

Juridical review of moral rights ownership in copyright of photographic works used for artificial intelligence algorithms

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Abstract

This research delves into the legal landscape concerning moral rights ownership within the realm of copyright for photographic works, specifically exploring their utilization within artificial intelligence (AI) algorithms. Focusing on the intersection of intellectual property law and AI technology, the study investigates the rights and protections accorded to creators of photographic works under copyright laws. The analysis encompasses the ethical and legal considerations pertaining to the use of these works in AI algorithms, scrutinizing issues related to attribution, integrity, and the recognition of creators. By examining the current legislative frameworks and jurisprudence, this research aims to provide insights into the challenges, implications, and potential regulatory adaptations required to ensure the preservation of moral rights for creators within the context of AI-utilized photographic works. The results of this research found that copyright and moral issues in photographic works used in AI are areas that require deeper legal clarification and are responsive to technological developments. It should consider protecting traditional creators' rights while adjusting the definition and protection of rights for AI-generated works to maintain a fair balance between the rights of creators, users, and technological progress.

Keywords: Artificial intelligence algorithms, Copyright photographic, Moral rights

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How to cite:

Rahmawan, T. I., Amrulla, M. F., & Sunarjo, S. (2023). Juridical review of moral rights ownership in copyright of photographic works used for artificial intelligence algorithms. *Jurnal Penelitian*, 20(2), 69-83. <https://10.26905/jp.v20i2.12076>

1. Introduction

Indonesia had copyright regulations that existed during the Dutch colonial government after the enactment of Auteurswet 1912 (hereinafter referred to as the 1912 Copyright Law), a legislative regulation created by the Dutch East Indies colonial government. After independence, Indonesia had

Article Info:

Received: 2023-09-12

Revised: 2023-10-25

Accepted: 2023-12-02

Published: 2023-12-31



E-ISSN: 2809-7688

P-ISSN: 1410-7295

Law Number 28 of 2014 concerning Copyright (UUHC). Intellectual Property Rights (IPR) are rights relating to property arising from human intellectual abilities (Putri & Nahrowi, 2020)

One important aspect of IPR, now recognized as intellectual property, is the moral right of photography, a component of copyright protection in Indonesia. These moral rights encompass the entitlement to be recognized as the photo's creator, the right to attribution or naming, and the right to safeguard the integrity of the photographic work against alterations or distortions that may harm the author's reputation. Concerning moral rights, the protection endures throughout the creator's lifetime, in contrast to commercial rights (economic rights), whose protection is confined to a specific duration.

Copyright is the exclusive right of the creator, arising automatically based on the declarative principle after a work is realized in tangible form, without reducing restrictions per the provisions of statutory regulations (Hanisa, 2014). From a legal standpoint, there is no obligation to register every work with the Copyright office because Copyright is not obtained through registration; rather, it occurs and is owned by the creator automatically when the idea is completed and expressed in the form of a tangible work or creation. This implies that copyright does not rely on formal registration with the copyright office. However, it's essential to understand that copyright predominantly focuses on economic rights, such as the right to copy, distribute, and sell works (Sumolang, 2017).

However, in this context, there is an important aspect that needs to be taken into account: the moral rights of the creator. Moral rights are a non-economic aspect of copyright that involves recognition of the author as the individual who created the work. Although copyright automatically protects economic aspects, moral rights often require additional protection. So, even though copyright occurs automatically when a work is created, more detailed protection of the moral rights of the creator needs to be stipulated in law. This includes recognition of the creator's identity, the integrity of the work, and credit for creative contributions. Therefore, although authors automatically own copyright, more specific legal protection for moral rights is essential to ensure appropriate respect and protection for authors.

Technological advances brought about by the internet have accelerated the process of globalization and changed the way information is disseminated throughout the world. With the internet as a multimedia medium, digital works can be quickly copied and distributed to thousands of people in just seconds. This phenomenon makes the internet a very broad source of information, but it also stores a lot of content that has intellectual property rights, especially copyright. However, the existence of the internet does not only bring benefits. In this case, there is a negative side related to increased criminal activity. As stated by J.E. Sahetapy in his writings, the development of society is also closely related to the increase in crimes that occur in the internet realm. Therefore, even though the internet has a positive impact on the dissemination of information, we also need to pay attention to its negative impact on the emergence of various criminal activities which are increasingly growing along with technological developments (Sari, 2020).

