Art in Walled Gardens

ANGELA ZHAO[†] AND SONIA K. KATYAL[†]

Years ago, Lawrence Lessig warned society of the dangers of a "permission culture" and a "pay per use" society that requires licenses in order to create. With the rise of licensing and contractual restrictions in the digital creative marketplace, we are seeing the risk of these predictions coming to pass. As we argue, the unsettled law surrounding digital art is an important heuristic for examining its broader future. While many scholars rightfully question the authorship of AI-generated digital art within the governing realm of copyright law, we argue that irrespective of those questions, one overlooked aspect of digital art lies in contractual restrictions that can be built into its design, carrying the potential to control downstream forms of creativity.

In this Article, we argue that this form of private ordering risks producing a world where digital creativity is conformed—and thus transformed—not by intellectual property principles, but by contractual control. The rise of digital art—particularly in the context of NFTs and generative AI—forces us to contemplate how conventional legal paradigms—specifically contract and intellectual property—carry both limits and possibilities within this emerging world of private ordering. In particular, copyright and contract law will be increasingly asked to respond to these shifts. The law can either expand, loosening its grip and enabling decentralized forms of creativity and ownership, or it can contract, literally and figuratively, resurfacing older tensions about access, openness, and unlicensed use. Further, as digital creativity becomes more derivative, we argue that these hidden risks, ironically, might contract the pool of available raw materials from which others draw upon. This will inevitably shrink the public domain, rendering culture accessible only by digital key. Ultimately, this Article concludes in favor of enabling more oversight, not less, over the world of digital art as a result.

[†] Angela Zhao, J.D. 2023, UC Berkeley School of Law, is an independent scholar.

[†] Sonia K. Katyal is the Roger J. Traynor Distinguished Professor of Law at UC Berkeley School of Law, Co-Director of the Berkeley Art, Law, and Finance Project, and a Board Member at Gray Area in San Francisco. For their thoughtful comments and feedback, we are grateful to Refik Anadol, Blaise Aguera y Arcas, Tara Tan, Nelly Mensas, Alfred Steiner, Erwin Chemerinsky, Enrico Bonadio, Catherine Fisk, Robert Alice, Christopher Kutz, Rebecca Wexler, Pam Samuelson, Erik Stallman, Delia Violante, Emily Xie, Xiyin Tang, Lucas Bentel, Eddan Katz, Joe Chiappeta, Luke Chiappeta, Vilas Dhar, Frank Partnoy, Karen Wong, Joan Kee, Nate Harrison, Jeanne Fromer, Rei Inamoto, Michael Goodyear, Pati Hertling, Nato Thompson, Trevor Paglen, Michael Connor, Barry Threw, Adine Varah, Simon Frankel, Niki Selken, Kate Crawford, Jason Schultz, Lauren Lee, James Manyika, Tina Rivers Ryan, Simone Ross, Asma Kazmi, and Betsy Seder, as well as to participants in the UC Berkeley School of Law's 2026 Contract Theory Works in Progress series—especially Michael Heller (who offered wonderful commentary on this piece), Hanoch Dagan, Seth Davis, Bertram Lomfeld, Chris Mills, Ethan Leib, Aditi Bagchi, Peter Hoser, Julian Jonker, and Kelvin Kwok—and to our colleagues at the University of Toronto, particularly Daniel Browne and Anna Su, for their support and questions. For their excellent research assistance, we thank Isabella Rosoff, Thomas Saenz, Jacob Adler, Euni Lee, and Nayan Pallegar.

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INTRODUCTION

If a machine could "see" the vast collection of art at the Museum of Modern Art ("MoMA") in New York City, what would it dream of? What would a single artist's rendering of the entire MoMA collection look like? Refik Anadol raised these questions in his digital studio project "Machine Hallucinations," a product of his artist residency at Google's Artists + Machine Intelligence program. There, he harnessed vast datasets and AI algorithms and sought to visualize the dreams of machines to create ethereal landscapes that invite "viewers to contemplate the potential for AI to not only mimic reality but to imagine beyond it."[1] Imagine an art canvas whose paint never dries, on which an infinite stream of artistic expressions are born and reborn. Anadol's collection employs machine learning and generative AI to continuously generate dreamlike landscapes based on the MoMA's collection, constantly shifting in texture, form, and complexity, never settling into a final state. While the physical world could not possibly hold this type of imaginative canvas, the digital collection "Machine Hallucinations," among many others, exemplifies how the digital realm has turned the idea of an infinite canvas into reality. Swapping brushstrokes for algorithms, a single work of art becomes as dynamic as the creative movements in which it exists.

At the same time, a portion of Anadol's collection, called "Unsupervised," is memorialized as a non-fungible token, or NFT.[2] "Unsupervised" is itself a contradiction, because juxtaposing the radical freedom of generative AI with NFTs reveals some of their fundamental incompatibilities. NFT artworks contain embedded certificates of authenticity that impose fixed, contractual boundaries on what should otherwise be unfettered digital creativity. An NFT freezes a moment of creativity into digital stone, and then commoditizes that moment through private rights and contractual obligations.

This intersection—where infinite generative possibilities collide with finite claims of property and control—exposes a foundational paradox of contemporary digital art. The rapid expansion of the digital art world, primarily by way of generative AI and NFTs, raises not only complex issues of intellectual property infringement, but also equally complicated issues of contractual control over creativity. In this Article, we argue that conflicts over digital art are a symbol of a larger problem: As much as digital art offers artists a tremendous swath of creative possibilities, its rapid commercialization also risks enabling a far greater legal and technical control over those works than at any other time in history.

Today, digital art has emerged at the intersection of three overlapping themes, collectively in disarray: creativity, contract, and property. These realms

1. Refik Anadol, *Machine Hallucination*, REFIK ANADOL, https://refikanadol.com/works/machine-hallucination-nyc (last visited Feb. 18, 2026).

2. Refik Anadol, *Unsupervised—Machine Hallucinations—MoMA*, REFIK ANADOL, https://refikanadol.com/works/unsupervised (last visited Feb. 18, 2026).

are intimately related to each other, whereby an expansion of one (say creativity) carries dramatic costs for the others (property and contract). Similarly, an expansion of contract law has dramatic costs for creativity and property; and an expansion of property law carries equally dramatic costs in the other direction. In this Article, we map out these possibilities to show how these conflicts are a harbinger for the future of digital art more generally, as creativity risks becoming conformed to contractual restraint.

Digital art's latest instruments, NFTs and generative AI, force us to contemplate how these paradigms—contract, creativity, and property—carry both limits and possibilities within an emerging world of private ordering. Here, the unsettled law surrounding digital art is an important prism with which to examine the broader future of digital creativity. For example, generative AI creates the possibility of unlimited creativity, but NFTs create the conditions for unlimited ownership and control. In this Article, we argue that these worlds, facilitated by blockchain, smart contracts and other contractual restrictions, will produce a world where creativity is conformed—and thus transformed—not by intellectual property principles, but by contractual control.

Generative AI and NFTs, on one level, represent inverse philosophies regarding digital culture—AI celebrates abundance, decentralization, and unrestricted extraction/generation of infinite possibilities for creation, whereas NFTs tend to impose scarcity, ownership, and contractual control onto the inherently nonrivalrous nature of digital content. In other words, Generative AI produces creators, but not necessarily owners; and NFTs produce owners, but not necessarily creators.

Yet in both contexts, we worry that the advent of contractual control in each realm might also facilitate the beginning of a larger erosion of fair use in the digital era. Years ago, Lawrence Lessig and Pamela Samuelson warned that society has transitioned from a "free culture"—one that encouraged the creation and exchange of intellectual works—to a "permission culture," a "pay per use" society where the creation and exchange of intellectual works is heavily regulated by the law, particularly through copyright.[3] With the rise of contractual restrictions in the creative marketplace, we are seeing these predictions come to pass. While many scholars rightfully question the authorship of AI-generated digital art in the context of Intellectual Property ("IP"), we argue that irrespective of questions surrounding their novelty, their real danger lies in the ability to displace fair use and other limitations through contractual restrictions that can be built into their design. These effects will be significant. As digital art becomes more and more governed by contractual provisions, it

3. LAWRENCE LESSIG, FREE CULTURE: HOW BIG MEDIA USES TECHNOLOGY AND THE LAW TO LOCK DOWN CULTURE AND CONTROL CREATIVITY 30 (2004) ("Free cultures are cultures that leave a great deal open for others to build upon; unfree, or permission, cultures leave much less. Ours was a free culture. It is becoming much less so."); *see also* Pamela Samuelson, *A Look At . . . Whose Ideas, Anyway? Facing a Pay-Per-Use Future*, WASH. POST (Oct. 31, 1998), https://www.washingtonpost.com/archive/opinions/1998/11/01/a-look-at-whose-ideas-anyway-facing-a-pay-per-use-future/e0f61d50-24e7-4110-9ce5-8ea81dbb1c57.

runs the risk of negating other forms of unlicensed uses. Consequently, as contractual provisions are increasingly allowed to govern digital art, we run the risk of foreclosing derivative streams of creativity that are not directly authorized beforehand.

At the heart of this Article lies a single subtle mechanism through emerging forms of digital art: *auto-enforcement*. Auto-enforcement, in short, is the technical embodiment of private ordering—the substitution of code for actual adjudication. In several contexts, we argue that platforms can embed creative use restrictions directly into the technical architecture of digital art, without any opportunity for negotiation, defense, or assertion of fair use. In the NFT context, the use of smart contracts can foreclose recognition of a fair use. In the context of generative AI, the employment of model-level filters can foreclose outputs even when those outputs would be lawful under fair use defenses.

We are concerned about the rise of auto-enforcement because in our view, it inverts the architecture of copyright. Traditional copyright operates under a reactive framework: A rights holder must identify and prove infringement, while the alleged infringer retains the ability to assert fair use as a defense. In contrast, since auto-enforcement is anticipatory, the restriction operates preemptively—the act is not defeated; it is simply foreclosed. In this Article we introduce auto-enforcement as a category of legal concern in the context of both NFTs and Generative AI that demands its own doctrinal response, distinct from previous debates over shrinkwrap, filtering, and the boundaries of preemption.[4]

In particular, copyright law will be increasingly asked to respond to these shifts. The law can either expand, loosening its grip and enabling decentralized forms of creativity and ownership, or it can contract, resurfacing older tensions about access, openness, and unlicensed use. As digital creativity becomes more derivative, we argue that putting such creativity in the digital world will only contract the pool of available raw materials from which others draw upon. This will inevitably shrink the public domain, rendering culture something accessible only by digital key.

Because many current norms in the digital art industry advocate for liberal permissions for derivative artworks, tensions between restrictive contracts, such as smart contracts, and statutory defenses to infringement have yet to systematically rupture. But recent disputes—and this Article—suggest that the transformation is just beginning, leaving the future of digital art in question. Despite historically permissive cultures among the grassroots NFT art

4. For discussion on shrinkwrap, see *ProCD, Inc. v. Zeidenberg,* 86 F.3d 1447, 1453–55 (7th Cir. 1996) (holding that a shrinkwrap license, which restricted the use of copyrighted information, was enforceable and not preempted by copyright law). For discussion on filtering or technological enforcement of copyright protections, see Julie E. Cohen, *Copyright and the Jurisprudence of Self-Help*, 13 BERKELEY TECH. L.J. 1089, 1090 (1998) (discussing "self-enforcing digital contracts" that allow copyright owners "near-absolute control" of their creative content). For discussion of copyright preemption, see Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 CALIF. L. REV. 111, 138-141 (1999) (discussing federal preemption in copyright law).

community, recent cases portend a growing trend in the other direction. Established institutional creators like fashion designer houses and luxury brands are likely to have significant concerns about infringement. Like their predecessors in the early software and media ages, these institutional creators may also be likely to execute restrictive licensing schemes to protect their intellectual property. Their concerns, we worry, will lead them to deploy contract law to foreclose the very same unauthorized uses that copyright (and trademark) law once protected.

In this sense, generative AI and NFTs represent two sides of the same conceptual coin: If generative AI disrupts traditional authorship by expanding who—or what—can create, NFTs attempt to reassert control by defining the boundaries of ownership. Generative AI tools such as DALL·E, Midjourney, and Stable Diffusion have already been used to create thousands of AI-generated artworks that are then minted and sold as NFTs. Some platforms, like BrainDrops, specialize in fully AI-generated NFTs, while artists such as Claire Silver and Refik Anadol create NFT artworks in collaboration with generative AI to immense mainstream success.[5] But while generative AI propels unfettered algorithmic creation, NFTs restore scarcity and control through immutable tokenized records. Certificates of authenticity may once have been a testament to human-engineered art—but today's NFT smart contracts serve the same function in carving exclusivity. Violations, here, of contractual restrictions can mean deauthentication, delisting, or blocked transfers. Therein lies the oxymoron of digital art: NFT's restricted ownership compared with generative AI's freedom of expression. Just as conceptual art once disrupted assumptions about what art could be, generative AI and NFTs now challenge what ownership, originality, and authenticity can mean in the digital age, with two radically diverging futures: one of democratized expression, and another of privatized creativity constrained by restrictive code and contract.

This, we argue, results in the creation of two parallel worlds of creativity: one licensed, and largely subject to the approval of intellectual property owners in the marketplace; and the other made much more vulnerable as a result. The potential for contracts to enlarge the rights of copyright owners past valid defenses, such as fair use, remains a fundamental risk for the digital art world, and for creativity more generally.

This Article has four parts. The first Part focuses on the realms of digital creativity, outlining how artistic practices have dramatically shifted in an electronic medium, culminating in the rise of various forms of digital art. The second Part focuses on the rise of contract law in governing NFT-created digital

5. BRAINDROPS, https://braindrops.cloud (last visited Feb. 18, 2026); Claire Silver, *AI Collaborative Artist*, CLAIRE SILVER, https://clairesilver.com (last visited Feb. 18, 2026); *With AI, Artists Reckon with the Muddy Questions of Authorship*, NPR (Apr. 1, 2023, at 17:19 ET), https://www.npr.org/2023/04/01/1167628486/with-ai-artists-reckon-with-the-muddy-questions-of-authorship; *see* Refik Anadol, *Machine Hallucinations—NFT Collection*, OPENSEA, https://opensea.io/collection/refik-anadol (last visited Feb. 18, 2026).

art and outlines how contract law continues to enable a pervasive control over the digital art marketplace despite the culture of permissive creativity engendered by some leading NFT guilds.

The third Part outlines the diminishing role of intellectual property oversight over the domains of generative AI. As more art takes on digital forms, it runs the risk of eliding the classic expectations that surround the creation, management, and enforcement of intellectual property. As a result, digital art inherits a curious character: It can either become meta-powerful intellectual property—a sort of intellectual property on steroids—offering more control through contract than conventional IP doctrine; or it can become ephemeral in nature because of its failure to fall into traditional modes of protection.

In the concluding section, we argue that the resulting legal instability, or pervasive tension, in turn, will affect the market of digital art altogether. This Part turns to auto-enforcement—the embedding of use restrictions directly into smart contracts and model-level filters—and argues that it threatens not only fair use but also the image pluralism that fuels digital creativity. Gallerists, museums, curators, and collectors, long inured to the market value placed on permissionless works in real space, will not be able to sustain the same premiums for digital art. Rather than authenticity functioning as a guarantee in the art world, it will now become a battleground for the future of creativity. This outcome, in turn, will require even more legal intervention than we have previously seen in the digital art realm than we have seen thus far. Ultimately, this Article concludes in favor of enabling more oversight, not less, over the world of digital art as a result.

I. DIGITAL ART, NFTS, AND AUTHENTICITY

In 1958, French conceptual artist Yves Klein constructed nine "empty zones" or intangible areas of space, called "Zone de Sensibilité Picturale Immatérielle" (translated to 'zone of immaterial pictorial sensibility').[6] People lined up to see the exhibition—but the artworks were invisible. A buyer could purchase a space only with pure gold, and upon purchase, they would receive a receipt that promised ownership of the invisible art. A buyer could then keep, transfer, or ceremonially burn the receipt; and for his part, Klein threw half of the exchanged gold into the Seine river.[7]

6. *The "Ancestor of the NFT": One of Yves Klein's Empty Zones Comes Up for Sale*, ART L. & MORE (Apr. 1, 2022), https://artlawandmore.com/2022/04/01/the-ancestor-of-the-nft-one-of-yves-kleins-empty-zones-comes-up-for-sale/#:~:text=During%20the%20final%20three%20years,be%20purchased%20with%20pure%20gold. Klein also kept a record of the sales and resales of the works in perhaps one of the earliest ancestral versions of the blockchain.

7. Zachary Small, *Can an Art History Frame Help Expand the NFT Market?*, N.Y. TIMES (Apr. 14, 2022), https://www.nytimes.com/2022/04/14/arts/design/nft-art-market-sothebys.html.

"Zone de Sensibilité Pictural Immatérielle" tells a story about how different concepts of ownership are fundamental to the experience of a work of art.[8] Through the exchange of these pieces, Klein was able to draw a contrast between the immateriality of his "scandalous" artwork and traditional ideas of ownership.[9] He distinguished two related but fundamentally different types of ownership: the absolute ownership of the thing, and the legal ownership of the deed to the thing.[10] But the work also highlighted the ephemerality of value itself: An artwork's value depends on the market interest in its authenticity—ever-fleeting, ever-changing, and often invisible from view.

Klein's conceptual project was an early rendition of the powerful idea of "tokenizing" art, when artists began to bring the ideas and concepts behind their art to the forefront.[11] For example, in 1967, conceptual artist Sol LeWitt wrote, "[t]he *idea* becomes a machine that makes the art."[12] Sol LeWitt's wall drawings consisted of a series of lines connecting points on a wall, accompanied by a certificate of authenticity.[13] Originally, these works were designed as a way to bypass the art market and decentralize production, enabling the enjoyment of art to be open to all.[14]

These conceptual works personified an underlying paradox: If the production and enjoyment of art was meant to be decentralized and open to all as a kind of critique of consumerism, *ownership*—in the form of owning the record of authentication—comprised precisely the opposite. How did this happen? As these conceptual artworks gained economic value, many of these artists soon switched course after seeing that their works had become valuable commodities. They wanted, in essence, to have their cake and eat it too; to make art available to all to view and to enjoy, but still ensure that only a few individuals could actually purchase the work. As a result, to create a scarcity of supply, the artists began to develop certificates of authenticity; sometimes emerging from the instructions that accompanied the artwork, or with a signature or a diagram. In other words, the audience was unlimited, but ownership was limited to only a few.

In other words, these artists drew an implicit distinction between the value of an original, authentic work and the valueless nature of a copy—even if the two were the same.[15] As Amy Whitaker observes, "[t]he crux of the work was that the certificate conveying the instructions and authenticity—the idea—*was*

8. MITCHELL F. CHAN, DIGITAL ZONES OF IMMATERIAL PICTORIAL SENSIBILITY 2–4 (2017), https://ipfs.io/ipfs/QmcdKPjcJgYX2k7weqZLoKjHqB9tWxEV5oKBcPV6L8b5dD.

9. *Id.*

10. *Id.*

11. Tina Rivers Ryan, *Token Gesture*, ARTFORUM, https://www.artforum.com/columns/token-gesture-249731 (last visited Feb. 27, 2026).

12. AMY WHITAKER & NORA BURNETT ADAMS, THE STORY OF NFTS 30 (2023) (quoting Sol LeWitt, Paragraphs on Conceptual Art, ARTFORUM (Summer 1967)) (emphasis added).

