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AI: An *Active* and *Innovative* Tool for Artistic Creation

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Abstract: This article aims to critically examine AI as both an active and innovative tool in artistic creation, investigating its evolving role in shaping artistic practices, expanding creative possibilities, and redefining the boundaries of human–machine collaboration. It traces the historical, conceptual, and technological integration of generative AI in art, particularly in relation to Modernism's challenge to traditional norms. It also examines the ethical, social, and philosophical implications of AI art, focusing on issues such as authorship, legitimacy, and AI's role in the cultural landscape. Through the analysis of two representative works—Refik Anadol's *Unsupervised* and Anna Ridler's *Mosaic Virus*—one mainstream and the other critically engaging with AI art's social impact, the study examines the balance between technical innovation and conceptual depth, emphasizing transparency, originality, and human-centered approaches. Employing an extended literature review across chapters, the discussion synthesizes diverse sources to critically engage with ongoing debates. Ultimately, the article advocates for human–AI collaboration, emphasizing responsible integration to enhance creativity without losing the human essence of art. It offers highly valuable insights into the current debates surrounding AI in art and effectively guides the integration of AI into future creative practices.

Keywords: AI art; generative AI (GenAI); human–AI collaboration; artistic innovation; modernism; AI and creativity; ethical implications of AI art; social impact of AI art; transparency in AI art; Refik Anadol; Anna Ridler

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1. Introduction

While the roots of AI can be traced back to 1950 and the famous "Turing Test" (Bringsjord and Govindarajulu 2024; Oppy and Dowe 2021; Chu et al. 2022), with a development trajectory spanning three-quarters of a century marked by rises and declines, interest in AI surged again around 2015 due to technological advancements (Ciecko 2017). Bill Gates describes AI as the *Holy Grail* of computer science, highlighting machine learning (ML) as the key breakthrough that has propelled innovations, especially in speech and image recognition (Microsoft 2023).

According to Sheikh et al. (2023), AI has evolved through three major waves or "springs", separated by two "AI winters" caused by hardware limitations and unmet expectations. The first wave, starting in 1956 with the Dartmouth Project, focused on games, robotics, and problem-solving; the second wave in the 1980s introduced expert systems and the first commercial AI applications; and the third wave, beginning in the 1990s, gained momentum with advances in ML, deep learning (DL), and increased computing power and data, driving today's AI progress (Sheikh et al. 2023).

Now ubiquitous across nearly every industry, AI represents the pinnacle of technological achievement, transforming sectors such as healthcare, education, economics, and

culture (Xu et al. 2023; Cao et al. 2024; Zohuri and Mossavar-Rahmani 2024). A key driver of this transformation is generative AI (GenAI), fueled by advancements in ML, which is boosting productivity and unlocking trillions of dollars in economic potential (McKinsey and Company 2023).

GenAI is revolutionizing content creation by enabling machines to generate human-like text, images, and media, having a significant societal impact (Cao et al. 2023; Zohuri and Mossavar-Rahmani 2024). It includes both unimodal interaction (single mode, e.g., text or image) and multimodal interaction (multiple modes, e.g., text-to-image or speech-to-text), expanding AI's capabilities across fields ranging from scientific discovery to artistic expression (Cao et al. 2023).

In a more technical definition, GenAI encompasses ML systems that employ models in which the output space either partially or entirely overlaps with the input space during training, although this overlap might not always occur during inference (Jiang et al. 2023).

Nowadays, AI technologies like ChatGPT and Google Gemini appear to have transformed daily life, revolutionizing communication, decision-making, and data processing (Styx 2024). ChatGPT, a prime example of GenAI, is recognized as the fastest-growing app ever, reaching 100 million active users in less than two months after its launch (Thorp 2023; Xu et al. 2023).

In the art domain, AI-powered image generation employs algorithms trained on large datasets to create original artworks. Platforms like OpenAI's DALL-E series, Stability.ai's DreamStudio, and Google's Imagen enable faster, higher-quality image creation with improved text-to-image alignment (Cao et al. 2023). While debates continue over whether such outputs qualify as true art, they are widely used to produce art-like works and support the creative process (Lovato et al. 2024).

The article analyzes the use of AI in artistic creation, exploring its broader correlations and impact on art and society. It examines the concept and delimitation of AI art, tracing its historical, conceptual, and morphological integration within the broader context of art history (Sections 2 and 3), its evolutionand role in today's art market (Section 4), its adoption by contemporary artists (Section 5), and its perception by both the public and artists themselves (Section 6). Additionally, the research addresses the ethical, social, and philosophical challenges posed by the coexistence of humans and machines as creators or co-creators (Sections 7 and 8), while emphasizing the importance of embracing AI to enhance human creativity (Section 9). The Discussion chapter (Section 10) analyzes the literature review findings in relation to the research questions within a broader social and philosophical theoretical framework and advocates for a model of collaborative coexistence between technology and human creativity grounded in a human-centered approach. Finally, the Conclusions (Section 12) summarizes the key insights.

The study advocates for the integration of AI into art and creativity, emphasizing the potential of human–AI synergy to democratize artistic expression and provide artists with active and innovative tools to explore new creative frontiers for the benefit of humanity. By investigating AI art's concept, origins, and evolution within a broader cultural and historical context, it seeks to support both researchers and artists in understanding the dynamic interplay between AI and artistic creation while contributing to the ongoing discourse about AI's role in culture and daily life.

2. Defining AI Art

Definitions of "non-biological intelligence" systems (Tegmark 2017) in the 21st century evolve and specialize, with AI being defined across a broad spectrum, ranging from mimicking and enhancing human capabilities (Russell and Norvig 2009) to achieving

specific goals through environmental analysis and some degree of autonomous action (HLEG 2019; Sheikh et al. 2023).

This distinction dovetails with the difference between "AI arts" and "computer arts", where AI arts demonstrate greater autonomy in creation, producing novel and unpredictable forms that exceed human cognition and structures while still requiring human curation (Manovich 2019). Maintaining this distinction, AI art, like computer art, is a form of digital art in which computer-based technology is used to encode, store, and process data such as text, numbers, images, or sounds in binary code, enabling the creation of artworks (Thomson-Jones and Moser 2024). More specifically, as a key component of AI-Generated Content (AIGC) (Cao et al. 2023), AI art refers to any art created or enhanced with AI tools (Christie's 2025). These tools rely on algorithms and mathematical models—such as ML, neural networks, and generative adversarial networks—trained on large datasets to generate new visual, auditory, or textual content (Cichocka 2022; Coursera 2025).

From an aesthetic and theoretical perspective and according to Elgammal (2019), AI-generated art could be considered a form of conceptual art, where the creative process and collaboration between the machine and artist hold more significance than the final product itself. Finally, in a more critically driven and ethically charged definition, AI generative art involves artists surrendering creative control to autonomous systems or machines, enabling them to contribute to or fully produce a work (Galanter 2019). This raises important discussions about authorship, intent, uniqueness, and creativity while challenging traditional notions of the artist's role and the very nature of art in the digital age.

3. From Modernism to GenAI

To provide a deeper morphological, conceptual, and historical understanding of contemporary avant-garde AI art, it is useful to draw parallels with the Modernist avant-garde, a connection frequently cited as an important analytical tool (Manovich 1999, 2024; Kuspit 2005; Dixon 2007). By revisiting the origins of Modernist art, we uncover how the technological, scientific, and social upheavals of the time influenced the formal language of early 20th-century art.