Digital transformation in particular also has an impact on intellectual property copyright law, which has undergone many changes to date. Regarding changes in the law, according to former United States Supreme Court Justice Oliver Wendell Holmes, he said that the law develops like a plant that continues to grow slowly but steadily. This pragmatic approach reflects that advances in science make changes in society thereby influencing legal norms within it (Fauzi et al., 2022).

The history of technological development is reflected in the five stages of the industrial revolution. The first industrial revolution began in England, triggered by difficult economic conditions in an agrarian society. Important changes occurred when

machine power replaced animal power, marking the transition from agrarian life to the industrial era. The second industrial revolution saw the discovery of steel, electricity, oil, and other scientific achievements that sparked the era of mass production. Then, the third industrial revolution was marked by the emergence of computers and digital technology which enabled the automation of manufacturing processes (Mhlanga, 2021). Then in the fourth industrial revolution, the latest technologies were discovered such as cyber-physical systems, Internet of Things (IoT), and networks.

Rapid changes in the industrial sector have become the main driver for the evolution towards the fifth industrial revolution. The main factors of this revolution include technological developments such as 4D printing technology, bionics, and especially advances in artificial intelligence. Artificial intelligence is now increasingly innovative with its ability to connect humans, machines and the environment in an integrated manner. One of the distinctive characteristics of the fifth industrial revolution is the close integration between humans and machines. It aims to improve activity performance through smart systems that cover each process stage more efficiently (Elangovan, 2021).

In practice, this artificial intelligence has created many works such as a cinematography work entitled Sun spring in 2016, a portrait work entitled Edmond de Belamy Portrait, and even a 3D painting called The Next Rembrandt. Several examples of the work of artificial intelligence have provided significant disruption to regulations, especially Law Number 28 of 2014 concerning Copyright (hereinafter referred to as the Copyright Law) both in the national and international order. This problem arises because the process of making work which is usually inherent and made directly by humans (either manually or using machines), can now be made entirely in the process by machines without human intervention. What should be realized with this transformation is that currently humans are not the only source that can produce creative work (Hristov, 2017). In fact, the essence or philosophy of protecting intellectual property as echoed by John Locke, Robert M. Sherwood, and George Wilhelm Frederich Hegel for centuries, is always based on the hard work, struggle and personal expression given directly by the creator. his work (Arum & Hadi, 2021).

For centuries, the essence or philosophy underlying the protection of intellectual property, as expressed by figures such as John Locke, Robert M. Sherwood, and George Wilhelm Frederich Hegel, has always been connected to the hard work, struggle, and personal expression invested directly by the creator (Aisyah, 2020) in their work. Within the domain of Copyright Law, legal issues arising from artificial intelligence involve two crucial aspects. Firstly, there is a debate concerning legal subjects related to copyright, specifically the question of who should be recognized as the creator of work produced by artificial intelligence, given that the work was not created directly by humans but by the creator of the artificial intelligence system. Secondly, there are issues related to legal objects, specifically how to categorize works within the copyright regulatory framework, and whether certain limitations or exceptions need to be applied. This is significant because artificial intelligence is capable of producing works covered by copyright rules. Issues related to objects also encompass the doctrine of fair use/fair dealing or reasonable interests, considering the automated and unpredictable nature of artificial intelligence systems, which have the potential to violate provisions regarding fair use and lead to copyright infringement.

In the context of the European Union, the Artificial Intelligence Bill describes future regulations regarding intellectual property using a risk approach. More specifically, in the European Copyright Code, the categories of works that are or are not protected by copyright law are clearly regulated, as reflected in the decisions of the European Court of

Justice. This research focuses on novelty by focusing on the legal status of artificial intelligence works in Indonesia, evaluated in accordance with the Indonesian Copyright Law (Anjani, 2013). There is also a comparison with European Union law which aims to provide recommendations regarding the future of copyright law in Indonesia. This study aims to analyze the ownership of moral rights over copyright of photographic works used for artificial intelligence algorithms based on copyright law in Indonesia, and to examine how the future of copyright law in this country will be formed.

2. Literature Review

Copyright

The transformation of copyright from its initial form as protection for written works to cover various artistic, audiovisual and digital works. The literature describes a shift in copyright protection from physical boundaries to virtual boundaries, in line with technological developments contemporary in copyright. One of these is the challenge of recognizing copyright in the context of works produced by artificial intelligence. Discussions regarding "fair use" have also become an important focus in the literature, especially in relation to digital reproductions of copyright protected works (Situmeang, 2020). On copyright protection through regulations at national and international levels. There is debate around the effectiveness of the law in dealing with copyright infringement in digital spaces that are difficult to police. In protecting copyright in the ever-evolving digital era, including the challenges of technology, globalization, and harmonization of laws and regulations (Malik et al., 2017).

