# MACHINES AS AUTHORS:
## AN EXAMINATION OF COYRIGHT ISSUES ASSOCIATED WITH AUTONOMOUS AI MACHINES

**Solola & Akpana**
(Law Firm)

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## Introduction

The growth of autonomous Artificial Intelligence (AI) is at an exponential rate in today's technology-savvy world, with more sophisticated forms of software being incorporated into them. In earlier generations, humans were more efficient by learning to work with machines.

In the present generation, human-machine partnership is more complex because modern machines, unlike earlier machines, can make decisions, improve and generate creative content on their own, making humans unsure about their status. These modern machines embody the phenomenon of AI technology and in recent times, none more so than ChatGPT.

ChatGPT, an AI chatbot developed by the AI company, OpenAI, and launched in November, 2022 has attracted millions of users in just a few months of its launch. It was built using a Large Language Model (LLM) called GPT-3, one of the largest and most powerful LLMs developed to date with around 175 billion parameters and access to 300 billion words,[1].

ChatGPT represents one of the most sophisticated modern AI technologies. As an LLM, GPT-3 uses probability to guess which word should appear at a given point in a sentence, mimicking human speech and writing patterns.[2] It is important to

note that ChatGPT merely represents the first mainstream sample of what may soon be a crowded and competitive market, for instance, Google in February 2023 released for use its prototype AI chatbot "Bard",[3] which is capable of accessing up-to-date information both on the internet and within Google's own enormous data reserves.[4]

Similar to ChatGPT, Bard gives users nuanced answers to complex or open-ended queries. Google Bard has some unique features that set it apart from other chatbots. First, in every response it generates, Bard also gives you two other "drafts" of the same answer.[5] Thus, it gives the user options to choose from. Secondly, Google allows users to export responses directly to Gmail or Google Docs.[6]

One of the unique features of these generative AI systems such as ChatGPT and Bard is their ability to generate original contents independent of human input. This feature has brought forth pertinent questions concerning Intellectual Property Rights (IPR), for, it challenges not only traditional notions of concepts such as patents and copyrights, but also leads to the emergence of questions related to the regulation of such creations, among others.

Some of the most important questions border on copyright ownership and infringement, *viz:* (1) who owns the rights to works generated by AI? and (2) whether AI-generated works infringe existing

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[1] G Smith et al, 'ChatGPT in Law: Unlocking New Opportunities While Managing the Risks' <https://www.allens.com.au/insights-news/insights/2023/02/ChatGPT-in-law/> Accessed February 21, 2023
[2] Ibid.

[3] Google launching its own artificial intelligence bot, known as Bard < https://www.cbc.ca/news/business/google-artificial-intelligence-1.6738742> Accessed February 21, 2023.
[4] J. Martindale, 'What is Google Bard? Here's how to use this ChatGPT Rival' <https://www.digitaltrends.com/computing/how-to-use-google-bard/> Accessed May 19, 2023.
[5] Ibid.
[6] Ibid.

copyrighted works? This article utilizes the doctrinal research method in exploring generative AI and copyright issues emanating from their usage and proffers recommendations on how to best utilize AI for creative purposes.



# Ownership of Contents Generated by AI

Copyright as one of the two major fields of Intellectual Property Law is "*an intangible, incorporeal property, which guarantees the owner the exclusive right to deal with his/her work within a stipulated time as provided under the law.*"[7]

The development of AI capable of independent content creation brings to the fore several interesting yet muddled copyright questions such as the ownership of AI-generated works. The question of who owns the copyright in the content generated by AI is not clear-cut. There are three schools of thought on ownership of copyright of AI generated work.

The first school of thought argues that given the fact that AI systems are trained on a vast amount of materials from various sources which are creations of other persons all of whom presumably have copyright over their respective works, the creators of the source material should have some claim to the copyright in the generated content which essentially aggregates their works. However, as sound as this argument might be, it cannot hold water under the current laws.

What existing copyright owners can complain of is copyright infringement[8] that is if they are able to prove that the content generated is substantially similar to existing content and not to ascribe ownership of the generated content to themselves. This is because under the Nigerian Copyright Act, 2022, a work cannot be "*ineligible for copyright by reason only that the making of the work or the doing of any act in relation to the work involved an infringement of copyright in some other works.*"[9]

The Second school of thought argues that the source materials being somewhat inchoate prior to their aggregation to produce a single content by the AI, the AI should be and is entitled to the copyright over the content pieced together by it. This school argues for the development of a *sui generis* law for the protection of AI generated contents.

The third school of thought argues that the model's creators, in this case, AI companies, should have the copyright being the creators of the AI systems and writers of the code that enabled the AI system to generate the creative content. The third proposition seems to be in line with the extant position of the law on copyright which postulates human authorship as an indispensable requirement for copyright protection.

