Generative and AI Authored Artworks and Copyright Law

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Generative and AI Authored Artworks and Copyright Law

BY MICHAEL D. MURRAY*

TABLE OF CONTENTS
I. INTRODUCTION ................................................................. 28
II. THE NFT AND THE ARTWORK ........................................ 28
III. COPYRIGHT REQUIREMENTS ........................................... 29
  A. An Author ................................................................. 29
  B. The Work .................................................................. 30
  C. Originality and Creativity ......................................... 30
  D. Expression and Fixation in Media ............................... 31
IV. GENERATIVE NFTS AND THE QUESTION OF AUTHORSHIP IN COPYRIGHT LAW ................................................. 32
  A. Forms of Generative Art ............................................. 32
  B. Random Generation is Not Authorship ....................... 36
  C. Copyrightable Art Must be Designed and Created by a Human Even if Machines and Algorithms do the Actual Rendering of the Expression ........................................... 38
  D. Generative Art Produced by Artificial Intelligence ....... 41
  E. What if You Don’t Care About Copyright Ownership Over AI or Generative Art? ................................................. 42
V. CONCLUSION ................................................................. 43

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I. INTRODUCTION

Generative art linked to non-fungible tokens (NFTs) is an extremely popular genre of art in the NFT universe. Many of the most famous NFT projects—CryptoPunks, Bored Ape Yacht Club, World of Women, Azuki, Chromie Squiggles, Clone X, and Moonbirds, just to name a few—involves generative art. But there is a potential copyrightability problem with generative art:

Under current United States copyright law, many examples of generative art might be held to be uncopyrightable.

Why does generative art fail in the copyrightability analysis? As discussed below, it is because the work might lack a human author. And at present, the U.S. Copyright Office says that a non-human origin and creation narrative disqualifies the art from copyright protection.

Artists and creatives who mint generative NFTs, collectors and investors who purchase and use them, and art law attorneys all should have a clear understanding of the copyright implications involved with different forms of generative art. This Article seeks to educate each of these audiences and bring clarification to the issues of copyrights in the world of generative art NFTs.¹

II. THE NFT AND THE ARTWORK

Before discussing the interaction of generative art NFTs and copyright, it is necessary to understand what non-fungible tokens are and what they are not:

- NFTs are not artworks.² An NFT records the creation and ownership of an asset that could be an artwork.
- NFTs are a cryptography tool defined and operated by a “smart contract.” A smart contract is a small bit of code that makes up a simple computer program that runs the operation of an NFT.³

¹. Issues of NFTs and copyright law are covered in other articles. See Michael D. Murray, NFT Ownership and Copyrights, 56 IND. L. REV. (forthcoming 2022); Michael D. Murray, Transfers and Licensing of Copyrights to NFT Purchasers, 6 STAN. J. BLOCKCHAIN L. & POL’Y (forthcoming 2022).
³. What Are Smart Contracts on Blockchain?, IBM, https://www.ibm.com/topics/smart-contracts (last visited Apr. 6, 2022). Smart contracts are often written in the Solidity programming language because that is a language specially adapted for use on Ethereum, the most popular blockchain for NFTs. See Solidity, https://docs.soliditylang.org/en/v0.8.13/ (last visited Apr. 6, 2022).
• Smart contracts use blockchain technology\(^4\) to verify and record the existence and ownership of digital assets and physical three-dimensional assets.\(^5\)

• An NFT owner owns the smart contract that defines and operates the functions of the NFT. The smart contract creates a registry entry on the blockchain that is understood in the NFT industry and crypto community to represent proof of ownership of the asset linked to the NFT, whether that be an artwork, a piece of real estate, or other asset.\(^6\)

• An NFT does not automatically provide ownership or control of the copyright to the artwork linked to the NFT.\(^7\)

III. COPYRIGHT REQUIREMENTS

Property as a concept in the law means the right to own and control something and to exclude others from using and controlling it. This concept often is expressed as the rights owner having a monopoly over the thing that is owned. When the term “intellectual” is added to the concept of property, it means that the thing protected is a non-tangible item devised, imagined, developed, or invented by a person or group, and that thing has value deserving of protection in the law. Copyright is one form of intellectual property, the others being trademarks, patents, right of publicity, moral rights, economic rights, and trade secrets.

