Copyright Law it is stated that an author is a person or several people who show that Artificial Intelligence cannot actually be a creator, however, with a creation by AI that can be copyrighted, this law must of course be reviewed. by analyzing developments that occur. For this reason, in order to answer this problem, there are two subjects that have the potential to become rights holders and who are also legal subjects who can be legally responsible (Fauzia & Hamdani, 2021). First, Artificial Intelligence itself and second, artificial intelligence developers, namely programmers who input data into AI.

First, regarding the possibility of AI becoming the right holder itself. This possibility arose when a recent European Commission Report on AI and IP stated that we could move towards AI autonomy, at least to a level that the human contribution is “trivial to the creative or inventive process” and therefore we could be entering into an era where machines will "not only assist humans in the creative process but create or invent all by themselves." (Iglesias et al., 2019; Bosher, 2019). However, until now, this era still does not appear in human life in general and at present, AI technology is not currently truly autonomous. Tech companies that are close to people's lives have used AI and developed AI to be used by other companies. However, the AI used is not an AI that can have a mind of its own without being programmed, have feelings and souls, or do something without being ordered or tested first by the programmer (Bradley, 2017). Even though there has been a case where the AI used by Facebook created its own language that is not known by the programmer, which caused Facebook to shutting down its robots, it was found that basically it was not the result of AI work itself which came from processing the data without the programmer's intervention. Rather, the AI carries out what its task and function is (Kucera, 2017). In conclusion, AI cannot be a legal subject that is legally responsible for its rights and obligations as a copyright holder. Thus, we conclude that AI cannot be the copyright holder.

Second, regarding the AI developer. What is meant here is the party that enters the most data into AI so that AI can run programs that produce new works with their originality.

While AI technology that can create creations with its intellect has not existed until now, or it is not known whether it exists or not, one certain thing is a fact, AI that creates new works and is recognized as having its authenticity actually involves human effort and work. for example the work "The Next Rembrandt" is able to detect how Rembrand's face and shape through all his previous paintings and draw a new Rembrandt when he is still alive (McCarthy, 2016). This work is described as the result of AI, but in the contest where this work is contested, the recipient of the trophy and the creator of the work is Bas Korsten and his team, not AI on a computer or in any form (Dutch Digital Design, 2018).

Not only AI, however, in all typical machine learning systems but there is also human involvement and human intervention at some points, such as choosing how to set the system up, writing and choosing of the algorithm (including which learning models to use), choosing and collating data, often this includes the undertaking of data cleansing or other actions on the data including how it is structured, providing feedback, reviewing output and revising model and so on. The data itself, such as in the examples mentioned above, are human-created sources. Therefore, a fundamental problem with the Issue is that it seems to present a false premise by assuming that AI is completely autonomous. Whereas, AI systems are highly dependent on programmers, developers, and data input through human intervention to train intelligent algorithms. Stating that AI applications are capable of producing literary and artistic works autonomously, neglects to acknowledge that an AI application would need source data to do so. Thus, AI can only produce content output following content input with initial instruction (Bosher, 2019: 14).

Therefore, the programmer is a legally responsible subject if the output of the data entered into AI produces a work that violates copyright or other violations. Thus, the programmer is the party who deserves to be the copyright holder.

From the two subjects above, the author concludes that in a creation made by AI and given a copyright, the right holder is the programmer or developer who enters data into AI. Furthermore, the

thing that needs to be considered is who is entitled to economic rights and moral rights to these works? This is because, the rationale underlying the existence of IP law is to provide an economic return to the creator while preventing others from exploiting its content without authorization.

In the Indonesian Copyright Law, economic rights are the exclusive rights of creators or copyright holders to obtain economic benefits for works (Indonesian Copyright Law, Art. 8). Meanwhile, moral rights are rights that are eternally inherent in an Author to include or not include his name on a work for public use, use his alias or pseudonym, change his creation according to society's appropriateness, change the title and sub-title of the work and defend his rights in the event of distortion. creation. This moral right is an award to the creator so that the general public or the licensee respects the creation and the creator. The mark of the holder of moral rights is usually listed on the certificate as well as on the names written in the work.

In the case of a creation created by AI and obtaining copyright, AI, as a tool to produce content, does not appear to have any interest in obtaining economic benefits from the exploitation of the work (Moriggi, 2018). On the other hand, in order for the work to be exploited based on the exclusive rights owned by the creator, the creator needs capital to maintain AI and other equipment. Therefore, the party who needs an economic element and can also take advantage of it is the programmer. Thus, copyright holders are programmers, as well as moral rights where matters that are included in moral rights as regulated in Article 8 of the Indonesian Copyright Law can only be done by humans with their intellect who can make their own decisions, for example by deciding the title. of a work, or include his name on the work or not, or defend his rights in the event of a distortion. Therefore, in this case, the programmer is also the party who holds economic rights and moral rights.

CONCLUSIONS

a. Based on the discussion above, creations that are not protected by copyright solely because they are created by AI can be harmful to the creative industry and have significant commercial consequences. It is known that the use of AI to create a creation has become common practice in the world. If this work is not protected by copyright, it can be easily used and used free of charge by everyone. In addition, the vacuum of copyright law will also have implications for investment in AI. This is in accordance with the philosophical basis of countries with the common law tradition, the philosophical basis of copyright law is innovation will take place because copyright law incentivizes people to create and typically used to justify IP rights. Based on this utilitarian notion, the public must accept some benefits in exchange for protecting the interests of the creator**.** AI cannot be a legal subject that is legally responsible for its rights and obligations as a copyright holder. Thus, we conclude that AI cannot be the copyright holder.

b. In the case of a creation created by AI and obtaining copyright, AI, as a tool to produce content, does not appear to have any interest in obtaining economic benefits from the exploitation of the work. On the other hand, in order for the work to be exploited based on the exclusive rights owned by the creator, the creator needs capital to maintain AI and other equipment. Therefore, the party who needs an economic element and can also take advantage of it is the programmer. Thus, copyright holders are programmers, as well as moral rights where matters that are included in moral rights as regulated in Article 8 of the Indonesian Copyright Law can only be done by humans with their intellect who can make their own decisions.

Conflict of Interests

The authors declared that no potential conflicts of interest with respect to the authorship and publication of this article.

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