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What does it really mean to author, to own, or to replicate art? The data-hungry mash-up engines of AI are eroding the value precepts of scarcity and individual expression at the heart of copyright law. Is this the occasion to reconsider the limits of private property systems, if not the very make-up of creativity?



DABUS/Stephen Thaler
A Recent Entrance to Paradise, 2012

This image was generated by the AI system DABUS (Device for the Autonomous Bootstrapping of Unified Sentience). In a copyright case that is pushing the question of who or what can be legally recognized as an author, its creator, Stephen Thaler, has applied (so far unsuccessfully) for ownership of the image, on the basis that the machine-author has produced the image for him in a work-for-hire capacity.

Discussions of what an artist should and shouldn't be permitted to do often used to invoke a well-known saying attributed to the godfather of Pop Art: "Art is what you can get away with." But earlier this year, the US Supreme Court ruled against The Andy Warhol Foundation in a landmark copyright case concerning the artist's "Prince" screen prints. In their majority opinion, the justices stated that the famous pop artist had unfairly copied and reused an image created by the photographer Lynn Goldsmith, for which licensing fees should have been paid. The ruling was widely interpreted as a significant blow against appropriation-based art practices. But some have also suggested that the new judicial commentary on fair use (i.e., what you can get away with as an artist) applies to more than merely the appropriation-based practices of human artists – it also addresses the rising legions of generative AI tools whose "creativity" is based on the indiscriminate hoovering up of countless pre-existing images from all across the internet.

Is image-scraping for AI training purposes the new art of appropriation? And, in light of the US Supreme Court's May ruling, is AI art the new frontier of intellectual property law? There is much to suggest that this is the case, and that fundamental changes will be required if copyright is to remain relevant in the age of AI.

Technologically speaking, well-trained AI systems are extremely data-hungry, and without clear legislation, tech corporations will continue to collect all accessible data useful for their training sets, no matter who created or owns it. From a socio-economic standpoint, the outputs of generative AI systems represent astronomical monetary values, and very significant efforts will be undertaken to enclose them in IP regimes. From the perspective of legal theory, finally, it is becoming clear that generative AI undermines and contradicts many legal mechanisms currently used for monitoring copyright compliance and determining IP violations. So: What is to be done?