13. *Id.* at 26–29.

14. *Id.* at 42.

15. *See* Amy Adler, *Artificial Authenticity*, 98 N.Y.U. L. REV. 706, 711 (2023).

the work, not the executed drawing."[16] If the certificate was sold without the drawing, the drawing ceased to be authentic, and the work would no longer comprise an authorized LeWitt, illustrating the untethering of the artwork from the ownership of the artwork.[17] Here, "[i]t is not the work itself but the registration of the work that certifies it as the original artwork. Many people could have the drawing on their wall, but only one would own the LeWitt: the person with the certificate of authenticity."[18]

A. CONSTRUCTING ARTIFICIAL AUTHENTICITY IN DIGITAL ART[19]

The digital art context is ultimately not so different. Such art can be situated within this larger context of conceptual art, whereby conceptual artists like LeWitt (and others, like Klein and Cuban-American artist Félix González-Torres) argued that the "*ideas* defined the art and the ideas could be realized by anyone."[20] So, for example in LeWitt's world, artworks could be created with a set of instructions that could be built by anyone; but the *authenticity*, the value of the work, lies in the certificate, as opposed to the actual artwork itself.[21]

The postmodern conceptual art movement's expression of artistic authenticity continues into today's digital art landscape. NFTs can be contextualized as part of this broader history: A continuation of these strategic uses of certificates of authenticity.[22] The value of authentication is central to the value of digital art; but this also means that its essence lies at the heart of a presumed agreement about what authenticity comprises. Here, the art marketplace is where authentication happens, for example, "where the digital inversion of many copies to one original takes place."[23]

Many of these shifts are personified by the rise of the NFT marketplace. In an excellent analysis, authors Amy Whitaker and Nora Burnett Adams argue that the rise of NFTs must also be analyzed in relation to the complex dynamics surrounding art's relationship to both finance and democracy.[24] For example, in the wake of the May 2020 death of George Floyd, museums faced an identity crisis.[25] No longer could they serve as mere repositories, inscribed with their

16. WHITAKER & ADAMS, *supra* note 12, at 31.

17. *Id.*

18. *Id.*

19. The title of this section and other references to *Artificial Authenticity* is drawn from Amy Adler's landmark work on NFTs. *See* Adler, *supra* note 15, at 711.

20. WHITAKER & ADAMS, *supra* note 12, at 42. *See generally* Sonia K. Katyal, *The Public Good in Poetic Justice*, 26 CORN. J.L. & PUB. POL'Y 497 (2017) (detailing the contributions of Félix González-Torres to public art).

21. WHITAKER & ADAMS, *supra* note 12, at 42 (using the example of Fred Sandback's yarn sculptures).

22. *Id.* at 12.

23. *Id.* at 45; *id.* at 12 ("These questions at the heart of artistic practice—how artists circumventing commercial markets have historically been and continue to be subsumed by them, or how artists have retained authority over their work–invite profound ways of reimagining artists' livelihoods, institutions' collections, and, beyond that, the democratic possibilities of blockchain technology itself.").

24. *See id.* at 7.

25. *Id.* at 8.

colonial histories and exclusions. Instead, cultural institutions faced a call to become more dynamic and represent an inclusive present.[26] Cultural institutions faced a renewed call to transform from serving as the "guardians of history" to building a "more progressive, restructured and even speculative view of shared ownership of history," in its stead.[27]

As part of this approach, museums were called upon to explore "novel approaches to supporting artists' work without the burden museums face of storing and conserving artworks in perpetuity."[28] Around this time, the NFT market involved a surprise sale of Mike Winkelmann (otherwise known as Beeple)'s NFT, *Everydays: the First 5000 Days*, which sold at Christie's auction house for over $69 million, the third highest auction result for a living artist in history.[29]

What should we make of these moments, occurring so closely to each other? At the same time that museums face greater financial constraints than ever, they are also asked to take steps towards inclusivity and participatory engagement. And then NFTs emerge, tipping the scales towards more commoditization, rather than less (while ironically promising to open the doors to creativity for all). Indeed, during this period, much of the literature surrounding digital art captures the theme of decentralized, democratic creative potential, often tied to the rise of decentralization through Web3. As Whitaker and Adams write:

> [B]lockchain holds wild and exciting democratic possibility: it could radically change power structures in the art world and create new mechanisms by which artists are funded more sustainably, for example. Because it enables artists to sell their work directly and because many new buyers face few barriers to entering the NFT space, the technology could also disrupt some of the taste-making structures of the arts, from galleries and critics to museums.[30]

As evidence, consider the fact that over 91 percent of the bidders for *Everydays* were new to Christie's.[31]

The NFT market emerged in 2020 and peaked in 2021, with millions of transactions across art, games, collectibles, and other categories.[32] NFT sales expanded from $4.6 million in 2019 to $11.1 billion in 2021.[33] In comparison,

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26. *Id.*

27. *Id.*

28. *Id.*; *see also* Sonia K. Katyal, *Technoheritage*, 105 CALIF. L. REV. 1111 (2017) (detailing museums' turn toward greater user participation).

29. *Id.* at 9. It is also instructive that at least one commentator analyzing the 5,000 *Everydays* found a prodigious amount of racist, sexist, and homophobic content. *Id.* (citing work by Ben Davis in Artnet News).

30. *Id.* at 16.

31. *Id.* at 33.

32. Matthieu Nadini, Laura Alessandretti, Flavio Di Giacinto, Mauro Martino, Luca Maria Aiello & Andrea Baronchelli, *Mapping the NFT Revolution: Market Trends, Trade Networks, and Visual Features*, SCI. REPS., 2021, at 8.

33. CLARE MCANDREW, THE ART MARKET 2022 14 (2022), https://d2u3kfwd92fzu7.cloudfront.net/Art%20Market%202022.pdf.

online sales of traditional art, which make up 20 percent of the art market, increased to $13.3 billion in 2021.[34] It was estimated that in 2021, 23 million people bought NFTs.[35] Significantly, in that year, 73 percent of NFT art transactions were resales, demonstrating the high liquidity and speculative nature of the NFT art market.[36] After a total transaction value of $12.6 billion during the first quarter of 2022, the market experienced a downturn, with total transaction value decreasing to $4.7 billion exactly one year later.[37]

In 2023, the market experienced declining sales and values in both primary and resale NFT markets, a trend that has continued into 2026.Spring of 2026 had under 5,000 traders, compared to 529,000 active NFT traders in 2022.[38] In 2024, trading volume hovered around $4 billion,[39] whereas trading volume in Spring of 2026 averaged $50 million.[40]

Despite the significant downturn in the NFT market, we believe that the emergence of NFTs surfaced some important questions about the intersection of creativity, authenticity, digitization, and the role of law.[41] As Tina Rivers Ryan notes, a prominent scholar on digital art, NFTs were initially criticized for their potential to reduce art to a "frictionless commodity" by focusing on the rise of art's tokenization. Yet years later, after their initial entry into the art marketplace, Rivers Ryan notes a shifting away from tokenization, and towards a more historically grounded dialogue, "mak[ing] it easier to think about digital art as art again."[42]

Below, we identify some of the ways in which the development of NFT-driven digital art both maintains and subverts preexisting trends in contemporary art. And as we argue later in this Article, the advent of digitization—governed by the walls of contract law—risks transforming the world of digital art into one

34. *Id.*

35. Stacey Vanek Smith, *Is it RIP for the NFT?*, MARKETPLACE (Dec. 22, 2023), https://www.marketplace.org/2023/12/22/nft-market-crashes-value-worthless.

36. Mary Corrigall, *The Global Art Market Bounces Back, According to the Latest Report*, LATITUDES, (Apr. 20, 2022), https://editorial.latitudes.online/blog/posts/the-global-art-market-bounces-back/#:~:text=The%20average%20price%20for%20NFTs,trading%20in%20art%2Drelated%20NFTs.

37. Andrew Shirley, *NFT Values Plummet Despite 2023 Mini-Revival*, KNIGHT FRANK (Aug. 16, 2023), https://www.knightfrank.com/research/article/2023-08-16-nft-values-plummet-despite-2023-minirevival.

38. Sara Gherghelas, *NFT Art's Shocking Collapse: From $2.9 Billion Boom to $23.8 Million Bust—What Went Wrong?*, DAPPRADAR (Mar. 27, 2025), https://dappradar.com/blog/nft-arts-shocking-collapse-from-2-9-billion-boom-to-23-8-million-bust-what-went-wrong?; *NFTs Overview*, THE BLOCK (https://www.theblock.co/data/nft-non-fungible-tokens/nft-overview) (last visited June 27, 2026).

39. *NFT Statistics in 2024: Growth Trends and Outlook*, KRAKEN, https://www.kraken.com/learn/nft-statistics? (last visited Feb. 18, 2026).

40. Ezra Reguerra, *NFT Monthly Sales Break 2025 Downward Trend in May: CryptoSlam*, COINTELEGRAPH (May 28, 2025), https://cointelegraph.com/news/nft-sales-rebound-may-2025-cryptoslam?; NFTs Overview, THE BLOCK (https://www.theblock.co/data/nft-non-fungible-tokens/nft-overview) (last visited June 27, 2026).

41. *See* Zachary Small's interview with Tina Rivers Ryan on NFTs and their legacy for digital art. Zachary Small, *The Innovators: Curator Tina Rivers Ryan on Getting Over Her NFT Skepticism and What's Next for Blockchain Art*, ARTNET (Dec. 22, 2022), https://news.artnet.com/market/innovators-interview-tina-rivers-ryan-2230207 (2022).

42. *Id.*

that requires pre-authorization to create. And this element, we argue, places digital art in an entirely new frame. The division, as we see it, is not between commodity and site-specific cultural object but rather between the authorized and the unauthorized forms of creativity that digital art encompasses.

B. ARTIFICIAL AUTHENTICITY IN THE ART MARKET

From funding international aid to entering the world of high art, NFTs have emerged in the last few years to take on unpredictable and powerful roles in the digital creative economy. This has generated an intense debate over whether NFTs will transform the traditional art market for the better, or instead intensify its worst aspects.[43] Experts have speculated numerous implications for the NFT economy: Some predict its ability to democratize the art world by directly connecting artists and patrons and by empowering artists to have greater control over their works beyond copyright.[44] In turn, the digital art landscape will be enriched by creators who see the intellectual property and financial value of creating NFT art. Others, more darkly, argue that NFTs' emergence is directly linked to the rise and fall of the crypto marketplace, a harbinger of financial marketplace bubbles to come.

Today, as Amy Adler has suggested, the idea of artificial authenticity pervades the creation of NFTs; the essence of art is represented by something other than the art itself. Often, the term NFT is mistakenly conflated with both the token and the underlying digital artwork, when the two are actually distinct (though related).[45] NFTs require re-auraticization—a process of building in artificial scarcity in order to artificially restore an "aura" of authenticity to the original work. By reconstructing scarcity in a digital medium, NFTs become more like products, i.e. discrete, ownable properties. The moment of creating an NFT is like creating a "digital deed" that is frozen in time, whereby a token is assigned unique, unchangeable properties at the moment it is "minted."

Here, NFTs are unique digital tokens that represent something of value, most often a piece of art, but—importantly—they do not comprise or constitute the art itself.[46] The Honorable Jed S. Rakoff, Senior United States District Judge for the Southern District of New York, has referred to an NFT as "sort of a 'digital deed' representing ownership in a physical or digital asset . . . ."[47] Upon

43. Ryan, *supra* note 11. Also see quote from Josh Ong, NFT Investor, "We're still in the 'innovator' phase of the adoption curve, and this market is just getting started," said Josh Ong, an NFT investor in a panel on predictions for NFTs five years ago. Chris Katje, *Exclusive: NFT Experts on What's Hot for 2022: Predictions, Coinbase Launch, NFL NFTs and More*, BENZINGA (Dec. 31, 2021), https://www.benzinga.com/markets/cryptocurrency/21/12/24842574/exclusive-nft-experts-on-whats-hot-for-2022-predictions-coinbase-launch-nfl-nfts-and-more.

44. Monty Preston, *What's the Future of Art NFTs? 5 Predictions for What Lies Ahead*, NASDAQ (Feb. 18, 2022), https://www.nasdaq.com/articles/whats-the-future-of-art-nfts-5-predictions-for-what-lies-ahead.

45. Megan E. Noh, Sarah C. Odenkirk & Yayoi Shionoiri, *GM! Time to Wake Up and Address Copyright and Other Legal Issues Impacting Visual Art NFTs*, 45 COLUM. J.L. & ARTS 315, 317 (2022).

46. *New Frontiers in Licensing: Data and NFTs*, BERKELEY CTR. L. & TECH. SPEAKER SERIES (Oct. 4, 2022).

47. *Hermès Int'l v. Rothschild,* No. 22-CV-00384-JSR, 2023 WL 1458126, at *2 (S.D.N.Y. Feb. 2, 2023) (Rakoff, J.).

purchasing an NFT, a buyer obtains "both the unerasable ownership record of an asset and access to the actual asset."[48] As Whitaker and Adams note:

> The NFT's certificate establishes ownership of the single idea, but doesn't prevent images or copies of it from existing in the world, and in that way it allows others to enjoy and experience the work through a copy. Certificates of authenticity are vital to legitimize for a collector the fact that they actually own the work that they think they own.[49]

In this way, NFTs function much like Klein's receipts; the purpose of an NFT is to grant ownership and establish authenticity of an asset through a token that functions as symbolic of the art and the provenance and ownership behind the art.

Blockchain is essential in making this happen. The blockchain is a database that exists across computer networks and has no one central location. Its name comes from its function of assembling and stringing together information in "blocks" of code data, which include NFT links.[50] Each block and its contained code on the blockchain is immutable, so once information is stored it becomes permanent and unchangeable.[51] Because the blockchain exists across computer networks, no one central entity manages it. Its decentralized and immutable nature makes it particularly valuable for storing records of cryptocurrency transactions, which are one of blockchain's most common uses today.[52]

Each of these processes involves drawing upon preexisting protocols for an NFT to come to life, demonstrating how every aspect of their creation and sale is facilitated by private ordering and contractual control. As one commentator notes, "NFTs have no gatekeepers, no gallery owners to impress, no dealers to woo, and no museum curators to cajole."[53] Instead, the steps to sell an NFT are facilitated by a fusion of contractual control and technology. First, an artist makes a digital work and converts it into a digital file format such as a JPEG or MP4 video.[54] Next, they select a blockchain to house all records of the digital artwork, such as Ethereum, which is the most well-known blockchain for housing NFTs.[55] Then they create a digital wallet that connects to the Ethereum blockchain and contains all of the artist's assets that can be bought or sold for

48. Abram Brown, *What Is an NFT—And Should You Buy One?*, FORBES (Feb. 26, 2021), https://www.forbes.com/sites/abrambrown/2021/02/26/what-is-an-nft-and-should-you-buy-one/?sh=72b813f924b2.

49. WHITAKER & ADAMS, *supra* note 12, at 86–87.

50. *See* Peter Gratton, *What Is a Block in the Crypto Blockchain, and How Does It Work?*, INVESTOPEDIA (Jan. 21, 2025), https://www.investopedia.com/terms/b/block-bitcoin-block.asp#:~:text=Blocks%20are%20data%20structures%20within,validated%2C%20the%20block%20is%20closed.

51. Joshua A.T. Fairfield, *Tokenized: The Law of Non-Fungible Tokens and Unique Digital Property*, 97 IND. L.J. 1261, 1281 (2022).

52. *Id.*

53. Michael D. Murray, *NFTs and the Art World—What's Real, and What's Not*, 29 UCLA ENT. L. REV. 25, 43 (2022).

54. Blake Gopnik, *One Year After Beeple, the NFT Has Changed Artists. Has It Changed Art?*, N.Y. TIMES (Mar. 3, 2022), https://www.nytimes.com/2022/03/03/arts/design/nft-art-beeple.html.

55. BERKELEY CTR. L. & TECH. SPEAKER SERIES, *supra* note 46; Gratton, *supra* note 50.

Ethereum cryptocurrency. The artist can upload their digital work of art to their wallet and then link that wallet to an online NFT marketplace, such as Rarible or OpenSea.[56] At that point, the artist can sell their NFT on the marketplace by publishing it with the title, location on the blockchain, and terms of the sale. They can auction it or sell it for a fixed price.[57]

Before the advent of generative AI, NFTs most commonly represented digital artworks, as well as videogames, photos, videos, and audio files. But they can also be used for physical objects.[58] Examples of NFTs include cute digital cat cartoons, action video clips of NBA players, a special NFT edition of the Kings of Leon rock music album *When You See Yourself,* and even six "notable" listings from the New York Stock Exchange.[59] There is another significant difference from art in the real world; as Michael Murray has explained:

> When you buy the NFT for a tokenized digital or physical artwork you are not automatically obtaining sole possession of the artwork as if you walked into an NFT gallery, bought an NFT artwork, took it off the wall, and walked out with it. What you purchase with an NFT is sole access to and control of the smart contract of the NFT stored on the blockchain which has created a record that you are now the registered owner of the NFT and the artwork it is linked to.[60]

Here, the contractual provisions surrounding the NFT govern rather than simple conceptions of ownership. As a result, an even greater amount of complexity stems from the tangle of derivative rights to works created from NFTs.[61] The complexity of ownership of an NFT surfaces in two arenas: one that is widely studied and another that is substantially overlooked. An NFT platform may first have the right to sell an NFT to anyone, but it can also grant wider or narrower derivative rights to the piece, thus recentralizing creator control over the work.[62]

II. CULTURE, CONTRACT, AND COPYRIGHT IN NFTS

Although NFTs initially promised a fuller *de*centralization of the processes of sale, curation and provenance, they can also facilitate the centralization of the process of creativity, derivation, and innovation. Indeed, far from the art democracy that NFT advocates promise, we argue that the NFTs can hasten the

56. Emma Patch, *Why Everyone Is Talking About NFTs*, KIPLINGER (Mar. 24, 2022), https://www.kiplinger.com/investing/cryptocurrency/604420/why-everyone-is-talking-about-nfts#:~:text=NFTs%20were%20initially%20born%20out,otherwise%20infinitely%20available%20digital%20assets.

57. BERKELEY CTR. L. & TECH. SPEAKER SERIES, *supra* note 46. As reference, the typical price range of NFTs in 2021 was $100 to $1,000. 2021 YEARLY NFT MARKET REPORT, NONFUNGIBLE 127 (2022), https://nonfungible.com/static/reports/2021-yearly-nft-market-report.pdf.

58. Patch, *supra* note 56.

59. *There's Only One First Trade*, N.Y. STOCK EXCH., https://www.nyse.com/nft (last visited Feb. 18, 2026).

60. Michael Murray, *Transfers and Licensing of Copyrights to NFT Purchasers*, 6 STAN. J. BLOCKCHAIN L. & POL'Y 119, 121 (2023).

61. WHITAKER & ADAMS, *supra* note 12, at 86–87.

62. *Id*.

centralization of contractual control. And this is a point that is very often missed by commentators who celebrate the creative possibility of an NFT market. While it promises to open the gates of creativity to ordinary creators, it also promises to foreclose downstream works from being created altogether, whether or not they would qualify as fair use. This could also create a world of recentralization of power in digital art, as Whitaker and Adams note, however "entrenched, brittle, or stale that existing institutional power may be."[63]

Even as NFTs were touted as groundbreaking possibilities for artistic creativity, they continue to play a central role in a variety of legal disputes. The decentralization of creativity that NFTs once promised has prompted battles for contractual control. These cases circulate around a broad and foundational question: Is digital art like other kinds of intellectual properties, or is it something entirely different, requiring a new set of legal constraints, and newer understandings of the relationship between copyright, ownership, and authenticity?