Specifically, in the early 20th century, the advent of airplane flights coupled with the speed of modern travel provided a sense of liberation from gravity, offering new aerial perspectives that altered human perception of space and distance (Mousseinge 2003). Similarly, Einstein's theory of relativity, which challenged traditional Euclidean geometry, introduced the concept that mass and energy shape time, revealing that human senses could only perceive a projection of reality, not its true form (Einstein 1916; Greene 2024). Together, these innovations in technology and science shocked artists, pushing them to find a new artistic language to capture the complexity of this new, multi-dimensional world.

Indeed, as the world's structure and our sense of reality were redefined, artists, attuned to social change, developed a new artistic language to abstractly represent movement and space, which gradually permeated modernist art. The painted surface was radically transformed, with time infiltrating depictions of the three-dimensional world in movements like Futurism, Delaunay's simultaneity, and Picasso's Cubism, who, according to Apollinaire's penetrating and poetic gaze, authentically and almost intuitively interpreted the elusive concept of the fourth dimension, contrasting logic with imagination and offering an aesthetic equivalent to the "upheavals of modernity" (Genova 2003).

Similarly, Russian avant-garde artists pioneered artistic expression, from Klutsis' Constructivist works like *Dynamic City* depicting the fourth dimension and hypercube (Gabner and Nachtigaller 1991), to the space-constructed paintings and sculptures of Popova, Rodchenko, and Gabo (Mousseinge 2003), and Malevich's liberated geometric

shapes and non-objective suprematism, conveying the sense of the infinite and ineffable (Mousseinge 2003; Nakov 2003).

In general, 20th-century avant-garde artists integrated contemporary science and technology with their artistic vision, transforming them into raw material, from Chaplin's mechanical interpretation of human movement and works like Depero's *Plastic Ballet* and Schlemmer's *Triadic Ballet* to the transcendence of painting through Duchamp's ready-mades, all responding to the era's fascination with technology and mechanization (Paz 2000; Debray 2003).

Undoubtedly, beyond the other upheavals of modernism, the incorporation of machinery into art in movements like Russian Futurism and Constructivism was also rooted in a Marxist-inspired revolutionary ideology, aiming to resolve social contradictions between technological progress and the harsh living conditions of the masses (Koloogani and Ghazvini 2017). However, their formal break with tradition can also be traced to the radical aesthetic climate of the pre-revolutionary art collections in which they were nurtured (Avlonitou 2018).

In any case, through the fermentations and peculiarities of artistic expression, modernist art succeeded in marking historical development, paving the way for the transition from traditional analog art to postmodern digital art, where the image becomes secondary to the code that structures it, and code, rather than image, drives creativity, foreshadowing the era of digital representation (Kuspit 2005). Art theorists like Kuspit, Dixon, and Manovich highlight key similarities between Modernism and GenAI, tracing the roots of today's GenAI art to the 1990s new media, marking a period when the technological shift toward computers and evolving social and economic conditions led, for the first time after Modernism and nearly a century later, to the need for the invention of a radically new artistic language (Manovich 1999).

Dixon (2007) sees the 1990s digital revolution as transferring elements of alogicality, photodynamics, virtual action, and the mechanistic aesthetics of Futurism and other early 20th-century movements while also identifying the danger of mythologizing technology at the expense of artistic vision and content.

Manovich argues that postmodern bricolage and 1990s digital art revive 20th-century avant-garde practices like collage, photomontage, unorthodox viewpoints, and ready-made elements from experimental cinema, and, stripped of their political rhetoric and repurposed for capitalism, these practices reframe the principles of digital culture (Manovich 1999, 2024).

In this new avant-garde of postmodernism, it is characteristic that the focus shifts not toward the creation of radically new forms but rather the reshaping and analysis of accumulated cultural data, as the emphasis moves from creating new content to managing, analyzing, and reassembling what already exists (Manovich 1999). Kuspit (2005) also finds that through the work of digital artists such as Somoroff and Nechvatal, a profound shift in creativity is evident, with the process itself becoming explicitly visible and more intellectually driven than ever before, pushing artistic boundaries in ways that were previously unimaginable, expanding the horizon of creativity, and enabling the creation of a new kind of Gesamtkunstwerk.

Although a morphological view of contemporary AI art within the context of a timeless artistic dialogue is valuable, equally important is its socio-political understanding as part of broader social transformations in today's digital age. Indeed, since the advent of the internet in 1989, accelerated by Web 2.0 and smartphones, a dominant digital culture has emerged, driving human activity, reshaping existence, thought, and communication, and merging everything into a unified "Infosphere", effectively re-ontologizing our world (Black 2018; Bowen and Giannini 2019; Simone et al. 2021). As we seem to be witnessing

the beginning of the Fourth Industrial Revolution, groundbreaking advancements in AI and biotechnology are reshaping society and the global economy, unlocking previously unimaginable solutions while also highlighting challenges such as inadequate leadership, governance, and access, particularly in developing countries (Schwab 2016). These innovations exacerbate inequality, disproportionately benefit tech companies, and redefine human identity, ethics, and morality, prompting a reevaluation of work and life planning (ibid.).

The realization that our lives and art are entering a new industrial revolution, with parallels to historical turning points, is striking. Already in 1985, Moor described the computer revolution as driven by the logical malleability of computers—their ability to perform any task through inputs, outputs, and logical operations—likening them to the steam engine of the Industrial Revolution. He predicted that as computers permeated industries like finance and education, society would shift from performing tasks to instructing computers, prompting a reevaluation of traditional values and redefining work and human interaction (Moor 1985).

AI art itself is often compared to a new Industrial Revolution, transforming the art world by shifting the focus from traditional craftsmanship to machine-driven creation, influencing society's views on the value of individual creators, democratizing art creation for a broader range of people, including those with physical or neurological disabilities, but also challenging the nature of authorship and artistic legitimacy, contributing to carbon emissions, and reflecting biases that could be exploited for political agendas (Newton and Dhole 2023).

4. Historical Evolution and Impact on the Art Market

The history of GenArt traces back to algorithmically derived art, pioneered by early artists like Roman Verostko and Frieder Nake in the 1960s (Chamberlain et al. 2017; Notaro 2020), initially driven by scientific rather than aesthetic interests (Kuspit 2005). Researchers outline the evolution of AI art in three phases: the first in the 1970s, the second in the 1990s with more advanced AI tools, and the third from the 2000s onwards, with the use of tools like natural language processing (NLP) and computer vision (CV) algorithms (Grba 2022; Cetinic and She 2021; Vyas 2022). Similarly, image generation models have evolved in sophistication, from early texture synthesis to advanced methods like Convolutional Neural Networks (CNNs), followed by Generative Adversarial Networks (GANs) and today's diffusion models, all relying on neural networks and large datasets to generate high-quality images (Jiang et al. 2023; Maerten and Soydaner 2023). More specifically, by the early 2020s, significantly advanced ML-based image generators were able to produce high-quality images from natural language prompts (Ramesh et al. 2021; Jiang et al. 2023). A catalyst in this advancement was the development of diffusion probabilistic models from 2020 onwards, which enabled the creation of exceptionally realistic images with impressive quality and detail through the reverse diffusion process (Ho et al. 2020). Since 2021, multimodal GenAI systems like DALL-E, Midjourney, and Stable Diffusion have quickly gained popularity, while tools like Adobe Firefly, NightCafe, and Jasper Art are still gaining momentum driving rapid growth in both commercial and non-commercial image generation tools and revolutionizing the GenAI industry within just a few years (Jiang et al. 2023; Maerten and Soydaner 2023; Coursera 2025).