Legal Foundations of Copyright in various jurisdictions. This includes copyright protection in national and international regulations, as well as developments over time. The legal study of copyright discusses who is recognized as the creator (subject) of a work and what can be protected (object) by copyright (Samsithawrati et al., 2023). The discussion includes categories of protected works, such as writing, music, art and digital works. The rights granted to copyright owners, such as reproduction, distribution and adaptation rights. This also includes aspects of moral rights, such as recognition of the author, integrity of the work, and restrictions on changes to the work. Law enforcement in copyright, including copyright protection, supervision, and enforcement mechanisms. This includes a discussion regarding legal action against copyright infringement. Harmonization of copyright rules at the international or regional level, with the aim of creating consistency in copyright protection in various countries, causes the complexity of copyright in a legal context that continues to develop over time (Salmi, 2021).

Photography works

Legal protection for photographic works raises the question of whether photographic works are included in the scope of copyright, as well as what the limits of protection are, as well as debates surrounding the photographer's rights. Photography legal protection reviews the rights that photographers have over their work, exclusive rights over reproduction, distribution, and control over the use of photographic works (Suwarni, 2017). Legal protection also determines the subjects protected by copyright in photographic works. Copyright law provides for the subject in a photograph, such as an individual, building, or other object. Photographic works explore the concept of fair use in the context of reusing photographs, especially for educational purposes, journalism and criticism (Nurahmansyah, 2019). In the digital era, legal protection must provide solutions to the challenges of copyright protection for photographic works in the online environment, including the problems of copying, distribution and use without permission. Many scholarly works also compare the legal rules for copyright of photographic works in

different countries or regions, highlighting differences and similarities in approaches to protection. The legal review of photographic works reflects the complexities in copyright, particularly in the context of photography. These studies provide a basis for legal practitioners, photographers and researchers to understand the relevant legal aspects and dynamics of copyright protection in the context of photography (Salma et al., 2023).

The legal position of artificial intelligence

The legal position relating to artificial intelligence should require updating. This includes considerations regarding copyright, patent and intellectual property protection related to artificial intelligence works. questions surrounding legal subjects in the context of artificial intelligence (Purnama et al., 2021). Who should be recognized as the creator or owner of rights to works produced by artificial intelligence is a matter of significant debate. Ethical aspects in the use of artificial intelligence. This includes ethical considerations regarding automated decision making, privacy, and the potential social impact of artificial intelligence. The issue of legal responsibility in the context of artificial intelligence is the focus of experts. The extent to which the user, creator, or owner of artificial intelligence is responsible for actions or decisions resulting from the technology. The need for appropriate regulations and policies in regulating artificial intelligence. This includes efforts to develop a comprehensive legal framework, which can take into account the ethical, social and technical aspects of artificial intelligence. Future challenges and potential in artificial intelligence law (Suwarni, 2021). This includes regulatory changes, technological developments, and shifts in ethics and policy in the face of this technological evolution.

Artificial Intelligence (AI) is a branch of computer science that focuses on developing machines or systems capable of performing tasks that require human intelligence. The goal is to make machines capable of learning, thinking and acting like humans in certain situations. In contrast to conventional computer programs that simply carry out preset instructions, AI has the ability to learn patterns, identify trends, and make its own decisions based on the data provided. In the development of AI, there are several approaches, including machine learning, neural networks, fuzzy logic, and natural language processing. Although diverse, they all aim to create systems that are able to adapt and learn from the experience and data they receive (Chaudhary, 2022). There are three general levels of artificial intelligence: weak AI, strong AI, and super intelligent AI. Weak AI is intended to complete specific tasks without having any real awareness or understanding, like virtual assistants or recommendation systems. Meanwhile, strong AI, or what is often referred to as general AI, is capable of completing a variety of complex tasks and has deeper understanding capabilities like humans. Meanwhile, super intelligent AI, in theory, will have intelligence that exceeds human intelligence in every way.

The application of AI extends to various fields, including in natural language processing, facial recognition, autonomous cars, business intelligence, medical science, and more. In a business context, AI can help in making decisions based on data analysis, optimizing business processes, and increasing operational efficiency (Hristov, 2017). Meanwhile in medical science, AI can be used to diagnose disease, predict the spread of disease, and assist in drug research. However, as AI technology advances, there are also a number of ethical challenges and considerations to consider, including data privacy, security, unemployment due to automation, as well as ethical questions surrounding increasingly advanced artificial intelligence. Therefore, the development and implementation of AI requires a careful, ethical and regulatory approach to maintain its positive impact while managing its risks and negative implications.