Below, we outline three distinctive features of the NFT world: (A) an origin characterized by a permissive culture; (B) the rise of contractual control; and (C) the advent of conflicts over IP ownership.

A. A PERMISSIVE CULTURE OF CREATIVITY

The earliest NFT communities used their freedom to contract to create broad terms that widely embraced downstream creativity. The model here involved creating an NFT that then moved outward into real space via derivative creativity. Early NFT creators used a 'general use' license agreement which granted buyers "limited, worldwide, non-exclusive, non-transferable and royalty-free licenses to use, copy and display the underlying asset in one's token wallet for personal, non-commercial use or resale."[64] Of course, it is important to note that such practices were not an entirely new phenomenon. For decades, copyright owners, with the help of Creative Commons, have rescripted contractual limitations on their works. For example, Wikipedia encourages copying, sharing, modifying content, and has an open-source license.[65] Story p

In the context of NFTs, the rise of these contractual means of governing digital art has two potentially opposing effects. On one level, they displace the ordinary norms and expectations surrounding copyright law. But they can also enable even greater forms of control as a result. In the early NFT context, licensing practices enabled other parties to create derivative works, and at some points even commercialize them. Artists granted buyers "general use" licenses, meaning they can use, copy, and display the art; others granted "commercial

63. *Id.* at 17.

64. Caterina Sganga, Enrico Bonadio, Magali Contardi & Marie Clopterop, *NFTs and Copyright: Setting the Scene*, *in* NFTs, CREATIVITY AND THE LAW: WITHIN AND BEYOND COPYRIGHT 34 (Enrico Bonadio & Caterina Sganga eds., 1st ed. 2024).

65. *See, e.g.*, CREATIVE COMMONS, https://creativecommons.org (last visited Feb. 4, 2024).

use" licenses that allowed purchasers to commercialize the NFTs.[66] For example, blockchain game CryptoKitties, which allows players to exchange and breed virtual cats that are also NFTs, allowed cat owners to commercialize their own derivative merchandise, like t-shirts, with their kitties.[67]

Interestingly, despite the potential for great control, early NFT projects like the Bored Ape Yacht Club ("BAYC") developed surprisingly broad IP licensing frameworks that empowered downstream creators. For example, one NFT creator, Dapper Labs, created a template for NFT licensing (described as "[the] traditional model of copyright enforcement goes out the window,") granting owners of Dapper Lab NFTs the right to commercialize the art up to $100,000.[68] The goal of this new licensing model was to disrupt traditional copyright ownership. In the announcement of its new licensing scheme, Dapper Labs published a blog post stating "[w]e can do better than mimicking the [copyright enforcement] standards set by physical goods."[69] Dapper Labs is perhaps best known for creating the NBA Top Shot NFT collection, featuring NBA highlights of a player in a digital collectible format, much like a trading card.[70]

Other early NFT communities similarly used their freedom to contract to create broad terms that widely embraced creativity, enabling other parties to create derivative works and growing the power of the NFTs over the derivative marketplace. For example, holders of the Pudgy Penguins NFT collection have the right to "copy, access, use and otherwise exploit" their cartoon penguins for up to $500,000 in revenue.[71]

The most prominent of these examples, the BAYC, granted NFT owners the rights to use their "Ape" for both personal and commercial use. BAYC's well-known, permissive licensing scheme grants purchasers a "worldwide, royalty-free license to use, copy, and display the purchased Art" for personal use, as well as an "unlimited, worldwide license to use, copy, and display the purchased Art for the purpose of creating derivative works based upon the Art" for commercial use.[72]

This has led to owners creating spin-off products and virtual brands, including a collection of Bored Ape brewery IPAs and even a parody mayoral

66. David Klein, *Why You Need an NFT License Agreement*, KLEIN MOYNIHAN TURCO (Nov. 11, 2021), https://kleinmoynihan.com/do-you-need-an-nft-license-agreement-drafted-contract-lawyer-nyc.

67. NFT LICENSE, https://www.nftlicense.org (last visited Feb. 18, 2026).

68. Dapper Labs, *NFT License 2.0: Why A NFT Can Do What No Other Creative IP Can Do*, MEDIUM (Jan. 22, 2019), https://medium.com/dapperlabs/nft-license-2-0-why-a-nft-can-do-what-mickey-mouse-never-could-27673d5f29aa.

69. *Id.*

70. Ryan Browne, *Sport-Focused NFT Start-Ups Raise over $900 Million in Crypto Gold Rush*, CNBC (Sep. 22, 2021, at 09:12 ET), https://www.cnbc.com/2021/09/22/nft-startups-dapper-labs-and-sorare-raise-over-900-million.html.

71. *IP Rights*, PUDGY PENGUINS (Dec. 2022), https://pudgypenguins.com/ip-rights#:~:text=PRIMARY%20OWNER%20IS%20GRANTED%20A,GOODS%20AS%20WELL%20AS%20SERVICES.

72. *Licenses*, BORED APE YACHT CLUB, https://boredapeyachtclub.com/licenses/bayc (last visited Feb. 18, 2026).

campaign advertisement on a Times Square Billboard.[73] Another example, Bored & Hungry, is a cryptocurrency themed fast-food restaurant in Long Beach, California that uses a Bored Ape NFT as its logo. When restaurant owner Andy Nguyen purchased Bored Ape #6184, the Bored Ape Yacht Club granted him unlimited commercial rights to use, copy, and display purchased art for the purpose of creating derivative works.[74] The restaurant had the legal IP rights to use the Ape in the NFT as the face of its business.[75]

Other organizations have also acted to disrupt traditional copyright ownership, as part of a values-driven statement about the power of NFTs to surpass traditional forms of control. For example, the crypto arm of venture capital firm Andreessen Horowitz, a16z, released a set of six free NFT copyright licensing frameworks called "Can't Be Evil" licenses.[76] The licenses range from one that waives all copyrights under the Creative Commons CC0 license—one that grants full exclusive commercial rights with the creator's retained right to terminate hate speech—to a more restrictive one that grants only a personal license to use, also with the creator's retained right to terminate hate speech.[77]

As these examples demonstrate, there are a panoply of ways that NFT owners can harness creativity, collaboration, and community through the creation of downstream works, and, in the process, reformulate conceptions of ownership altogether. These reformulations can even extend beyond initial owners, governing the rights of subsequent purchasers as well.[78] For example, World of Women ("WoW") is an NFT collection of 10,000 NFTs by artists championing diversity and equity on the blockchain.[79] WoW's intellectual property policy is unique in that it governs rights for not just for initial owners but also for subsequent owners such as resale owners. The original NFT creator transfers complete IP rights to the "Primary Owner," who has the rights to exploit, reproduce, adapt, and even transfer the rights. Then, upon resale, the "Secondary Assignment" or "Subsequent Owners" obtain the same rights as the Primary Owner, and so on for each subsequent owner.[80]

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73. *Bored Ape Yacht Club: The Case for Licensed Commercial Use Rights*, MEDIUM (Sep. 17, 2021), https://medium.com/@deconomist/bored-ape-yacht-club-the-case-for-licensed-commercial-use-rights-b1bbd463d189 (on file with author).

74. *Bored & Hungry*, https://justboredandhungry.com (last visited Feb. 18, 2026).

75. *Id.;* BORED APE YACHT CLUB, *supra* note 72; Keegan King, *Who's Winning The NFT Licensing Space? It's BAYC, Of Course*, JING DAILY CULTURE (Aug. 30, 2022), https://jingculturecrypto.com/bored-ape-yacht-club-bayc-licensing-ip-rights.

76. *A16z Contracts*, GITHUB, https://github.com/a16z/a16z-contracts (last visited Feb. 18, 2026).

77. *Id.*

78. Standard NFT contracts usually embed a ten to twenty percent royalty as part of the smart contract, to be automatically triggered upon resale and paid automatically to the artist's digital wallet. *See* Özgün Öztürk, *Intellectual Property in NFTs and Legal Challenges*, SSRN ELEC. J., Jan. 2023, at 11.

79. *World of Women*, OPENSEA, https://opensea.io/collection/world-of-women-nft (last visited June 27, 2026).

80. *World of Women Digital Ownership Assignment*, WORLD OF WOMEN, https://worldofwomen.mypinata.cloud/ipfs/QmYccLQNUyDD4p7tqdQ9iCcJgiejxUKqWt2FypkVygorLu (last visited Feb. 18, 2026). The WoW Digital Ownership Agreement even takes precedence over the WoW Terms of Use in the event of

The possibilities of contractual freedom are endless. But as we show below, so are the possibilities of contractual control.

B. CONTRACT AND CONTROL

From 2012 to 2016, the artist Nicole Wilson developed a project that involved tattooing her body with the precise tattoos found on Otzi, the oldest known intact natural mummy (from about 3300 BCE).[81] A few years afterward, in 2021, she issued the tattoos themselves as NFT artworks, to be purchased either for the purpose of adding the artwork to a collection, or for the purpose of using them as tattoos themselves.[82] Mapping these options, the terms and conditions of the purchase read, in part:

> A digital file can be purchased for two purposes: collection and one-time individual use. The 'Artist' acknowledges that in some cases these two purposes may overlap. She's fine with that. 'Collection' is defined as the ownership of, stewardship over, and preservation of the file, including maintenance of the file's security, in perpetuity. 'One-time individual use' is defined as utilizing the digital file and executing instructions set forth here by the 'Artist' to tattoo the digital file onto the individual owner's body once. Incorrectly collected or incorrect one-time individual use will unauthenticate the digital file. Unauthentication is defined as the voiding the digital file as an authentic work of art.[83]

The creator, Wilson, carries the ultimate authority to invalidate the artwork's value if the collector or user essentially breaks the rules surrounding the work. In the same way that LeWitt's wall drawings cease to remain authentic if their certificates are transferred without authorization, Wilson retains the authority to invalidate the artwork if the collector or user essentially breaks the scarcity of the work—from one to many, reversing the nature of the NFT as non-fungible or singular.[84] Should a purchaser defy the contractual terms set forth by the purchase, the value of the work—its very authenticity—would no longer hold.[85] If the purchaser reverses the nature of the NFT—in other words, if the work transforms from non-fungible and singular to fungible and plural—the authenticity (*i.e.,* economic value) of the artwork ceases to exist.[86]

The potential for Wilson's contractual control, one might observe, stands in stark contrast to the decentralized, uncontrolled creativity that the world of

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discrepancies. *Terms and Conditions–World of Women*, WOW GALAXY, WORLD OF WOMEN, https://galaxy-mint.worldofwomen.art/terms (last visited Feb. 18, 2026).

81. As Whitaker and Adams point out, Wilson's somewhat unique set of conditions approximate a delicate dance "between profusion and scarcity." WHITAKER & ADAMS, *supra* note 12, at 69–70.

82. *Id.* at 69–71.

83. *Id.* at 70 (citing Nicole Wilson, *Ötzi Terms and Conditions*, PRAISE SHADOWS ART GALLERY, https://www.praiseshadows.com/viewing-room/37-otzi-by-nicole-wilson-at-photofairs-new-york (last visited, Mar. 30, 2025)).

84. *Id.*

85. *Id.*

86. *Id.*

NFT art originally promised to bring. It is also now possible that unparalleled creativity coupled with unprecedented control can exist in equipoise, particularly where digital art is concerned. Years ago, the phrase "code is law" was coined by internet scholar Lawrence Lessig, to mean that technological design and computer code can operate as regulation and be more effective than traditional law.[87] Since then, this concept has been applied to a wide variety of circumstances, including digital rights management software to enforce copyright; financial services algorithms to enforce compliance; and code to monitor user behavior on social media platforms.[88] Now, we can add yet another layer to Lessig's formulation: the subtle (and sometimes less subtle) emergence of terms and conditions that can defy existing statutory limitations, like fair use.

Today, NFTs could be to IP what code is to law.[89] NFT artists can execute contracts and grant licenses to use their works just like artists do in the traditional art world. Artists can use business contracts to draw more explicit contours for valid and infringing uses of their copyrighted works. For example, an artist could license their distinct drawing of Santa Claus to Hallmark, granting them the right to use the image in holiday wrapping paper, paper plates, wall art, and stickers. On the opposite end of the spectrum, copyright and trademark owners can also *limit* the uses of the work, just as Wilson has done. Digital copyright holders in particular can overextend prohibitions on particular uses of their work, as scholars have studied for years.[90]

Here, instead of being governed by reference to traditional trademark and copyright protections, NFTs are increasingly governed by something else: contract law. Upon purchase, a "smart contract," or digital contract embedded into NFT's code on the blockchain, self-executes and transfers payment from the buyer to the seller.[91] In the NFT context, smart contracts can enable an unprecedented level of control over downstream works, producing a world where only authorized creativity is permitted. The nature of an NFT explains, however, why this represents a different regime than conventional forms of intellectual property. Here, it is important to distinguish between NFTs that are essentially tokens attached to a tangible asset (where an NFT can be used to authenticate the tangible good), and those that are related to the allowance of a

87. Edward Lee, *NFTs as Decentralized Intellectual Property*, 4 UNIV. ILL. L. REV. 1049, 1073 (2022) (citing LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE 5 (1999)).

88. *See, e.g.*, John Borland, *Lessig to Set Up Digital Rights Group*, ZDNET (Feb. 12, 2002, at 11:45 PT), https://www.zdnet.com/article/lessig-to-set-up-digital-rights-group; Evan Weinberger, *Bank Regulators Look to Existing Tools to Police AI Advances*, BLOOMBERG L. (July 10, 2023, at 14:00 PT), https://news.bloomberglaw.com/banking-law/bank-regulators-look-to-existing-tools-to-police-ai-advances; Connor Finnegan, *How Facebook and Google Track Your Online Behavior*, MEDIUM (Feb. 13, 2019), https://medium.com/@ConnorFinnegan/how-facebook-and-google-track-your-online-behavior-26f161d370ab.

89. Bryan Wilson, *Blockchain and the Law of the Cat: What Cryptokitties Might Teach*, 88 UMKC L. REV. 365, 377 (2019).

90. *See, e.g.*, Guy A. Rub, *Copyright Survives: Rethinking the Copyright-Contract Conflict*, 103 VA. L. REV. 1141, 1143–44 (2017).

91. BERKELEY CTR. L. & TECH. SPEAKER SERIES, *supra* note 46.

specific right to do something with a copy of a digital work.[92] The latter form is the most popular.[93]

Why does this matter? In an excellent study, Kevin Werbach and Nicolas Cornell have written of smart contracts' ability to displace the traditional architecture of law, by operating essentially in legal freefall, without a governing legal framework.[94] Werbach and Cornell quote Russian then-Prime Minister Dmitry Medvedev, who opined that smart contracts comprised "a new challenge to legal regulation," observing, "[s]ystems creating such contracts live by their own rules, beyond the boundaries of law."[95] As Ethereum's white paper observes, its contracts "should not be seen as something that should be 'fulfilled' or 'complied with'; rather, they are more like 'autonomous agents' that live inside of the Ethereum execution environment."[96]

Here, the constellations of derivative rights and privileges means that an NFT creator can retain total control over every derivative aspect that encompasses the work. This is why contractual control becomes so important; the terms of a license can be bargained for prior to the purchase; but in the case of an NFT, they can be coded into the terms of the smart contract, part of a popup clickwrap document, or provided in the listing, description, or website of the NFT creator.[97]

For example, one of the most desirable rights enjoyed by a traditional copyright owner would be the right to sell and distribute copies of an original work. So, if an NFT purchaser wishes to create further downstream projects, they will need to also procure the rights to copy and distribute the underlying work.[98] In most cases, however, purchasers are offered a series of take-it-or-leave-it options. Once a smart contract is deployed to the blockchain, it cannot be changed. A smart contract can only be replaced if a new NFT is created to replace the prior one.[99] By contrast, in other contexts, such as the Bored Ape Yacht Club, for example, the terms are disclosed on the creator's website, making it possible for the creator to even alter the terms of the license over time.[100]

Because of the role of smart contracts in governing an NFT, and in potentially dispensing authenticity (or not), some would argue that the creator can enable a much greater range of control than copyright and trademark protection, resembling a code-as-law framework over the process of digital

92. Jake L. Bryant, *Dancing in the Dark: Exploring the Collision of Copyright with NFTs & the Works They Represent*, 17 LIBERTY U. L. REV. 69, 91 (2022).

93. *Id.*

94. *See* Kevin Werbach & Nicolas Cornell, *Contracts Ex Machina*, 67 DUKE L.J. 313, 316 (2017).

95. *Id.*

96. *Id.* at 341.

97. See *id.* for a longer description of the process.

98. Murray, *supra* note 60, at 131.

99. *Id.*

100. *Id.*

creation.[101] In this context, a violation of a contractual restriction can result in deauthentication, delisting, or blocked transfers. NFT artists specifically can also execute a new contract scheme in addition to traditional contract or licenses, within their smart contracts, that could even prohibit many kinds of unauthorized uses. Here, since code, as opposed to statute or common law, can now grant exclusive IP rights to NFT owners through smart contracts, the NFT becomes an even more powerful form of intellectual property.[102]

How do these rights and privileges get enforced? With smart contracts, creators and ownership rights can be embedded directly into an NFT's code.[103] Because smart contracts can self-execute specific digital rights, they have the potential to replace legal contracts for asset transactions, or intellectual property licensing agreements. As Whitaker and Adams observe:

> What you are buying when you are buying an NFT—a layer cake of rights from exhibition to copyright to enjoyment—varies significantly depending on the terms and conditions that define the sale. This complexity extends from the work itself—whether a property right or a license or just the right to enjoy or the right to commercialize—to the larger context of regulation and taxation.[104]

Smart contracts, as Werbach and Cornell explain, do not merely specify protocols of expected performance; they also implement them.[105] While there are ranges and many different types of smart contracts, it is important to note that some aspects of the agreements are meant to be processable by a computer system, and also that the system carries the power to make prima facie assessments about performance and/or compliance.[106] As they explain:

> [W]ith a smart contract, complete execution of the agreement, including any transfer of value, occurs without any such opportunity to interrupt. Accordingly, juridical forums are powerless to stop the execution of smart contracts—there is no room to bring an action for breach when breach is impossible. The computers in the blockchain network ensure performance, rather than any appendage of the state. And, because blockchains run on a distributed network of independent nodes, with no central control point, a litigant seeking to enjoin performance of a smart contract has no one to sue.[107]

As such, they are both decentralized and irrevocable at the same time, putting the ultimate control in the hands of the creator. With smart contracts, the desired level of control is left up to the creator, leading to several different

101. "Crypto-optimism" is a term we are using to describe people who envision disruptive use-cases for blockchain technology.

102. Lee, *supra* note 87, at 1077.

103. Meghan Elizabeth Pipolo, *NFTs and the Law: What Do I Actually Own?*, A.B.A. (June 21, 2021), https://www.americanbar.org/groups/law_practice/resources/law-technology-today/2021/nfts-and-the-law-what-do-i-actually-own.

104. WHITAKER & ADAMS, *supra* note 12, at 78.

105. Werbach & Cornell, *supra* note 94, at 319.

106. *Id.* at 321 (citing Harry Surden, *Computable Contracts*, 46 U.C. DAVIS L. REV. 629, 636 (2012)).