Indeed, today, several GenAI tools for text-to-image synthesis, each offering diverse functionality and design, cater to a wide range of artistic goals. The most prominent among them, DALL-E, Midjourney, and Stable Diffusion, are powerful AI platforms capable of both generating and editing images. They support techniques such as "inpainting", which allows users to selectively modify regions of an image by introducing new content based on detailed text prompts (Shead 2021; Marcus et al. 2022; Midjourney 2022;

OpenAI 2025; Stability AI 2025). These tools provide varying levels of control, customization, and output quality, with DALL-E producing the most "human-like" images, followed by Midjourney and Stable Diffusion. Correspondingly, the latter is the most affordable, with more expensive AI tools yielding better image quality (Bhullar 2024).

While these platforms streamline and democratize image creation, they are not without limitations. They can produce errors and often struggle with complex compositions. More significantly, their lack of technical transparency raises ethical and legal concerns (Vincent 2022; Edwards 2023; Robertson 2024; Wiggers 2025). For these reasons, Google's Imagen—celebrated for its exceptional photorealism and superior performance (Cao et al. 2023)—remains unavailable to the public. Despite its ability to produce remarkably high-quality visuals, it is confined to research settings due to concerns over ethical risks and potential misuse (Google Research 2022; Saharia et al. 2022).

Moreover, while GenAI tools simplify the creative process by enabling users to produce images from text prompts, they often exhibit unpredictable behavior and limited alignment with artistic intent. This has led to proposals for new AI-powered systems that integrate multiple input modalities—such as visual sketches or mood boards—to enable more effective guidance and enhance creative control (Chung 2023). In reality, AI art gained significant momentum after Ian Goodfellow introduced GANs in 2014, with its cultural impact rising in 2018 when *Portrait of Edmond de Belamy*, an AI-generated artwork created with this technology and attributed to the algorithms, sold at Christie's for $432,500. This sale brought AI art into the mainstream, highlighting its growing market value and cultural acceptance (Notaro 2020; Cetinic and She 2021; Maerten and Soydaner 2023) [Figure 1].



Figure 1. *Portrait of Edmond de Belamy*. Source: https://commons.wikimedia.org/wiki/File:Edmond_de_Belamy.png (public domain) (accessed on 24 April 2025).

The significance of the sale lay not only in the medium but also in the narrative surrounding it, which underscores how AI's role is instrumentalized within the creative industries. This narrative emphasizes AI's value within social, economic, and ideological contexts, where commodification and framing often overshadow intrinsic artistic merit (Stephensen 2019).

In reality, the anthropomorphic language employed by art institutions and the press blurred the boundaries between machine and human creativity, significantly boosting the artwork's perceived value and legitimacy. By portraying the AI as an independent creator with human-like agency, the narrative sparked public imagination, elevating the piece beyond a mere machine product. This generated greater hype, leading to the artwork's shocking auction price far exceeding its initial estimate (Epstein et al. 2020).

Indeed, the attribution of artistic identity to AI algorithms in this case appears to be a market-driven strategy, while, despite Christie's promotional claims, this was not the first AI artwork ever sold—Harold Cohen's AI art from the 1960s long predates it, though his works rarely reached 1% of that price (Browne 2021; Cetinic and She 2021). Scholars like Browne (2021) critique the commercialization of AI art and the portrayal of AI tools like GANs as creators, arguing that while works like *Portrait of Edmond Belamy* reinforce conservative aesthetics instead of promoting new creative possibilities, true innovation is often obscured by market demands.

In the same direction, while contemporary art practices highlight the tension between innovation and commercial pressures, exhibitions and public presentations often prioritize the promotional aspects of AI art, rather than delving into its deeper social implications for creativity and human identity. Thus, the Unsecured Futures 2019 exhibition, featuring Ai-Da, the hyper-realistic humanoid robot artist, while provoking critical reflection on the intersection of AI and creativity, was criticized for its reliance on media hype, which overshadowed deeper explorations of the technical aspects of AI-generated art and the broader questions about technology's role in artistic creation (Ambrosio 2019).

This may amplify the fear and concern surrounding the forceful spread and sometimes superficial approach to new art as well as the perceived ease with which it can be created. Thus, Jason M. Allen's 2022 Colorado State Fair win with an AI-generated piece, produced using Midjourney's hyper-realistic image synthesis from text prompts, raised significant concerns about job displacement and the ethical implications of AI tools in artistic creation (Roose 2022). It sparked debates over plagiarism, creativity, and the role of AI in art, despite Allen using Midjourney over 800 times and repeatedly testing the system to achieve satisfactory results (Xu et al. 2023) [Figure 2].



Figure 2. *Théâtre D'opéra Spatial* created by Jason M. Allen using AI program Midjourney. Source: https://commons.wikimedia.org/wiki/File:Th%C3%A9%C3%A2tre_D%E2%80%99op%C3%A9ra_Spatial.jpg?uselang=en#Licensing (public domain) (accessed on 23 April 2025).

Amidst the digital age, AI is increasingly creating convincing artistic expressions, significantly influencing the art market. Combined with the rise of crypto art and blockchain technologies, this is reshaping the art ecosystem by transforming authenticity, ownership, and transactions (Cetinic and She 2021). As official validation by major institutions becomes more important than the intrinsic value of the artwork itself, the contemporary art market is shifting. Consequently, the audience often reacts superficially rather than experiencing

a genuine aesthetic response, diminishing the role of aesthetics and promoting art as a context for social interaction (Lyubchenko 2022).

This raises concerns, particularly as technologically advanced art is often associated with the artist-engineer of Silicon Valley, who embodies the visionary genius of the modern avant-garde while also being linked to the dominance of major tech companies and innovations with potentially uncertain societal impacts (Olszewska 2020).

5. Two Examples of AI Art

We will explore two examples of contemporary AI art: one widely recognized for its aesthetic impact on mainstream art and another, lesser-known, that uses AI to enhance creativity and explore new forms while addressing social and cultural issues. The first is Refik Anadol's *Unsupervised*, exhibited at MoMA in 2022, and the second is Anna Ridler's *Mosaic Virus* series, showcased at major international institutions, starting with the Barbican Centre in London in 2019 (MoMA 2022; Ridler 2019).

Refik Anadol is a leading figure in mainstream AI art. His studio, Refik Anadol Studio (RAS), is known for transforming vast datasets into immersive visual and sensory experiences that blend the physical and digital realms while conducting research since 2016 to explore novel ways of perceiving and representing environments. By utilizing ML algorithms and AI, often enhanced with fluid simulation models, real-time environmental data, and blockchain technology, Anadol creates innovative works that push the boundaries of art (Anadol 2022; Anadol and Kivrak 2023).

Indicative works by Refik Anadol include *Walt Disney Concert Hall Dreams*, where his studio used 45 terabytes of data from the LA Philharmonic's archives to create dynamic projections on the concert hall's exterior, and *Beethoven: Missa Solemnis 2.0*, which combined classical music and architecture by training AI on 12 million images of buildings Beethoven may have encountered. Furthermore, in *Living Architecture (Casa Batlló)*, RAS transformed Gaudí's archives into real-time NFT projections that responded to Barcelona's environmental data, which were sold for $1.38 million at Christie's in 2022 (Anadol and Kivrak 2023).