Artificial intelligence algorithm in creating photography works

An artificial intelligence algorithm is a set of mathematical instructions or procedures used by a computer system to process data and produce a desired output. The main goal is to make systems or machines capable of learning from the data provided or the experiences they experience. There are several types of artificial intelligence algorithms, and their use depends on the task or problem to be solved. Some of them are: (1) Machine Learning, This is one of the main branches of artificial intelligence that focuses on developing algorithms that allow machines to learn from data without having to be explicitly programmed. In machine learning, there are several approaches such as supervised learning, unsupervised learning, and reinforcement learning (Gaon, 2021); (2) Neural Networks, This is a mathematical model inspired by the structure of human neural networks. Artificial neural networks consist of artificial neurons connected in layers and can learn complex patterns from given data, such as image recognition, language, or market trend predictions; (3) Deep Learning, is a subfield of machine learning that uses larger and deeper artificial neural networks (deep neural networks) to process very complex data. It has been used in many applications, such as facial recognition, natural language processing, and speech recognition; (4) Natural Language Processing, This is a field that focuses on the ability of computers to understand, manipulate, and produce human language. These algorithms are used in translation systems, sentiment analysis, Chabot and more.

Artificial intelligence algorithms in data processing enable machines to identify patterns, trends and relationships in complex data quickly and accurately (Mhlanga, 2021). Using these techniques, systems can make decisions, make predictions, and learn from existing data to improve their performance over time.

Artificial intelligence algorithms in the context of creating photographic works involve the use of AI technology to enhance or generate images automatically. Some of the techniques and approaches used in this case are: (1) Enhancements and Filters. Artificial intelligence algorithms can be used to improve the quality of images or photos by providing improved filter effects. This includes color enhancement, contrast adjustment, or automatic face retouching; (2) Style Transfer. This technique allows the algorithm to change the visual style of an image, such as applying the style of a famous painting to a photo, giving the impression of a classic painting to a modern photo, or changing the style of a photo into a different artistic style (Elangovan, 2021); (3) Generative Adversarial Networks (GANs). GANs are generative networks consisting of two parts: generator and discriminator. In the context of photography, GANs can be used to produce realistic images that look like photos of people, landscapes, or other objects; (4) Image Reconstruction. Artificial intelligence algorithms can reconstruct or repair blurry or damaged images into sharper and higher quality images using image restoration techniques; (5) Artificial intelligence algorithms can generate completely new images based on some specific parameters or descriptions. For example, generating never-before-seen images of human faces based on verbal descriptions.

The application of artificial intelligence algorithms in photographic work can increase the efficiency of the creative process, produce better results visually, and provide flexibility in changing the style or aesthetics of the image. However, it should be noted that this technology also has limitations, especially in aspects such as artistic interpretation and authenticity of works, which are still difficult for algorithms to capture (Solehoddin, 2020). Therefore, the use of artificial intelligence algorithms in the context of photographic works is often a combination of human skill and technological power to create stunning works. Ownership of photographic works created by artificial intelligence is a complex matter and is still a matter of debate in intellectual property law. This is because the artificial

intelligence algorithm that produces photographic works does not have clear legal status as a creator in the conventional sense.

3. Methods, Data, and Analysis

Research subject

The type of research in this research is using normative methods. In normative legal research methods, the subject or focus of the research relates to the legal aspect that is being investigated, explored, or analyzed. Normative legal research focuses on applicable legal norms, rules, or principles and develops legal arguments or thinking (Sonata, 2015). The subjects in the normative legal research method in this research include (Tan, 2021): (1) Laws and Regulations, this research focuses on analyzing laws, regulations, policies and other legal regulations that apply in a jurisdiction in Indonesia, especially those that regulate regarding legal protection in the form of moral rights for copyright owners of photographic works, and also legal consequences for users of artificial intelligence who produce photographic works. Researchers examine the content, interpretation, and application of specific laws in the context of specific situations or cases; (2) Legal Doctrine, this refers to thoughts, theories and views developed by legal experts in understanding or debating aspects of the moral rights of creators in photographic works. Research involves analysis of expert views, philosophical viewpoints, or in-depth critical thinking related to the moral rights of creators in photographic works; (3) Legal Precedent, namely examining previous court decisions or decisions of other legal institutions as a basis or guide for understanding certain laws. This analysis involves evaluating how a decision was made, how the case may be applied to cases of creators' moral rights in photographic works, or how the decision may impact future legal developments; (4) Legal Principles (Legal Principles), where research can focus on the development or application of legal principles underlying certain laws or legal decisions. This includes principles such as justice, legal certainty, equality, and ethical aspects of law.