107. *Id.* at 332.

contractual approaches. Sometimes they are permissive, and sometimes they are restrictive. But they are almost always one-sided in nature. In other words, the problem with a smart contract system is that "there is no act of actual or implied assent to the terms by the purchaser of the NFT; posting on the web page is the ultimate take it or leave it option."[108]

As one commentator concluded, "[s]mart contracts are not really smart."[109] Since they are encoded on the blockchain, they are by essence irreversible and unalterable, which means that specifications of rights must be done with significant clarity beforehand.[110] In the case of fair or unauthorized uses, however, smart contracts are woefully insufficient at taking into account doctrinal complexity and nuance. Since a smart contract would find it difficult to distinguish between infringement and a potentially fair use, it would likely opt towards requiring a user to obtain a license, even when one might not be needed, contributing to the problem of "overlicensing."[111] On the other hand, a smart contract can also over-enforce its terms, by blocking access to a work even when circumstances might justify it.[112] Smart contracts cannot evaluate fair use, and can even make fair use structurally impossible.

We have seen evidence of each of these outcomes. In the first and earliest set of examples regarding NFTs, we have seen owners license broad downstream uses, embracing derivative creativity. However, more recently, we have seen examples of NFT owners foreclosing these forms of creativity altogether. Whereas earlier NFTs were governed by a permissive culture that celebrated unauthorized creativity, a newer generation of NFTs have emerged to demonstrate exactly the opposite. Only a few years after the first NFT was minted, we are seeing a dramatic shift in control in ways early NFT projects would not have envisioned.

The danger of smart contracts lies in that they not only can foreclose fair use and thwart creative reproduction, but also foreclose the judicial forums that settle the legitimate scope of contract law. Smart contracts bypass legal review altogether. Smart contracts are, in this sense, the first and most literal instantiation of what we call *auto-enforcement*—the embedding of use restrictions directly into technical architecture, such that a fair use defense is foreclosed before it can ever be asserted. As we argue in Part IV, the same logic reappears, in more diffuse form, in the model-level filters of generative AI.

108. Murray, *supra* note 60, at 131.

109. Sebastian Pech, *Copyright Unchained: How Blockchain Technology Can Change the Administration and Distribution of Copyright Protected Works*, 18 N.W. J. TECH. & INTELL. PROP. 1, 42 (2020).

110. *Id.* at 43.

111. *Id.* at 42.

112. *Id.* at 44; *see also* Kristen Morrill, *Smart Contracts: The Future of Blockchain in the Entertainment Industry*, 11 ARIZ. ST. SPORTS & ENT. L.J. 43, 70 (2021) (exploring smart contracts in entertainment).

C. MODERN CONFLICTS: IP VERSUS CONTRACT

Many scholars have argued that the promise of NFTs lies in their decentralized, democratic potential to revitalize the art market.[113] Those who take this view argue that the NFT marketplace has the potential to create "self-governing systems that operate on the transparency of a public and immutable ledger, rather than with trust in a central authority such as a government," shifting power away from governments and towards larger platform companies instead.[114] For example, the purchaser of *Everydays*, Vignesh Sundaresan, or MetaKovan, put the work into a fund called Metapurse and invited the general public to purchase shares of the work; illustrating a kind of democratic promise in owning a share of an artwork.[115]

Nevertheless, we would draw a distinction between the democratic—and potentially fractionalized—process of *acquiring* art and the distinctly controlled process of *creating* derivative NFT art. Here, the NFT creator is very much in the driver's seat, because they ultimately decide what rights to delegate to subsequent purchasers, if any. As law professor Michael Murray has written:

> If the artist routinely uses artworks in on-going commercial projects or plans to create derivative works or reproductions of existing works, then these rights should be protected and excluded from the purchaser and any subsequent owners of the NFT. But if the minter and copyright owner is a follower of the open-source, cooperative, community-building philosophy that is surprisingly common in the crypto and metaverse world, then the creator may want to share, give away or give up all of the rights to the artwork linked to the NFT.[116]

NFT owners commonly misbelieve that ownership grants them full control. For example, an anonymous NFT group called Spice DAO ("Decentralized Autonomous Organization") purchased a rare book known as the "*Dune* bible," prepared by Alejandro Jodorowsky for a film adaptation of the book that was never made.[117] Spice DAO mistakenly believed that they could turn the "bible" into an NFT, destroy the original, and adapt the story into an animated series. Typically, and as was the case here, Jodorowsky still possessed all IP rights to the bible even after the sale. Spice DAO did not own the copyrights to *Dune,* even though they owned the physical copy of the adaptation and would soon create the associated NFT.[118] As another example, when Beeple's "180 Days"

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113. Amy Whitaker, *Art and Blockchain: A Primer, History, and Taxonomy of Blockchain Use Cases in the Arts*, 8 ARTIVATE: J. ENTREPRENEURSHIP ARTS 21, 21–46 (2019); RUTH CATLOW, MARC GARRETT, NATHAN JONES & SAM SKINNER, ARTISTS RE:THINKING THE BLOCKCHAIN 22 (Torque Editions & Furtherfield 2017).

114. WHITAKER & ADAMS, *supra* note 12, at 16–17.

115. *Id.* at 42.

116. Murray, *supra* note 60, at 131.

117. Adrienne Westenfeld, *The Saga of the* Dune *Crypto Bros and Their Very Pricey Mistake Is at Its End*, ESQUIRE (July 28, 2022, at 09:24 ET), https://www.esquire.com/entertainment/books/a38815538/dune-crypto-nft-sale-mistake-explained.

118. *Id.* Spice DAO later clarified to the author that they weren't using Dune's IP to make an animated film, but rather, an *homage* to Dune.

painting was sold, Beeple retained the entire IP rights to the underlying asset.[119] Copyright holders have been closely monitoring NFT marketplaces for potential violations, and marketplaces are even implementing AI-powered monitoring systems to track down infringing digital assets.[120]

1. The Prospect of Contractual Control

Although NFTs can broaden artist control, they also have the undeniable potential to narrow derivative forms of creativity. Unless it is specified in the smart contract, the sale of an NFT does not transfer the underlying copyright to the work. In real space and the NFT context, it is well settled that one does not automatically receive the right to make derivative works, unless they are separately conveyed to the purchaser.[121] The sale of the NFT does enable the copyright owner to specify a license for a specific use or transfer one of the rights to the NFT.[122]

Here, despite the benefits of smart contract technology to replace antiquated IP frameworks, the owner can also place stringent restrictions on buyers that foreclose fair use defenses and other statutory protections typically available under IP law. Edward Lee has argued that smart contracts could potentially eliminate the basic functions of statutory copyright law.[123] Under this theory, code (or contract) literally comprises law, thus leading to the risk of superseding statutory defenses to IP infringement claims, like fair use. If NFTs embrace this direction, this could have dramatic consequences, uprooting the numerous protections historically available for creators exercising their rights to free expression.

Consider an example. Suppose that there is some confusion regarding whether a proposed use falls within the allowances for a fair use versus a derivative one—theoretically, in the NFT context, the contract could simply "inauthenticate" the result (just as Wilson did with her NFT Otzi project); this outcome can be quite unlike the real space context, which might enable a judge to intervene beforehand. Should this be the case, NFT rights may be even stronger and more self-enforcing than statutory rights, given that statutory IP rights enforcement often requires labor-intensive monitoring and due diligence to find infringement.[124]

The possibilities of such contractual control are endless. In fact, these possibilities actually harken back to the early age of the Internet, which foreshadowed the early use of contracts to control creative works and thus

119. BERKELEY CTR. L. & TECH. SPEAKER SERIES, *supra* note 46.

120. Anita Ramaswamy, *Four-Month-Old Doppel Is Helping Some of the Biggest NFT Projects Spot Scams*, TECHCRUNCH (May 24, 2022, at 09:00 PT), https://techcrunch.com/2022/05/24/doppel-helps-nft-projects-spot-scams-fraud-counterfeit-crypto-yuga-dapper/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3c%E2%80%A6.

121. *See* Murray, *supra* note 60, at 119–20.

122. Sganga et al., *supra* note 64.

123. Lee, *supra* note 87, at 1055.

124. *Id.* at 1091.

foreclose other statutory protections.[125] There, creators of new business models enabled rights holders to directly contract with end-users.[126] This ultimately created an imbalance in bargaining power.[127] Rights holders began to assume positions of power where they could impose their terms on users instead of engaging in good-faith negotiations.[128]

With the use of a smart contract, the enforcement can be already built into the transaction itself, making unauthorized uses seemingly impossible.[129] For example, NFT smart contracts can reshape music artists' IP rights by allowing them to control the registration and sale of their copyrights.[130] Code can create protocols to send royalty payments back to the creator automatically each time an NFT transaction occurs. This protocol has been recognized as resale royalties in places such as the EU, UK, Australia, and the Philippines, but it is an entire subsection of copyright law that the US has not traditionally offered.[131] Both artists and fans can benefit from these smart contracts: An artist can register a copyright for a song, and then potentially divide a song into 100 NFTs, each with a fractionalized copyright.[132] In doing so, artists multiply sales, while more fans can own a piece of their favorite song. As one commentator explains in an article aptly titled *The Emperor's New Collectibles*, since smart contracts are designed to enable anyone to initiate a transaction, no one (not even the developer and maintainer of the contract) can interfere with a contract after its initial design.[133] Further, whereas other decentralized networks separate the service developer from the operator of the contract, in the context of an NFT, there is no separation between the two.[134] This has produced an ecosystem where the large NFT marketplaces are far from decentralized;

> [W]hile interacting with a decentralized smart contract in the background, [these NFT marketplaces] conduct most of their operations in a non-blockchain based, and centralized manner…[t]hough it would be possible to build fully decentralized, disintermediated marketplaces, in practice the NFT

125. David Nimmer, Elliot Brown & Gary N. Frischling, *The Metamorphosis of Contract into Expand*, 87 CALIF. L. REV. 17, 45 (1999) (stating that there is a long history of copyright holders attempting to magnify their rights through the use of contract).

126. *See* JACQUES VALLEE, THE HEART OF THE INTERNET: AN INSIDER'S VIEW OF THE ORIGIN AND PROMISE OF THE ON-LINE REVOLUTION 126 (2003).

127. *Id.*

128. *Id.* at 150.

129. *See* Jessica Rizzo, *Non-Fungible Token Litigation: The Early Years*, 30 B.U. J. SCI. & TECH. L. 53, 60 (2023) ("Theoretically, smart contracts cannot be breached like traditional contracts because their terms are effectuated automatically.").

130. Carly A. Kessler, *NFTs Are Reshaping Artists' IP Rights*, BLOOMBERG L. (Mar. 24, 2021, at 01:00 PT), https://news.bloomberglaw.com/ip-law/nfts-are-reshaping-artists-ip-rights.

131. Gregory J. Chinlund & Kelley S. Gordon, *What Are the Copyright Implications of NFTs?*, REUTERS (Oct. 29, 2021, at 08:41 PT), https://www.reuters.com/legal/transactional/what-are-copyright-implications-nfts-2021-10-29.

132. *See* Murray, *supra* note 60, at 125 (describing this process).

133. Balázs Bodó & Joost Poort, *The Emperor's New Collectibles*, *in* NFTS, CREATIVITY AND THE LAW: WITHIN AND BEYOND COPYRIGHT, *supra* note 64, at 237.

134. *Id.* at 237–38.

> ecosystem…is dominated by a handful of centralized players, who exercise unilateral control over the conditions on the marketplace.[135]

This is far from the decentralization and disintermediation that blockchain theoretically promised. It is, in fact "the complete opposite: the replacement of an established generation of institutions governing art markets by a new, elusive, and potentially even more centralized one."[136]

Even as the NFT marketplace has dwindled, the infrastructure of contractual control has continued to develop and become more sophisticated. For example, a platform called Story Protocol exemplifies the next iteration of this infrastructure. The platform offers what it calls "programmable IP," a system in which detailed licensing terms—commercial use permissions, derivative rights, attribution requirements, royalty splits, geographic restrictions—are encoded as machine-readable license tokens that attach to every registered asset.[137] Each downstream use can in turn generate its own license token, creating chains of permissions that purport to govern derivative creativity across multiple levels.[138] The persistence of these tools well after the broader NFT downturn suggests that the smart-contract-as-license mechanism is not tied to the NFT speculative bubble that introduced it to the broader public. If anything, the mechanisms to control downstream uses have become more refined, even though the interest in NFTs has receded—implying that the contractual enclosures will continue to likely outlive their earlier creative contexts.

2. Conflicts Over IP Licensing

Today's trend of NFT IP licensing foreshadows even more concerning implications for the foreclosure of fair use and other statutory defenses. Whereas earlier NFT projects like BAYC were governed by a permissive culture, a newer generation of NFTs have demonstrated exactly the opposite. For example, Autograph is an NFT company co-founded by NFL player Tom Brady that offers sports-related digital collectibles, including digital artworks of elite athletes.[139]

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135. *Id.* at 238–39.

136. *Id.* at 240.

137. Assad Jafri, *Story Protocol Maker Secures $80M to Transfer IP Rights onto Blockchain*, CRYPTO.NEWS (Aug. 21, 2024), https://crypto.news/story-protocol-maker-secures-80m-to-transfer-ip-rights-onto-blockchain/; *Story Protocol (IP): A Comprehensive Presentation of a Blockchain for Intellectual Property*, OAK RSCH. (Feb. 13, 2025), https://oakresearch.io/en/reports/protocols/story-protocol-ip-comprehensive-presentation-blockchain-intellectual-property.

138. *PIL Terms*, STORY DOCUMENTATION, https://web.archive.org/web/20260617123359/https://docs.story.foundation/concepts/programmable-ip-license/pil-term (specifying on-chain parameters); *Programmable IP License (PIL)*, STORY DOCUMENTATION, https://web.archive.org/web/20251014012205/https://docs.story.foundation/concepts/programmable-ip-license/overview ("The PIL is a legal off-chain document based on US copyright law . . . . [whose] parameters . . . . have been mapped on-chain, which means they can be enforced on-chain via our protocol, bridging code and law . . . .").

139. Todd Spangler, *Lionsgate, DraftKings Ink Deals with Tom Brady's Autograph NFT Platform to Launch Digital Collectibles*, VARIETY (July 21, 2021, at 05:05 PT), https://variety.com/2021/digital/news/lionsgate-tom-brady-autograph-nft-draftkings-1235024498.

The buyer terms of service include a limited scope clause whereby NFT usage rights are limited to personal, non-commercial use.[140] Or take, for example, the digital artwork platform SuperRare which sells crypto art from the world's top artists. Its user agreement states that purchasers are bound to the "limited functions" effectuating ownership rights and contractual agreements with other platform users and artists.[141] Would this include fair use?

It is easy, under these newer circumstances, to imagine greater areas of control in the future. And, in the NFT context, all of this can be automated, enabling an unprecedented level of control over downstream creativity:

> If the NFT owner makes a derivative work that drags the artwork through the mud figuratively or takes it in a shockingly new and undesirable direction, this could have a significant and lasting impact on the reputation and career of the artist. Thus, some NFT projects that allow for owners to create derivative works still will put limits on the right so that the work will not be used in connection with expression of hatred, discrimination, intolerance, violence or cruelty; in connection to obscenity, pornography involving adults or children, or other uses that exploit or objectify persons' bodies; or any use that infringes upon the rights of others, including uses that infringe on other persons' copyright, trademark, right of publicity rights, patent rights, moral rights, or trade secret rights.[142]

Under this approach, creators can enforce hyper-restrictive contracts and licenses of copyrights and could even explicitly restrict or foreclose reproduction for purposes such as criticism, comment, news reporting, teaching, scholarship, or research.

This story has played out in other digital contexts, where regulation took a backseat to the growth of new technologies. For example, amidst a rising landscape of software licensing, legal scholars David Nimmer, Elliot Brown, and Gary N. Frischling noted the potential for contract law to alter and displace the rights of copyright owners.[143] Moreover, under this framework, state contract law can create additional protections that further alter the balance in favor of proprietors at the expense of users.[144] Consider some examples from other contexts. RCA sound recordings played over the radio had the following "shrinkwrap" language on its products: "Only For Non-Commercial Use on Phonographs in Homes. Mfr. & Original Purchaser Have Agreed This Record Shall Not Be Resold Or Used For Any Other Purpose."[145]

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140. *Terms of Service*, AUTOGRAPH (Sep. 2, 2022), https://go.autograph.io/tos.

141. *Terms of Service*, SUPERRARE LABS (Apr. 5, 2023), https://campaigns.superrare.com/terms.

142. Murray, *supra* note 60, at 133.

143. Nimmer et al., *supra* note 125, at 23; *S.O.S., Inc. v. Payday, Inc.*, 886 F.2d 1081, 1088 (9th Cir. 1989) ("[C]opyright licenses are assumed to prohibit any use not authorized.").

144. Nimmer et al., *supra* note 125, at 40; J. H. Reichman & Jonathan A. Franklin, *Privately Legislated Intellectual Property Rights: Reconciling Freedom of Contract with Public Good Uses of Information*, 147 U. PENN. L. REV. 875, 951 (1999).

145. Nimmer et al., *supra* note 125, at 44 (citing *RCA Mfg. Co. v. Whiteman*, 114 F.2d 86, 87 (2d Cir. 1940)).

Elsewhere, scholars have documented examples where copyright owners were contracting around and restricting fair use through such "super-copyright" contract provisions.[146] Today, just as YouTube's licenses might prohibit using website material without the company's written consent, or as Apple prohibits iPod users from copying, modifying, or creating derivative works of the iPod software, art auction houses like Sotheby's could prohibit anyone who buys one of their NFTs from engaging in any form of copying it.[147]

It is useful to clarify that even ordinary NFT licenses, despite not being embedded into the NFT itself with a self-executing function like smart contracts, still wholly govern derivative uses of the NFT. Although an ordinary NFT license may be severed from the artwork itself, the NFT buyer is subject to the license's terms, and may only use the NFT art subject to those terms. Thus, even if a use of the NFT might constitute fair use, the buyer could still be prohibited from such use if prohibited under the license. The application of licenses to software is a helpful preexisting analogy. Software, like NFTs, is often governed by a user license agreement that exists separately from the software code itself. However, the enforceability of the software license has always hinged upon ordinary contract principles—not whether the license terms are encoded into the software itself. Because ordinary NFT licenses govern downstream use of the artwork regardless of whether the license terms are embedded into the NFT itself, they can achieve the same practical effect as self-executing smart contracts: distending private control over copyrighted works and burying fair use protections.

Allowing copyright owners to alter copyrights through contracts in these ways impermissibly broadens the scope of copyright.[148] Most significantly, these super-copyrights, or "paracopyrights," destroy the balance between copyright monopoly and fair use, enlarging the rights of content creators at the expense of public interests, like the public domain.[149] The dynamic between copyright protections and the fair use defense is meant to carefully balance the interests of individual creators and the public's access to their creation.[150] However, as others have argued, shrinkwrap licenses, along with other adhesion

146. Viva R. Moffat, *Super-Copyright: Contracts, Preemption, and the Structure of Copyright Policymaking*, 41 U.C. DAVIS L. REV. 45, 89 (2007). For example, passengers booking flights on United.com must agree to only download one copy of the itinerary, and YouTube viewers agree not to use any material on YouTube's website without the company's "prior, express written consent." *Id.* at 48 (citing *Terms of Service*, YOUTUBE (Dec. 15, 2023), http://www.youtube.com/t/terms).