Anadol's *Unsupervised* at MoMA emerged from training and interpreting an advanced ML model on publicly available data from the museum's collection, generating new forms that could theoretically exist within the archive but do not (MoMA 2022). This dynamic, non-repetitive digital artwork, created with the "most advanced GenAI algorithms in the world" and offering, according to the artist, an opportunity for meditation on new modes of perception, was presented in MoMA's lobby in November 2022, captivating the art world, igniting discussion, and marking a milestone in art history (MoMA 2022) [Figure 3].

Indeed, a study on the neural and emotional effects of engaging with *Unsupervised* at MoMA—in which the artist himself also participated—found that engaging with the artwork induced aesthetic pleasure, improved well-being, and altered electroencephalographic (EEG) activity, highlighting AI art's potential to boost mood and support mental health therapies (Blanco et al. 2024, preprint).

Anadol's "AI-generated ever-shifting abstractions derived from the museum's archives" were described by contemporary media as both captivating and controversial, while criticism rooted in the enduring skepticism toward machine-assisted art was likened to the early dismissal of color photography as merely commercial—until MoMA legitimized it with a 1976 exhibition (Scott 2023). However, a more challenging point of criticism arose as MoMA simultaneously promoted Anadol's *Unsupervised* through its curators while selling the series and earning commissions, highlighting a "melting of commercial and non-commercial boundaries" that is reshaping the art world (Davis 2023; Giannini and Bowen 2023).



Figure 3. Installation view of Refik Anadol's *Unsupervised.* Photo: Robert Gerhardt. The Museum of Modern Art. Source: https://www.moma.org/magazine/articles/821. (Used under fair use for illustrative purposes) (accessed on 20 April 2025).

Despite the artist's popularity and success, Anadol's large-scale productions like *Unsupervised*, characterized by high budgets and inflated production values, are criticized for relying on advanced techniques and excessive presentation while lacking meaningful conceptual depth or critical engagement with issues like mass surveillance and environmental harm, as well as being superficially framed with anthropomorphic metaphors of machines dreaming or hallucinating (Grba 2022). Moreover, its very morphological innovation received serious criticism for lacking originality, with critics interpreting the work as merely blending countless images in an AI blender or as a new high-tech formalism—"shallower and less historical than Barr's" (Davis 2023).

In contrast to this practice, academic research highlights artists who maintain a balance between human agency and AI in creative practices, enhancing human creativity while at the same time using their work to provide critical commentary on contemporary issues. A characteristic example often cited is that of Anna Ridler, who creates art with GANs by training the algorithms with her own data (Notaro 2020; Grba 2022; Jiang et al. 2023).

Anna Ridler is an artist who explores systems of knowledge through new technologies, aiming to better understand society and the world. Her *Myriad (Tulips)* explores the hidden layers of ML datasets by creating her own tulip collection, emphasizing the labor and subjectivity involved in categorization and dataset construction. By physically installing over 10,000 tulip photographs, she highlights the human effort behind ML while drawing attention to the inherent imperfections and biases within the process (Carey 2021).

Ridler's *Mosaic Virus* series explores the connections between 17th-century Tulip Mania and modern financial speculation, using AI-generated tulip images that change in response to Bitcoin's fluctuating price. As Bitcoin's value rises, tulip petals become more striped, mirroring the way viral infections once increased the desirability of tulips. In the 2018 and 2019 video installations, the tulips' evolving colors, shapes, and sizes reflect the instability of financial markets. The illegibility of the stripes questions the quantification

of nature, challenging the practice of assigning monetary value to the natural world (Ridler 2019; Sala Zero et al. 2024) [Figure 4].



Figure 4. Anna Ridler's *Mosaic Virus* (2019). Still from the 3-screen GAN-generated video installation. Source: annaridler.com (courtesy of the artist) (accessed on 24 April 2025).

The artwork examines the role of scarcity, speculation, and wealth-driven desire while referencing vanitas still-life paintings to comment on the fleeting nature of material wealth and the constructed idea of value. It critiques both financial bubbles and the AI hype cycle, emphasizing the role of human agency in shaping and contextualizing ML technologies (Ridler 2019; Sala Zero et al. 2024).

6. The Evolving Reception of AI-Generated Art: Bias and Challenges

As we navigate the age of AI, where its power is harnessed to create works that transcend analytical boundaries and venture into creativity, humans fear that their last bastion of uniqueness—creative freedom—is at risk (Hong and Curran 2019). Articles exploring the reception of AI art often use terms that reflect this anxiety, such as *Humans versus AI* (Bellaiche et al. 2023), *AI-generated vs. Human Artworks* (Ragot et al. 2020), *Artwork Produced by Humans* vs. *Artificial Intelligence* (Hong and Curran 2019), *Attitudes and Perceptions Toward Human Versus Artificial Intelligence Artworks* (Ting et al. 2023), and *Defending Humankind* (Millet et al. 2023).

The ability of AI-generated art to stand out from human-created works has been a subject of research and artistic debate since 1966. A notable early example is Michael Noll's experiment, which demonstrated that people could prefer a computer-generated drawing over one by a renowned artist—specifically, Mondrian (Noll 1966; Chamberlain et al. 2017; Manovich and Arielli 2024). Tests like the Turing Test and the Lovelace Test have been frequently used to assess AI's creative capabilities, yet the challenge of truly distinguishing AI art from human art remains unresolved (Boden 2004; Notaro 2020; Coeckelbergh 2017; Manovich and Arielli 2024).

Indeed, the reception of AI-generated art remains under scrutiny through various experiments, which examine its legitimacy and creativity as well as human bias, anthropomorphism, ethics, responsibility, and market influence.

More specifically, extending the Turing Test of whether an AI can fool a judge into thinking it is human, Hong and Curran (2019) examined how people perceive AI-created art and how biases influence its evaluation, using 288 participants from diverse backgrounds and a great variety of ages from 21 to 76 years, 162 males and 126 females, the majority being

Caucasian. They found that while AI art was rated lower than human art in composition, expression, and aesthetic value, knowing the artist's identity did not generally affect judgments—except for those with a preexisting belief that "AI cannot create art", who rated AI works significantly lower (ibid.).

Likewise, Ragot et al. (2020) conducted a large-scale and methodologically rigorous experiment with 565 participants to evaluate paintings created by humans or AI across four dimensions: liking, perceived beauty, novelty, and meaning. The results demonstrated a strong preference for human-created art, with AI-generated paintings receiving lower ratings, highlighting a negative bias toward AI in art perception driven by intergroup bias, technophobia, and anxiety toward machines (ibid.).

Bellaiche et al. (2023) further investigated the preference for human-created art over AI-created art in two studies (n = 149, n = 148), examining criteria like liking, beauty, profundity, worth, emotionality, effort, and time. Both studies found that human-labeled art was rated more favorably, especially for deeper meanings like profundity and worth, while AI art was appreciated more for its sensory aspects. Additionally, factors like narrativity, perceived effort, and individual attitudes toward AI influenced judgments, suggesting that as people become more familiar with AI, acceptance of AI art may increase (ibid.).

Similarly, Millet et al. (2023) conducted four experiments (N = 1708) to examine people's responses to AI-made art compared to human-made art, revealing a significant negative bias against AI art. This bias—rooted in the belief that creativity is uniquely human—causes people to perceive AI art as less creative and evoke less awe toward it, particularly among those with stronger anthropocentric creativity beliefs. The research also found that this bias affects not only emotional reactions (such as awe) but also purchasing decisions, with people less likely to prefer or buy AI art due to its perceived lack of creativity, which has important implications for the future acceptance and appreciation of AI-generated art (ibid.).

