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On the Legitimacy of AI-Generated Art: Exploring the Aspects of Creativity, Mediality and Human Agency

Abstract

Artificial Intelligence (AI) has revolutionized diverse fields, including art, raising questions about the authenticity and value of AI-generated artworks. This essay explores the legitimacy of AI art, examining whether these creations qualify as genuine art and how they integrate into the broader art historical context. It scrutinizes the theoretical debates surrounding the incorporation of AI applications in artistic creation, emphasizing the importance of understanding the creation and reception processes in evaluating the legitimacy of AI art.

Keywords

AI-Generated Art, Computational Creativity, Mediality, Agency, Authorship

Introduction

Artificial Intelligence (AI) has seamlessly integrated itself into various facets of scientific research and technological advancement, making substantial contributions across numerous fields. In biomedicine, algorithms like SISH have emerged as potent tools, functioning as a pathology image search engine with profound implications for detecting rare diseases (Chen *et al.* 2022). Meanwhile, in astronomy, the Deep Density Displacement Model, a neural network, delves into predicting the nonlinear structure of the Universe, propelling the frontiers of our cosmic comprehension (He *et al.* 2019). The pervasive influence of AI extends far beyond, leaving its imprint on

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chemistry, geography, meteorology, and an extensive array of other fields, permeating our daily lives and molding the contours of the global landscape. From revolutionizing self-driving cars and shaping marketing strategies to optimizing search engines and influencing judicial decisions, AI's omnipresence manifests in numerous facets, including gaming, weather forecasting, digital assistants (e.g., Alexa or Siri), image recognition, spam filtering, flight delay predictions, and targeted online advertising.

As AI techniques evolve, it unfolds new realms of creativity and interpretation that captivate artists, drawing them towards the possibilities presented by AI mediums. The burgeoning significance of AI applications in art is not merely a transient trend; it has become an inescapable and irreversible aspect of today's world. Consequently, this phenomenon demands attention from both art theorists and individual artists. While scientific endeavors predominantly emphasize practical outcomes that contribute to research and technological progress, artists exploring AI applications showcase distinctive inclinations, unveiling the transformative potential of AI in the realm of creativity.

Examples from AI-generated art

The interplay between AI and the arts is not recent, as history reveals an indirect but notable interaction between the two. One common avenue for integrating AI into artistic practice can be described as "repetition" or the recreation of historical artistic styles and forms. An illustrative case is *The Next Rembrandt* (2016), a 3D-printed painting crafted exclusively from data derived from Rembrandt's body of work. This remarkable piece emerged through applying deep learning algorithms and facial recognition techniques, involving 20 data scientists, developers, AI experts, and 3D printing specialists over 18 months of collaboration. The project began with an exhaustive analysis of Rembrandt's extensive collection, resulting in a database exceeding 150GB. Neural network algorithms enhance painting resolution and image quality, mainly restoring damaged artworks. Another noteworthy example involves the reimagining of portrait styles through algorithms. In late 2018, Christie's auction house made history by selling *Edmond de Belamy*, the first AI-generated portrait, created by the artist collective "Obvious," which sparked considerable controversy as it fetched an astounding \$432,500 at auction (Epstein *et al.* 2020, 1). This artwork, generated using General Adversarial Networks (GANs), brought on debates about authorship and the role of AI in the creative process. While the algorithm autonomously

generated the final image, the initial input and design choices were guided by human artists. The intersection between human intent and AI autonomy in the creation of *Edmond de Belamy* exemplifies the delicate balance artists must strike when integrating AI into their practice. Subsequently, with the advent of programs like *Midjourney* and *DALL·E 2*, these techniques have become increasingly accessible to a broader audience.

AI's influence extends beyond visual arts and permeates the realm of music. From probabilistic to rule-based approaches in computer music in the 1960s and 1970s to AI-driven harmonization techniques, AI has left its mark on musical composition (López de Mántaras 2017, 104-116). In 2016, Sony researchers harnessed Flow Machines Software to analyze a global database of over 13,000 lead sheets from various music genres, ultimately autonomously composing a pop song titled *Daddy's Car*. Furthermore, AI's presence extends into the realm of contemporary art through the embodiment of robotic artists. Aidan Meller, a curator from England, collaborated with engineers at Engineered Arts to create the world's first "AI ultra-realistic robot artist," AI-DA. This humanoid artist, equipped with a microchip in her eye and a pencil in her hand, creates art through sight and actively engages in performance art, interacting with audiences during exhibitions.

