The Ghost in the Machine is a Collaborator: Distributed Authorship and Augmented Creativity in Human-AI Digital Art

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Abstract

This paper posits that the integration of generative Artificial Intelligence (AI) into digital art necessitates a paradigm shift from traditional, human-centric models of authorship to a framework of "distributed authorship." This framework recognizes the creative agency of a network comprising the human artist, the AI model, the training data, and the system's developers. Through an analysis of pioneering artists like Refik Anadol and Mario Klingemann, an examination of postmodern art theory, and a critical review of the current legal impasse in copyright law, this paper argues that the artist's role is evolving. The artist is no longer a solitary creator but a director, curator, and collaborator within a complex socio-technical system. This evolution, while challenging legal and philosophical norms, ultimately augments human creativity by fostering a dialogical partnership with the machine, a process termed "dialogical intentionality." The paper concludes by exploring the implications of this shift for the future of artistic practice and education, asserting that human vision and ethical oversight become more critical than ever in navigating this new creative landscape.

Keywords: Generative AI, Digital Art, Distributed Authorship, Human-AI Collaboration, Postmodernism, Copyright, Creativity, Prompt Engineering

1. Introduction: The New Digital Canvas

The landscape of digital art is undergoing a transformation more profound than any since the advent of the personal computer. For decades, digital tools have functioned as sophisticated extensions of the artist's hand. Software like Adobe Photoshop and hardware such as digital drawing tablets are instruments of direct manipulation; they translate the artist's physical gestures and explicit commands into pixels on a screen with high fidelity. They are powerful, but they are fundamentally passive tools awaiting instruction. The emergence of generative Artificial Intelligence (AI) systems—such as Midjourney, DALL-E, and Stable Diffusion—marks a radical departure from this paradigm. These systems are not mere tools but semi-autonomous partners in the creative process. They do not simply execute commands; they interpret natural language prompts, access a vast internal repository of learned patterns, and generate novel visual content that often surprises their human users. This transition from direct authorship to co-creation is not an incremental technological step but a fundamental restructuring of the creative act itself.

This shift inverts the traditional artistic workflow. The digital painter begins with a blank canvas, an empty space upon which an image is built through an additive process of mark-making. The generative artist, by contrast, begins with an almost infinite field of possibility—the high-dimensional "latent space" of the AI model, which represents the compressed visual knowledge of its training data. The creative act is no longer primarily one of execution but of navigation and curation. Through the craft of "prompt engineering"—the careful construction of textual descriptions to guide the AI—the artist steers the system toward a desired conceptual region within this latent space. The process becomes less about *making* an image from scratch and more about *discovering*, selecting, and refining an image from a sea of latent potential. This changes the locus of artistic skill from manual dexterity and compositional technique to conceptual clarity, linguistic precision, and critical curation.

This paper advances the thesis that the rise of generative AI in digital art challenges the

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romanticized notion of the solitary, singular author and is best understood through a model of distributed authorship. In this model, creativity is not the product of a single mind but an emergent property of a complex network. This network includes the human artist who provides the initial vision and curatorial judgment; the AI system that performs the expressive labor of generation; the vast datasets of human-created culture on which the AI was trained; and the developers who encoded the system's architecture and biases. This collaborative dynamic serves as a powerful form of cognitive augmentation, extending and enhancing human creativity. However, it also creates a profound tension with existing legal and philosophical frameworks, which remain predicated on the ideal of a singular, conscious, human author.

To explore this tension, this paper will first examine different models of human-AI co-creation through case studies of prominent artists whose practices represent distinct points on a collaborative spectrum. It will then build a theoretical foundation for understanding this new paradigm by applying postmodern theories of authorship to AI art. Following this, the analysis will turn to the practical and pressing "copyright conundrum," critically reviewing how legal systems are struggling to reconcile the reality of distributed creation with the requirement of human authorship. Finally, the conclusion will synthesize these threads to articulate the evolving role of the artist in the age of AI and consider the implications for the future of the creative industries and art education, themes central to the interdisciplinary focus of the International Conference on Creativity, Management, Education, Technology, and Sciences (ICCMETS).