On the other hand, Chamberlain et al. (2017) found that while AI-generated art faced aesthetic bias, this prejudice was reversed when participants observed robots creating art, suggesting that interaction and anthropomorphism enhance appreciation but a full recognition of computational art remains a challenge . Remaining within the scope of anthropomorphism, Epstein et al. (2020) investigated how perceptions of AI's anthropomorphism affect the attribution of responsibility in AI-generated art. Participants in two consecutive experiments (115 in the first and 318 in the second) were exposed to AI art creation scenarios, with some perceiving the AI as a tool and others as an agent. The results showed that those who anthropomorphized the AI assigned more responsibility to it and less to the artist, with significant effects on how responsibility and credit were allocated to other involved parties like the technologist and curator (ibid.).

Encouraging a more supportive perspective toward AI-generated art, Ting et al. (2023) examined the views and acceptance of AI art among young people. Their study focused on paintings and literature created by the latest AI technologies, aiming to understand the advancements and capabilities of AI in the art domain. The research was conducted through an online questionnaire sent to 202 university undergraduates in Malaysia. The data collected explored their impressions, emotional responses, and judgments of AI-generated artworks as well as their exposure to and acceptance of AI technology, revealing a growing acceptance of AI-generated art but also highlighting areas where further understanding and openness are needed (ibid.).

In a similar vein, Xu et al. (2023) investigated factors influencing the user acceptance (as art) and usage of AI-based Painting Systems (AIBPS) through 568 questionnaires completed in 2022. They expanded the Technology Acceptance Model (TAM) into an Extended Technology Acceptance Model (ETAM) and found that Hedonic Motivation and Perceived

Trust positively affect Perceived Usefulness and Perceived Ease of Use, while Previous Experience and Technical Features showed no impact. Their results suggest that developers should focus on improving user satisfaction with AI-generated paintings to enhance user experience, increase adoption, and strengthen market competitiveness in AI technologies for art creation and design (ibid.).

The theme of robot-generated art, introduced by Chamberlain et al. (2017), was further explored by Mikalonyté and Kneer (2022) in two experiments (N = 693) with participants recruited online through the Amazon Mechanical Turk platform. They examined whether people consider robot-created works as art, whether they view robots as artists, and how intentionality influences artistic judgment and found that while people are generally willing to consider robot creations as art, they do not see robots as artists, with the key factor being the intention behind the creation. Additionally, while the role of intentionality in art creation is crucial, accidental creations without intention were sometimes still regarded as art, highlighting a complex relationship between folk concepts of art and artistic agency (ibid.).

Focusing on the AI and robot rights debate, Lima et al. (2021) conducted online experiments (N = 448) to explore how interacting with AI-generated art influences the perceived moral standing of its creator (the AI system), highlighting the need to examine how existing ethical frameworks could be adapted or extended due to the increasing reliance on nonsocial machines. The researchers found that the perceived lack of mind or labor in AI systems could negatively influence art evaluations, while the overvaluation of AI systems by others might negatively affect perceived agency. Nonetheless, interacting with this art does not notably influence perceptions of the AI's agency or moral standing (ibid.).

Finally, Messer (2024) explored through three experiments (N = 560) how collaborations between AI and human artists affect artwork evaluation, revealing that the disclosure of AI involvement at different creative stages influences perceptions of authenticity, creativity, and the artist's involvement. Research showed that audiences perceive AI-assisted art as less authentic and requiring less effort, leading to lower admiration for artists who disclose AI use—especially when AI is used in implementation rather than ideation (ibid.). However, according to the author, transparency about the artist's creative control, motives, and curated AI training can restore authenticity, with audiences being more accepting of AI use in commercial or low-art contexts than in high art. As AI-generated content becomes more widespread, artists may need to rely on traditional methods to differentiate themselves, while transparency in AI use remains a key ethical consideration for fairness and accountability (ibid.).

7. Moral Implications

From the beginning, the idea of artificial intelligence has encountered philosophical and ideological objections, with Turing addressing many of them, while, as early as 1970, some advocated for the international regulation of AI (McCarthy 2007).

In 1985, Moor described computer ethics as addressing the policy and conceptual vacuums surrounding the ethical use of computer technology, stressing the need for coherent frameworks to guide decision-making. He also highlighted the "invisibility factor", where hidden computer operations can facilitate unethical conduct, such as privacy invasion or surveillance, while noting that computer ethics is a dynamic field that evolves alongside the rapid changes in technology, policies, and societal values (Moor 1985).

Indeed, today, the evolving landscape of AI-generated art raises questions about creativity, originality, copyright, and the future of digital art trading, particularly regarding works produced by non-human systems (Cetinic and She 2021). According to Cetinic and

She (2021), key debates focus on authorship attribution, the complexities of data sources and copyrighted content in training materials, as well as concerns about the environmental impact of digital art and CryptoArt alongside their broader societal, philosophical, and economic implications (ibid.).

In addition, by exploring the ethical challenges of GenAI in art and media, Vyas (2022) highlighted issues such as disinformation, mass manipulation, low-quality yet credible content, privacy concerns within a surveillance capitalism system, bias-reinforcing societal inequalities, and accountability issues due to AI opacity. He advocated for a multi-faceted approach to AI ethics, including integrating it into school curricula, promoting transparency, and fostering collaboration across organizations to ensure responsible use in creative industries. Vyas emphasized evaluating AI art not only for its creativity but also within its cultural, societal, and technological context, highlighting its influence on cultural values and norms (ibid.).

According to Jiang et al. (2023), the rise of image generators poses significant risks to professional artists, including economic losses, reputational damage, and digital forgery as companies exploit their work without compensation and replace human labor with automation. This exploitation is exacerbated by inadequate legal protections, especially for smaller artists, leading to a chilling effect on cultural production, with artists becoming more reluctant to share their work, stifling creativity. The authors propose solutions such as regulations for transparency, AI training data consent, digital signatures, and tools to prevent style imitation, all while promoting human creativity (ibid.).

The need for transparency in AI training and fair compensation is further supported by Lovato et al. (2024), whose survey of 459 artists revealed widespread concern about AI's impact on the workforce, with 62% viewing it as a threat. The survey calls for greater collaboration between artists and AI developers to address issues like economic exploitation, digital forgery, authorship complexities, and copyright matters. It also highlights the ethical and societal impacts, such as job displacement, AI-driven inequalities, and the environmental effects of digital art, urging regulation, accountability, and the integration of AI ethics into education and policymaking (ibid.).

While Jiang, Vyas, and Lovato emphasize transparency, fairness, ethical use, and collaboration in AI within creative industries, Rani et al. (2023) extend this conversation to the museum context, addressing ethical issues such as facial recognition without consent, biases in AI-curated collections, and ensuring data accuracy, fairness, and consent. They also stress the need for security measures like encryption, access control, and biometric authentication to protect sensitive data (ibid.).

8. Implications for Humanness and the Essence of Being

The creation of AI art has caused significant disruption in both academic circles and society at large. Researchers have invested considerable effort into arguing whether art produced by non-human entities can or cannot be considered true art, expressing notable resistance and difficulty in accepting it as such.

The philosopher of technology Coeckelbergh (2017) approaches the question openly, arguing that artistic creation is a matter of experience and interaction rather than fixed criteria. Thus, if art requires inner expression and imagination, as in the expressivist view, machines cannot truly create art because they lack consciousness and an authentic self to express, but if it is defined through mimesis or revelation, they can be considered creators. Ultimately, the question remains open, as machine-generated art may reveal new forms of creativity beyond our current understanding (ibid.).