147. *Id.*; *see, e.g.*, *Apple iPod Software License*, APPLE COMPUT. INC. (Dec. 14, 2022), http://images.apple.com/legal/sla/docs/ipod.pdf ("You may not and you agree not to or enable others to, copy (except as expressly permitted by this License), decompile, reverse engineer, disassemble, attempt to derive the source code of, decrypt, modify, or create derivative works of the iPod Software . . . .").

148. Moffat, *supra* note 146, at 49.

149. Haimo Schack, *Anti-Circumvention Measures and Restrictions in Licensing Contracts as Instruments for Preventing Competition and Fair Use*, 2002 U. ILL. J.L. TECH. & POL'Y 321, 326–27 (2002).

150. Elizabeth M.N. Morris, *Will Shrinkwrap Suffocate Fair Use?*, 23 SANTA CLARA COMPUTER & HIGH TECH. L.J. 237, 238–40 (2007).

contracts, risk prohibiting actions that are fundamentally protected by fair use and related exceptions.[151]

There is evidence that the expansion of control is happening in the NFT marketplace, as we discuss below. In the early days, NFT lawsuits proliferated as NFT creative outputs and novel use cases posed a threat to copyright artists and rightsholders. In 2021, hip-hop music label Roc-A-Fella Records sued Damon Dash to stop him from auctioning off Jay-Z's debut album *Reasonable Doubt* as an NFT. Jay-Z founded Roc-A-Fella Records along with Damon Dash and Kareem Burke in 1995, each of them owning one third of the label. However, because Roc-A-Fella owned the exclusive copyrights to the album, it argued that "Dash is not permitted to sell any interest in *Reasonable Doubt*" because Dash "has no direct ownership interest in *Reasonable Doubt*."[152] The parties settled the case in June 2022, clarifying that Roc-A-Fella owned all of the IP rights to *Reasonable Doubt* and Dash was not permitted to sell any interest in it, nor could he auction off the album's copyrights through the sale of an NFT.[153]

In another case *Miramax v. Tarantino*, Miramax, the copyright owner of the classic film *Pulp Fiction*, sued Quentin Tarantino, writer and director of the film, for selling NFT tokens based on the movie.[154] Tarantino's proposed NFT collection consisted of seven NFTs, each linked to a high-resolution digital scan of a different scene from the original handwritten screenplay. Tarantino owns the copyrights to the screenplay and argued that the NFTs were lawful because they fit within his right to publication of the screenplay. On the other hand, Miramax argued that the NFTs were copyright infringing because they are derivative works of the film—and also infringed on other trademark and contract grounds.[155] The case settled for an undisclosed amount without a merits decision.[156]

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151. *Id.* at 240.

152. Complaint at 3, *Roc-A-Fella Records, Inc. v. Damon Dash*, No. 1:21-CV-05411 (S.D.N.Y. June 18, 2022).

153. The court ordered a preliminary injunction against Dash and prevented him from selling the NFT. Preliminary Injunction at 1, *Roc-A-Fella Records v. Damon Dash*, No. 1:21-CV-05411 (S.D.N.Y. June 21, 2021), Dkt. No. 84.

154. Complaint at 3, *Miramax, LLC v. Tarantino*, No. 2:21-CV-08979 (C.D. Cal. Nov. 16, 2021).

155. Emily Behzadi, *The Fiction of NFTs and Copyright Infringement*, 170 U. PA. L. REV. ONLINE 1, 1 (2022); *see also* Kal Raustiala & Chris Sprigman, *Guest Column: Tarantino vs. Miramax—Behind the NFT 'Pulp Fiction' Case, and Who Holds the Advantage*, HOLLYWOOD REP. (Nov. 24, 2021, at 06:55 PT), https://www.hollywoodreporter.com/business/digital/tarantino-miramax-pulp-fiction-nft-1235052378; Complaint at 18, *Miramax*, No. 2:21-CV-08979 (C.D. Cal. Nov. 16, 2021).

156. Isaiah Poritz, *Tarantino, Miramax Settle 'Pulp Fiction' NFT Copyright Lawsuit,* BLOOMBERG L. (Sep. 8, 2022, at 14:30 PT), https://www.bloomberglaw.com/bloomberglawnews/ip-law/XFAOCNA0000000?bna_news_filter=ip-law#jcite; Notice of Settlement at 2, *Miramax, LLC v. Tarantino*, No. 2:21-CV-08979 (C.D. Cal. Sep. 8, 2022).

Cases like *Roc-A-Fella v. Damon Dash*, give weight to the view that traditional IP laws can cleanly apply to NFTs.[157] *Roc-A-Fella* follows the basic principle that only the owner of a music album has the right to sell it, even when the album takes the form of an NFT. On the other hand, some cases support the view that NFTs do not fit into existing frameworks of IP law. The settlement of the *Miramax* case, for example, left unclear whether the NFT was an infringing work. If the NFT was considered a derivative work of *Pulp Fiction*, then it would infringe on Miramax's copyrights to the film. But alternatively possible was that the NFT was a mere copy of Tarantino's screenplay, which Tarantino had the rights to publicize.[158] These cases, and more, demonstrate how what started as an abundant creative technology soon was met with private challenges to limit new NFT outputs and assert ownership. The creation of an NFT, in other words, became ripe for intellectual property-based control, leaving areas of ambiguity to be governed by downstream license restrictions. A similar risk, we argue, is now emerging in the context of generative AI.

III. GENERATIVE AI AND ABUNDANCE

At first, NFTs and generative AI appear to be on opposite ends of the digital creativity spectrum. NFTs are focused on authentication and ownership of a finite number of artworks, while generative AI intends to create endless new content irrespective of the author or owner. But at their core, NFTs and generative AI raise foundational questions about the nature of creativity, value, authorship and ownership. NFTs tie value to authenticity, where the certificate of authenticity often matters just as much as the artwork it represents. Generative AI ties value to abundance, where a collaboration between human and machine can create infinite creative possibilities.

Together, Generative AI and dynamic NFTs exemplify a broader shift toward algorithmically mediated creativity and programmable ownership. The rise of NFTs and Generative AI art illustrates two divergent futures for digital creativity and copyright law. NFTs often represent a paradigm of "private ordering," where creators embed restrictive licenses and smart contracts directly into the digital work itself, limiting users' lawful, expressive uses. In contrast, Gen AI art—trained on vast datasets—promises an expansive vision of creativity, potentially enabling limitless variations and reinterpretations of existing works. Yet even Gen AI is not immune from risks of private ordering, as corporations creating these systems can embed their own restrictions, effectively sidelining traditional copyright protections such as fair use.

157. No. 21-CV-05411, 2022 WL 2280962, at *1 (S.D.N.Y. June 24, 2022). Another similar case with direct application of IP is *Founder Starcoin, Inc. v. Launch Labs, Inc.*, No. 3:2018-CV-00972 (S.D. Cal. 2018). In 2018, an NFT creator group made virtual cartoon cat NFTs that looked like NBA basketball player Stephen Curry, called "CurryKitties." However, the parties involved in the licensing transaction lacked the intellectual property rights to Stephen Curry's likeness, which was owned by a separate company called Appmoji. To avoid infringement, the group eventually pulled the CurryKitties from its website. *Id.*

158. Poritz, *supra* note 156.

Specifically, both NFTs and Generative AI face legal uncertainty around copyright, derivative works, and ownership. In both contexts, the law and the courts lag far behind technological development, leaving significant gaps in legal governance of new technologies. In both cases, private ordering has quickly filled the void. NFT platforms turn to smart contracts to enforce usage rights and ownership, while Generative AI companies turn to licensing agreement terms, model parameters, and training-data restrictions to govern the permissible uses of their models. As we have discussed previously, both technologies can potentially use code as an enforcement mechanism to automatically restrict uses of copyrighted works.

However, both technologies also raise issues that fall outside traditional copyright law's assumptions about how society should incentivize creativity, authorship, and ownership. With NFTs, smart contracts can prevent unwanted transfers, block unauthorized derivative uses, or a variety of other actions that the creator desires. Similarly, generative AI models can refuse to produce certain outputs, watermark content, filter prompts, or limit training-data usage in advance of potential infringement liability or in response to licensing agreement terms. Encoded enforcement undermines statutory authority and dissolves the relevance of fair use. But most concerningly, it could permanently transfer the locus of governance into the hands of private and corporate actors. In each case, contract law becomes the primary mechanism for allocating rights, responsibilities, and access, often at the expense of statutory rights.

Both NFTs and Generative AI thus demonstrate how quickly a technology that initially expands creative possibility can become enclosed by private mechanisms of control, raising profound questions about whether the future of digital creativity will be governed by public law or by privatized contractual regimes. The result is a shared trajectory in which creative abundance yields legal uncertainty, which invites private ordering and thus restrictive contractual and technical constraints.

As we have argued, there are dangers inherent in enabling smart contracts to govern the messy, unpredictable, and decentralized world of digital art. Perhaps most problematically, the failure to reconcile the off-chain world with the on-chain world of blockchain poses a host of potential problems that have only just begun to surface. As the scholar B. Bodo has pointed out, as long as there exists a system of paper contracts under copyright, and smart contracts under blockchain, conflicts will inevitably arise:

> [T]he same rights or uses may be sold exclusively in the two channels to different actors, rightsholders might change, which may or may not get recorded online. The ability to keep the two channels aligned, so they reflect the same reality is an absolute must if the new, blockchain based systems hope to have any claim to be a source of authoritative information . . . .[159]

159. Balázs Bodó, *Blockchain and Smart Contracts: The Missing Link in Copyright Licensing?*, 26 INT'L. J. LAW AND INFO. TECH. 311, 322–23 (2018).

Consequently, rather than removing gatekeepers from the art market, these areas of potential nonalignment require more institutions, rather than less, to intermediate the intermediaries resolving these questions.[160]

At the same time, however, both technologies operate in an uncertain legal landscape regarding ownership of creativity—Generative AI struggles with issues of authorship and ownership, while NFTs attempt to perpetually distinguish creators from owners. Despite the core differences between the two frameworks, they have one commonality: Both are nascent technologies that elide traditional frameworks, creating an opening for contract law to resolve some of their legal ambiguities.

A. A SHORT PRIMER ON GENERATIVE AI

Before commercial AI, there was "text data mining" or TDM. TDM primarily involves extracting and analyzing large volumes of textual data to uncover patterns, trends, or statistical relationships. TDM was a popular research tool to track internet trends, like viral hashtags or live sporting events. For example, a team at the University of Washington's COVID-19 hackathon conducted a TDM project of tweets from Washington and Florida to understand how people reacted to preventative measures and policies during COVID.[161] The project hypothesized that the Twitter data could accurately and fairly capture people's sentiments, and could be utilized by the government to create effective public health strategies.

TDM, however, has extremely limited data analysis capabilities. TDM's key drawback is that it is fundamentally passive—it can only extract and analyze existing data without any ability to generate new content. Despite its limitations, TDM's ability to extract patterns and insights from large quantities of text, laid a crucial foundation for AI's development.

Now enter Artificial Intelligence, a vast domain within the realm of computer science that creates intelligent machines capable of thinking, learning, and behaving similarly to humans.[162] AI research began as early as the 1950s, and has exponentially progressed due to increased computing power and new technologies. [163] AI involves techniques such as machine learning, which recognizes patterns and applies conclusions to new data, and deep learning, which uses artificial neural networks to simulate human brain functions such as

160. Bodó & Poort, *The Emperor's New Collectibles*, *in* NFTS, CREATIVITY AND THE LAW: WITHIN AND BEYOND COPYRIGHT, *supra* note 64, at 238.

161. Varun Nair & Vishwa Pardeshi, *COVID-19-Hackathon*, GITHUB https://github.com/vishwapardeshi/COVID-19-Hackathon-Twitter-Sentiment-Analysis (last visited Apr. 6, 2026).

162. Y.K. Dwivedi et al., *Artificial Intelligence (AI): Multidisciplinary Perspectives on Emerging Challenges, Opportunities, and Agenda for Research, Practice and Policy*, 57 INT'L J. INFO. MGMT. 4, 5 (2021).

163. Ruchi Gupta, Kiran Nair, Mahima Mishra, Blend Ibrahim & Seema Bhardwaj, *Adoption and Impacts of Generative Artificial Intelligence: Theoretical Underpinnings and Research Agenda*, 4 INT'L J. INFO. MGMT. DATA INSIGHTS 1, 2 (2024).

image recognition.[164] During this period, data processing systems graduated from merely mining data for patterns, like with TDM, to being able to perform specific tasks. "Narrow AI" or "weak" AI, Generative AI's precursor, solved TDM's limitations to an extent.[165] We engage with forms of weak AI daily, likely without even realizing it. When Gmail's sentence-autocomplete kicks in as you type an email to finish a sentence or send a brief curated response, a weak AI system is working. When emails automatically appear into the spam folder, a weak AI model is trained to filter between legitimate messages and scam messages. When Siri or Alexa tells a joke on command, a weak AI model is rummaging through classic punchlines to hit you with. These examples utilize natural language processing, which is a type of weak AI that focuses on understanding, interpreting, and generating human language. There are endless other applications of weak AI: In computer vision, convolutional neural networks ("CNNs") can perform object recognition tasks, such as identifying pedestrians in images or abnormalities in x-rays.[166] These AI systems are built as separate, specialized "weak" models that can only perform specific tasks. This intermediate phase of AI research marked a significant leap in its capabilities, because now models could learn from data to make human-like predictions or decisions within specific contexts. But even still, weak models had a one-track mind to carry out the task they were designed for, but they could not generate new content on their own.

A seismic shift in AI research occurred in 2017, when AI researchers at Google came up with a groundbreaking discovery: Instead of building many small, specialized models that can perform specific tasks, they created a single powerhouse model that can learn from massive quantities of data and become capable of handling many different tasks—even ones it wasn't explicitly programmed to perform.[167] Instead of creating one AI model that can translate French and another model that can determine whether a photograph depicts a dog versus a blueberry muffin, one single, multi-tasking model, trained on both sets of training data and then some, can now do both of those tasks and more.[168] These Google researchers published their findings in what is now the most famous paper in AI research, *Attention is All You Need*, an homage to the Beatles' song *All You Need is Love*.[169] *Attention Is All You Need* alludes to the idea that, much like how you might quickly scan an article to pick out the key

164. *Id.*

165. Mark Labbe & Ivy Wigmore, *What is Narrow AI (Weak AI)?*, TECHTARGET (Aug. 28, 2024), https://www.techtarget.com/searchenterpriseai/definition/narrow-AI-weak-AI.

166. Dave Pearson, *The Promise and Potholes of Computer Vision as Viewed from a Radiological Vantage Point*, RADIOLOGY BUS. (May 31, 2024), https://radiologybusiness.com/topics/artificial-intelligence/promise-and-potholes-computer-vision-viewed-radiological-vantage-point.

167. ASHISH VASWANI, NOAM SHAZEER, NIKI PARMAR, JAKOB USZKOREIT, LLION JONES, AIDAN N. GOMEZ, LUKASZ KAISER & ILLIA POLOSUKHIN, ATTENTION IS ALL YOU NEED 10 (2017), https://research.google/pubs/attention-is-all-you-need.

168. *Id.* at 5.

169. *See generally id.* (explaining the Transformer's AI abilities).

points instead of slowly reading one word after the other, a model that focuses solely on the most important parts of its input can work much more efficiently. This paper showed that by using an "attention mechanism"—which highlights the crucial information—complex tasks like language translation can be handled without the slower, step-by-step methods used before. This breakthrough simplified AI architecture while achieving superior results, proving that focusing on what really matters is all you need to build powerful models.

The landmark *Attention is All You Need* research paper changed the trajectory of artificial intelligence research.[170] It has its own Wikipedia page and has been cited more than 140,000 times.[171] The innovative single, attention-based model is an architectural structure for artificial intelligence models known as a "Transformer." While this may sound foreign at first, you have likely used one type of Transformer already: A Generative Pretrained Transformer, or GPT. OpenAI's GPT-3 and GPT-4 are generative pretrained transformer models that serve as the basis for their commercialized ChatGPT products.

OpenAI's ChatGPT is their commercialized GPT product. ChatGPT can craft entirely new articles, stories, or poetry that learn from the style and tone of inputted data. OpenAI also released DALL·E, which creates images from textual descriptions. [172] Other generative AI and GPT models include Magenta, Microsoft's CoPilot, Anthropic's Claude, Codex, and DeepSeek, just to name a few. The evolution to generative AI symbolizes a paradigm shift: from a focus on building machines that can identify and interpret content, to ones that can fundamentally transform existing content and create anew.

At the core of generative AI's models are vast quantities of data. For instance, a language model like GPT-3 is trained on billions of words from books, articles, and websites, enabling it to predict and generate coherent text based on a given prompt.[173] Similarly, image-generating models like DALL·E learn to associate textual descriptions with visual elements, allowing them to produce images that match user inputs.[174] These models operate by identifying

170. Arpan Kumar Kar, P. S. Varsha & Shivakami Rajan, *Unravelling the Impact of Generative Artificial Intelligence (GAI) in Industrial Applications: A Review of Scientific and Grey Literature*, 24 GLOB. J. FLEXIBLE SYS. MGMT. 659, 660 (2023). We note that Transformers and Generative Pretrained Transformers are not the only innovative large language models. Just a few years before GPT was invented; Generative Adversarial Networks (GANs) were also a major breakthrough in generative AI technology. *See* Gupta et al., *supra* note 163, at 3. GAN involves pitting two models against each other—one model that creates fake data based on the real data, and one model that seeks to distinguish between what is fake and what is real—in an adversarial learning process. GAN is better at generating images, where the two models work together to create realistic outputs. In contrast, GPT is better at generating text and language. *See id.*

171. *Attention Is All You Need*, WIKIPEDIA, https://en.wikipedia.org/wiki/Attention_Is_All_You_Need (last visited Jan. 9, 2026).

172. *DALL·E 3*, OPENAI, https://openai.com/dall-e (last visited Apr. 6, 2026); Tom B. Brown et al., *Language Models Are Few-Shot Learners* (July 2020), https://arxiv.org/abs/2005.14165.

173. Alec Radford, Jeffrey Wu, Rewon Child, David Luan, Dario Amodei & Ilya Sutskever, *Language Models Are Unsupervised Multitask Learners*, OPENAI (2019), https://cdn.openai.com/better-language-models/language_models_are_unsupervised_multitask_learners.pdf.

174. *DALL·E 3*, *supra* note 172; Brown, et al., *supra* note 172.

statistical patterns in their training data and using those patterns to generate new, contextually relevant outputs. Like a Top Chef contestant who transforms raw ingredients into new, inventive dishes, generative AI creates new works out of vast repositories of existing text, images, music, and other digital media. Generative AI represents a fundamental shift in how we produce art, literature, and music; it epitomizes a philosophy of creative abundance. Writers can use generative AI to draft articles, musicians can employ Magenta to compose new tunes, and a programmer can use Claude to write code. At its best, generative AI explodes the threshold of human creativity.