In addition to such "autonomous" productions (McCormack *et al.* 2019, 5-7), where human creators often tend to take a backseat, there is a spectrum of artworks produced and performed through direct cooperation and co-creation with AI. For instance, on November 22, 2017, renowned dancer Kaiji Moriyama captivated audiences by playing the piano without touching its keys. He achieved this feat by dancing across the stage with sensors that translated his movements into piano sounds. Susie Fu's *Artist and Machine* series, from 2018 to 2020, provides another example of the collaborative relationship between artist and machine. In this performance series, Fu and a machine draw alongside each other, with machine learning to draw like the artist and striving to improve after each performance.

Legitimacy Problem of the AI-generated Art

These examples underscore the multifaceted ways AI has integrated into art, spanning various forms, degrees, and functions of applications, integration, or cooperation with artists. Whether through algorithms, GANs, or intricate humanoid robots like AI-DA, AI seems poised to become a substantial part of artistic production rather than merely serving as a tool or instrument. Moreover, they posit that artists successfully interacting with AI demarcates the

lines between the traditional roles of creator and creation. Therefore, the central question regarding the legitimacy of AI-generated art as art requires investigation: Can AI-generated or AI-assisted works genuinely be considered art, and how do we decipher the aesthetic contributions of a non-human element, AI, in creating a vast array of artworks?

This debate surrounding the legitimacy of AI art as art revolves around several key issues. Firstly, there is a historical challenge: when has the incorporation of AI into the arts historically become problematic? The trajectory from rudimentary forms of computational creativity in the 1950s, with limited self-creation capabilities that posed no threat to the arts, to modern image-generation programs based on GANs complicates the determination of the beginning of AI's legitimacy in the arts. Secondly, the authorship question is intricately tied to the legitimacy of AI art. In AI-generated art, where a substantial portion of the work is generated by AI techniques, surpassing the artist's intent and vision, authorship becomes ambiguous. Who should be credited as the author—the algorithm, the artist, both in collaboration, or others such as program developers (Epstein *et al.* 2020, 1-10)? Lastly, the third issue pertains to pessimism regarding the future of the arts. Does AI positively impact the arts, enhancing aesthetic creativity, or does its omnipresence in the artistic sphere inevitably lead to a loss of aesthetic agency and the potential decline of traditional artistic practices? These questions form the crux of the ongoing discourse, challenging our understanding of AI's role in shaping the future of artistic expression.

The answers to these questions fundamentally hinge on one's foundational understanding of art and its principles. Subsequently, this debate has cleaved the discourse on aesthetics into two opposing camps. Proponents of AI art staunchly affirm the validity of aesthetically valuable compositions produced through computational creativity (López de Mántaras 2020; Mazzone *et al.* 2019). They contend that AI-generated art possesses genuine artistic value and can be considered a legitimate form of art (López de Mántaras 2020, 101). Proponents highlight the unique ways AI algorithms generate novel patterns, styles, and compositions, challenging traditional notions of art.

In contrast, critics of AI art cast doubt on the possibility of creating valuable artworks solely through algorithms or computer programming (Mersch 2020; Stephensen 2022). They express concerns about the implications of AI for human creativity, the essence of art, and the art world's future. Critics argue that AI lacks a genuine understanding of the human condition and that its creations are mere imitations or repetitions of existing styles, devoid of true innovation or personal expression (Mersch 2019, 65).

Computational Creativity and Production-based Legitimation of AI Art

This essay posits that the debates surrounding the legitimacy of AI-generated art arise from a lack of consensus in the aesthetic discourse regarding fundamental concepts such as creativity, novelty, and human agency, particularly with AI-generated art. Advocates for AI art celebrate its computational creativity, challenging the notion that creativity exclusively resides in the human, non-artificial, and natural realms. Computational creativity, centered around replicating human creativity in AI, aims to generate new and original ideas, challenging the belief that creativity is confined to human and non-artificial domains (Arielli *et al.* 2022, 4-9). This perspective suggests the co-existence and interchangeability of these forms of creativity, especially in artistic creation, asserting that AI-generated art holds genuine artistic value and qualifies as a legitimate art form. However, this paper argues that the central issues revolve around conceptual misunderstandings about creativity, novelty, and assumptions about the nature of art. While nuanced perspectives exist, recognizing both the potential and limitations of AI art compared to human-created art, the problem lies in the unfounded division of creativity into natural and artificial categories (Zylinska 2020, 23-27). Consequently, AI-generated art is evaluated based on its creative prowess, regardless of whether it emanates from human or machine sources.