The second argument seems to have no legal support under relevant copyright laws until the proposal for a *sui generis* legal system is acted on. Currently, most copyright jurisdictions across the globe, including Nigeria, only recognise natural persons, registered corporations and governments as authors whose works are eligible for copyright protection.[10]

In order to prevent the lacuna in the law currently, it is suggested that the AI company should have copyright over the work created because they are the ones behind the functionality of the AI system. This is so, for the work not to be in public domain because where a legal person cannot be identified

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[7] M. I. O. Nwogu, 'The Challenges of the Nigerian Copyright Commission (NCC) in the Fight Against Copyright Piracy in Nigeria' (2014) 2(5) Global Journal of Politics and Law Research 22.
[8] Copyright Act of Nigeria 2022, Section 36.

[9] Copyright Act of Nigeria 2022, Section 2(4).
[10] Copyright Act of Nigeria 2022, Section 5.

as the author of the work, the copyright in such work will be in the public domain without an author, which means that no protection will be accorded the work.[11]

In Nigeria, copyright is governed by the Copyright Act, 2022.[12] By the provisions of the Act, copyright in a work is conferred only on a qualified person i.e. an individual who is a citizen of or who is domiciled in Nigeria; or an incorporated entity registered under Nigerian law.[13] According to the wordings of Section 5(1) of the Copyright Act, 2022:

> "*Copyright shall be conferred by this section on every work eligible for the copyright of which the author or, in the case of a work of joint authorship, any of the authors is at the time when the work is made, a qualified person, that is to say- (i) an individual who is a citizen of, or is domiciled in Nigeria; or*
> *(ii) a body corporate incorporated by or under the laws of Nigeria".*[14]

Under section 108 of the Copyright Act, 2022, the author of a literary, musical or artistic work is the creator of the work, that is, the person by whom the arrangements for the making of the work were made,[15] who is invariably vested with ownership of the work in many instances. It is submitted that the Nigeria legislation seems not to contemplate contents generated by AI authors and does not have any specific provisions for it.

Similarly in England, the Copyright Design and Patent Act while making provisions for the ownership of computer-generated works,[16] attributes ownership of a computer-generated work to the person by whom the arrangements for the creation of the work were undertaken. Section

9 (3) of the Act further grants the owner 50 years of protection, but does not include moral rights.

Also, in New Zealand, copyrights on works made by machines, belong to "*whoever has undertaken the necessary provisions for the creation of the work.*"[17] In other words, copyright in such work will not be conferred on the machine/AI but on the person who created the machine.

From the above laws, it is evident that an autonomous AI machine is not recognised as a legal person with a requisite mental state of mind to vest it with the ownership/authorship of copyrights of works it generates. As seen above, some scholars have argued that AI-generated work should be copyrighted and copyright vested in the AI in order to advance the development of AI machines by the developer.[18] Other scholars are, however, opposed to this argument as, to them, granting copyright to the developer instead of the AI does not dwindle the development of AI machines because whatever economic benefits that accrue from granting copyright to the developer rather than the AI will incentivise the developer to develop more AI which will contribute to the growth of AI.[19]

AIs obviously do not have the mental capacity to develop their kind. In fact, even where copyright to the works of AI like ChatGPT is granted to the AI, the question of who ultimately gets that copyright remains cryptic and difficult to fathom. Is it the developer of the AI or the AI itself? Does the AI have the capacity to appreciate the copyright vested on it? Can it exploit the copyright and can it independently exercise the exclusive rights of a copyright owner over the copyrighted works? In this author's view, the answers to these questions are in the negative. It is therefore suggested that to

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[11] E. G. Ekhator, 'An Examination of Copyright Issues Associated with Autonomous AI Machines' <https://ssrn.com/abstract=4416232> accessed May 19, 2023.
[12] Copyright Act 2022. The Copyright Act makes provisions for the protection, transfer, infringement and remedies for infringement of copyrights in Nigeria.
[13] Copyright Act 2022, Section 5(1).
[14] In the case of works of Government, State authorities and International bodies, the copyright vest the works of Government, State authorities and International bodies. See Copyright Act 2022, Section 7.
[15] Ibid.
[16] Copyright Design and Patent Act 1988 of the United Kingdom, Section 9 (3).

[17] Copyright Act 1994 New Zealand, Section 5 (2) (a).
[18] D. Thampapillai, 'If Value Then Right? Copyright and Works of Non-Human Authorship' (2019) 30 Austrilian Intellectual Property Journal 96; R. Abbot, 'I Think, Therefore I Invent: Creative Computers and the Future of Patent Law' (2016) 57(4) Boston College Law Review 1079; A. Guadamuz, 'Artificial Intelligence and Copyright' WIPO Magazine, October 2017. N. Li & T. Koay, 'Artificial Intelligence and Inventorship: An Australian Perspective' (2020) 15(5) Journal of Intellectual Property Law & Practice 399.
[19] D. O. Oriakhogba, 'What If DABUS Came to Africa? Visiting AI Inventroship and Ownership of Patent from the Nigerian Perspective'(2021) 42(2) Business Law Review 89.

further the development of AI machines and protect the creative contents generated by AI, copyright in those works should be granted to the developer of the AI and not the AI.