The science fiction writer, Ted Chiang (2024), on the other hand, argues that AI-generated art, with its quick and effortless production, appears unsuitable for true artistic

expression, as the latter requires inspiration, deliberate creative decisions, genuine effort, and intention. It serves as a form of communication between the artist and the audience, drawing meaning from human uniqueness, sincerity, and lived experience. While AI can mimic patterns and fulfill practical needs, it lacks the ability to truly understand or create meaning, underscoring the irreplaceable human role in communication and creativity (ibid.).

Drawing from the history of art, philosophy of art, aesthetics, and the philosophical views of John Dewey and Steven Zapata, who emphasize that personal style emerges from cultural interaction rather than mere imitation and that artistic development is a two-way, constructivist process, Jiang et al. (2023) also firmly advocate that while image generators can mimic artistic styles, they are not true artists, as they lack the human experiences, cultural context, and personal inspiration that define authentic art. They suggest that their outputs are merely technical reproductions based on trained data and that anthropomorphizing these tools undermines human artists, devalues their work, and shifts accountability away from those who create and train the AI systems (ibid.).

Although it is widely accepted that artistic creation, rooted in intuition and symbolism, is a personal, emotional process, reflecting the artist's intentions and the essence of being human (Messer 2024), the criteria for defining or evaluating it remain ambiguous and fluid. Studies conducted with art teachers, students, and artists from across the United States revealed that while there are commonalities in evaluating elements like technical skill and personal expression, artists prioritize originality, personal growth, composition, style development, risk-taking, and the successful communication of ideas, distinguishing their evaluation approach from that of art teachers and students (Sabol 2006).

What seems to remain fixed, however, is our inability to fully understand how the human mind works (McCarthy 2007; Boden 2004), a challenge that dates back to ancient Greek philosophers and physicians, from Plato and Hippocrates to Herophilus, Erasistratus, and Galen, whose pioneering theories on brain function laid the foundations for modern neuroscience (Crivellato and Ribatti 2006). Given the complexity of the human brain, one of the most intricate systems in the universe, we cannot fully grasp its function—and, consequently, neither can AI (Marcus and Davis 2019).

From a phenomenological perspective, human intelligence is a dynamic process rooted in logos—the interplay of thought, freedom, and meaning. Unlike machines that only classify and calculate data, human intelligence involves subjective, lived experience, where individuals interpret and create meaning through discovery, transcending mere mechanical functions, which machines are limited to (Trujillo 2023).

Even so, and though AI cannot replicate the complexity and depth of the human mind, it can generate ideas that appear creative, defined as the production of new, surprising, and valuable concepts (Boden 2004). This is not only because human creativity can emerge also unconsciously but because AI is able to explore various forms of creativity—combinational, exploratory, and transformational—and has the potential to evolve (ibid.; Ting et al. 2023).

Besides, from the sociology of art perspective, creativity is not a fixed trait of the subject or artwork but a socially constructed outcome of environmental interaction, meaning-making, and aesthetic judgment. As Foucault's ideas and Reckwitz's concept of the "creativity dispositif" illustrate, these processes are embedded within broader structures of power and knowledge, shaped by specific socio-historical contexts (Stephensen 2019).

To sum up, by the third decade of the 21st century, AI is increasingly becoming a vital resource for innovation and creative solutions, with much of its potential untapped and its impact on creative fields still unfolding (Manovich and Arielli 2024). Thus, as some scholars argue, such emerging creative practices evolve into "post-creativity"—or, more precisely, "post-anthropocentric creativity"—an expanded and more democratized

concept that transcends personal human exclusivity by acknowledging both the collective contributions of human participants (programmers, data providers, network trainers) and the roles of nonhuman entities like technologies and materialities in the creative process (Stephensen 2019).

After all, as the British psychologist and cognitive scientist Margaret Boden observes, computational models offer valuable insights into human creative processes and the structured nature of creative thinking (Boden 2004). By serving as a tool for idea generation and innovation, computational psychology helps explain how human subjectivity and creativity emerge from mental processes, thereby enhancing our understanding of human uniqueness without diminishing its significance (ibid.).

Overall, integrating computational models with insights from neuroscience, psychology, and philosophy would be crucial for enhancing our understanding of both human and AI-driven creativity (Paul and Stokes 2023). This interdisciplinary approach could bridge research gaps across scientific fields—especially by integrating philosophical perspectives—fostering a more holistic exploration of complex, multi-faceted issues like creativity, which spans both theoretical and empirical dimensions (ibid.).

9. Artistic Synergy Under Human Supervision

The notion of AI-generated art, particularly painting, seems to extend Benjamin's concept of technological reproducibility, further diminishing the "aura" of art, as it can now provide an object of simultaneous collective reception, contrary to its nature as described by the philosopher in 1936 (Benjamin 2008). With the ease of reproduction through algorithms and software, the uniqueness and authenticity of artworks are increasingly undermined. Just as lithography and photography once revolutionized art reproduction (ibid.), today's AI tools allow anyone with access to technology to replicate and create art with little to no skill, eroding the notion of originality. This shift in the creative process democratizes art, specifically painting, but also strips it of the traditional social and ritualistic value it once held, much like how mass media transformed the roles of writers and readers, blurring the traditional divide (ibid.).

Perhaps, in the end, AI art's position will be analogous to that of photography, given the initial perception of both as not inherently artistic mediums. As Ted Chiang (2024) observes, while photography was initially not considered an art form due to its perceived simplicity, it became recognized as such over time as people realized the significant decisions involved, like composition, lighting, and framing, which distinguished amateurs from professionals. Similarly, while AI-generated art may initially appear to lack artistry, it has the potential for refinement and creative processes, not in the same way as Photoshop, perhaps, but through new methods that enable artistic decisions, such as guiding the process through parameters, real-time adjustments, and feedback to shape the final result.

From another perspective within this line of thought—one that envisions synergy between humans and AI—the distinctiveness of AI-generated art lies in the machine's active creative role, while the human contribution risks becoming secondary or reduced to minimal oversight. When we relinquish both creative control and supervision for the sake of convenience or profit, we sideline our own imagination and creative agency. Much like Icarus, who perished by misusing his artificial wings and soaring too high, this approach carries the risk of overreliance and losing control, turning AI from a collaborative tool into something we simply yield to.

All in all, rather than viewing AI as a competitor that threatens to replace human creativity, we have to harness and direct its role in complementing and amplifying human intelligence to tackle complex challenges, open new avenues for artistic exploration, and

safeguard the most effective and efficient outcomes through collaboration (Zohuri and Mossavar-Rahmani 2024).

After all, the need for synergy and collaboration between computational and human intelligence is increasingly evident and recognized as a legitimate practice in all areas of modern life. The benefits of this synergy have been explored in various fields, such as economics and especially education (ibid.).

Thus, human–AI collaboration is considered essential in financial and stock analysis, as AI excels in data analysis, while humans retain expertise in critical information and institutional knowledge (Cao et al. 2024). Meanwhile, as education evolves, curricula are increasingly focusing on fostering synergy between human creativity and AI, equipping students with AI-driven skills to enhance creativity, promote responsible use, and navigate emerging technologies such as GANs and deepfakes (How and Hung 2019; Ali et al. 2020, 2021a, 2021b).

Especially in the field of artistic creation, while AI art lacks the lived experience, social context, intentionality, and meaning-making human artists bring, it offers a new powerful tool for creative exploration and could eventually be embraced as a legitimate form of art, just as photography has been (Elgammal 2019). Human uniqueness, autonomy, and a distinct personal perspective—cultivated through ongoing engagement with the social environment and manifested in the intentional act of creation, the formulation of prompts, the critical curation of algorithmic outputs, the validation of the final work, and the assumption of authorship—may elevate the medium to the status of art and legitimize it as a genuine form of artistic expression.