The assessment of AI-generated art based solely on its creative merits raises a crucial question: should creativity alone serve as the exclusive criterion for determining authentic artistic practice? The essay proposes that, while undeniably crucial, creativity should not stand as the sole determinant of genuine artistic practice. As AI art evolves, generating new forms of expression, the discourse on its legitimacy remains dynamic within the broader context of aesthetics and art theory. To address questions of legitimacy, one should rethink and reevaluate fundamental concepts within the discourse on emerging AI aesthetics, particularly emphasizing the need for a clear definition of “aesthetic creativity” (in contrast to computational creativity) that enables AI applications to enrich aesthetics and human experiences. The critical inquiry into the role of different uses and functions of creativity challenges, at the same time, the presupposition that the definition of art aligns with “novelty,” and it explores the interconnected assumptions surrounding computational creativity in the arts (Elgammal, 2019). While moments of the unknown, unpredictability, and novelty are valued in contemporary aesthetics, not every entirely new, unknown, or unpredictable production can automatically be recognized as art.

Understanding the Medium of AI Art

When the preceding discourse highlights the term “creativity,” it tends to focus on the production facet of algorithmic aesthetic application when evaluating the legitimacy of AI art. Consequently, the discourse on AI art often neglects the broader social, cultural, historical, and contemporary (digital) context within which AI operates. Contrary to this production-centric viewpoint, this essay asserts that no form of art, including AI art, exists in isolation from human intervention and participation. On one side, aligning with proponents of AI art, it is crucial to recognize AI as a novel and potentially valuable medium for the arts when applied judiciously. AI transcends its role as a mere tool, offering unique qualities absent in traditional artistic media. The autonomous nature of AI mechanisms opens avenues for new dialogues and enriches the creative process in aesthetic practices. For example, Anna Ridler’s *Bloemenveiling* (2019) stands as a testament to the potential of AI art as a collaborative practice between artists and algorithms, showcasing the significant role GAN models play in artistic expression.

Conversely, in alignment with concerns expressed by critics of AI art, it should be stressed that not every AI-generated artifact automatically constitutes valuable or novel artistic practice (Boden 2011, 164-174). The legitimacy of AI art extends beyond the computational production processes of AI mediums; instead, it encompasses fundamental aspects of human beings such as intention, reception, and reflection. This nuanced perspective recognizes that while AI can enhance creativity within the production process, not all AI-generated artifacts can be automatically deemed valuable or novel artistic practice because their legitimation as art requires the medial relation between the processes of production and perception.

Even in its most productive use as a medium, AI and AI-generated art cannot disassociate the realm of human intervention and participation. The blurred boundary between artificial and non-artificial intelligence implies a seamless connection between the medium of AI and ourselves. The co-existence of production and perception is a prerequisite for social, epistemic, and aesthetic practices. In this context, Böhme and Matussek define aesthetic practice by referring to the Aristotelian concept of “*metaxy*” (Böhme *et al.* 2008, 98-101). *Metaxy* means a specific practice that can only exist as “co-existence” (German: *Ineins-werden*; becoming one and the same) and implies simultaneous production and perception. In other words, the produced works or events, on the one hand, and the subjects experiencing them

aesthetically, on the other hand, do not merely exist for themselves. Instead, a particular artistic practice presupposes the co-existence of the experienced object and the subject who experiences. Because in a particular artistic practice, the production and reception processes are based on their mutual mediation, with none having priority. Finally, artistic practices have their reality only in their mediality.