Research material analysis techniques

In this research method, material analysis techniques are used to understand, evaluate, and interpret legal materials or materials that are the focus of the research. This technique helps researchers to decipher, analyze, and interpret relevant norms, laws, legal doctrines, precedents, or other legal materials (Sunggono, 2012).

The following are several material analysis techniques used in this research: (1) Qualitative analysis, in this analysis a descriptive approach is used to understand the substance of legal materials. It involves reading, mapping, and interpreting legal texts, doctrines, or legal cases to identify important patterns, concepts, and aspects of the material; (2) Comparative Analysis, this technique compares legal materials from several sources, jurisdictions, or certain times. The aim is to find similarities, differences or evolution in the interpretation, application or development of law in different contexts; (3) Conceptual Analysis, this research uses a conceptual approach, namely using existing legal concepts in depth, identifying legal principles, definitions and theories underlying legal material. This analysis helps in understanding the legal rationale that forms the basis of a rule or decision; (4) Doctrinal Analysis, which in this research involves analysis of the views of legal experts, legal theory, or academic viewpoints related to legal materials. This may include understanding argumentation, interpretation, or evaluation of various views on a legal topic; (5) Normative Analysis, which involves evaluating the suitability or accuracy of legal material against recognized principles or norms, such as justice, legal certainty, or ethical values.

Material analysis techniques in normative legal research enable researchers to explore and gain a deeper understanding of the legal material that is the focus of the research, to produce strong and relevant interpretations or conclusions.

4. Results

Overview of the moral rights of owners of photographic works

Article 1 point 1 of the Copyright Law confirms that when someone creates a work, he will automatically have copyright protection because the copyright legal system uses the declarative principle when the work is actually realized. According to the World Intellectual Property Organization (WIPO) in 2021, copyright refers to the creator's rights, which are regulated in Article 4 of the Copyright Law, as an exclusive right given to the creator as a reward for his efforts. Creators are given two types of rights, namely moral rights and economic rights, as regulated in Article 4. Moral rights are personal rights that are inherent in the Creator and cannot be transferred to other people. Article 5 Paragraph (2) of the Copyright Law confirms that moral rights cannot be transferred while the creator is still alive, but can be transferred after the creator's death in accordance with statutory regulations, for example through a will or other provisions (Nurahmansyah, 2019).

Article 5 of the Copyright Law identifies various forms of exercising moral rights, including the right to claim mention of a name in a work, the use of pseudonyms, the ability to transform a work, change the title or sub-title of a work, and the right to protect a work from distortion or modification that could be detrimental. Creator's reputation. The implementation of moral rights can be carried out through copyright management information or electronic platforms as regulated in Article 6 of the Copyright Law. Violation of the creator's moral rights occurs when someone uses someone else's work without complying with these provisions, either directly or indirectly. Article 9 Paragraph (1) of the Copyright Law states that economic rights are exclusive rights owned by the Copyright Holder other than the Creator. This right includes the ability to publish, reproduce, translate, adapt, arrange, or transform the copyrighted work, as well as the right to distribute, publish, communicate, or rent the work (Purnama et al., 2021). This confirms that only the creator or copyright holder has full authority to change their copyrighted work and protect it from unauthorized intervention by other unauthorized parties.

In the process of creating works, humans often use technology as a tool, as is done by artists who combine their skills with technology. Initially, technology functions as a component or methodology in the creation process. However, when artificial intelligence produces works, there is the potential for infringement of the Creator's exclusive rights. Some inclusive examples are The Next Rembrandt paintings created through data analysis of thousands of images owned by Rembrandt, literary works created by GPT2 by processing a lot of written data, and autonomous human body paintings after using 60,000 images of human anatomy in an algorithmic system to produce visual art (Solehoddin, 2020).