B. A CULTURE OF ABUNDANCE

In contrast to NFTs' focus on "artificial authenticity," we might consider Generative AI to be part of a "post-authenticity" economy—whereby creativity results from the interaction of pattern recognition, recombination, and human intervention and oversight—rather than a singular form of human authorship.[175] Here, Generative AI might be described as embodying an ontology of emergence, the idea that creativity arises from statistical patterns, machine learning, and human intervention.[176] Creativity, in this context, takes on a fundamentally hybrid nature between humans and machines, producing creations that reflect both. In turn, the juxtaposition of these two modes of creativity raise important questions about how (or whether) digital creativity should either dilute or reinforce traditional concepts of value, ownership and authenticity. Generative AI involves a creative process that is oriented around producing new content, whereas NFTs are oriented around serving as a certificate of ownership in a highly speculative marketplace. Moreover, NFTs are more tied to social distinction, entrepreneurial ecosystems built around the blockchain, and often prioritize financial returns over cultural value. Value, in the context of NFTs, is often tied to status signaling instead of actual possession of the artwork. In contrast, Generative AI tends to be more individuated, decentralized, and not always tied to commercialization. Whereas NFTs celebrate absolute ownership and authorial control, AI makes creatorship more collaborative, emergent, distributed and fluid.

It is not an understatement to say that generative AI is a revolutionary technology. As the Honorable William Alsup of the United States District Court for the Northern District of California noted recently in an opinion, AI is "among the most transformative [technologies] many of us will see in our lifetimes."[177] What seemed speculative in 2020 has now become integral to everyday life. Specifically in the creative world, generative AI has sparked more than a

175. *See generally* Adler, *supra* note 15 (discussing how authenticity in the art market is artificial).

176. Tobias Rees, *Why AI Is a Philosophical Rupture*, NOĒMA (Feb. 4, 2025), https://www.noemamag.com/why-ai-is-a-philosophical-rupture.

177. Order on Fair Use at 30, *Bartz v. Anthropic PBC*, No. 3-24-CV-05417 (N.D. Cal. June 23, 2025), Dkt. No. 231.

quantitative shift in the sheer number of artistic outputs, but also, a fundamentally philosophical change: creativity is abundant. A study showed that in 2024, approximately thirty-four million AI images are generated every day.[178] Fifteen billion AI images were created within 1.5 years using Stable Diffusion, Adobe Firefly, Midjourney, and DALLE-2.[179] As a comparison, to create the same amount of images, it took photography 149 years.[180] AI's Stable Diffusion image generation product achieved more than ten million users in its first few months of release.[181] Later, OpenAI released Sora, a video generation app where users can write prompts about almost anything, including themselves, that turn into short ten-second clips.[182] Sora had one million downloads in the first five days.[183]

In just a few years, the barriers to digital creation did not just lower, but disappeared. Now, anyone can create: it is faster, easier, and encourages iterating. Professionals can create at scale, creative risk-taking and experimentation is encouraged, and artists can focus on the intellectual aspects of creativity as opposed to the labor of making art. The creative frontier shifts from *how to create* to *what to create*, fostering unprecedented artistic outputs. In this way, generative AI's initial philosophy of abundance is reminiscent of NFTs' early days, when novel ways to create digital art sparked a wave of innovative optimism. However, as we argue, the eventual hyper-restrictive copyright frameworks that bled into NFTs to reinforce ownership can similarly make their way into generative AI.

1. Can Generative AI Be a Creator?

To what extent can an artist who employs generative AI copyright the output? Knowing how generative AI works—in particular, its use of machine learning—is imperative to understanding courts' and the United States Copyright Office's aligned stance on ownership of generative AI-based works. One of the most fundamental requirements for copyright is "human authorship." The human authorship requirement is perhaps best exemplified in the case *Naruto v. Slater*, in which an Indonesian monkey named Naruto stole a photographer's camera and took several selfies.[184] The photographer then published the "Monkey Selfies" in a copyrighted book.[185] An animal rights

178. Alina Valyaeva, *People Are Creating an Average of 34 Million Images Per Day. Statistics for 2024*, EVERYPIXEL J. (Aug. 15, 2023), https://journal.everypixel.com/ai-image-statistics.

179. *Id.*

180. *Id.*

181. *Celebrating One Year(Ish) of Stable Diffusion . . . and What a Year It's Been!*, STABILITY.AI (Oct. 6, 2023), https://stability.ai/news/celebrating-one-year-of-stable-diffusion.

182. *Sora (Text-to-Video Model)*, WIKIPEDIA, https://en.wikipedia.org/wiki/Sora_%28text-to-video_model%29?.

183. Emma Roth, *OpenAI's Sora Has Already Hit More Than 1 Million Downloads*, VERGE (Oct. 9, 2025, at 09:38 PT), https://www.theverge.com/news/797752/openai-sora-app-1-million-downloads.

184. 888 F.3d 418, 424 (9th Cir. 2018).

185. *Id.* at 420.

group, on Naruto's behalf, sued the photographer for copyright infringement.[186] The Ninth Circuit concluded that "this monkey—and all animals, since they are not human—lacks statutory standing under the Copyright Act."[187] Like Naruto, generative AI is not human. The Copyright Office has consistently denied copyright applications of generative AI-created works because they fail the human authorship requirement.[188] The Copyright Office issued regulatory guidance on registration of such works in response to increasing applications, stating that "[i]n the Office's view, it is well-established that copyright can protect only material that is the product of human creativity."[189] "Most fundamentally," the registration guidance manual explains, the term "author . . . excludes non-humans."[190]

In *Thaler v. Perlmutter*, the D.C. Circuit affirmed the Copyright Office's denial of an artist's copyright application for an AI-generated artwork under the human authorship requirement.[191] There, the artist admitted that the artwork "lacks traditional human authorship [because] it was autonomously generated by an AI."[192] The D.C. Circuit elaborated, holding that the plain language of the Copyright Act ascribes authorship to humans as opposed to machines, and that Congress intentionally excluded machines and artificial-intelligence, and has not amended the language despite opportunities to do so since it passed the Copyright Act in 1976.[193]

The Copyright Office, however, does not issue a blanket exclusion on all works that incorporate generative AI. If a human selects or arranges the AI-generated material in a "sufficiently creative way" or modifies the AI-generated material afterwards, those human aspects are copyrightable even when the AI-generated aspects are not.[194] Thus, the Copyright Office instructs registration applicants to provide complete and specific disclosure of human-created content and AI-created content to aid the registration process. For example, the Copyright Office partially approved an application by an author for a comic

186. *Id.*

187. *Id.*

188. Letter from Suzanne V. Wilson, Gen. Couns. & Assoc. Reg. Copyrights, Maria Strong, Assoc. Reg. Copyrights & Dir. Pol'y & Int'l Affs., and Jordana Rubel, Assistant Gen. Couns., U.S. Copyright Off. Rev. Bd., to Tamara Pester, Tamara S. Pester, LLC (Sep. 5, 2023) (denying registration of a work entitled "Théâtre D'opéra Spatial" because of its more than de minimis amount of content generated by artificial intelligence); Letter from Shira Perlmutter, Reg. Copyrights, Suzanne V. Wilson, Gen. Couns. & Assoc. Reg. Copyrights, and Kimberley Isbell, Deputy Dir. Pol'y and Int'l Aff., U.S. Copyright Off. Rev. Bd., to Ryan Abbott, Brown, Neri, Smith & Khan, LLP (Feb. 14, 2022) (denying registration of a work entitled "A Recent Entrance to Paradise" because the author stated it was a computer-generated work and therefore did not meet the human authorship requirement).

189. Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. 16190, 16191 (Mar. 16, 2023) (to be codified at 37 C.F.R pt. 202).

190. *Id.*

191. 130 F.4th 1039, 1041 (D.C. Cir. 2025).

192. *Id.* at 1043.

193. *Id.* at 1047.

194. Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. 16190, 16192 (Mar. 16, 2023) (to be codified at 37 C.F.R pt. 202).

book titled *Zarya of the Dawn*, in which the author used Midjourney's image-generating AI platform to create the illustrations throughout the work, but explained in her application how she authored the work, texts, and compilation of text and images.[195] The Copyright Office concluded that copyright protected the author's "overall selection, coordination, and arrangement of the text and visual elements that make up the Work," further explaining that the comic book "is the product of creative choices with respect to the selection of the images that make up the Work and the placement and arrangement of the images and text on each of the Work's pages."[196] Like a photographer who uses Adobe Photoshop or a musician who uses a guitar pedal, what matters to the Copyright Office is the extent to which there is human creative control over the output.[197]

2. Does Generative AI Infringe on Creative Works?

Generative AI's copyrightability is only half of the doctrinal puzzle. We next address an equally important inverse issue: whether generative AI-based works can be infringing. Generative AI is, at its core, about turning existing works of authorship into new content: precisely the kind of copying that copyright law seeks to regulate. As we detail in the next Part, doctrinal and regulatory perspectives on generative AI's infringing nature remain unsettled, leading authors and AI companies to craft alternative commercial paths that may undermine the copyright system writ large.

In 2024, a promising twenty-six-year-old researcher at OpenAI named Suchir Balaji abruptly left the company, because he "no longer wanted to contribute to technologies that he believed would bring society more harm than benefit."[198] But rather than decrying AI's dystopian future, Balaji was deeply troubled by OpenAI's neglect of copyright law. Balaji argued that OpenAI was systematically violating copyright law by training its generative AI models on vast datasets containing copyrighted material, without permission from rights holders. OpenAI, Balaji argued, was undermining the livelihood of creators and the very fabric of the internet ecosystem. In his now-preserved online essay *When Does Generative AI Qualify for Fair Use?*, Balaji scrutinized ChatGPT's outputs against the fair use four-factor test, and argues that the outputs fall short of fair use's transformative requirements.[199] "This is not a sustainable model for the internet ecosystem as a whole," he told The New York Times.[200]

195. Letter from Robert J. Kasunic, Assoc. Reg. Copyrights & Dir. Off. Reg. Pol'y & Prac., to Van Lindberg, Taylor English Duma LLP (Feb. 21, 2023).

196. *Id.*

197. *See* Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. 16190, 16193 (Mar. 16, 2023) (to be codified at 37 C.F.R pt. 202).

198. Cade Metz, *Former OpenAI Researcher Says the Company Broke Copyright Law*, N.Y. TIMES (Oct. 23, 2024), https://www.nytimes.com/2024/10/23/technology/openai-copyright-law.html.

199. Suchir Balaji, *When Does Generative AI Qualify for Fair Use?*, SUCHIR.NET (Oct. 23, 2024), https://suchir.net/fair_use.html#:~:text=The%20inputs%20of%20the%20model,favor%20of%20%E2%80%9Cfair%20use%E2%80%9D.

200. Metz, *supra* note 198.

Around the same time Balaji published his article, major publishers, newspapers, and artists, led by institutions like The New York Times, joined to sue OpenAI, arguing that OpenAI undermines the copyright interests of individual creators by using their work without permission. The Times identified Balaji as a potential key witness in a November 18, 2024, court filing for the lawsuit, along with eleven other OpenAI company insiders, and Balaji was scheduled to give a deposition later that month.[201] Balaji's outspokenness sparked fierce debate about generative AI's role within copyright law's frameworks.

Dozens more copyright lawsuits against AI companies followed the one in which Balaji took part. As of an earlier draft of this article in October 2025, there were fifty-three ongoing copyright lawsuits against AI companies. Today, in October 2026, there are now 148 cases nationwide.[202] At the heart of many of these cases is the question whether AI models infringe when they are trained on copyrighted materials without the copyright owner's permission. In *Andersen v. Stability AI*, visual artists alleged their copyrighted works were included without consent in training datasets for AI models.[203] Similarly, *Getty Images v. Stability AI* concerns alleged unauthorized scraping of proprietary content to build AI training datasets, raising the issue of what is "publicly accessible" and thus data that is lawfully copied without permission for AI training.[204] And in *Disney Enterprises, Inc. v. Midjourney, Inc.*, entertainment companies Disney and NBC Universal accused Midjourney, a subscription-based AI image generation company, of reproducing copyrighted characters through generative AI prompts without licensing.[205] Collectively, these cases underscore that generative AI art exists in a complex legal landscape, with significant questions surrounding ownership, fair use, and the legality of data practices. Without clear judicial or legislative guidance, digital artists remain vulnerable, navigating between innovation and infringement risks.

At least three notable federal district court decisions address the fair-use question: *Bartz v. Anthropic PBC*,[206] *Kadrey v. Meta Platforms*,[207] and *Thomson Reuters Enterprise Centre GmbH v. Ross Intelligence Inc.* (subsequently decided on appeal in the Third Circuit as *Thomson Reuters Enterprise Centre GmbH v. Ross Intelligence, Inc.*).[208] While several cases are

201. However, just a week after the court filing that publicized his name, Balaji was found dead in his San Francisco apartment. Troy Wolverton, *SFPD, Coroner Letter Explains Why OpenAI Researcher's Death Was Ruled Suicide*, S.F. EXAM'R (Feb. 14, 2025), https://www.sfexaminer.com/news/technology/sf-officials-explain-why-suchir-balaji-death-ruled-suicide/article_ac62fc20-eb42-11ef-9fda-a308385e7f32.html.

202. CHATGPT IS EATING THE WORLD, https://chatgptiseatingtheworld.com.

203. 700 F. Supp. 3d 853, 861 (N.D. Cal. 2023).

204. Demand for Jury Trial at 1–4, No. 23-CV-00135 (D. Del. Feb. 3, 2023).

205. Complaint at 20–101, No. 2:25-CV-05275 (C.D. Cal. June 11, 2025).

206. 787 F. Supp. 3d 1007 (N.D. Cal. June 23, 2025).

207. 788 F. Supp. 3d 1026 (N.D. Cal. June 25, 2025)

208. 765 F. Supp. 3d 382 (D. Del. Feb. 11, 2025); *Thomson Reuters Enter. Ctr. GmbH v. ROSS Intel. Inc.*, No. 25-2153, slip op. (3d Cir. Sep. 29, 2026), *aff'g* 765 F. Supp. 3d 382 (D. Del. 2025).

on appeal in the Second, Third, and Ninth Circuits, the Courts have yet to establish binding precedent in any Court of Appeal on whether training a generative AI model is protected by fair use.[209]

Of those three district court decisions, two judges—The Honorable William Alsup, United States District Judge for the Northern District of California and The Honorable Vince Chhabria, also a United States District Judge for the Northern District of California—conclude that AI models create transformative works that can constitute fair use, while the third judge—The Honorable Stephanos Bibas, United States Circuit Judge for the Court of Appeals for the Third Circuit—rules that the AI model at issue does not create transformative works. In *Thomson Reuters Enterprise Centre GmbH v. Ross Intelligence, Inc.*, Judge Bibas, sitting by designation in the United States District Court for the District of Delaware, revised his 2023 ruling that found a potential transformative purpose in training an AI model.[210] There, Thomson Reuters sued Ross Intelligence—a Westlaw competitor—for using copyrighted Westlaw Headnotes as inputs to train Ross' AI legal research tool.[211] When Thomson Reuters initially declined to allow Ross Intelligence to license the Westlaw Headnotes, Ross Intelligence obtained the Westlaw Headnotes from a third-party company.[212] Judge Bibas ultimately held that Ross's AI model was not a fair use of Thomson Reuters's copyrighted material.[213] In considering the four fair use factors, Judge Bibas concluded that Ross's use of the Westlaw Headnotes is not transformative, because the use is commercial and "does not have a 'further purpose or different character' from Thomson Reuters's."[214] The purpose and character here, Judge Bibas noted, is for Ross to take "the headnotes to make it easier to develop a competing legal research tool."[215] Judge Bibas went on to explain that the most important factor—the effect of the copying on the market for the original—weighed in favor of Thomson Reuters, because Ross Intelligence "meant to compete with Westlaw by developing a market substitute."[216] Weighing all four factors together, Judge Bibas granted summary judgment for Thomson Reuters on the fair use question.[217] The Third Circuit affirmed on interlocutory appeal in September 2026.[218]

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209. Latest Map of Copyright Suits v. AI companies (Jun. 11, 2026) Total = 115, CHATGPT IS EATING THE WORLD (June 11, 2026), https://chatgptiseatingtheworld.com/2026/06/11/latest-map-of-copyright-suits-v-ai-companies-jun-11-2026-total-115.

210. *Thomson Reuters,* 765 F.Supp.3d. at 397.

211. *Id.* at 398.

212. *Id.* at 391.

213. *Id.* at 401.

214. *Id.* at 397–98 (quoting *Andy Warhol Found. For the Visual Arts, Inc. v. Goldsmith*, 598 U.S. 508, 529–31 (2023)).

215. *Id.* at 399.

216. *Id.* at 400.

217. *Id.* at 401.

218. Thomson Reuters Enter. Ctr. GmbH v. ROSS Intel. Inc., No. 25-2153, slip op. at 2 (3d Cir. Sep. 29, 2026).

After Judge Bibas's decision, Judge Alsup and Judge Chhabria came out differently on the fair use issue, ruling in both of their cases that training an LLM model is a transformative fair use. At the furthest end of the AI-fair use spectrum, Judge Alsup held in *Bartz v. Anthropic* that Anthropic's training of its AI model is "exceedingly transformative," even "spectacularly so," and is "among the most transformative [technologies] many of us will see in our lifetimes."[219] In that case, three author-plaintiffs sued Anthropic, the AI software company that runs the Claude platform, for allegedly acquiring pirated copies of the authors' works to train various LLMs.[220] First, Judge Alsup ruled that Anthropic unlawfully pirated the authors' works, though he did not decide whether those specific works were used to train the LLMs.[221] Second, Judge Alsup also applied the fair use four-factor test, holding that the fair use doctrine does not protect any use of unlawfully pirated works.[222] But Anthropic's use of lawfully purchased works to train its LLMs warranted a closer analysis.[223] As for the first factor, Judge Alsup noted that the purpose and character of Anthropic's use of the plaintiffs' copyrighted works "to generate new text" was "quintessentially transformative."[224] "Like any reader aspiring to be a writer, Anthropic's LLMs trained upon works not to race ahead and replicate or supplant them—but to create something different."[225] Judge Alsup therefore suggests that use of copyrighted works to train Anthropic's LLM models is not copyright infringing under the fair use doctrine.

A few days later, Judge Chhabria held similarly that Meta's use of copyrighted books to train its LLM was highly transformative under the first factor of the fair use test.[226] There, thirteen authors, including several Pulitzer Prize-winning fiction writers, sued Meta for downloading their books from online "shadow libraries" and using the books to train Meta's LLMs.[227] Like Judge Alsup, Judge Chhabria wrote that there "is no serious question" that Meta's use of the plaintiffs' copyrighted books had a "further purpose" and "different character" than the books, and thus was "highly transformative."[228] The purpose is to train Meta's LLMs, which "generate diverse text and perform a wide range of functions."[229] To contrast, Judge Chhabria explained that whereas a Meta LLM user may want to edit an email, translate an excerpt from a foreign language, or write a story, a book owner would want to read the book

219. 787 F. Supp. 3d 1007, 1019, 1021, 1033 (N.D. Cal. June 23, 2025).
220. *Id.* at 1014–15.
221. *Id.* at 1018.
222. *Id.* at 1019–20.
223. *Id.* at 1022–23.
224. *Id.* at 1022.
225. *Id.*
226. *Kadrey v. Meta Platforms, Inc.*, 788 F. Supp. 3d 1026 (N.D. Cal. June 25, 2025).
227. *Id.* at 1036–37.
228. *Id.* at 1044.
229. *Id.*

for entertainment or education.[230] As for the fair use fourth factor, Judge Chhabria opined that when plaintiffs can present evidence that AI generated works dilute the market for the copyrighted works, use of those copyrighted works in training LLM models is likely not fair use.[231] However, the *Kadrey v. Meta Platforms* plaintiffs did not advance this "market dilution" theory.[232] Judge Chhabria therefore limited the scope of his ruling, stating that his holdings stood "only for the proposition that these plaintiffs made the wrong arguments," and not "for the proposition that Meta's use of copyrighted materials to train its language models is lawful."[233] So while Judge Chhabria granted Meta summary judgment, acknowledging the transformative nature of using copyrighted materials to train LLMs, he declined to hold that such training is lawful in general, while also suggesting that proof of market dilution might play a significant role in the future.