This basic notion of mediality can be extended with a technology-philosophical approach, as articulated by Hubig (2006, 13), and shed light on the role of AI as a medium in producing art. According to this approach, technology unites human self-world relations with the non-technical world through its medial nature (Hubig 2006, 15). Hubig argues that technology is not merely a human invention; it constitutes individual relationships and even extends to relationships with extra-human life. The concept of mediality, as presented in this approach, is mathematically innumerable and plural, relying not only on diverse uses of materials or media but also on the technical possibilities realized through human practices' open, unbounded structure. Hubig (2006, 148) describes mediality as creating open spaces of possibility, structured to make something possible depending on initial conditions, excluding the impossible both outside and as an alternative option in the interior. In this framework, individual media, algorithms, and codes create open spaces of possibility where fundamental self-references and world references of people are newly established. This concept of mediality lays the foundation for understanding how AI operates as a new medium for art, introducing new possibilities for expression and understanding.

Building upon this, a performative approach to media and mediality, drawing from the works of Sybille Krämer, aids in comprehending AI's role as a novel medium in art. This approach foregrounds the simultaneity of mediation and creation, asserting that the mediated, especially in art, is generated through the act of mediation itself (Krämer 2004, 13-32). It implies that the function of the medium goes beyond making objects perceptible; instead, it involves the actual generation of those objects. Krämer's performative approach to mediality aligns closely with the theory of generative art, but with a crucial distinction: creation in this approach inherently depends on primary human conditions like perception, social interaction, and active participation. Krämer (2004, 13) notes the commonality of performativity and mediality in conveying something while simultaneously creating the mediated. Mediation is not a mere transference practice of given codes or values; what is transmitted or mediated gains existence and specific properties through the medial production itself. Therefore, a performative ap-

proach to AI medium, which accentuates the interplay of the fundamental role of mediality for artistic content's generation and reception processes, assumes a significant role in AI-generated art.

The Role of Human Agency in AI-generated Art

In light of the performative approach to mediality, the active role of human agency in engaging with AI mediums becomes evident. While AI systems demonstrate the capacity to generate aesthetically appealing content autonomously, the indispensable role of human agency in shaping, guiding, and contextualizing the output is paramount. Human involvement in AI-generated art is as significant as in traditional art without AI techniques. This engagement spans the entirety of the artistic process, from the pre-creation phase to the social contextualization of artworks.

In the pre-creation phase, humans are pivotal in selecting and training datasets, whether they comprise images, texts, or other forms of input. The second phase involves dynamic feedback loops, where artists and curators engage in an ongoing dialogue with the AI-generated outputs. This continuous exchange prompts evaluation, modification, and refinement of the input, fostering an iterative and collaborative creative process. The third phase extends to the individual reception, critiques, and social contextualization of AI-generated works. Human agency steps into the spotlight, presenting and contextualizing artworks within the broader art world, galleries, or online platforms, thereby imbuing the creations with continuous interpretation and significance.

In essence, while AI can autonomously produce compelling sounds, images, texts, and forms, the legitimacy and recognition of these outputs as artworks depend on the active participation of human agency throughout various stages of the artistic process. Artists, developers, and curators serve as guides, infusing AI-generated art with meaning and providing the context for understanding and appreciation within the expansive realms of culture and art. Simultaneously, the recipient's role in interpreting and engaging with these creations becomes integral to the ongoing dialogue that shapes the evolving landscape of AI-infused artistic expression.

Beyond the described process of AI-generated art lies a compelling reality: the art world cannot afford to disregard the profound changes instigated by the implementation of AI in the human realm. Instead of turning away, art assumes a critical responsibility—to actively contemplate and prompt reflection upon the profound social, economic, and political shifts brought

about by the medium it engages with AI. This reflection involves acknowledging and actively embracing and dissecting the AI medium's implications that trigger these shifts (Papagiannis 2017, 136). The challenges posed by AI in the arts become not just creative obstacles but avenues for the continual expansion of human understanding of evolving relationships with the world.

In this dynamic landscape, the role of artists in reflecting upon the social, economic, and political shifts driven by AI becomes inherently demanding. It extends beyond the aesthetic sphere, urging artists to delve into the complexities of these changes and illuminate the nuances through their creative work. The intervention of AI in the arts contributes not only to the expansion of artistic boundaries but, conversely, compels artists to challenge the limits of computational thinking and creation within the context of artistic expression. This reciprocal relationship between AI and artists becomes a dynamic force, shaping technological and artistic evolution trajectories.