From this description, the case described highlights the potential for the use of artificial intelligence in commercial activities that may violate copyright, because it carries out actions that should only be carried out by the Creator or Copyright Holder. Therefore, the validity of artificial intelligence work needs to be questioned because it violates the principles of copyright protection in the Copyright Law, which has the potential to harm the creator or copyright holder (Martadinata & Indrawati, 2022). To better understand the validity of the results of artificial intelligence work, a review is needed through the

following 3 stages (Suprana, 2023): (1) Review of the types of works, Article 1 Number 3 in the Copyright Law indicates that works protected by copyright include works in the fields of science, art and literature. Article 40 Paragraph (1) of the Copyright Law provides concrete examples such as cinematographic works, fine arts, books and the like which fall within the scope of this field. Works of artificial intelligence such as the painting *The Next Rembrandt* or the film *Sunsprint* can be considered part of the field protected by the Copyright Law. However, Article 41 of the Copyright Law excludes works that have not been concretely realized, ideas, procedures, or principles for solving technical problems. However, this exception does not directly exclude the work of artificial intelligence. However, other aspects of the Copyright Law, such as Article 1 Number 3, emphasize that creative works must originate from inspiration, thought, skill or imagination, emphasizing the close relationship between the creator and his work which is not just an instant result without human intervention; (2) Review of Intellectuality and Human Expression of Works, origin 1 Number 3 of the Copyright Law highlights the importance of intellectual contributions and personal expressions made by humans to works. Hegel's view of the philosophy of rights emphasizes that intellectual property protection is based on the personal or private expression given to an object. Hegel stated that knowledge, achievement, and the like originate from the individual's internal thinking. This concept is also supported by Kant who connects the justification for protecting intellectual property with the personality of the Creator. Locke also asserted that a person's ownership of something is due to the labor invested in that thing. However, the results of artificial intelligence work are created autonomously without direct human involvement in the process. This raises doubts as to whether the work really comes from human thought or has a personal touch that supports the authenticity of a work. Artificial intelligence works also have the potential to undermine the essence of copyright protection involving a personal touch to the work and loss of value from the hard work produced. Even though Article 1 Number 2 of the Copyright Law identifies a Creator as an individual or group who produces work with a unique and personal nature, the existence of the phrase "distinctive and personal" emphasizes the strong attachment between the Creator and his work. Therefore, the role of humans from the conceptualization of ideas to their implementation must be dominant so that the work can obtain copyright protection if it complies with applicable legal provisions;

The next stage: (3) Review of the Originality of the Work, one of the important aspects that is maintained in copyright protection is the authenticity of the work which reflects the innovation in it, as well as human intervention during the creation process. In the context of artificial intelligence, the value of authenticity is obtained through analysis of the steps of planning, implementing and completing work. To examine this, there are 3 stages implemented in the European Union in the context of intellectual property. First, the stage of formulating the concept of the work, where human ideas or thoughts become the basis for the work to be created. The process of formulating ideas is the starting point that determines the direction of work creation by the Creator. This step shows the importance of hard work and the contribution of the Creator's thoughts which are the main foundation. Second, the implementation process of creating work, which is the realization of ideas or ideas that have been previously formulated. Article 41 of the Copyright Law confirms that ideas that have not yet taken concrete form will not receive copyright protection. This stage involves the real actions of the Creator in creating the work, such as the process of drawing for works of fine art, writing in literary works, or taking pictures in cinematographic works. This process shows the dominant role of the Creator in the creative process and provides the value of authenticity because everyone

has their own creative influence in the personal touch to the work. Third, the work preparation stage, is the final step which involves repairing or perfecting the work being created. In the context of literary works, the composing process consists of editing or revision stages, which reflect creative choices in composing the work.

In the process, artificial intelligence independently performs most of the work without human intervention who only receives the results from artificial intelligence. However, every stage of work production should involve the active role of humans. This is important considering the principle of copyright protection which aims to respect individual efforts, dedication and expression in their creations. Therefore, based on the analysis of copyright law, works created by artificial intelligence cannot be given copyright protection because they conflict legally with the principles contained in the Copyright Law and conceptually with intellectual property theory (Suprana, 2023).

Review of the originality of photographic works generated by artificial intelligence

Artificial intelligence technology has made significant contributions in various sectors of life, including finance, transportation, agriculture, and others. However, less favorable impacts can also be seen in cyber law violations which are becoming easier to commit due to the development of artificial intelligence. In response to this, the European Union implemented a "Human Centric" approach and used more flexible regulations to regulate the use of artificial intelligence in line with the values and principles held within the European Union. The aim of the regulation is to encourage the responsible use of artificial intelligence and regulate the risks that may arise from such technology (Rahmaniar et al., 2019).