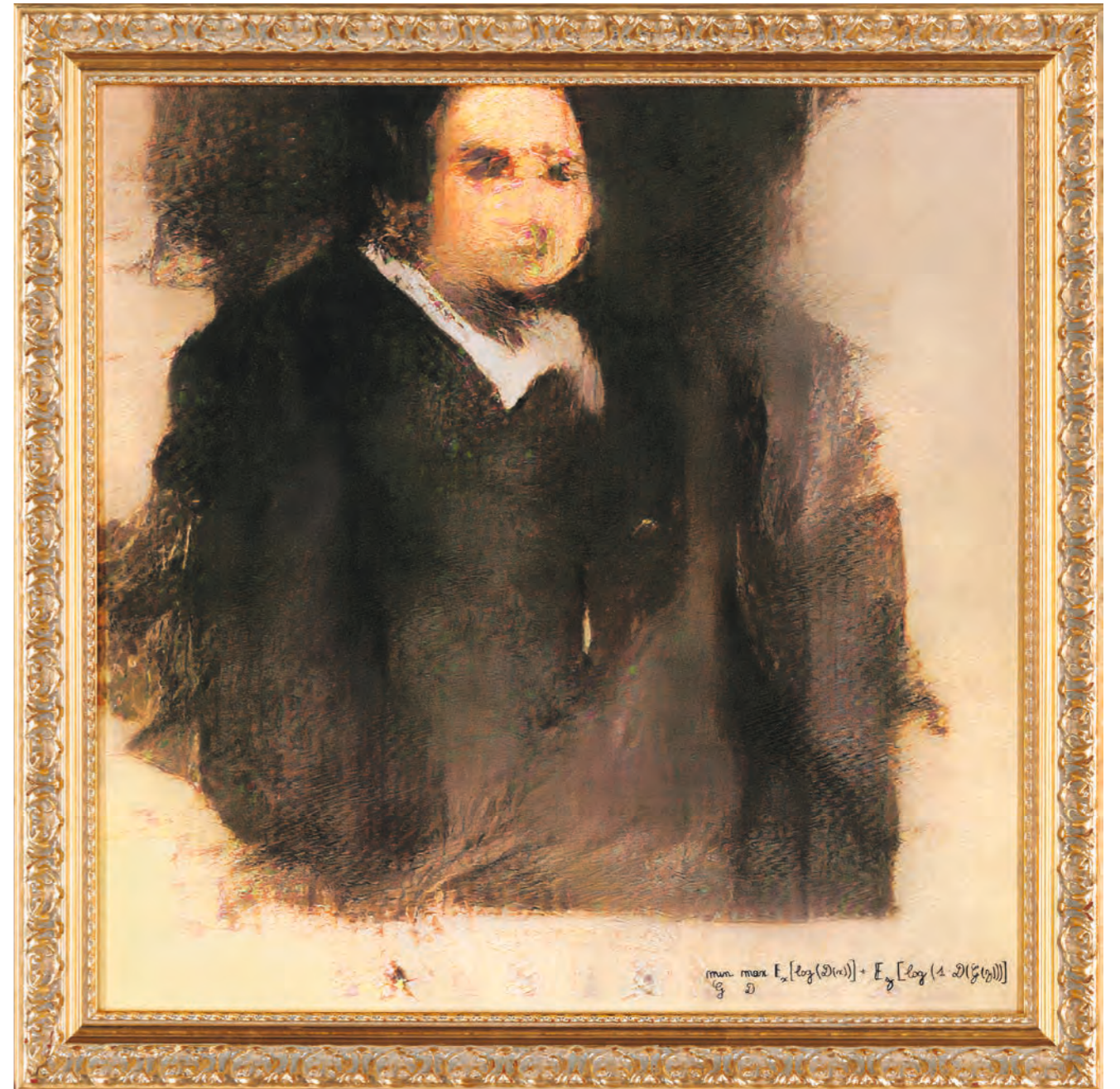
Questions that might have struck us as fairly straightforward a few decades ago are quickly becoming extremely difficult to answer: What is an author? What is an original? What constitutes a copy? What is a work of art, and who (or what) can own it? No mere philosophical conjecture, these questions form the foundations of all theories of copyright.

As the prominent Stanford University IP scholar Mark A. Lemley recently observed, generative AI is turning these foundations upside down.

Many legal theorists argue that AI-generated outputs can never constitute copyrightable works because the technology is merely a tool, and therefore cannot possess authorial agency. Others suggest that AI is very much capable of authorship, provided that minor updates are made to existing legal definitions. A third camp, finally, argues that because AI-generated works fall outside the scope of conventional copyright laws, they should be considered unprotectable and be placed in the public domain. Current legislation varies considerably. In many jurisdictions, including the US, a clearly identifiable human author remains the key requisite for recognizing any expression as a copyrightable work; elsewhere, such as in the UK, lawmakers are getting used to the idea of copyright protection for new types of works that lack human authors. The legal status of training data is also in flux. While many AI developers still maneuver relatively freely in legal grey areas unencumbered by IP laws, the EU has recently introduced requirements for developers to disclose the use of copyrighted materials in their training datasets, although how this can be enforced in the context of trade secrets and black-boxed AI models remains unclear.

The list of new questions that copyright law must now contend with is long and keeps growing, and there is little agreement on how to answer them effectively. Most legal systems still cannot recognize a creative expression as copyrightable unless the work is original in nature (i.e., it did not exist before); a human author can be clearly identified; and a modicum of creativity is expended in producing the expression. What's more, IP law generally cannot recognize a copyright violation unless it can be demonstrated that the creation of a derivative expression relied on a pinpointable act of copying that exceeded fair use and is substantial in nature.