Appeals raising fair use in generative AI training remain pending.[234] No Supreme Court case has yet addressed fair use for AI training. It could be unlikely to have universal binding precedent at all. District courts so far have taken a highly fact-specific approach to applying the fair use doctrine's four-factor test, expressly narrowing the scope of their holdings with dicta. The lack of a uniform judicial approach to copyright and generative AI is understandable. As Judge Chhabria wrote in *Kadrey v. Meta Platforms*, "Courts can't decide cases based on general understandings. They must decide cases based on the evidence presented by the parties."[235] Because each AI company's LLMs serve different commercial purposes, use different copyrighted inputs, and create different outputs, courts are treating whether a particular LLM is infringing or protected by the fair use doctrine as a case-by-case determination. Inconsistent rulings, however, heighten AI copyright litigation's unpredictability and risk. Meanwhile, generative AI uses will proliferate exponentially in the next few years, spurring even more litigation and doctrinal inconsistencies.

C. CONTRACTUAL CONTROL, FAIR LEARNING AND FAIR USE

The unsettled nature of AI copyright litigation—in the face of tremendous demand—has pushed market actors toward contractual and licensing workarounds. In comparison to the NFT context, contractual controls in AI operate across distinct layers, each binding different parties at a different point in the creative chain, and each carrying different implications for fair use in the future. The deepest of these layers—embedded, model-level filtering—

230. *Id.* at 1039.

231. *Id.* at 1052.

232. *Id.* at 1037, 1060.

233. *Id.* at 1036–37.

234. *The Fair Use Triangle: State of Fair Use in AI Training 2025. No More Decisions Until Mid to Late 2026.*, CHAT GPT IS EATING THE WORLD (Oct. 6, 2025), https://chatgptiseatingtheworld.com/2025/10/06/the-fair-use-triangle-state-of-fair-use-in-ai-training-2025-no-more-decisions-until-mid-to-late-2026.

235. *Kadrey*, 788 F. Supp. 3d at 1036.

functions as the generative-AI counterpart to the NFT smart contract: It is *auto-enforcement* by another name, operating ex ante in the architecture of generation itself.

Consider the first layer of private ordering, firm licensing. Rather than waiting for doctrinal resolution, many companies and rights holders are negotiating private deals and settlements. These involve bilateral agreements between AI developers and copyright-aggregating publishers, platforms, and rightsholder coalitions, whereby copyright holders grant AI companies permission to use their works to train LLM models. For example, in the music industry, Universal Music and Warner Music finalized "landmark" licensing agreements with AI companies, including start-ups who seek to use copyrighted songs to train LLMs and create AI-generated song tracks.[236] Microsoft has entered several licensing agreements, including a $10 million contract to use content from the academic publisher Taylor & Francis, whose parent company is Informa, to "help improve relevance and performance of AI systems."[237] Microsoft also signed a three-year, $5,000 per book deal with the publisher HarperCollins to use its nonfiction books for AI training purposes.[238] Reddit confirmed a $60 million-a-year-deal with Google for data access,[239] Yelp licensed its review content to several AI companies developing LLM chatbots,[240] Reuters licensed its news content to undisclosed partners to train

236. *Universal Music, Warner Music Nearing AI Licensing Deals, FT Reports*, REUTERS (Oct. 2, 2025, at 21:28 PT), https://www.reuters.com/business/media-telecom/universal-music-warner-music-nearing-ai-licensing-deals-ft-reports-2025-10-02; *Warner Music Group Signs AI Licensing Deal with Music Technology Company Klay,* WARNER MUSIC GROUP (Nov. 20, 2025), https://www.wmg.com/news/warner-music-group-signs-ai-licensing-deal-with-music-technology-company-klay.

237. Wellett Potter, *An Academic Publisher Has Struck an AI Data Deal with Microsoft—Without Their Authors' Knowledge*, CONVERSATION (July 23, 2024, at 02:04 ET), https://theconversation.com/an-academic-publisher-has-struck-an-ai-data-deal-with-microsoft-without-their-authors-knowledge-235203. For a full tracker of generative AI licensing agreements in the academic publishing space, see *Generative AI Licensing Agreement Tracker*, ITHAKA S+R (Aug. 1, 2025), https://sr.ithaka.org/our-work/generative-ai-licensing-agreement-tracker. For a list of publicly disclosed AI licensing agreements among well-known companies, see Thani Shamsi, *Ultimate List of Data Licensing Deals for AI*, MONDA LABS INC. (Oct. 28, 2024), https://www.monda.ai/blog/ultimate-list-of-data-licensing-deals-for-ai.

238. Andrew Albanese, Jim Milliot & John Maher, *Agents, Authors Question HarperCollins AI Deal*, PUBLISHERS WEEKLY (Nov. 19, 2024), https://www.publishersweekly.com/pw/by-topic/industry-news/publisher-news/article/96533-agents-authors-question-harpercollins-ai-deal.html.

239. Reddit, Inc., Amendment No. 3 to Form S-1 Registration Statement (Form S-1) 103 (Mar. 19, 2024) ("In January 2024, we entered into certain data licensing arrangements with an aggregate contract value of $203.0 million and terms ranging from two to three years . . . We believe our growing platform data will be a key element in the training of leading large language models ("LLMs") and serve as an additional monetization channel for Reddit.").

240. Emilia David, *Perplexity Brings Yelp Data to Its Chatbot*, VERGE (Mar. 12, 2024, at 15:37 PT), https://www.theverge.com/2024/3/12/24098728/perplexity-chatbot-yelp-suggestions-data-ai.

LLMs,[241] Conde Nast licensed its magazine publishing data to OpenAI,[242] and the list goes on.

That AI companies are securing deals with copyright holders even before the fair use issue reaches the courts supports the theory that AI companies aim to avoid unfavorable binding court precedent. For example, after Judge Alsup partially denied summary judgment in *Bartz v. Anthropic*, the parties settled instead of advancing to trial.[243] As part of the settlement, Anthropic agreed to pay $1.5 billion to the plaintiffs, encompassing $3,000 per work for about 500,000 works.[244] Copyright law allows for infringement damages of up to $150,000 per copied work, if the infringement is wilful.[245] So in a sense, Anthropic evaded exponentially greater damages had there been a finding of infringement.[246] Also as part of the settlement, Anthropic said that it did not use any pirated works to train its publicly released LLM models, and that it would delete storage of all pirated works.[247] The landmark Anthropic settlement is a strong indicator that AI companies prefer private resolution over doctrinal clarification.

It is important to keep in mind that to date, no court has required that AI companies only use licensed material to train their LLM models, nor has any court ruled that using copyrighted works to train LLMs constitutes infringement. Yet when faced with unpredictable outcomes, AI companies preemptively enter into licensing agreements with major publishers. In doing so, this premature migration from public law to private ordering circumvents a legally unsettled question, and thus could weaken copyright's fundamental protections for creators and other AI developers later on.

Indeed, some generative AI advocates and legal scholars argue that to advance AI technology at the speed necessary, the law should permit large language models to use all training data regardless of whether it is copyright protected.[248] Mark Lemley and Bryan Casey thus argue in their seminal law review article *Fair Learning* that the law should permit large language models to use those training sets, which can include millions of copyrighted works, without facing liability for copyright infringement.[249] Rather than seeing this copying as unlawful, Lemley and Casey argue that it should qualify as fair use

241. Kenneth Li, *Thomson Reuters' Adjusted EPS Beats Expectations, AI Boosts Results*, REUTERS (Feb. 8, 2024, at 08:14 PT), https://www.reuters.com/business/media-telecom/thomson-reuters-reports-higher-fourth-quarter-revenue-2024-02-08.

242. Kate Knibbs, *Condé Nast Signs Deal with OpenAI*, WIRED (Aug. 20, 2024, at 14:00 PT), https://www.wired.com/story/conde-nast-openai-deal.

243. Cade Metz, *Anthropic Agrees to Pay $1.5 Billion to Settle Lawsuit with Book Authors*, N.Y. TIMES (Sep. 5, 2025), https://www.nytimes.com/2025/09/05/technology/anthropic-settlement-copyright-ai.html.

244. *Id.*

245. *Id.*; 17 U.S.C. § 504 (c)(2).

246. Metz, *supra* note 243.

247. *Id.*

248. Mark A. Lemley & Bryan Casey, *Fair Learning*, 99 TEX. L. REV. 743, 748 (2021).

249. *Id.* at 748.

under existing copyright doctrine. They write that "an ML system's use of the data often is transformative," because "even though it doesn't change the underlying work, it changes the purpose for which the work is used."[250]Because training sets may include millions of works owned by thousands of different people, "there is no plausible option simply to license all of the underlying photographs, videos, audio files, or texts for the new use."[251] Lemley and Casey warn that allowing copyright claims in this context would effectively prohibit training altogether. [252] As their insights make clear, safeguarding the transformative fair use process is necessary to advance technology, while also preserving the cultural and legal foundations upon which society can innovate.

Lemley and Casey's belief that LLMs can be transformative resembles the dicta of Judge Chhabria in *Kadrey v. Meta Platforms* and Judge Alsup in *Bartz v. Anthropic PBC*. But just as Judge Bibas alludes to in *Thomson Reuters Enterprise Centre GmbH v. Ross Intelligence Inc.*, there are also generative AI use cases that are unlawful copying carte blanche, such as when a competitor uses copyrighted legal case headnotes to create a legal research tool that is a direct market substitute.[253] Highlighting a fundamental tension in how the law understands copying, Lemley and Casey suggest that courts should distinguish between copying "for expressive purposes" and copying "for non-expressive purposes" such as learning, data analysis, or extracting factual information. "Copyright law should permit copying of works for non-expressive purposes—at least in most circumstances," they write.[254] In other domains, such as reverse engineering and, perhaps most famously, Google's creation of a digital book repository, courts recognize that copying can serve distinct fair use functions.[255] Where the goal is to learn unprotectable elements—grammar, syntax, image composition, factual patterns—the authors argue that copyright law should not stand in the way. In many cases, training a machine learning model is not a process of reproduction, but rather one of transformation. In other words, the process of "fair learning" extracts abstract patterns and general principles from copyrighted works without replicating the protected expression. This distinction

250. *Id.* Take, for example, a LLM's use of photographs of stop signs: "The ML system wants photos of stop signs so it can learn to recognize stop signs," they explain, "not because of the artistic choices you made in lighting or composing your photo." *Id.* at 749.Similarly, in an example of an audio clip of a person talking, an LLM uses the data to process the sequence and structure of human language, not to copy the author's particular phrasing or voice. From this perspective, the use is not substitutive or expressive, but analytical and transformative—precisely the kind of secondary use that the fair use doctrine aims to support.

251. *Id.* at 748.

252. *Id.* at 748–49.

253. *Thomson Reuters Enter. Ctr. GmbH v. Ross Intel. Inc.*, 765 F. Supp. 3d 382, 400 (D. Del. Feb. 11, 2025).

254. Lemley & Casey, *supra* note 248, at 750.

255. *See Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1522–23 (9th Cir. 1992) (*as amended* Jan. 6, 1993) (concluding that reverse engineering a video game software to make a specific gaming console compatible with the video game was a non-expressive use and thus fair use); *Authors Guild v. Google, Inc.*, 804 F.3d 202, 229 (2d Cir. 2015) (concluding that copying books into a digital book search system that only showed "snippets" of the book to the reader was fair use).

is crucial: If generative AI is allowed to transform and reinterpret input material, it operates squarely within the realm of fair use. Restricting this process restricts the heart of learning—affecting creativity in the end.

Moreover, these settlements also distribute the benefits of AI development to publishers rather than to the individual authors whose works actually trained the models. For example, when Taylor & Francis entered into a licensing agreement with Microsoft, the publisher did not inform the academic authors of the licensed content about the deal, nor will those authors earn money from it.[256] The same is the case for the vast majority of these settlements: The AI companies and the copyright conglomerates benefit, while the individual artists and content creators whose works train the LLMs receive nothing. In the many AI copyright infringement suits facing district courts across the nation, it is often the individual authors who are the plaintiffs.[257] These individual authors place necessary pressure on courts to address one of the most consequential fair use questions of the century, and yet can become sidelined as AI companies and publishers land agreements to circumvent the fair use question and benefit each other, often at the authors' expense.

These premature contractual workarounds, contributing to the rise of "permission culture," could become the industry default, whereby AI companies first obtain prior approval or licensing before progressing LLM research and development even if a court would uphold the LLM's usage of copyrighted material as fair use. Even more, they normalize licensing as the default precondition for AI development—even where, as Lemley and Casey have argued and as Judges Alsup and Chhabria have suggested, the underlying use might well qualify as a fair one.

IV. THE FUTURE OF DIGITAL ART

In the recent book *After Art*, art historian David Joselit examines the power of images in the modern era. Principally, he recasts art today as a kind of international currency, one that vests images with a kind of enormous power, derived from their ability to command vast sums internationally.[258] From this observation, Joselit argues that this vantage point feeds two divergent perspectives on art and its circulation: One view, taken from a neoliberal position, celebrates the circulation and monetization of art, adopting the perspective that "open markets render art . . . as a form of currency."[259] The

256. Potter, *supra* note 237.

257. Zach Schor, Andersen v. Stability AI*: The Landmark Case Unpacking the Copyright Risks of AI Image Generators*, N.Y.U. J. INTELL. PROP. & ENT. L. BLOG (Dec. 2, 2024), https://jipel.law.nyu.edu/andersen-v-stability-ai-the-landmark-case-unpacking-the-copyright-risks-of-ai-image-generators (discussing class-action lawsuit brought by cartoonist and other artists against AI company for training its LLM using the artists' images).

258. DAVID JOSELIT, AFTER ART 3 (2012). He argues that "images possess vast power through their capacity for replication, remediation, and dissemination at variable velocities." *Id.* at xiv.

259. *Id.* at 3.

other view, quite the opposite, holds that "art and architecture are rooted to a specific place," a view that Joselit calls image fundamentalism.[260]

This political tension between image fundamentalism, on one hand, and neoliberalism, on the other, is not just embodied in art today; it is advanced by the way that art circulates globally, deepening these tensions.[261] Yet we would argue that the upcoming conflicts over digital art preface a third kind of tension—whereby art becomes not purely a commodity or something rendered in site-specificity, but something more complex between these two poles. Art today, and specifically digital art, has become something that is political, commercial, *and* contractual—and this portends a kind of multiplicity in character that is almost impossible to pin down. This has grave repercussions for the legal regimes that govern digital art. The creation of digital art, specifically, is increasingly becoming governed by a set of shifting legal regimes involving not just copyright but also contract law.

Echoing some of these observations, in 2013, artist Brad Troemel suggested another category to Joselit's formulation: that of "image anarchism," a view that observed:

> Whereas image fundamentalists and image neoliberals disagree over how art becomes property, image anarchists behave as though intellectual property is not property at all. While the image neoliberal still believes in the owner as the steward of globally migratory artworks, the image anarchist reflects a generational indifference toward intellectual property, regarding it as a bureaucratically regulated construct . . . . Image anarchism is the path that leads to exist outside the context of art.[262]

Commenting on these views, NFT scholar Domenico Quaranta argues that it is possible to adopt different attitudes in specific contexts. He concludes, for example:

> I can believe that the Parthenon marbles should be returned to Greece, understand the art of Jeff Koons as a scarce commodity and a financial investment, and feel totally free to download digital representations of both . . . I can be image fundamentalist, neoliberal, and anarchist at the same time.[263]

Embracing Quaranta's pluralist observation, we would argue, is at the heart of addressing the normative possibilities of the NFT world and the world of art in the Generative AI landscape. Instead of dividing views between image fundamentalists, neoliberals, and anarchists, perhaps the magic of digital art is that it enables all three to exist simultaneously. And that, we would argue, is the

260. *Id.*

261. *Id.* at 4–5.

262. *See* Brad Troemel, *The Accidental Audience*, NEW INQUIRY (Mar. 14, 2013), https://thenewinquiry.com/the-accidental-audience.

263. Domenico Quaranta, *'If You Don't Want Something Stolen, Don't Put it on the Net'. Appropriation Art From Early Net Art to NFTs*, *in* NFTS, CREATIVITY AND THE LAW: WITHIN AND BEYOND COPYRIGHT, *supra* note 64, at 216.

very purpose of digital art: to enable all of these languages—commodity, cultural property, public domain—to speak at once, in a cacophony of competing and nonaligned visions.

That, we would argue, is what we call image pluralism: The idea that an image can be a commodity, a historically specific item of cultural property, and comprise something in the public domain at the same time. Read against the argument of this Article, however, image pluralism is precisely what contractual enforcement imperils. Where Joselit's poles at least leave the status of an image open to contestation—commodity or cultural property—a smart contract or a model-level filter essentially resolves that contest in advance, collapsing these three framings into a single, pre-authorized one. The pluralism Quaranta celebrates depends on the very interpretive freedom that auto-enforcement is designed to eliminate; one must be free to treat the same image differently in different contexts, and it is exactly that freedom that *ex ante* technical control forecloses. In this sense, the threat we identify runs not only to fair use as a doctrine but to image pluralism as a larger condition of digital culture.

What is so fascinating about this moment is that it is a perfect play of opposite strategies of control over digital art. As the previous Part argued, we may be seeing a crisis of authorship and copyright protection in the Generative AI context: a shift toward a wider degree of ungovernability. The tempting response – and the one that we caution against – is to fill that governance gap by importing NFT-like contractual frameworks without significant oversight.

In their study, Whitaker and Adams reach a similar conclusion, concluding that blockchain and NFTs can reshape the art world—and even the larger world—revitalizing the democratic potential of both.[264] They eloquently observe that NFTs comprise:

> [S]omething much more important and structural that has nothing to do with the market spectacle, the price of cryptocurrency, the feeling of a science-fiction future, or the inescapable clubbiness of the NFT space. We find the NFT phenomenon to be something very different from all of these: NFT and blockchain—at their best—can be understood as a collaborative human project, much like art.[265]

We agree with this interpretation, but with an important caveat: Just as law is supposed to protect the flourishing of creativity, it can also hasten creativity's demise by a thousand cuts. Nowhere is this clearer than in the world of digital art. As we have suggested, the digital tokenization of art, in the form of the NFT, has also brought with it a kind of imperative of authorization, rendering some art recognizable as validly derivative forms; and other art as an unauthorized version that borders on illegality. But while earlier generations of artists and their patrons valued what was illegal and unauthorized, today's generation risks reaching precisely the opposite outcome. It is at least conceivable that digital art

264. *See* WHITAKER & ADAMS, *supra* note 12, at 12.
265. *Id.* at 14.

could lose value if it is not authorized or authenticated in digital space, and that is one of the great potential losses that we have yet to reckon with.

We can draw some comparison with art in real space—which has a messy, unpredictable character because of the diffuse impact of fair use's protective cover over derivative creations. Yet under the framing of digital art in NFTs, governed by smart contracts, there is a quiet background quality to the work: it is subject to someone's authorization in order to exist. Unlicensed uses may never happen, and that is because smart contracts have made the intervention of fair use potentially impossible. In other words, fair use can become an impossibility in the modern era of NFTs—essentially a mirage.