According to Joel R. Reidenberg in the Lex Informatica theory, a technology-based legal approach is important because it can provide a clear view of the theoretical and practical regulation of artificial intelligence systems. This approach is considered an appropriate step in responding to the complex challenges, uncertainties and regulatory conflicts that arise as a result of technological developments. Reidenberg emphasized that technical solutions have an important role in overcoming problems related to intellectual property rights by providing policy solutions. For example, he notes that a person can obtain protection for his work on internet platforms by using technical tools, such as software that prevents illegal reproduction, as a measure to prevent copyright infringement (Mpuhaji & Darmadi, 2021).

The European Union has implemented the Lex Informatica concept through the Artificial Intelligence Bill and the European Union Copyright Law. The Artificial Intelligence Bill uses a risk-based approach by categorizing artificial intelligence systems based on their capabilities and the impact they cause. This shows the use of Lex Informatica components in the legal framework, which is an important basis in the preparation of regulations. The bill regulates techniques and approaches to artificial intelligence systems, such as machine learning, logic and knowledge-based, and statistical, which provides the basis for the classification of three groups of artificial intelligence systems in the European Union (Putri & Nahrowi, 2020).

First, Artificial Intelligence is at Unacceptable Risk. Artificial Intelligence at Unacceptable Risk refers to a type of artificial intelligence that is explicitly prohibited because it has the potential to threaten human safety. This prohibition is contained in Article 5 of the Artificial Intelligence Bill and covers artificial intelligence systems that use subliminal manipulative techniques, exploit vulnerable groups both physically and mentally, are used by public authorities in social assessments, or real-time biometric identification systems that are publicly accessible, except for certain purposes such as searching for victims of crimes or terrorist attacks (Purwandoko & Imanullah, 2017).

Second, High Risk Artificial Intelligence, According to Article 6 of the Artificial Intelligence Bill, high risk artificial intelligence refers to systems used as safety components in a product or system, which are subject to third party conformity assessment. This artificial intelligence is applied in specific fields such as biometric identification, education, law enforcement, and personnel management. To use this system, there are requirements that must be complied with, such as training, validation and testing of high quality data, provision of documentation, transparency aspects of the information managed by the system, the existence of human supervision, as well as building a system that is strong, accurate and safe from in terms of cyber security (Chaudhary, 2022).

Third, Low Risk Artificial Intelligence. This refers to artificial intelligence systems that have minimal impact or risk so they do not require the same strict regulations. Based on similar groupings, Indonesia can use a classification system to regulate the use of artificial intelligence in a number of fields, as is implemented in the European Union. This would address the challenges of using artificial intelligence in the copyright context by establishing that artificial intelligence is not a tool in the creative process and therefore does not have copyright protection. The classification will also define the limits and role of artificial intelligence in the intellectual property domain. The European Union, in accordance with its Copyright Law, does not provide protection for artificial intelligence works due to the lack of human involvement in the creation process, thus implementing a scenario of no ownership of artificial intelligence works, making them public property (Hristov, 2017).

5. Discussion

These steps are the best efforts to prevent a legal vacuum that could encourage copyright infringement by artificial intelligence, especially in the context of commercialization. Therefore, Indonesia needs to thoroughly regulate the use of artificial intelligence and make changes to the existing Copyright Law to clarify provisions regarding the subject and object of copyright, avoiding ambiguity that may arise due to the development of new technology. In the midst of the digital transition, the application of the Three Step Test doctrine is crucial in the copyright regulatory framework, both at the national and international levels. This doctrine was first introduced in the revision of the Berne Convention in 1967 and has been embodied in Article 9 Paragraph (2) of the Berne Convention as a condition for regulating the reproduction of copyrighted works. According to this doctrine, there are three stages used to test the legality of the use of a created work (Gaon, 2021): (1) Copyrighted work can be reproduced only under certain conditions or cases, reproduction of a copyrighted work is only permitted under certain conditions that are strictly regulated. Article 9 Paragraph (2) of the Berne Convention provides guidance regarding the limitations that must be complied with when it comes to the reproduction of copyrighted works. This means that there are specific restrictions that must be met to permit the reproduction of copyrighted works protected by this convention; (2) Reproduction is permitted if the act will not contradict reasonable interests or be exploitative. In the context of copyright law, "reproduction" refers to making a copy or duplication of a copyrighted work in a form that can be heard, seen, or read. This includes actions such as reprinting, making digital copies, recording, or redistributing a copyrighted work. "Contradictory" refers to a situation where an act or reproduction of a copyrighted work is contrary or inconsistent with reasonable interests, such as economic value or the honor of the author. If such reproduction violates reasonable interests, it may conflict with

the rights protected under copyright law. Meanwhile, "exploitative" refers to actions that exploit copyrighted works in a way that harms or devalues the work, usually in a commercial context or in an unauthorized use that could harm the creator or copyright holder. If a reproduction of a copyrighted work is used exploitatively, it may violate the rights protected under copyright law;