The way generative AI works makes it difficult (if not impossible) to tick these boxes. To begin with, it remains unclear who we should consider as the author of an AI-generated work. The AI developer? The company that owns the system and the hardware? The user? The algorithm itself?



Obvious collective

Portrait of Edmond Belamy, 2018, GANs algorithm, inkjet printed on canvas, 70 x 70 cm

The sale of this AI-generated image for 432,500 dollars at a Christie's auction was a trigger moment in the rise of AI art. It was also the cause of an informal copyright controversy, once it became clear that the French collective – whose AI system created the work – had copied much of the source code from artist Robbie Barrat.

And yet we cannot easily consider the outputs of these systems as works of art in the traditional sense.



Adam Basanta

85.11%_match: Amel Chamandy "Your World Without Paper," 2009, 2018

Basanta designed a system that produces abstract images whose content is statistically matched to existing artworks. While the images are generated automatically and look nothing like the originals to which they refer, the artist Amel Chamandy filed a complaint for copyright violation.

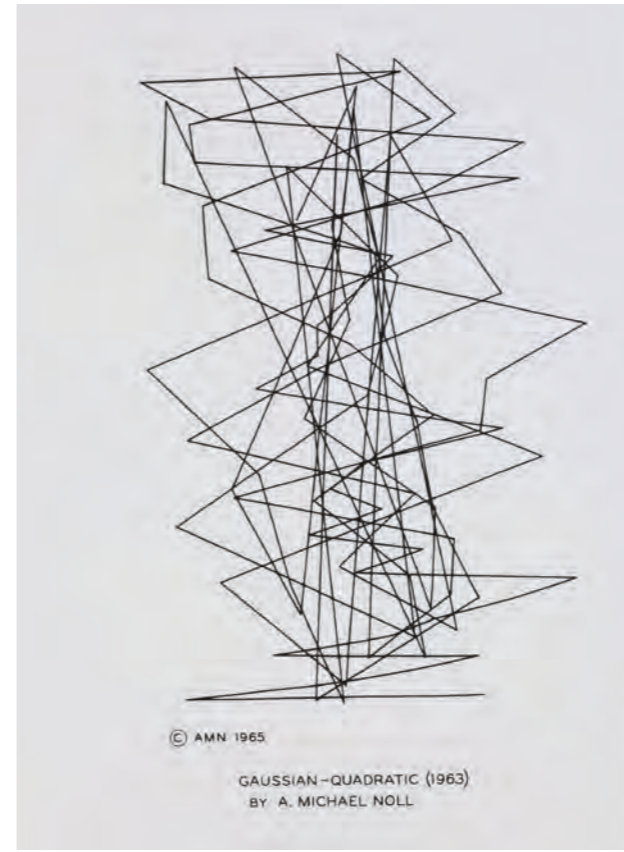
While there are good arguments in favor of each of these suggestions, none of them sit comfortably with existing legislation. Furthermore, it is difficult to determine whether any AI-generated output can be meaningfully described as an "original," given the heavy reliance on pre-existing training data. Then again, it would also be incorrect to describe AI-generated outputs as copies of such data. Contemporary AI models are considerably more complex than that, and create, to borrow from Jean Baudrillard's concept of the simulacrum, "copies without originals."

In exploring analogies between human artists and their AI counterparts, we must also acknowledge that the former, too, are "trained" on canons of existing works – and nobody would conclude from this that every artist profits illegitimately from the work of others, or that every new artwork is, by definition, a copy of those that inspired it. It is extremely difficult to draw definitive lines in these debates, which has led many legal theorists and policymakers to suggest that the inclusion of copyrighted data in AI/ML training datasets should be permissible as a matter of principle.