It must be noted that the fact that AI machines cannot be recognised as authors of their works is not a claim made by any specific person or entity. Instead, it is a principle established by copyright law in most jurisdictions [20] and it will remain so until the law is amended.

# The Principle of Originality and Fixation in relation to Works Created by AI.

While no formality is required for a work to be eligible for copyright.[21] The law, however, requires that for a creative work to be eligible for copyright protection it must meet the requirements of originality and fixation.[22]

By originality, it is meant that the work must be the author/owner's intellectual creation.[23] However, the threshold of originality differs from one jurisdiction to another. Under common law jurisdictions such as Nigeria, the test of originality entails sufficient effort being expended in making the work to give it an original character.[24]

This also implies that the work must not have been copied as was decided in the UK case of *University of London Press Ltd v University Tutorial Press Ltd*.[25] Where a work substantially infringed on existing copyrighted works, it cannot be eligible for copyright protection unless due recognition is given to the initial copyright owner of such work.[26]

In this regard, where it can be shown that an autonomous AI machine has expended time, energy and effort in creating a work so as to give it

an original character, the resultant creative work can satisfy the requirement of originality under this standard. However, where it is shown that the data used in training the AI and the creative work generated by the AI machine infringed on an existing copyrighted work and there is no due recognition given to the initial copyright owner of such work, the creative work so generated should be ineligible for copyright.[27]

A corollary to originality is fixation, which means that the work must be fixed in "*any definite medium of expression now known or later to be developed from which it can be perceived, reproduced or otherwise communicated either directl y or with the aid of a machine or device.*"[28] This is so as copyright does not protect ideas[29] but the expression of those ideas,[30] hence creators of work must ensure that their works are fixed in definite mediums by which they can be accessed by the public. This requirement does not seem to pose any problem for AI to fulfil as works generated by AI machines are most often than not fixed in a medium of expression.[31]



## ChatGPT and Copyright Infringement

Another issue related to copyright law is the potential for the generated content or the materials used in training the AI machines to infringe on the copyright of existing works. This

[20] *Oladipo Yemitan v. The Dailoy Times (Nig) Ltd & Anor* (1980) FHCR 186, 190.
[21] Copyright Act 2022, Section 4.
[22] G. Etomi, *An Introduction to Commercial Law in Nigeria: Text, Cases and Materials* (MIJ Professional Publishers Limted, 2014) 94.
[23] A. O. Oyewunmi, *Nigerian Law of Intellectual Property* (University of Lagos Press 2015) 32-33.
[24] Copyright Act, 2022, section 2(2)(a).
[25] [1916] 2 Ch 601.
[26] Copyright Act, Section 2(4).

[27] Ibid.
[28] Copyright Act, 2022, section 2(2)(b).
[29] Ibid, Section 3(a).
[30] D. O. Oriakhogba, 'The Scope and Standard of Originality and Fixation in Nigerian and South African Copyright Law' (2018) 2(2) *African Journal of Intellectual Property* 119-135.
[31] E. G. Ekhator, 'An Examination of Copyright Issues Associated with Autonomous AI Machines' <https://ssrn.com/abstract=4416232> accessed May 19, 2023.

could occur if AI generates content similar to existing copyrighted material. AI infringement occurs at two levels, *to wit*: input and output.

In the input stage, the AI is trained based on a large source of data gotten from existing works. Most machine learning algorithms work on the basis of identifying patterns of data and replicating t hose learned patterns. For example, ChatGPT as an AI is trained by both supervised and unsupervised learning techniques. Naturally, all the contents that the model is trained on, are user-generated, mostly scrapped from the web, and, in many cases, the data are copyright protected in one way or the other.[32] When asked how it got its content, ChatGPT responded thus:

> *"ChatGPT does not simply copy content from the internet. It is a large language model that has been trained using a vast amount of text data, including books, articles, and other written material. This allows ChatGPT to generate responses based on the content of a conversation in a way that sounds natural and human-like. While ChatGPt may use information from the internet to generate its responses, it does not simply copy and paste content from websites."[33]*

Copyright infringement consists of a reproduction, performance, publication, or selling of a copyrighted work without the permission of the copyright owner.[34] Most experts believe that the biggest question concerning AI and copyright are related to the data used to train these models, because, as said earlier and confirmed by ChatGPT, most AI such as ChatGPT, are trained on huge amounts of content scraped from the web; be they text, code, or imagery.