Essentially, it is the human who defines both the beginning (the conception of the idea) and the finale of the creative process (deciding when it is complete), maintaining the connection between technology and human subjectivity, preserving the uniqueness of artistic creation, and affirming authorship and responsibility through the act of signature.

This holds true even as advances in DL enable AI systems to display apparent autonomy and spontaneity, prompting a redefinition of creative agency to encompass interactive partnerships between humans and machines in art (Stephensen 2019; Thomson-Jones and Moser 2024). It is likewise not diminished when artists describe AI as a creative "partner" and co-creator rather than merely a sophisticated tool (Fals 2023; Thomson-Jones and Moser 2024), nor in dynamic co-creative processes—such as in the equally collaborative work of Sougwen Chung with mechanical drawing arms (Sougwen 2025; Thomson-Jones and Moser 2024)—as it is ultimately the artist's vision and direction that shape the final artwork (Figure 5).

Thus, for now, although capable of producing novel, unexpected, surprising, or even spontaneous outcomes, AI lacks genuine creativity, remaining a tool rather than an agent (Paul and Stokes 2023)—albeit an active and dynamic one. Ultimately, contemporary AI art offers a creative option for the artist. When embraced under human direction and oversight, the synergy between human and machine drives artistic innovation.

More broadly, from a philosophical standpoint, and within an expanded notion of creativity—or "post-creativity" (Stephensen 2019)—this human–technology collaboration in art is best understood through a synthesis of the constructivist view of technology as a co-creative process and the phenomenological perspective that technology reveals and shapes the world and human existence on a deeper, ontological level (Introna 2024). From this perspective, even the complex technology of AI functions as an active, responsive tool in art, shaped by the dynamic interplay between society and technology, in which both co-construct one another (ibid.).



Figure 5. Sougwen Chung, still from *Assembly Lines: Expanse [extending]*, 2022, film, 4 min, 22 s. Photo: Peter Butterworth. Source: https://sougwen.com/exhibitions (courtesy of the artist) (accessed on 20 April 2025).

Within this co-creative framework, human consciousness, intention, understanding, and emotion, along with cultural context and technological capability, continually redefine both tool and user. While technology dominates human experience, the human remains decisive in directing it and imbuing it with meaning.

The boundaries and conditions for integrating computational creativity into society were identified early on by researchers in the field, viewing it as the final frontier of AI research. They argued that software should transparently communicate its creative choices, motivations, and processes to counter biases against AI-generated art and foster meaningful discussions about its creative potential (Colton and Wiggins 2012). By moving beyond traditional comparisons with human art, which involves emotions, consciousness, and intentionality—traits that AI cannot replicate—we can begin to appreciate AI's unique form of creativity, recognizing it as distinct from, yet complementary to, human creativity, and as a tool that expands the creative process into unexplored and imaginative territories (ibid.). After all, as Luciano Floridi astutely noted, extending Bourdieu's concept of cultural capital, the semantic capital of ideas, traditions, and values that shape identity, relationships, and the purpose of existence is increasingly becoming digital. Digital technologies like AI create new opportunities for accessing and managing this wealth while also generating entirely new forms of digital semantic capital, reshaping our understanding of identity and reality (Floridi 2018).

10. Discussion

In this article, we explored AI's role as an active and innovative creative tool that redefines artistic boundaries. We have traced its origins, contrasting it with Modernism's avant-garde movement, which challenged traditional norms through abstraction and mechanical processes. Thus, we deconstructed the form and internal process of AI art, dispelling its novelty and framing it as a natural and legitimate evolution within art history. At the same time, placing AI within the broader digital revolution, we outlined the historical context within which it can be understood.

Tracking AI's rapid progression, we observed anthropomorphism and social manipulation fueled by marketing and profit, with major art institutions maintaining a significant

role. This is further exacerbated by the ongoing question of whether these institutions can take a more active role in building and strengthening communities amid political crises and pressing challenges, where changes remain fragmented, not systemic, and economic control remains concentrated in the hands of the wealthy (Wiggers 2018).

In examining the use of AI art within the contemporary artistic landscape, we highlighted how it often prioritizes technical innovation over conceptual depth, leading to aesthetically striking but shallow works that overlook the socio-political implications of AI technologies (Grba 2022). While this could be partially understood within the context of the transitional and experimental phase of art's current adoption, it also reflects the ethical dilemmas artists face when balancing responsibility and integrity with professional success (ibid.; Vyas 2022). In this context, we should bear in mind the risk that arises when artists neglect critical thinking and rely too heavily on technology, as it can lead to a cycle of repetitive, soulless works where AI models merely reproduce and modify existing styles, ultimately diminishing the quality, uniqueness, and depth of art (Ted Chiang 2024).

Regarding the public reception of AI-generated art, studies reveal a bias favoring human-made art due to beliefs about authenticity and creativity, with AI art often being seen as lacking emotional depth and agency. However, growing acceptance, especially among younger generations, and increasing familiarity with AI tools suggest the potential for collaboration and innovation in the creative process, despite ongoing skepticism about AI as a true creator (Hong and Curran 2019; Ragot et al. 2020; Ting et al. 2023).

Further evidence of the growing use of AI in the arts, particularly since 2020, is provided by a systematic review of 44 studies (2003–2022). However, the review also revealed persistent skepticism toward AI-generated art, showing that although participants often struggled to distinguish AI art from human-made works, they consistently preferred the latter (Oksanen et al. 2023).

In addition, the study emphasized that while AI's rapid development challenges traditional notions of fine art, it is increasingly used as a creative tool, where human creativity still remains essential amid a broader cultural and societal transformation (ibid.). This reinforces the view that, for now, artists retain control and shape the creative direction within the human–technology synergy.

Ideally, this human–technology synergy should be grounded in interdisciplinary collaboration, combining the empirical insights of AI art research, neuroscience, and psychology with the conceptual depth of philosophy, as their mutual reinforcement enables the refinement of emerging mechanisms, forms, and roles in the post-anthropocentric landscape of human–machine coexistence. By integrating philosophical reflection with scientific inquiry, complex concepts such as creativity, agency, and intelligence are clarified, fostering deeper understanding and more informed discussions around both human and AI-driven artistic phenomena.

In relation to the various challenges posed by AI art, we observed that this technology raises considerable concerns, particularly around ethical use, human rights, copyright, the livelihood of the artistic community, authorship, authenticity, and the potential loss of human-centered engagement. In this context, cross-disciplinary dialogue becomes equally essential, as Notaro (2020) notes, since AI technologies are not neutral and can be biased, making an interdisciplinary discussion on their legal, ethical, and societal impacts in art crucial.

Finally, concerning the study's proposed integration of AI art into a human-centered cultural approach, we found that assessing its role and potential within the broader evolution of human creativity—shaped by technological advancements throughout art history—positions AI art as a driver of collaborative innovation and responsible progress, ultimately enhancing human capabilities. It is up to us to harness AI's potential as an

advanced interactive tool, a multi-tool and master key, yet still a tool, empowering individuals to dive deeper into the creative process while simultaneously enabling artists to radically transform expression and push the boundaries of innovation. By leveraging this tool to unlock entirely new realms of thought, rather than stifling our own creativity, we can achieve a powerful balance between technological advancement and preserving the deeply human essence of art. On the other hand, while current concerns focus on who controls AI and how its risks are managed, scientists like Stephen Hawking have warned that in the longterm, the development of full AI could lead to systems that surpass human intelligence and redesign themselves, raising fears of losing control and signaling the "end of the human race" (Hawking et al. 2014; BBC News 2014).