Copyright is the right to own and control the duplication and use of an original, creative work of expression. There are several requirements\(^8\) that

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\(^5\) See What Is Blockchain Technology?, LIQUID, https://blog.liquid.com/what-is-blockchain-technology (last visited Mar. 30, 2022). This Article uses the term “physical three-dimensional” assets instead of “real-world” assets to avoid suggesting that NFTs are not real and not in the world. NFTs and all other aspects of blockchains are very much real and very much making a difference in the world.


\(^8\) The concepts described in this section are discussed further in MICHAEL D. MURRAY, A SHORT & HAPPY GUIDE TO COPYRIGHT 5-46 (2nd ed. 2022) (ebook).
are fundamental to the formation of copyrights discussed in the sections below.

A. AN AUTHOR

Copyright requires an author. Copyright law uses the term “author” to mean anyone who creates things in expressive media. So, author can be used to mean artist, composer, playwright, photographer, cinematographer, or musician, or a publisher who publishes, sells, and distributes creative works (and owns the copyright to the works). It can mean a scientist who writes reports of her findings and generates charts and diagrams. It can mean a computer programmer (coder) who produces works in a computer language of source code and object code for the express purpose of communicating a result in that computer language. It can mean a business that creates a new visual or auditory design for cloth, textiles, flooring, toys, or other products. In the context of NFTs, the term “artist” or “creator” is interchangeable with “author.”

The U.S. Copyright Office has officially stated that only humans may qualify as “authors”:

[T]he Office will not register works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author. The crucial question is “whether the ‘work’ is basically one of human authorship, with the computer [or other device] merely being an assisting instrument, or whether the traditional elements of authorship in the work (literary, artistic, or musical expression or elements of selection, arrangement, etc.) were actually conceived and executed not by man but by a machine.”

All of the requirements that follow flow from the concept that an author has conceived of and created a work.

B. THE WORK

In copyright, the “work” is the expression that the author creates. The variety of works that may be subject to copyright protection matches the list above of the possible roles and professions of copyright authors.

Getting a copyright is not complicated. Even though the word “work” is used, all an author needs to do is write something, paint something, program something—do something that creates something expressive. Once the author declares the work to be finished, then a copyright attaches to protect the work (if the other requirements discussed below apply).

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Copyright protects works in every expressive media, and even media in which it is hard to appreciate what has been created without the aid of a machine or other device, such as in the source code of a computer program. Writings, paintings, drawings, musical compositions and musical recordings, literature, plays, poems, motion pictures, pantomimes, and computer programs are copyrightable once the author finishes them.

C. ORIGINALITY AND CREATIVITY

Copyright imposes on authors two basic conceptual requirements:

- original
- creations.\(^\text{10}\)

These two conceptual requirements could be phrased in more typical copyright law terms: the “originality” requirement, and the “creativity” requirement. However, although the use of the terms “originality” and “creativity” is accurate, these terms do not bring clarity to the concept of what copyright law requires, and in fact lead to confusion among lawyers, judges, clients, and laypersons. First, to understand the terms original and originality, and creation and creativity, you must understand that they are legal terms of art. This means these two terms do not mean exactly what you might expect them to mean. In copyright law, original means one thing: not copied.\(^\text{11}\) It does not mean unique, clever, ingenious, or inventive. It only means that the work originates with the author and is not copied from another author’s work. And creation means that the author created the work as a conception and work of the mind that is then produced and fixed by the author in some observable, perceptible media. Creation, creative, or creativity in copyright law also do not mean unique, clever, ingenious, or inventive. Creative means “created by the author,” not found, not borrowed, and not naturally occurring.\(^\text{12}\) Second, it is important to note that the concepts of “original” and “creations” are inexorably connected to the concept of an author. Without authorship, the concept of works as being “original” or a “creation” has no meaning.