2. From Tool to Teammate: Models of Human-AI Co-Creation

The term "human-AI collaboration" is not a monolith; it encompasses a wide spectrum of interactions, from using AI as a simple assistant to engaging it as a full creative partner. This spectrum can be understood through the framework of cognitive augmentation, a concept describing the use of external technologies to enhance and extend human cognitive and creative abilities. In this context, AI is a modern tool for cognitive augmentation that pushes creative boundaries by offering unprecedented computational power and novel ways of thinking. By examining the distinct practices of pioneering artists, we can map out the key models of interaction along this collaborative spectrum.

2.1 The Artist as Director: Refik Anadol and the Aesthetics of Data

At one end of the spectrum lies the artist as a high-level director and systems architect, a role epitomized by the work of Turkish-American media artist Refik Anadol. Anadol's practice transcends the simple use of off-the-shelf generative tools. He and his large, interdisciplinary team at Refik Anadol Studio build bespoke AI models trained on massive, ethically sourced datasets, such as the complete public archive of the Museum of Modern Art (MoMA) or vast collections of nature imagery from institutions like the Smithsonian. His process is a self-described 50/50 human-machine collaboration. The human team provides the conceptual framework, meticulously curates the data—which Anadol refers to as the machine's "memories"—and fine-tunes the algorithmic parameters. The AI is then tasked with "dreaming" or "hallucinating" the visual output, resulting in large-scale, dynamic "data paintings" and "data sculptures" that are constantly evolving.

Anadol's work *Unsupervised* (2022), which was exhibited in MoMA's lobby and later acquired for its permanent collection, trained a model on over 200 years of art from the museum's collection to generate a fluid, abstract simulation of how a machine might reimagine art history. This process is not merely about generating static images but about designing an autonomous creative system. The artist's role is akin to that of a film director or an architect: setting the vision, assembling the resources, and guiding the overall structure, while allowing the "actor"—the AI—to perform its role.

However, the spectacular and polished nature of Anadol's work has drawn criticism.

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Some view his installations as creating a "techno-reverie" or a "massive techno lava lamp" that, while visually mesmerizing, can lack critical depth and risk becoming a form of high-end corporate spectacle. These critiques highlight a central tension in large-scale AI art: the balance between aesthetic wonder and the conceptual and political implications of using vast datasets to generate art. Anadol's work, in its grandeur, forces a confrontation with the question of whether the visualization of data is an end in itself or a means to a deeper critical inquiry.

2.2 The Artist as Explorer: Mario Klingemann and the Uncanny Valley of the Latent Space

In stark contrast to Anadol's directorial approach is the artist as an explorer and tinkerer, a role exemplified by German artist Mario Klingemann. Where Anadol builds polished systems for public spectacle, Klingemann delves into the messy, unpredictable "wilderness" of the AI's latent space. He deliberately pushes generative models, particularly Generative Adversarial Networks (GANs), beyond their intended functions to see what breaks. His technique of "Neural Glitch," for instance, involves manipulating the internal weights of a trained model to produce uncanny, surreal, and often grotesque imagery that reveals the alien logic of machine perception.

Klingemann's seminal work, *Memories of Passersby I* (2018), features a machine that generates an endless stream of novel, painterly portraits based on a dataset of Western portraiture from the 17th to 19th centuries. The portraits are ephemeral, dissolving and morphing into new faces in real-time. For Klingemann, the art is not the individual image but the autonomous system itself—the code that perpetually creates. He views the AI less as a collaborator and more as a complex instrument, like a piano, that he must learn to play, master, and even subvert to discover its hidden creative potential. His process is a playful, adversarial dialogue aimed at uncovering unexpected aesthetics and challenging the viewer's expectations of both portraiture and machine-generated imagery. Klingemann's work demonstrates that AI can be a tool for radical experimentation, forcing us to confront the "creative otherness" of a non-human intelligence.

2.3 The Artist as Co-Creator: The 'ZhuoluFantasie' Workflow

Between the poles of director and explorer lies a pragmatic, professional model of the artist as co-creator, exemplified by the "ZhuoluFantasie" project. This project involved creating visual designs for a performance by the National Chinese Orchestra Taiwan, using AI to interpret the musical story of the ancient Battle of Zhuolu. The workflow followed a clear, multi-stage framework:

1. Content Planning: The human designers established the narrative and emotional arc of the five story chapters.
2. Text Generation: Detailed prompts were crafted to translate musical concepts into visual descriptions for the AI.
3. Graphics Generation: The AI tool, Midjourney, was used to rapidly generate over 7,000 initial images, exploring a vast range of visual possibilities.
4. Selection and Curation: The designers carefully selected the most compelling images that aligned with the musical and emotional goals.
5. Finalization: The selected images were refined and integrated into the final visual performance.