The next step is: (3) it is only permitted if it does not harm the interests of the owner, namely the Creator or Copyright Holder. The word "harm" in the context of copyright refers to actions or activities that result in loss, whether financially, reputational, or to the rights attached to the copyrighted work. This may include situations where reproduction or use of a copyrighted work without permission or without payment of royalties reduces its commercial value, damages the author's reputation, or hinders the legitimate use of the work. Meanwhile, the "creator" is an individual or group who has exclusive rights to the work produced. They are the people who create the creative work. In the context of copyright, creators have certain rights over their work, including the right to control reproduction, distribution, commercial use, and moral rights over the work. The copyright owner, on the other hand, is the party who legally has exclusive rights to the copyrighted work, either as the creator himself or through rights obtained from the creator.

This doctrine is stated in the Trade Related Aspect of Intellectual Property Rights (TRIPs) Agreement in Article 13 that "Members shall confine limitations or exceptions to exclusive rights to certain special cases which do not conflict with a normal exploitation of the work or do not unreasonably prejudice the legitimate interests of the right holders." As for protecting copyrighted works in electronic media, Technological Protection Measure (TPM) is known to protect the content contained in copyrighted works using the help of technology (Fauzi et al., 2022).

The correlation between these two sentences relates to how copyright is protected in the context of electronic or digital media, especially regarding the use of TPM (Technological Protection Measures) to protect content contained in copyrighted works, including photography. The first sentence, which is part of the Berne Convention, explains the limitations or exceptions to the exclusive rights of copyright owners. These restrictions are only permitted in certain cases that do not conflict with the normal exploitation of the copyrighted work or do not unreasonably harm the legitimate interests of the rights holder. This means that, even if there are permitted limitations or exceptions in copyright law, they must not unreasonably harm the copyright owner or hinder the normal use of the copyrighted work. Then, in the context of photographic creative works, the use of TPM can refer to the technology used to protect photographic content in a digital environment. TPM can take the form of encryption, digital watermarks, or other security systems applied to photographic copyrighted works. The purpose is to prevent or limit unauthorized access, use or distribution of photography in digital format. This is in accordance with the principles of the Berne Convention which allows the use of TPM to protect copyrighted works and simultaneously ensures that limitations on copyright do not unreasonably harm the copyright owner.

6. Conclusion

Judicial review of the owner of moral rights in the copyright of photographic works used in artificial intelligence (AI) algorithms is a complex issue in the current digital era. Copyright in photography does not only involve economic rights but also moral rights for the creator. However, the use of photographic works in an AI context opens up a variety of legal questions regarding ownership, recognition, and copyright and moral protection. When photography is used as data in AI development, the question of copyright arises:

who actually owns the rights to the work produced by the algorithm? Even though photography itself has a copyright that protects its owner, what if the work is produced by artificial intelligence without direct human intervention.

Moral rights in the context of photographic works include aspects such as recognition as the author, the integrity of the work, and the right to determine the use of the work. However, when artificial intelligence algorithms are used to create new works based on photographic data, who should have moral rights to those new works? Is the moral rights owner the original creator of the photo used as data, the creator of the algorithm, or even the entity that operates the algorithm? Questions about ownership and recognition of moral rights regarding AI-generated work are a focus of debate. It also considers how current laws can accommodate changes in technology and provide appropriate protection to creators. While copyright law generally provides automatic protection for created works, the emergence of AI complicates the definition of creator and owner of rights to a work. The use of photography in AI also underscores the importance of updating copyright laws to encompass AI dynamics. Adoption of regulations that accommodate this aspect of technology will need to clarify and regulate copyright in relation to works produced through interactions between humans and artificial intelligence. This includes mechanisms for recognizing human contributions to the creation of AI works and granting them appropriate moral rights.

In conclusion, copyright and moral issues in photographic works used in AI are areas that require deeper legal clarification and are responsive to technological developments. It should consider traditional creator rights protections while adapting the definition and protection of rights to AI-generated works to maintain a fair balance between the rights of creators, users, and technological advances.

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