There is the possibility of the programmer training the AI with copyrighted work. There have been arguments that the use of copyrighted work to train AI is not an infringement as it is purely a fair use of those materials.[35] As sound as this argument might be, it is not tenable because the developers of AI develop these AI machines with a view to deriving financial benefits from their use. Since the defence of fair use in copyright law does not allow for use for pecuniary benefits, that defence cannot stand as use in such circumstances is anything but fair.

Who, therefore, can be held liable for infringement arising from input used in training the AI? The programmer/developer of AI or the AI? AI, no matter its sophistication has no free will to act but acts based on what has been programmed into it. What is more, at the time of programming, the AI has no choice of which data to receive or reject or to know whether a particular data used is copyrighted or not.[36] More so, since AI is not a natural person, it is incapable of copyright infringement. Furthermore, should AI be made susceptible to copyright infringement actions, claimants would find themselves unable to seek redress in court as AI, not possessing the requisite legal personality, is incapable of suing or being sued.

In the output stage, which is when the AI is used to generate creative content, the developer and third party using the AI system may be liable for copyright infringement. The developer's liability may result where it is shown that the output is a replica of the input and that output violates another copyrighted work.

In the case of third party users, liability may result from a blind use of output from the AI without proper reference or obtaining of license where such output is itself an infringement of the copyright of another work. It is advisable that permission or licence be sought from the relevant rights holders before using the source materials in training the AI or before using the AI-generated output. In fact, this was the same response that

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[32] 'ChatGPT and Copyright: What You Need to Know' <https://www.madhusudangaire.com.np/ChatGPT-OpenAI/ChatGPT-copyright-legal-or-not.html> Accessed February 21, 2023.

[33] Response generated by ChatGPT quoted in 'ChatGPT speaks on Intellectual Property Rights in Nigeria' <https://www.harlemsolicitors.com/2023/01/27/chatgpt-speaks-on-intellectual-property-rights-in-nigeria-does-it/> Accessed March 6, 2023.

[34] Copyright Act 2022, Sections 36 and 44; See also *Adenuga v Ilesanmi Press* (1991) 5 NWLR (pt 189) 87, 97.

[35] Fair dealing is one of the exculpatory acts provided for in the Section 20 of the copyright Act 2022. It is the legal use of a copyrighted work in a manner that is deemed fair for certain purposes.

[36] C. Craig, 'AI and Copyright' in F. Martin-Bariteau & T. Scassa, (eds), *Artificial Intelligence and the Law in Canada* (LexisNexis Canada, 2021) ch. 1.

was given by ChatGPT when asked if it was legal to copy its materials for use in commercial purposes:

> "*It is generally legal to use the content produced by ChatGPT in commercial use in case, provided that you have the appropriate permissions and licenses. As a large language model trained by OpenAI, ChatGPT generates text based on the content of a conversation, and the specific responses it produces will vary depending on the input it receives. If you want to use the content generated by ChatGPt for commercial purposes, you may need to obtain a license from OpenAI or the relevant rights holders, depending on the specific circumstances of your use case. It is always important to ensure that you have the necessary permissions and licenses before using any content for commercial purposes.*"[37]

In order to further and better protect the third-party user and the AI programmer, it is suggested that the AI programmer should first obtain the relevant permits from the initial copyright owners of source materials before using them in training the AI. In this way both the third party and the AI programmer will be free from the liability of infringement.[38]

## Conclusion

As the use of AI machines by artists and creators in generating creative works becomes more widespread, and as machines get better at producing creative works which are further blurring the distinction between artwork human made and that made by computer, things are likely going to become more complex. In order to salvage the situation, there is an increasing need to identify and assess the potential impact of sophisticated AI technologies on the pursuit of copyright policy objectives. There is also need to develop legislative and regulatory responses that ensure copyright's substantive technological neutrality as AI continues to evolve.

[37] Response generated by ChatGPT quoted in 'ChatGPT speaks on Intellectual Property Rights in Nigeria' <https://www.harlemsolicitors.com/2023/01/27/chatgpt-speaks-on-intellectual-property-rights-in-nigeria-does-it/> Accessed March 6, 2023.

[38] ChatGPT and Copyright: What You Need to Know' <https://www.madhusudangaire.com.np/ChatGPT-OpenAI/ChatGPT-copyright-legal-or-not.html> Accessed February 21, 2023.

# Solola & Akpana
## (Law Firm)

## Ekhorutomwen Gabriel Ekhator

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Contact us at:

No. 1 River Patoka Close
Off Nile Street
Maitama
Abuja

Tel: +234 09291 5460
Email: info@sololaakpana.com

in  f  🐦  🌐 www.sololaakpana.ng