This case study illustrates the practical advantages of a human-AI co-creative partnership in a professional setting. The AI served to augment the designers' capabilities, dramatically boosting efficiency by automating the laborious process of initial visualization. This allowed the human team to focus on higher-level creative tasks: conceptualization, strategic decision-making, and ensuring the final output resonated with the intended emotional

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depth—strengths that remain uniquely human. The "ZhuoluFantasie" project provides a clear model for how AI can be integrated into creative workflows not as a replacement for human artists, but as a powerful co-creator that unleashes and accelerates their creative potential.
These cases reveal that human-AI collaboration is not a single phenomenon but a rich and varied field of practice. The following table summarizes these distinct models of interaction, providing a useful framework for analyzing the evolving relationship between artists and intelligent machines.

Model of Interaction	Artist's Role	AI's Role	Exemplary Artists/Projects
AI as Assistive Tool	Creator, Operator	Enhancer, Automator	Digital artists using AI-powered filters, upscaling, or generative fill in Photoshop.
AI as Generative Partner	Prompter, Curator	Idea Generator, Content Producer	Artists using Midjourney or DALL-E for concept art; the 'ZhuoluFantasie' project.
AI as Co-Creator	Director, System Architect	Creative Collaborator, "Dreaming" Agent	Refik Anadol's large-scale data sculptures and paintings.
AI as Subversive Medium	Explorer, "Glitch" Artist	Unpredictable System, Source of Novelty	Mario Klingemann's *Memories of Passersby I* and "Neural Glitch" works.

3. The Author is Dead, Long Live the Network: Deconstructing Authorship in the Age of AI

The emergence of AI as an active participant in the creative process fundamentally destabilizes traditional notions of authorship, which have long been centered on the singular, intentional human creator. To navigate this new territory, it is useful to turn to postmodern theories of authorship, which, despite being developed decades before the advent of generative AI, provide a surprisingly prescient framework for understanding the decentered nature of AI-assisted art.

3.1 Revisiting Barthes and Foucault: The "Death of the Author" and the "Author-Function"

In his seminal 1967 essay, "The Death of the Author," Roland Barthes argued against the prevailing critical practice of interpreting a work based on the author's intentions and biography. He proposed that a text is not a single line of meaning originating from an author-god, but a "multi-dimensional space in which a variety of writings, none of them original, blend and clash". For Barthes, the unity of a text lies not in its origin but in its destination—the reader. This concept maps almost perfectly onto the technical reality of generative AI. An AI-generated image is the quintessential Barthesian "text." It is literally a blend and clash of a "variety of writings"—the millions of images and their associated textual descriptions in its training data. The "author" of any single image is not a singular entity but the entire cultural archive the model has ingested.

Two years later, Michel Foucault offered a complementary perspective in "What Is an Author?". Foucault was less interested in declaring the author dead than in analyzing the "author-function"—the way the author's name serves to classify, group, and give authority to a body of work. This is highly relevant to AI artists like Anadol and Klingemann. Their names function not just to authenticate a single image but to signify the unique *system* or *process* they have created. Anadol's author-function is tied to his method of training bespoke models on

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curated, ethical datasets to create "data sculptures". Klingemann's is linked to his process of subverting GANs to explore the aesthetic of the "neural glitch". Their authorship lies in the creation of the generative process itself, rather than in the direct execution of every output.

These postmodern theories, once seen as abstract literary critiques, now function as predictive frameworks for 21st-century digital creativity. They described a cultural logic—of recombination, networked influence, and the instability of meaning—that generative AI has since made a technical reality. AI art is arguably the ultimate postmodern art form, as its very substance is the statistical recombination of past cultural production. This realization shifts the critical conversation away from simplistic questions like "Is it real art?" and toward more nuanced inquiries into what this new form of creation reveals about our relationship with technology, culture, and memory.