D. EXPRESSION AND FIXATION IN MEDIA

Authors also must meet two formal requirements of copyright (meaning, parts that relate to the form of the work): expression and fixation in media.\(^\text{13}\) “Expression” means the author’s work must have some

\(^{10}\) See 17 U.S.C. § 102(a) (indicating that “[c]opyright protection subsists . . . in original works of authorship fixed in any tangible medium of expression.”)


\(^{12}\) See In re Trade-Mark Cases, 100 U.S. 82, 94 (1879).

\(^{13}\) See id.
communicative potential for one of the senses. It doesn’t matter what the author is trying to communicate just as long as the author is communicating something. Copyright is broad and it only is looking for an author to communicate a concept that can exist as an idea in the mind of the author and be communicated to the mind of someone else through some communicative media.

In order for copyright to apply, the expression must not remain as an idea or concept in the mind of the author. “Fixation in media” means that the expression has to be rendered into existence in some form in which it can be perceived by one of the senses for long enough that other people can tell what the creation is and receive its communication.

The law defines the two formal requirements as “authorship fixed in any tangible medium of expression, now known or later developed, from which [the works] can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.” If an author conceives of a work and fixes it in some perceptible media so that it can communicate your conception to others, then the formal requirements are completed.

**IV. GENERATIVE NFTS AND THE QUESTION OF AUTHORSHIP IN COPYRIGHT LAW**

As noted at the outset, generative art has introduced a fairly unique copyright problem with NFTs. Generative artwork is extremely popular in the NFT universe, and often sells for the same price as more traditional tokenized artwork, but in some iterations, generative appears to lack human authorship and it is therefore uncopyrightable.

Generative art is art that is generated wholly or at least in part by algorithms, and not by the direct control of the programmer or the programmer’s customer. The programmer could very well be an artist who created a program consisting of one or more algorithms that can randomly generate an artwork based on randomized parameter selections or by being jogged by one or more inputs to suggest a direction for the artwork. In more complex projects, an artificial intelligence (AI) is programmed to make decisions about the artwork potentially from start to finish.

Why does generative art fail in the copyrightability analysis? As discussed below, the problem of generative art and copyright does not arise because the works are not original, or created, or fixed, or existing in a tangible medium. The problem arises because the conception and design of the works attempts to take the human author out of the process of creation. If successful, then the generative work lacks a human author. And at present,

the U.S. Copyright Office says that this origin and creation situation disqualifies the art from copyright protection.

A. FORMS OF GENERATIVE ART

Generative art generally works one of three ways:

**Random Parameters or Features:** The artist/programmer designs a base image and sets a series of parameters or features that will be randomly selected for a piece, such as hair style and hair color, background color, eyes or eyewear, jewelry, mouth, accessories, and so on. When a purchaser wins the auction and purchases or claims the NFT, the NFT art is assembled by a random selection from the available features—green hair, cigarette in mouth, silver earring, and so on—such that the purchaser knows they are buying into a series with the same base image, but other than that the purchaser has no idea what exactly they have purchased until they buy it and order it to be minted. This is the method used for many NFT projects including the ones listed at the start of this Article.

**Randomized Image:** A programmer designs an art creation program that allows for a random construct of colors or patterns, lines or vectors, fractals or shapes. Someone initiates the process and lets the program spin and spit out the artwork. Most often, there are “rules” programmed into the script of the program to ensure that the program does not spit out total messes. The extremely popular and profitable Chromie Squiggles (Art Blocks) project uses a method that follows this path, but the programmer

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has tweaked the algorithm to make sure the works come out in a general wormlike “squiggle” shape.

![Types of Chrome Squiggles](image)

**Types of Chrome Squiggles**

**Artificial Intelligence Generated Art:** In this mode, the AI has been created by a programmer who might also be the AI’s trainer or coach, but the AI decides what to paint or draw and proceeds to paint it. The output is not totally random as in the second example above because the AI will be programmed with certain painterly instincts and preferences. This allows the work to be more instantly recognizable as a sort of portrait, landscape, abstraction, or other more recognizable schema of art.