The likes of Stable Diffusion and ChatGPT are now capable of producing results that many human observers would describe as artful. And yet we cannot easily consider the outputs of these systems as works of art in the traditional sense. This is because most copyright laws, in order to prevent monopolization, are designed to protect only creative expressions, rather than the underlying ideas: I can author and copyright a love poem, but I can never exclude others from drawing on the general idea of the love poem. While this "idea-expression dichotomy" figures most prominently in US law, copyright legislation everywhere includes some of its elements. When it comes to AI-generated outputs, however, the roles of idea and expression now seem to be reversed. Traditionally, a painter's authorship claims were limited to the canvas they created, which represented the materially manifest expression of their creativity. But today, most users of a text-to-image generator have nothing to do with the technical realization of a final output – the only creative contribution to which they could lay claim is the formulation of a prompt, i.e., they provided the idea. Users may feel entitled to authorship claims in outputs resulting from their prompts, yet in most jurisdictions, such claims would be impossible to enforce, since ideas remain unprotectable by copyright law.

It is easy to see the fundamental contradictions at play here. Substantial legislative changes would be required before a copyright court could comfortably assign authorship rights to an artist who prompted Stable Diffusion to produce an acclaimed digital drawing, or to a writer who prompted ChatGPT to write a great novel. And even if a copyright would be awarded for a specific prompt, it would be difficult to connect this prompt to reliably reproducible

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A. Michael Noll,
Gaussian-Quadratic, 1963

Art has challenged the assumptions of copyright law for a long time. When Noll attempted to claim authorship of this computer-generated work, his application was rejected several times; first, because the image seemed to lack the prerequisite human authorship; subsequently, because the underlying algorithm involves randomness and, as a result, cannot produce a fixed artwork.

"original" output. We also haven't considered how copyright infringement would be constituted in such scenarios. Would a violation stem from the unfair copying of a prompt, or rather from the unfair copying of the output? And how should the law deal with the reverse-engineering of a prompt?

Most legal, economic, and philosophical justifications of copyright are based on the assumption that without adequate legal protection for artists, there wouldn't be

sufficient incentives for creative expression, and therefore a potential lack of creativity – and art – in the world. But depending on our definition of "creativity," this simply may no longer be true. ChatGPT, Stable Diffusion, and many similar tools are ringing in what could be described as a post-scarcity era of digital art. It is anyone's guess as to how exactly IP law will deal with the outputs of generative AI, with the protection of human-made works vis-à-vis armies of data-hungry AI systems, and with the rising importance of prompts in the creative process. About one thing there can be no doubt: There is too much economic value at stake for copyright law not to move toward accommodating generative AI.

The danger of this development is yet another massive expansion of capital into the digital cultural sphere, and a reinforcement of the logic of scarcity in an area where it might otherwise be disappearing. There is no doubt that AI technology can upend the logic underpinning current IP regimes – and maybe that's a good thing. Yes, we will have to find new ways of protecting artists from having the fruits of their creative labor misappropriated, but there are also very good arguments to be made against the capitalist logic of ownership that sits at the heart of copyright law. To some degree and on some level, art and culture should never be enclosed in private property regimes in the first place.

Ultimately, debates about copyright are always debates about how creative expressions can be owned, and how ownership claims therein can be enforced. That generative AI's emergence is rapidly complicating such debates is an invitation to revisit critical questions concerning authorship, originality, permissible copying, and the changing nature of creativity. Perhaps the growing abundance and accessibility of AI-art tools should be regarded as a "commoning" of digital creative practice – leading us to conclude that further proprietization of cultural expression is neither necessary nor desirable. —

MARTIN ZEILINGER is a researcher and curator working at the intersection of digital art, media theory, and emerging technologies. His monograph on AI art, creative agency, and the limits of intellectual property, titled *Tactical Entanglements*, was published in 2021 by meson press, and is free to read online.