3.2 A New Paradigm: Distributed Authorship

Building on these postmodern foundations, a more contemporary model of distributed authorship offers the most accurate description of the creative process in AI art. This paradigm rejects the idea of a single point of origin and instead locates creativity within a distributed network of human and non-human actors. The key nodes in this network include:

1. The Human Artist: The artist acts as the initiator and final arbiter. They provide the conceptual seed, craft the prompts, iteratively refine the process, curate the vast number of outputs, and make the final aesthetic and ethical judgments. Their role shifts from that of a maker to a "translator and curator" of the network's output.
2. The AI Model: The AI performs the generative labor. It interprets the prompt, navigates its latent space, and synthesizes the pixels that form the final image. It is a non-conscious but agential partner in the creation.
3. The Training Data: The millions or billions of images and texts, created by countless other humans, form the AI's "cultural unconscious." This dataset is a silent, collective co-author of every image the AI produces, embedding its inherent styles, subjects, and biases into the final work.
4. The Developers: The engineers and researchers who designed the AI's architecture, wrote its algorithms, and made crucial decisions about the training process are also integral to the authorial network. Their choices shape the model's capabilities and limitations, acting as a foundational layer of authorship.

In this model, no single node can claim sole authorship. The final artwork is an emergent property of the complex interactions between all parts of this socio-technical system.

3.3 Intentionality in the Absence of Consciousness: Mediated and Dialogical Intent

A primary philosophical objection to granting creative status to AI is its lack of consciousness, subjective experience, and genuine artistic intention. An AI does not "feel" or "mean" anything in the human sense. However, this critique often overlooks the nature of the collaborative process. While the AI itself lacks intrinsic intentionality, the creative act of human-AI collaboration is characterized by what can be termed "dialogical intentionality".

This is not a one-way process of a human issuing a command and a machine executing it. It is an iterative feedback loop. The artist begins with an intent, which they articulate in a prompt. The AI responds with an output that is an interpretation of that prompt, often in an unexpected way. This output, in turn, causes the artist to reflect on and refine their own intention, leading to a modified prompt. The creative process unfolds within this dialogue. The artist's intent is not a static, pre-formed idea that is simply translated by the machine; rather, it is *mediated by* and *evolves through* the interaction with the AI. The final artwork is not just the product of the artist's initial vision, but the crystallized record of this entire dialogical journey.

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This model of mediated, evolving intentionality offers a way to understand the creative agency within the human-AI partnership without needing to attribute consciousness to the machine.

4. The Copyright Conundrum: Legal Frameworks and the Human Imperative

While artists and theorists explore the fluid and distributed nature of AI-assisted creation, the legal system remains anchored to rigid, traditional concepts of authorship. This has created a significant gap between creative practice and legal recognition, posing a major challenge for artists working with generative AI.

4.1 The Bedrock of Copyright: The Human Authorship Requirement

The foundation of United States copyright law is the human authorship requirement. The U.S. Constitution grants Congress the power to protect the "Writings" of "Authors," and both the U.S. Copyright Office and federal courts have consistently interpreted this to mean that a work must be created by a human being to be eligible for copyright protection. This principle was recently and forcefully reaffirmed in the context of AI.

In the landmark case of *Thaler v. Perlmutter* (2023), the D.C. District Court upheld the Copyright Office's refusal to register an image that Stephen Thaler claimed was created "autonomously" by his AI system. The court's decision was unequivocal: "human authorship is a bedrock requirement of copyright". This stance has been consistently applied in subsequent decisions. In the case of the graphic novel *Zarya of the Dawn* (2023), the Copyright Office granted protection to the human-authored text and the creative arrangement of the images, but explicitly denied copyright to the individual images themselves, which were generated by Midjourney. Similarly, copyright was denied for the AI-generated artwork *Théâtre D'opéra Spatial* (2023) and *SURYAST* (2023) on the grounds that the "expressive elements" of the works were determined by the machine, not the human user. The Copyright Office's comprehensive January 2025 report on copyrightability solidified this position, stating that merely providing prompts to an AI system is insufficient to establish human authorship.

4.2 The Doctrine of "Separability": A Flawed Solution

In response to the rise of hybrid works containing both human and AI-generated elements, the Copyright Office has developed the doctrine of separability. According to this doctrine, a work may be registered if it contains sufficient human authorship that is "perceptible" and can be separated from the AI-generated material. The applicant must identify and disclaim any claim to the parts of the work generated by AI, and the copyright will only extend to the human's contribution.