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As noted above, the problem with generative art is not the variety of offerings, it is the fact that the farther generative art moves away from human conception and creation, the less likely the work will be held to be copyrightable. And generative art will be uncopyrightable if it is held to lack human authorship. One of the two conceptual requirements of copyrightable works is that they must be “created,” which the law defines as conceived of in the mind of a human being and executed into a fixed and tangible expression. As discussed above, the U.S. Copyright Office has officially stated that only human authors can engage in this process of conception and fixation and receive a copyright:

> [T]he Office will not register works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author. The crucial question is “whether the ‘work’ is basically one of human authorship, with the computer [or other device] merely being an assisting instrument, or whether the traditional elements of authorship in the work (literary, artistic, or musical expression or elements of selection, arrangement, etc.) were actually conceived and executed not by man but by a machine.”

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22. In re Trade-Mark Cases, 100 U.S. 82, 94 (1879).
Generative art might fail this test for at least three reasons:

- If the expression of generative artworks is randomly created, it may be viewed as not having been caused by the creative act of a human author.

- The expression of generative art must be designed and created by a human even if machines and algorithms do the actual rendering of the expression.

- Generative art produced by artificial intelligence may be viewed as having no human author because the AI, not a person, conceived of and created the expression.

The most troublesome cases artists create for themselves is when they disavow creative design of the works and insist that the works were not authored by the artists; courts are likely to agree with them and find no authorship and no copyright.25 Even if there is a strong element of human authorship and design—as in the example of a garden of wildflowers planted as a painting—courts may find that external forces (e.g., nature, God) truly brought the expression of the work into existence, not the creative authorship of the human artist, and will deny copyright for these reasons.26 Some of these problems can be ameliorated if the artist is willing to present a strong narrative of creation: “I created the work”; “I programmed the machine to create this work”; “This work is the product of my conception and design.” But sometimes the separation of conception and design from expression and end product cannot be overcome by a simple story.

**B. RANDOM GENERATION IS NOT AUTHORSHIP**

A random or accidental rendering of shape or color is not authorship of expression unless a human author is involved in the causation of the rendering and adopts the results of the random or accidental rendering as the human author’s creation.27 Jackson Pollock chose to introduce many random and unpredictable elements into his drip paintings but that was his intentional creative act and design. He chose to paint in this way, he caused the drips and lines to appear with some direction if not exactitude of placement, and he accepted the end product as his creation.

If, while an artist was on vacation, a cat knocked over paint cans and caused paint to splash onto a canvas, this event would not meet the definition of human authorship. But if an artist tied strings to small paint cans and let

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25. See Burrow-Giles Lithographic Co., 111 U.S. at 58.
27. See Alfred Bell & Co. v. Catalda Fine Arts, 191 F.2d 99, 105 (2d Cir. 1951).
the cat play with the strings intentionally to cause paint to splash on the canvas and not on the cat, that would look much closer to Jackson Pollock’s intentional randomness and eschewing of exactitude in the placement of the paint. The artist used a mechanism to place paint on the canvas that caused a certain amount of randomness to enter into the expression, but the artist was in control of the process from start to finish and could choose not to adopt a work that did not meet the artist’s creative objectives.

Street photographer Philip Lorca diCorcia introduced a different kind of randomness when he set up strobe lights in a strategic location in scaffolding above a New York City sidewalk and used a camera on a tripod with a radio-controlled mechanism to set the shutter clicking to capture the portraits of passersby without their knowledge. After sifting through the several thousand exposures captured, diCorcia selected seventeen portraits for exhibition, such as the portrait of Erno Nussenzweig, exhibited as “Head #13” below.

Head #13

In many if not most instances, generative artists who program algorithms with a set of features or parameters are doing more design and creation than an abstract drip-painting artist. All of the available features for a Bored Ape—fur color, mouth, eyes, attire, etc.—all had to be created, as in conceived of and rendered into expressive existence by the artists who built the base image and options for the Bored Apes. The creators offered the purchasers what is in effect a paper doll with facial and clothing options, and

the purchasers agreed to be “surprised” by what features turned up in the random shuffle at the time each ape was minted. The creators at BAYC certainly have adopted the apes as their own creations and only license certain rights to ape owners. Bored Apes and other generative works following the “shuffled features and options” model of creation should, therefore, be copyrightable.