Even in light of the most ominous predictions—or perhaps precisely because of them—the greater challenge remains how we choose to confront such transformative power, especially in the artistic realm. Besides, the tragicness, a profoundly human trait, as the ancient tragedians taught, lies in the conscious choice to resist an inexorable fate: a struggle that, futile or not, remains ethically necessary and nonnegotiable. We have a moral responsibility to resist the mindless acceptance of technological convenience without critically reflecting on its influence on our lives, as doing so may cause us to become, in Heidegger's terms, the "devices of our devices", losing our autonomy and allowing technology to control our way of living rather than using it to enrich our existence (Introna 2024).

Indeed, the increasing reliance on AI in art threatens creative thinking, diminishing both thought and critical reasoning, much like using a lifting machine instead of weightlifting (Ted Chiang 2024). More broadly, as the world becomes more digital, concerns grow that technologies like AI may erode social skills, empathy, and cognitive abilities, resulting in a generation increasingly disconnected from meaningful interactions while the constant flow of information and distractions overwhelms attention and emotional well-being (Schwab 2016).

Surrendering our creative agency in the pursuit of convenience evokes the haunting portrait of a society resigned to inertia in Cavafy's poem *Waiting for the Barbarians,* where the Alexandrian poet depicts a people seeking redemption not through progress but from it, paralyzed by complacency. Today, we appear to stand at a pivotal crossroads. Like Heracles, we must choose between the rugged, challenging path of Virtue—a synergy between AI as an active, innovative tool and human creativity, guided by human oversight —and the seductive, hedonistic path of Vice, where we surrender creative control to AI as an autonomous creator, gaining fleeting pleasure but, in the long term, eroding or even erasing our own creative spirit and freedom.

11. Methods

As part of exploring how AI empowers artists and democratizes creativity through human-AI synergy, this study addressed the following key research questions about AI's role in art production.

- How is AI art defined, and how does it fit into the broader context of art history (morphologically, conceptually, and historically)?
- How has it evolved over time?
- How do artists utilize it today?
- How is AI received by both the public and artists?
- What ethical, social, and philosophical challenges arise from AI's potential role as creator or co-creator?
- How can AI art be integrated into a human-centered cultural approach?

The study employs an extensive literature review, selecting sources based on the field of AI art and the specific research questions. This approach ensures a thorough

understanding of the topic by drawing on existing knowledge and current research. By analyzing and synthesizing data from diverse sources, it identifies emerging trends and theoretical perspectives along with ethical and social challenges, offering insights into AI's impact on artistic creation and society as a whole.

The primary tool for data collection was Google Scholar, combined with databases like ScienceDirect and publishers of scientific journals such as Elsevier, Frontiers, and MDPI. The range of sources explored spans a wide variety, including books, scientific articles, book chapters, and conference proceedings from international conferences specializing in digital technology research, such as the EVA conference, as well as artist websites and media sources (online newspapers and art magazines, video platforms), ensuring the inclusion of both the theoretical framework and contemporary museum practices. The material was classified, analyzed comparatively, and underwent interpretation, synthesis, and summarization of the data, leading to conclusions.

The review primarily focused on the past decade, highlighting AI advancements since 2015, with special emphasis on rapid developments in image generation and multimedia production from 2020 to 2024. This is evidenced by the significant increase in AI's integration into visual arts, music, literature, and performing arts during this period (Oksanen et al. 2023). The theoretical framework explored the origins, reception, and implications of AI art through interdisciplinary lenses, including historical, philosophical, and psychological perspectives, alongside its ethical and societal ramifications. It also analyzed the rhetoric surrounding both defensive and collaborative viewpoints on human-AI coexistence, reflecting the broader debate about AI's role as a creator.

More specifically, our analysis is based on an interdisciplinary framework that integrates insights from history, art history, psychology, and, most prominently, anthropological–sociological and aesthetic–philosophical perspectives on art in the age of AI. In particular, it explores AI's impact on collective life and identity across key areas: socio-political transformations in the digital age (Section 3); shifts in the art market with social and economic implications (Section 4); social trends, power dynamics, and cultural contexts (Section 5); public perceptions and biases (Section 6); and the interplay between creativity and structures of power and knowledge (Section 8). Simultaneously, the analysis incorporates an aesthetic–philosophical perspective, exploring changes in the form, content, and function of art within the technological landscape. This includes philosophical inquiries into creativity, authenticity, and aesthetic value (Section 7), evolving views on the role of art and technology in society and the need for interdisciplinary understanding (Section 8), as well as the expansion of creative possibilities and human–technology power dynamics in a rapidly changing society (Section 9). To support this approach, the study draws on key entries from the Stanford Encyclopedia of Philosophy—such as those on technology, digital art, and creativity—anchoring the analysis in established debates in philosophical aesthetics and the philosophy of AI.

Building on this framework, and within the context of an increasingly hybrid artistic landscape, we propose the concept of human–machine collaborative creativity, guided by human oversight and embedded within a human-centered process of artistic creation and meaning-making. In this view, AI art, without being granted autonomous artistic will or intention, serves as a catalyst for new forms of expression and collaboration, while the human creator maintains primacy in the conception, direction, and completion of the artwork.

12. Conclusions

In this article, we defined AI art and framed it within its broader historical, conceptual, and social context, tracing its evolution from early 20th-century innovations to the rise of GenAI tools. We examined its technological advances and limitations, showed how

shifts in science and society reshape art and challenge traditional notions of creativity and authorship, and demystified AI's anthropomorphism, revealing its instrumentalization in the contemporary art market.

The study promotes a nuanced understanding of AI art, highlighting its dual potential—as seen in Refik Anadol's *Unsupervised* and Anna Ridler's *Mosaic Virus*—to act both as a tool for aesthetic innovation and as a medium for critical reflection on human agency, technological processes, and socio-cultural issues. It also underscores the skepticism often felt by both the public and artists toward AI-generated art, driven by biases, anthropomorphism, and concerns about its creativity and authenticity, while illustrating the ethical need for transparency, consent, and fairness to prevent exploitation, bias, and harm to human creativity in a post-anthropocentric context. The research emphasizes the importance of viewing AI as an advanced, active, and innovative tool that, when guided by human oversight, enhances artistic creation. The human role in conceptualization, curation, and final decision-making remains vital to preserving the authenticity and meaning of the work. This underscores the need for a balanced collaboration between human creativity and technological advancement, ideally informed by interdisciplinary dialogue that combines empirical research on AI art with the philosophical depth needed to navigate the evolving dynamic between humans and machines in a post-human context.

In an era where AI technology is augmenting our semantic capital and becoming increasingly intertwined with human identity, we stress the need to embrace AI art as both a facilitator and a pioneer, supporting and enriching the creative process while offering innovative techniques and methods for exploring uncharted creative territories. In this context, AI can serve as a creative catalyst, empowering, expanding, and accelerating human creativity, democratizing art, and inspiring artists to make new discoveries and explore fresh perspectives for the benefit of humanity.

In conclusion, advocating for a crucial synergy between artificial and human intelligence in artistic endeavors, this study asserts that human supervision and guidance are key to ensuring that the final artwork aligns with human artistic values and intentions and that AI's potential is integrated into a human-centered approach to cultural understanding.

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