New Possibilities by AI-generated Art

In recognizing the vital role of human agency throughout the AI-generated art process, it is essential to understand that this evolving form of artistic expression is far from devoid of uniqueness or innovation. On the contrary, it introduces novel possibilities, enhancing established styles and forms. As previously highlighted, it contributes to reevaluating traditional aesthetic concepts such as creativity, novelty, authorship, and self-reflection.

For instance, the moments of indeterminacy, contingency, and unpredictability inherent in AI-generated art align seamlessly with the characteristics of contemporary art practices. When AI techniques like machine learning or GANs become creative collaborators for individual artists or artist collectives—a predominant trend in art since the 1960s—the interplay with the uncertainty and contingency of the arts can undergo significant improvement and unique establishment or reconstruction. The term “generative art” has played a pivotal role in contemporary art and aesthetics discussions, defining it as the autonomous creation of a unique work of art that requires continual active participation from the creator, visitors, or audience.

The unpredictability introduced by AI in the creative process contributes to the novelty of AI-generated artworks. In contrast to traditional mediums, where artists maintain a high degree of control, AI introduces an element of chance and unpredictability. This element of surprise, exemplified in the works of artists like Memo Akten exploring neural abstraction, challenges

preconceived notions of artistic predictability. AI's capacity to produce unexpected and emergent patterns redefines creativity as a collaborative engagement with the unforeseen.

As a co-producer or co-actor in art, AI introduces indeterminacy and contingency, themes echoed in science fiction and popular culture. The prospect of self-reflecting machines remains a topic of exploration, emphasizing the interplay between AI and human influence in the realm of the arts. Despite uncertainties about AI's future in the arts, its challenges contribute to an expanded understanding of human relationships with the world.

Artists employing AI techniques often directly address concepts like "intelligence," "cognition," or self-reflection. Reflection becomes a central element in AI-generated artworks and many science fiction movies. For instance, hosts or so-called androids slowly gain self-awareness in the HBO series *Westworld* (2016), breaking free from their programmed stories. Similarly, in *Free Guy* (2021), a non-playable character named Guy develops intelligence, gradually becoming the game's main character. The idea that a code or algorithm can break free from a predetermined loop and become self-reflective, essentially "free itself," captivates artists, spectators, and gamers.

While the possibility of wholly self-acting and self-reflecting machines is still debated, the content of computer programming, codes, or algorithms continues to be infused by human practice and work. As we teach AI to act more intelligently, it reflects new knowledge about ourselves, particularly in its application in the arts. The future of AI and its role in the arts might be unclear, but the challenges it poses to the arts coincide with the potential expansion of our knowledge about the evolving relationship with the world.

Conclusion

In conclusion, the discourse on AI-generated art underscores the need for a nuanced understanding that transcends binary categorizations. While AI augments aesthetic creativity, it cannot replace the essential human elements inherent in art. The inseparable role of human interaction, perception, and participation in AI practices positions them as specific practices contingent on conditions such as human engagement. Art remains a socio-cultural practice intricately woven with subjective factors, resisting easy substitution by algorithms. This dynamic relationship between AI and artists becomes a driving force, shaping both technological and artistic evolution.

By acknowledging the profound changes instigated by AI in the art world, artists assume a critical responsibility to contemplate and reflect upon the social, economic, and political shifts brought about by this medium. The reciprocal relationship between AI and artists becomes a dynamic force, challenging the limits of computational thinking and creation within artistic expression. Rather than turning away, the art world must actively embrace and dissect the implications of AI, as these challenges become avenues for the continual expansion of human understanding of evolving relationships with the world.

The essay advocates for reevaluating traditional aesthetic concepts, such as creativity, novelty, authorship, and self-reflection, within the context of AI-generated art. The unpredictability introduced by AI in the creative process contributes to the novelty of artworks, challenging preconceived notions of artistic predictability. Despite uncertainties about AI's future in the arts, its challenges contribute to an expanded understanding of human relationships with the world. Artists employing AI techniques address concepts directly, like intelligence, cognition, and self-reflection, emphasizing the interplay between AI and human influence in the arts.

In essence, the conclusion calls for an appreciation of the unique possibilities introduced by AI art, recognizing its potential to enrich aesthetic creativity while underscoring the irreplaceable role of human agency in shaping, guiding, and contextualizing the artistic process. As the art world grapples with the implications of AI, it is essential to foster a dynamic and collaborative relationship that harnesses the strengths of both AI and human creativity in the continual evolution of artistic expression.

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