C. COPYRIGHTABLE ART MUST BE DESIGNED AND CREATED BY A HUMAN EVEN IF MACHINES AND ALGORITHMS DO THE ACTUAL RENDERING OF THE EXPRESSION

In between randomly generated art and complete hands-on creation of art by a human there is the middle category of art that is conceived of by a human but machines and algorithms do the actual rendering of the expression. In a sense, all digital art fits into this mode if the artist uses the algorithms of a painting or imaging program to render the image at the artist’s direction and control. These artworks can be copyrightable if the emphasis lies on the requirement that a human conceived of and rendered the artwork into existence. The guiding principle here is that the artwork must be designed and created by a human. A machine can be set in motion by a human actor as long as that is the artist’s design and intention, but the expression itself must be caused by the direct action of a human author, not just produced through an instrumentality left in place by the human author.

Wildlife photographer David Slater was involved in a “no human authorship” situation when he left one of his cameras in a place where crested macaques could access it. Slater did take active steps to get macaques to take pictures: he set up his camera on a tripod in an advantageous position and camera angle and then stepped away leaving the camera accessible to primate interaction. A crested macaque named Naruto discovered his reflection in the camera lens and proceeded to snap a selfie that went viral.

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30. See Naruto v. Slater, 888 F.3d 418, 422-26 (9th Cir. 2018).
Who is the author? Slater initially claimed authorship, but this theory was rejected first by Wikipedia and then by PETA (People for the Ethical Treatment of Animals) based on Slater’s own narrative of how the picture actually was taken. Slater set up an instrumentality and then walked away, and Naruto took the picture. In PETA’s lawsuit and appeal, the Ninth Circuit Court of Appeals found that Naruto is the author but that the work is uncopyrightable because Naruto, however skilled in photography, is not a human author and has no standing to own or defend a copyright.

The Chromie Squiggles and other Art Blocks projects use a method that sounds a bit like Naruto’s narrative of creation. A programmer has coded the script for an art generation program into a smart contract on a blockchain where anyone can pay the fee and run the script and create a new work of art. The process of creation is initiated by someone other than the programmer and the initiator has no creative input into the work. The work of art is instantly tokenized and stored on the blockchain without any intervention or involvement of the programmer. If viewed as an instrumentality left in place by a human, like Daniel Slater’s camera left on a tripod where the macaques can get to it, does that mean the programmer of the Squiggles machine is not the author of the squiggles? The works are not

33. Naruto, 888 F.3d at 426.
35. CHROMIE SQUIGGLES EXPLORER, supra note 18.
36. See id.
created (i.e., minted) until a purchaser completes the purchase and sets off the “create the artwork” process. Arguably, the purchaser is the author much like Naruto was the author of the selfie photograph. But with squiggles, presumably there is a human being behind a wallet address or OpenSea account number who caused the work to be created and can qualify as an author of a copyrighted work.

Nevertheless, it is obvious that the creator/programmer of Chromie Squiggles, Erick Calderon (Snowfro), has written a computer program with “rules” and designed the algorithm to make sure the works come out in a general wormlike “squiggle” shape.37 There is a significant amount of quality control baked into the project, as one reviewer described:

[Artists] . . . have to make sure today to create a script that doesn’t create any bad outputs. Once minted by someone, the artist can’t delete a piece. Every new iteration is as visible as any other one, putting pressure on the artist to create a script that only runs good outputs. One single bad result lowers the quality of the whole collection.38

Even if a purchaser hits the start button or causes the process to run, the author’s creative conception and design is all over these creations, and the randomness that makes each creation unique is a carefully controlled randomness by the programming of the creator.

If we look behind the two-dimensional arts to sculpture, it is routine for artist of a project to design and look over the production of works created by others—apprentices, assistants, gaffers, and the like. The artists might design a shape, perhaps even build a mold, but the assistants do the hands-on work of pouring the metal and finishing the works.