While this seems like a pragmatic compromise, it is fundamentally at odds with the deeply integrated and iterative nature of human-AI co-creation. As the case studies of Anadol, Klingemann, and the "ZhuoluFantasie" project demonstrate, the human's creative contribution is not always a distinct, separable layer added on top of a machine's output. Often, the human contribution is the entire dialogical process—the conceptual framing, the careful crafting of prompts, the critical curation of hundreds of options, and the iterative refinement of the AI's output. To ask an artist to "disclaim" the AI's contribution is to ask them to disclaim a core part of their creative process, effectively misrepresenting how the work was actually made. The separability doctrine fails to recognize the synthetic nature of co-creation, where human and machine contributions are inextricably intertwined.

4.3 The Rejection of Joint Authorship

An alternative legal framework, joint authorship, might seem more appropriate for collaborative works. However, this has also been firmly rejected for human-AI creations. Under copyright law, joint authorship can only exist between two or more *human* authors who

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intend for their contributions to be merged into a single, unified work. Because an AI is not considered a legal person, it cannot have intentions or be recognized as a co-author. This legal reality creates a vacuum, leaving artists who engage in true co-creation without a legal framework that accurately reflects their process. The law, as it stands, is unable to accommodate the concept of a non-human creative partner.

This legal impasse reveals a fundamental paradox. The current copyright framework, when applied to AI art, ends up protecting the least innovative aspects of the creative process while leaving the most novel contributions unprotected. The Copyright Office will grant protection for the "selection, coordination, and arrangement" of AI-generated elements or for subsequent manual modifications made by a human artist, such as digital painting over an AI-generated base. These are familiar forms of labor, analogous to collage or photo editing. However, the truly groundbreaking aspect of AI art—the conceptual act of guiding a complex system through language and the dialogical process of co-creation—is deemed unprotectable. The prompts are dismissed as mere "ideas," and the AI's output is seen as lacking human authorship. Consequently, the law incentivizes artists to focus on post-production labor that can be easily identified as "human," potentially discouraging the deeper, more experimental forms of human-AI collaboration that push the boundaries of art.

5. Conclusion: The Artist as Navigator of Complexity

The integration of generative AI into the digital arts has catalyzed a fundamental re-evaluation of creativity, authorship, and the role of the artist. This paper has argued that the complex, collaborative nature of this new practice is best understood through a model of distributed authorship, where creativity emerges from a network of human and non-human actors. This paradigm, prefigured by postmodern theories, recognizes that the artist, the AI model, the training data, and the system's developers all contribute to the final work. This process functions as a powerful form of cognitive augmentation, enabling a dialogical intentionality where human vision evolves in partnership with machine capabilities. However, this new reality of co-creation is in direct conflict with anachronistic legal frameworks that insist on a singular, easily separable human author, creating a critical impasse for artists in the field.

Synthesizing these findings, it becomes clear that the role of the digital artist is undergoing a significant evolution. The primary locus of skill is shifting from the craftsperson's mastery of execution to the conceptual navigator's mastery of complexity. In this new landscape, the essential artistic competencies are no longer solely technical proficiency with a digital brush, but rather a suite of higher-order skills. These include the ability to articulate a complex vision through the nuanced language of prompt engineering; the critical capacity to evaluate and curate from a near-infinite stream of generated outputs; a deep literacy of art history and style to effectively guide the AI; and, crucially, an ethical understanding of the implications of using datasets that represent our collective cultural heritage.

This shift carries profound implications for the future of the creative industries and art education, aligning with the core themes of the ICCMETS conference. In the creative industries, we may witness a bifurcation. On one hand, the accessibility of AI tools could lead to a proliferation of homogenized, aesthetically pleasing but conceptually shallow "content," as critics of AI art have warned. On the other hand, it will fuel a new avant-garde, where artists like Klingemann critically engage with the technology itself, subverting its commercial applications to explore new aesthetic frontiers and question the nature of machine perception.
For art education, the challenge is to adapt curricula beyond traditional technical skills. Future art programs must cultivate conceptual thinking, critical media literacy, the philosophy of technology, and the ethics of AI. Students will need to learn not just how to *use* AI tools, but how to *think with and through them* responsibly and critically.

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Far from rendering the human artist obsolete, the rise of generative AI makes human vision, critical judgment, and ethical intentionality more indispensable than ever. The machine can generate endless variations, but it cannot supply the purpose, the context, or the critical perspective that transforms an image into a meaningful work of art. The "ghost in the machine" is not a replacement for the artist; it is a powerful, complex, and challenging new collaborator, and the future of digital art will be defined by those who can navigate this new partnership with wisdom, creativity, and foresight.

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