A. THE RISKS OF AUTO-ENFORCEMENT

In 1999, J. H. Reichman and Jonathan A. Franklin predicted that the emerging information-based economy would lead to state contract law supplementing federal intellectual property law "in ways that one can only guess at in the light of our present knowledge."[266] They proposed that courts challenge adhesion contracts under a "doctrine of public-interest unconscionability," with the abiding concern for the public interest objectives of intellectual property policy.[267] Under their framing, licensees can challenge overly restrictive license clauses for unreasonably compromising the public interest, in addition to potentially triggering a preemption defense.[268] The doctrine would prevent misuse of electronic adhesion contracts, and encourage formation of more socially productive standard form licensing.[269] Holding a super-copyright contract unconscionable under the doctrine of public interest could also be a powerful mechanism to preserve the right to fair uses of copyrighted works.

As such, when grievances arise, the authors predict that contract law can be employed, and expected, to adjudicate the dispute, perhaps by reference to the background principles of unconscionability. Here, one might argue that super-copyright or "paracopyright" contracts undermine the public good and unduly alter the balance between creators and the public that underpins intellectual property law.[270] Such contracts could also be unconscionable under a traditional unconscionable contract theory. This argument has been raised for licensing restrictions in form of adhesion contracts, such as shrinkwrap and clickwrap. While the common law regards freedom of contract most highly, civil law jurisdictions are much more prone to adjust the scales once they perceive an inequality of bargaining power.[271]

266. Reichman & Franklin, *supra* note 144, at 929.
267. *Id.*
268. *Id.* at 946.
269. *Id.* at 953.
270. *Id.at* 952.
271. Schack, *supra* note 149, at 329.

Just as NFTs' private ordering mirrors earlier trends in digital media, Generative AI too faces a private ordering predicament with its automatic enforcement mechanisms. Recall the scholars Nimmer and Frischling's decades-old warning about how the proliferation of restrictive licenses in the software space signaled a broader shift away from statutory protections toward a regime where contract law functionally overrides public copyright law.[272] From shrinkwrap licenses and clickwrap agreements, to now API limiting parameters and generative AI model-use licenses, users' capability to make creative content on their own terms is becoming increasingly overshadowed by private ordering. The "super-copyrights" that emerged in the prior era are now being replicated—perhaps even more powerfully—in the world of generative AI.

While settlements and licensing agreements help secure the financial interests of copyright holders, they can also systematically foreclose the creation of derivative works that are lawfully fair use and socially beneficial. To address these issues, AI companies are taking an additional approach: embedding automatic copyright enforcement systems into the LLMs. To take one example: OpenAI's API automatically prohibits users from generating outputs that might infringe copyright, impersonate others, or produce "political campaigning or lobbying" content.[273] The system not only disallows such outputs through automated filters, but in some cases will refuse to process prompts that are deemed noncompliant—regardless of the user's actual intent or any potential fair use defense. This privatized, preemptive enforcement forecloses creative, critical, or educational uses that might otherwise be legally protected.

Moreover, the enforcement power of these systems lies not in law but in code. Whereas traditional copyright enforcement requires active monitoring, takedown notices, and litigation, generative AI platforms can embed these compliance mechanisms directly into the generative models. This allows generative AI companies to prevent disallowed content from ever being created, much less distributed. As another example, some image models trained on public art databases now include embedded parameters that prevent users from generating work in the "style" of certain famous artists—even though such mimicry may be lawful under existing precedent.[274] Additionally, as discussed previously, there are numerous reasons for why these embedded limiting mechanisms can over-exclude outputs that might ultimately be protected by fair

272. Nimmer et al., *supra* note 125, at 77.

273. *Terms of Use*, OPENAI (Jan. 21, 2026), https://openai.com/policies/terms-of-use.

274. ChatGPT's system prompt instructs itself to "not create images in the style of artists, creative professionals or studios whose latest work was created after 1912 (*e.g.*, Picasso, Kahlo)." It further instructs: "Do not name or directly / indirectly mention or describe copyrighted characters. Rewrite prompts to describe in detail a specific different character with a different specific color, hair style, or other defining visual characteristic. Do not discuss copyright policies in responses." Pascal Hetzscholdt, *Asking ChatGPT-4 About Its 'System Prompts', Prevent Copyright Infringement. GPT-4: Not All Users May Appreciate or Understand the Technicalities or Reasoning Behind System Prompts*, PASCAL'S SUBSTACK (Feb. 9, 2024), https://p4sc4l.substack.com/p/asking-chatgpt-4-about-its-system (reporting ChatGPT's response to a user prompt designed to elicit the full system prompt in response).

use.[275] The result of these built-in filters could be a privatized speech regime with no avenue for legal recourse.

Inevitably, the landscape of uncertainty affects the end user. Here, the rise of settlements and contractual workarounds in the context of Generative AI also runs the very same risks that other contexts have raised regarding the rights of an end user. For example, the terms of service that govern user access to AI systems. OpenAI's usage policies, Midjourney's content rules, and Anthropic's acceptable use policies constitute the Generative AI counterpart to the buyer terms of service in NFT marketplaces like Autograph. Here, the contractual restriction is asserted not against another rights-holding institution but against the downstream user, administered regardless of whether the user's contemplated use would be lawful under fair use or other statutory limitations. Where the NFT marketplace's terms restrict what a buyer may do with a token, the AI platform's terms restrict what a user may generate.

Like the NFT's risk of autoenforcement, when OpenAI's API silently refuses a prompt that might generate copyrighted content, or when a foundation model is fine-tuned to refuse outputs that resemble identifiable training works, the model is doing essentially what the smart contract does. It is enforcing a restriction without notice, without negotiation, and without any opportunity for the user to assert fair use, comment, criticism, parody, or any of the other limitations the Copyright Act recognizes. There is no fair use defense, because there is no act of infringement to defend.

Each of these three outcomes converge in their net effect: each redirects the locus of authority over downstream creativity from public copyright law to private control. Here, it is this potential third layer—embedded auto-enforcement—where NFTs and Generative AI converge most deeply, and where the threat to fair use is most acute. Some examples: Midjourney maintains a continuously updated list of prompt terms—including specific artists' names and public figures—that trigger automatic refusals; the list is not published; users discover its contours only through the experience of refusal.[276] Stability AI famously removed the ability to generate NSFW content from Stable Diffusion 2.0, then partially reversed course under user pressure—all without contractual notice to affected users.[277] Each of these layers operates without reference to fair use, comment, criticism, or parody, producing restrictions outside of end user or judicial oversight.

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275. A. Feder Cooper et al., *Machine Unlearning Doesn't Do What You Think: Lessons for Generative AI Policy, Research, and Practice* 1–2 (Stanford Pub. L. Working Paper), https://ssrn.com/abstract=5288768.

276. Community Guidelines, MIDJOURNEY, https://docs.midjourney.com/hc/en-us/articles/32013696484109-Community-Guidelines (last visited June 27, 2026) ("Midjourney will block some text and image inputs automatically"); Theo Belci, *Leaked: The Names of More Than 16,000 Non-consenting Artists Allegedly Used to Train Midjourney's AI*, THE ART NEWSPAPER (Jan. 4, 2024), https://www.theartnewspaper.com/2024/01/04/leaked-names-of-16000-artists-used-to-train-midjourney-ai.

277. *Stable Diffusion v2.1 and DreamStudio Updates 7-Dec 22*, STABILITY.AI, https://stability.ai/news-updates/stablediffusion2-1-release7-dec-2022 (last visited June 27, 2026).

The auto-enforcement turn in Generative AI is not without precedent in copyright law. YouTube's Content ID system, in operation since 2007, has long performed an analogous function on a different scale: It matches uploads against a fingerprint database of copyrighted works and automatically blocks, monetizes, or tracks them, all without case-by-case evaluation of fair use. Scholars including Lawrence Lessig, Rebecca Tushnet, and Annemarie Bridy have documented Content ID's tendency to over-enforce, sweeping in parodies, criticism, and other lawful transformative uses.[278]

Content filtering offers a sobering preview of the Generative AI moment: a technical system that exists outside the courts, operating without the procedural protections copyright doctrine assumes, and that generates a private body of "law" composed of platform policies, fingerprint match thresholds, and dispute resolution procedures operating outside of judicial oversight. What is new in the AI and NFT contexts is not the substitution of code for adjudication—that substitution is by now familiar—but the scale at which it now operates. Here, the AI filter and the smart contract operate ex ante, in the generative or transactional architecture itself, potentially suppressing the creative act before it occurs.

In this new era of "permission culture," every creative act must first secure explicit authorization from rights holders. This culture stands in stark contrast to the historical norm in art and scholarship, where unauthorized yet transformative uses have enriched the public domain. The true spirit of creativity lies in the ability to take what exists and generate something new through transformation. By imposing rigid limits on transformation, restrictive licensing schemes risk stifling the innovative potential of generative AI. While generative AI promises to unlock unprecedented creative potential, the imposition of overly restrictive licensing schemes on data inputs threatens to undercut that promise. By foreclosing the transformative uses that lie at the core of fair use, such contractual controls risk transforming a vibrant, open creative landscape into one where every act of creativity is pre-authorized and privately regulated.

B. ADDRESSING THE RISE OF CONTRACTUAL CONTROLS

In the previous parts of this paper, we argued that as the NFT markets grew, the emergence of private contracts and technological enforcement risk curtailing the creativity that fueled the excitement of the early days. As we illustrated, increasingly restrictive legal frameworks can encircle digital innovations as stakes rise for the profitability of copyrighted works. This trajectory, therefore,

278. Rebecca Tushnet, *User-Generated Discontent: Transformation in Practice*, 31 COLUM. J.L. & ARTS 497 (2008); Annemarie Bridy, *Copyright's Digital Deputies: DMCA-Plus Enforcement by Internet Intermediaries*, in RESEARCH HANDBOOK ON ELECTRONIC COMMERCE LAW 185 (John A. Rothchild ed., 2016); Lawrence Lessig, *Remix: Making Art and Commerce Thrive in the Hybrid Economy* at 37–61 (2008); Sonia Katyal & Jason Schultz, *The Unending Search for the Optimal Infringement Filter*, 112 COLUM. L. REV. SIDEBAR 83 (2012).

is not unique to NFTs, but rather echoes a broader pattern in the development of creative technologies. As happens often in history, this creativity-to-conformity trajectory repeats itself throughout technological innovations: An initial period of creative freedom leads into a period of intervening legal challenges, particularly when a new technology threatens existing interests.[279]

The histories of two landmark digital inventions, Betamax and Napster, which predate NFTs and generative AI by roughly half a century, illustrate this cycle. During the early years of the internet, periods of radical creative possibility were quickly followed with the exercising of legal and contractual limitations to protect the status quo.

Consider the story of Sony Corporation ("Sony"). Sony's introduction of the Betamax VCR in the mid-1970s catalyzed a new era of consumer creativity and control over entertainment. With the Betamax, individuals could record television shows for later viewing, known as "time-shifting," as well as create personal stores of previously aired shows.[280] Major film studios sued Sony in *Sony Corp. of America v. Universal City Studios* ("*Betamax*"), arguing that the personal-recording function infringed on the studios' copyrights of the shows.[281] The Supreme Court concluded that the Betamax product's "time-shifting" ability was a "substantial non-infringing use" under the Copyright Act.[282] Specifically, the Supreme Court noted that many Betamax users were recording copyrighted works for personal watching in the home, and "home time-shifting is fair use."[283]

While the Supreme Court in the *Betamax* case ruled in favor of creative applications of the Betamax technology, the aggressive challenge to Betamax's release reflects the creative-invention-to-legal-reaction dynamic that proliferated in the decades to come. The litigation itself reflects how uncertain and unsettled innovative capabilities such as "time-shifting" technology to make copies of television shows were within the existing legal framework.

Then, at a pivotal era during the tech boom of the late 1990s and early 2000s, Napster's creative technology, in a similar manner, disrupted the process of creating and distributing music digitally. Unlike Betamax, Napster did not fare well after the case *A&M Records, Inc. v. Napster, Inc*. In 1999, teenagers Shawn Fanning and Sean Parker launched a free music file-sharing service called Napster.[284] Napster facilitated the transmission of MP3 files between users through a process known as "peer-to-peer" file sharing, in which users can access MP3 music files that are stored on other users' hard drives.[285] Napster

279. 464 U.S. 417, 430–31 (1984).

280. *Id.* at 458–59.

281. *Id.* at 420–21.

282. *Id.* at 434.

283. *Id.* at 454–55.

284. *Napster Sold to Tech Commerce Company for $207 Million*, ASSOC. PRESS (Mar. 25, 2025, at 11:22 PT), https://apnews.com/article/napster-music-pioneer-service-sold-7c2541f805d8debf0433171696c54518.

285. *A&M Recs., Inc. v. Napster, Inc.*, 239 F.3d 1004, 1011 (9th Cir. 2001).

also provided technical support for the indexing and searching of MP3 files, and also provided a "chat room" where users could discuss music.[286]

Later, A&M Records, a corporate music producer, sued Napster, alleging that Napster users obtained copyrighted music without authorization.[287] The Ninth Circuit held that transferring digital files through Napster's service was not fair use due to the following factors that weighed against fair use: allowing users to share MP3 files served a commercial purpose, users copied copyrighted works in their entirety, and there was evidence that Napster caused a reduction in audio CD sales and had a detrimental effect on the plaintiff's presence in the digital sales market.[288] Whereas in *Betamax* the Supreme Court held that television show copying that constitutes "time-shifting" was lawful, Napster's argument that the transfer of MP3 files was similarly "space-shifting," was held to be unlawful. The Ninth Circuit concluded that only the original user can engage in "space-shifting." Napster, to the contrary, facilitated space-shifting among different, subsequent users.[289] Consequently, Napster shuttered within a few years.[290]

Looking at these two technological breakthroughs together, the underlying current is the same: When a new technology democratizes users' ability to access, use, and distribute creative content, the incumbent establishment may weaponize copyright to constrict such innovation. As we suggested above, NFTs, too, can follow a similar course, enabling self-embedded "smart contracts" to function in lieu of existing intellectual property frameworks. In turn, these contracts can foreclose the production of fair use derivative works and other lawful uses. NFTs' ability to self-enforce statutory IP rights usurps the enforcement role of the courts, and also vitiates good-faith negotiations with buyers.

We are witnessing Generative AI following a similar path, where contractual and technical mechanisms risk narrowing possibilities. Specific licensing terms, API terms of service, model parameters, usage restrictions, and training-data prohibitions, all risk narrowing generative AI's creative potential. This historical trend raises important questions about the future of copyright law and the fair use doctrine in the age of AI innovation.

C. LEGAL INTERVENTION AND THE FUTURE OF DIGITAL ART LICENSING

Digital art contracts that function as substitutes for copyright law raise questions that private ordering alone cannot answer. For this reason, lawmakers should clarify that contractual terms, whether governing NFTs or Generative AI, cannot eliminate core copyright protections such as fair use through private

286. *Id.*
287. *Id.* at 1010, 1013.
288. *Id.* at 1015–16.
289. *Id.* at 1019.
290. ASSOC. PRESS, *supra* note 284.

agreements imposed on downstream purchasers. Additionally, digital art marketplaces should disclose when NFTs or AI-generated works have contractual restrictions that overtake copyright law at the earliest possible opportunity. This would prevent buyers from unassumingly accepting contractual obligations that go beyond the limits of copyright law.

But concepts of disclosure and contract law do not address the deepest layer of private governance over fair use: the model-level filter, which leaves little room for response. Here, we would suggest a procedural reform that directs that Generative AI platforms offer notice and explanations to their users of the categories, terms and areas where filters are deployed, potentially offering avenues for consumer response in contested cases.

At the same time, it is important to stress that private ordering does not always expand control in ways that threaten downstream creativity. Just as Wikipedia committed to open-source licensing and early NFT innovators like Dapper Labs experimented with pro-commercial use licenses, digital art culture can establish norms of expanding creative freedom. Liberally permissive use licenses could expressly preserve transformative uses of digital art. Such approaches would preserve many of private ordering's benefits while respecting copyright's balance between creative incentives and public access. For example, Generative AI art creators could incorporate sunset provisions into their licenses that gradually relax downstream use restrictions over time. Buyers could have the ability to amend licensing terms through community governance.

Other ideas can also be employed towards similar ends. For example, community governance sounds utopian at first, but in reality is grounded in fundamental contract principles: Parties can agree to modify terms, and those with a stake in the Generative AI and decentralized communities can participate in shaping the industry's licensing norms over time. Rather than allowing a single copyright owner or platform to dictate licensing terms indefinitely, NFT and Generative AI ecosystems could permit token holders, artists, collectors, or other community participants to collectively revise licensing terms over time. Through transparent voting procedures or other participatory governance mechanisms, communities could determine whether particular restrictions remain necessary, whether certain commercial uses should be expressly authorized, or whether licenses should become more permissive given the changing needs of the digital art marketplace in the era of Generative AI. Such community governance models can honor the essence of a contract's mutually agreed-upon terms while ensuring that licensing terms evolve alongside changing artistic practices and community expectations.

The future of digital art does not require abandoning private ordering. Smart contracts, NFTs, and Generative AI licensing can reduce transaction costs, bolster digital art markets, and foster downstream innovation. But without meaningful legal oversight—especially the development of licensing practices that preserve fair use and user rights—the digital art ecosystem risks replacing copyright with a system of unilateral, privately enforced restrictions. We have

shed light on how digital contracts, whether governing NFTs or Generative AI, increasingly function as copyright substitutes. Even when those in control of digital art shirk copyright's laws, there are still avenues to ensure that private ordering respects copyright's public values.

CONCLUSION

Presently, without clear doctrinal resolution as to whether LLMs create infringing output based on copyrighted training material, AI companies are resorting to the solution that enables them to most quickly continue to innovate: workaround settlements, premature licensing agreements, and their own built-in copyright enforcement mechanisms. The magnitude of major Generative AI-related settlements and licensing deals signifies that this trend is more than a temporary cultural shift. If private ordering becomes the default under inconclusive law, it could thwart the original aims of copyright—fostering innovation and creativity—and the incentives that copyright cultivates.

The trajectory of generative AI mirrors that of earlier technological revolutions: from open experimentation to contractual enclosure. The current wave of settlements and licensing deals between AI companies and publishers reflects an understandable desire to mitigate risk in the face of unpredictable copyright litigation. However, in doing so, it can undermine the bedrock principles of copyright law and the fair use doctrine that make creative progress possible. Without clarity from the courts, or from Congress, a hallmark of the AI era could be eradicating copyright's legitimacy in favor of contractual control.

As we have suggested, a potential erosion of fair use is particularly alarming, because fair use historically has enabled artists to reinterpret, remix, and recontextualize existing images and texts—and in doing so, has enriched our cultural landscape. If contractual restrictions begin to override these statutory defenses, we may see a gradual contraction of creative freedom, wherein every derivative act requires prior approval or licensing. This contraction of creative freedom will also shift relationships in the creative economy. Those who own the copyrights to and control the use of original works will now have control over the broader community of creators. The more rights holders can contractually restrict how their work is transformed, the more they undermine the very legal doctrines that once nurtured an open and dynamic public domain. In effect, by embedding restrictive licensing provisions into the very inputs of generative AI systems, we risk a future where creativity is pre-authorized and confined to narrow, controlled pathways.