Dale Chihuly, certainly one of the most renowned glass artists living today, has not blown or spun a glass work for several decades owing to several injuries he suffered from accidents that caused him to change his work style to a communal or factory style of production.39 Chihuly designs works by creating paintings in watercolor or other media to express his general idea for the shape and color scheme for a work and leaves it to his gaffers to create the actual artwork. While gaffers working under Chihuly

have sometimes grumbled that they should receive more credit for the works, few dispute that Chihuly, the artist, is the creator and author of the work.\textsuperscript{40}

If the script for creation of a generative NFT artwork written by an artist/programmer like Snowfro is likened to the designs painted by Chihuly, and that the NFT purchaser is likened to a gaffer or assistant who has simply participated in seeing the script carried out, there is a good argument that the artist/programmer will be deemed to be the author of these works.

D. GENERATIVE ART PRODUCED BY ARTIFICIAL INTELLIGENCE

Artificial intelligence is a relative, nuanced, and evolving term. Certain reproduction technologies and painting machines have for several decades been designed to scan and reproduce artworks or execute programs to create new artworks.\textsuperscript{41} These devices had brains (microprocessors) and memory (chips) of a sort, although mainly in the metaphorical sense. But in recent years, true creators of AI for painting use neural networks and deep learning to train an AI with painterly instincts and abilities, and at a certain point the neural processing of the entity kicks in and sets about painting what it wants to paint, perhaps even when it wants to. Committed AI programmers seek not to be called the artist of the works produced by these high-functioning AI artists.\textsuperscript{42}

AI programmer Steven Thaler has twice tried to convince the Copyright Office of the Library of Congress to issue a copyright to the artificial intelligence “Creativity Machine” that created the work, “A Recent Entrance to Paradise.”\textsuperscript{43} And twice he has been rejected because, as Thaler has framed it, the Paradise artwork has no human author.\textsuperscript{44} Thaler is trying to make a point here—he wants to promote an AI as the author or inventor of works


\textsuperscript{41} See Xerox Art, WIKIPEDIA, https://en.wikipedia.org/wiki/Xerox_art (last visited Sept. 23, 2022);

\textsuperscript{42} Dr. Ahmed Elgammal, supra note 20.

\textsuperscript{43} The caption of the work on Seeflection.com reads “Stephen Thaler/Creativity Machine.” Paul Morris, U.S. Copyright Office Says No to Protection of AI Art, SEELECTION (Mar. 2, 2022), https://seeflection.com/21687/u-s-copyright-office-says-no-to-protection-of-ai-art/. However, Thaler’s application to the Copyright Office strictly adheres to the position that Creativity Machine created the artwork, and Thaler did not. See Adi Robertson, The US Copyright Office Says an AI Can’t Copyright Its Art, THE VERGE (Feb. 21, 2022, 11:54 AM), https://www.theverge.com/2022/2/21/22944335/us-copyright-office-reject-ai-generated-art-recent-entrance-to-paradise. The Verge’s version of the painting is captioned “Steven Thaler and/or Creativity Machine” thus hedging its bets on who is the author. Id.

\textsuperscript{44} SECOND REQUEST FOR RECONSIDERATION FOR REFUSAL TO REGISTER A RECENT ENTRANCE TO PARADISE (CORRESPONDENCE ID 1-3ZPC6C3; SR # 1-7100387071), U.S. COPYRIGHT OFF. REV. BD. 1-2 (Feb. 14, 2022), https://www.copyright.gov/rulings-filings/review-board/docs/a-recent-entrance-to-paradise.pdf.
under copyright law and patent law—\textsuperscript{45} but the courts and copyright office also are making a point: no human author means no copyright.

One answer to the AI question is for the programmers and creators of the AI to take credit for the artworks produced and thus identify themselves as the authors. This situation is anticipated under UK and New Zealand law. Section 9(3) of the UK Copyright, Designs and Patents Act 1988 states: “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.”\textsuperscript{46}\textsuperscript{7}

The legal basis for claiming authorship by the programming of the AI that created the work is a start, but as noted above, what will seal the deal is evidence that the human programmer intentionally trained the AI to produce work of the human’s creative design and intentions. This position negates the autonomous creation narrative that deep learning AI strives to achieve. But it will allow someone to be the author who has standing to be an author.

E. WHAT IF YOU DON’T CARE ABOUT COPYRIGHT OWNERSHIP OVER AI OR GENERATIVE ART?

This is a copyright article, so I have been assuming that readers in the NFT world do care about copyright and who has the rights to engage in copying, creation of derivative works, and licensing. But what if that was not at all important to you? The stunning achievements of machine learning and

\textsuperscript{45} Thaler’s patent law efforts also have failed. \textit{See id.} at 6.

\textsuperscript{46} A Recent Entrance to Paradise (illustration), \textit{in Morris, supra} note 43.

neural networks that allow AI to actually and autonomously create works of
great beauty and visual interest is an extremely worthwhile goal to celebrate,
leaving far behind the question of who should be able to copy and exploit
the works.

Digital works with randomly shuffled attributes and images rendered
through technologies designed to the specifications of artists and
programmers and whose works the artists and programmers adopt as their
own should meet copyrightability authorship requirements. Works that are
disavowed by the programmers and trainers of artificial intelligence because
they were created by the AI will be uncopyrightable because they lack human
authorship under current law. But that may be beside the point, because a
monopoly control over the works created by AI is not the mark of
achievement sought by AI developers.

V. CONCLUSION

In copyright law, the working assumption is that the works we are
trying to protect deserve to be protected from copying and uncontrolled
distribution or exploitation. With traditional fine arts in their physical forms,
it usually mattered greatly to the artists whether someone could copy their
works, beat them to the intended marketplace or into new markets, make
derivative works from their works, and out hustle them in exploiting the
works until there was no point in claiming the works or attempting to control
them. With highly complicated and labor-intensive ventures such as video
game development and motion picture production, it is essential that the end
product of years of work will not be duplicated and distributed freely with
no compensation and control by those who expended the time, effort, and
money to bring the work into existence. When it was more difficult to make
a copy of the work in a painting or sculptural medium, there was a natural
barrier that could slow down exploitation to a reasonable and policeable
level. Digital artistic expression in the visual arts, film, music, and
performing arts has changed the equation because it can be so easily
duplicated and distributed with no perceivable loss in fidelity of content.

But looking solely at the artwork in an NFT and its aesthetic or enduring
value as artistic expression misses the point of this medium. NFTs generally
are regarded as valuable because they are unique and you can own them, they
have historical significance and connection to important figures in the crypto
community, and at present they are easier to buy and sell with cryptocurrency
than other luxury items.48 The status of ownership and the clout and prestige
it brings is perhaps the greatest explanation of NFT’s high valuation in the

48. See Michael D. Murray, NFTs and the Art World: What’s Real and What’s Not, 29 UCLA ENT.
collectibles market. There also is a sense of “belonging” because many NFT projects offer participation in a community to purchasers of the tokens.

A Chromie Squiggle is a colorful little image, but the small vector worms may not have deep economic value for future licensing and commercial exploitation. The Chromie Squiggles Random Squiggle Generator allows you to generate for free a seemingly infinite number of squiggles for you to right-click on and save, and even invites you to distribute a copy by Twitter. There is no copyright notice or license information on the squiggle generator page. Perhaps that is because copyright and its assumption of monopoly control is not essential to the use and enjoyment of generative digital works in this newly popular medium of art.

The developers of the metaverse currently contemplate using NFTs as a medium of exchange, a ticket to events, a calling card allowing entrance to gatherings, and, of course, as artist expression to literally and figuratively color in the alternative reality experience. Digital artistic expression will be ubiquitous in the metaverse, and one question to answer will be who will be able to exploit the value of these creations now and for the future. Copyright is one answer to this question.


50. Random Chromie Squiggle Generator, supra note 37.

51. Id.