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Digital art work and AI: a new paradigm for work in the contemporary art sector in China

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This paper explores a paradigm shift in work culture in the contemporary art sector due to digital transition and the introduction of AI. New ways of working with AI and digital software are embedded and normalized in everyday Chinese artistic practices. This work includes new forms of creativity and efficiency, yet, simultaneously includes new types of digital labour. This paper conceptualizes this as “digital art work,” which draws attention to the often-overlooked aspects of artists’ work, particularly their everyday artistic practices that increasingly include digital software and AI. What is the role and position of the artist in an environment where digital software and AI are becoming more central in artistic creation? How do artists creatively (mis)use AI? What does this paradigm shift in work culture mean for the future of the artist’s role and the future of the contemporary art sector? This paper draws on 48 semi-structured interviews with visual artists and arts professionals, including painters, sculptors, mixed-media, and internet artists as well as contemporary art gallery owners, museum project directors, curators, and culture policymakers living and working in China during 2023. The findings show how Chinese artists are mastering AI and opening up new spaces for creativity and how the contemporary art sector in China has already transitioned to a new “digital way” in artistic creation. These findings can help to create policy around AI globally and provide solutions for the sustainability of the artist profession and the future of the contemporary art sector.

KEYWORDS

visual artists, digital artists, the creative industries, the contemporary art sector, digital work, AI, China

Introduction

This paper explores the paradigm shift in the nature of “creative” work in the contemporary art sector, which is taking place due to digital transition and the introduction of AI. This paper uncovers how artists use AI in combination with other digital software to create ideas, research, exhibition proposals, and as part of their digital art work. This includes investigation into the often-overlooked aspects of artists’ work by focusing on their everyday artistic practices that increasingly include digital software and AI. This allows a presentation of the human account in this very much technological determinist global discourse, in terms of how we can

create creativity and innovation and growth in the sector through these kinds of uses of AI. This paper considers how artists use AI, how they feel with using AI, and their thoughts about its use going forward for contemporary art sector development, policymaking, and management. This new knowledge can help with future policymaking and the management of AI globally and of ensuring sustainable and effective contemporary art sector development by showing how these artists are harnessing AI for creativity—showing opportunities of AI from artists' perspectives and showing the impacts of AI on the future of work in this sector.

There has been rapid digital transition in China, resulting in a mature and integrated digital ecosystem today, bringing opportunities for cultural development and digital access to culture. However, artists must keep up with this trend. The unique situation in China can demonstrate what is happening in the contemporary art sector globally as a result of rapid digital transformation, particularly with new uses of AI, and provides a case to show the opportunities and changes AI can have on contemporary visual artists' practices and the contemporary art sector. Artificial Intelligence (AI) is now a common tool for the new generation of contemporary visual artists in China. AI programs such as Stable Diffusion, DALL-E, MidJourney, and ChatGPT have spread rapidly in the contemporary art sector in China during 2023 due to the mature, advanced digital environment and a general appetite amongst artists for convenience and accuracy in their work practices. This opens-up the discussion of whether AI can be creative and empowering in work. This provides a novel angle amidst existing discourse that takes a predominantly critical standpoint towards AI concerning copyright, morality, and ethics (Tajalli, 2021; Appel et al., 2023) or AI as jeopardizing creativity (Bisoyi, 2022; Nolan, 2022). The aim in this paper is to connect these two sets of literature on precarious creative work that discusses "freelance," "precarious," or "passion but precarious" working conditions (Sigler, 2017; Serafini and Banks, 2020) and on digital aesthetics and techniques (Astle and Muir, 2002; Kucuk and Soydal, 2003; Yilmaz and Celic, 2011) in order to raise awareness on and increase the amount of literature that connects the two in order to show the impact of AI on working cultures.

Focusing on the contemporary art sector and visual artists in China can provide new perspectives on AI, by showing how AI can be positive for artists' work by enhancing their productivity, efficiency, and innovativeness. It can also show new ways of using AI while still maintaining human control and creativity. This unique situation/case can be used to show what is needed in terms of cultural management and policymaking for sustainable and effective culture sector development through this historical period of AI adoption.

As a result, this research expands a small set of literature that sees the positives of AI for artists' work (Mitchell et al., 2003; Edmonds et al., 2005) and fills a gap in the literature about this in relation to China. With much discussion about and use of AI from companies, businesses, and the tech sector, it is evident there is a need to hear from artists who are often vanguards with new technologies. Hence, artists can shed light on nascent bottom-up forms of creativity in using AI. This research shows artists as a significant and valuable voice who are able to speak directly to the changing and nuanced questions currently taking place globally—through discussions by those who are using data, machine learning (ML), and AI everyday in their work. For example, artists have historically deployed new technologies in unexpected and often prescient ways (Rieland, 2014; Shanken, 2022) and have been interpreted as vanguards of new ideas, techniques, and cultural practices (Francastel, 2000).

"Digital art *work*" is conceptualized in this paper as a way to understand the paradigm shift in work cultures in the contemporary art sector and, in particular, artists' digital work practices. This is a play on words, meaning both artists' artworks as well as their artistic practices that belie a particular politics of everyday digital labour. This term allows for a broader discussion and definition of art work, beyond only the final artworks' aesthetics and technical aspects and on "digital art" that discusses digital techniques or digital aesthetics (Astle and Muir, 2002; Kucuk and Soydal, 2003; Yilmaz and Celic, 2011) and digital techniques and digital aesthetics of AI art (Manovich, 2018; Contreras-Koterbay, 2019; Liang, 2022). Instead, this paper argues more discussion is required on the human, social issues of sustainability of the contemporary art sector, artists' role, and considerations of how artists creatively (mis)use AI. This is required because AI is not only influencing artworks but is also influencing artists' working conditions. However, the latter is not yet covered in the literature on AI and art or AI and the creative industries. Hence, more connection between AI and changes in working conditions is needed.

This study includes 48 interviews altogether, comprising 25 in-person interviews, 20 online interviews, 3 written interviews. Please refer to the [Supplementary Appendix](#) for a full list of all interviewees' positions, ages, and gender. There were 32 female interviewees and 16 male interviewees. This study includes 29 interviews with contemporary visual artists, including painters, video artists, multi-media artists, sculptors, internet artists, and photographers, who work within the contemporary art sector in China. This research used the following definition of "artist"—as a person who creates art (such as painting, sculpture, music, or writing) using conscious skill and creative imagination, having graduated from an art academy or university in art related major. This paper also refers to "creative workers" in order to

combine artists' and arts professional's work, to emphasize aspects of their daily work, and to show they are also exposed to labour demands. This paper focuses on independent artists and their studio work practices. The artists are aged between 20 and 61. This wide age range was chosen to gain a broader perspective on use of digital technologies and AI. These include internet and metaverse artists such as CHILLCHILL, Wang Xin, and Shi Zheng. There are also other young artists who are sculpture, video, and installation artists but who have very digital orientated work processes, such as Armida, Yan, and Maggie. Each interviewee is introduced in the Endnotes. All interviewees included in this paper have given written consent to share their name and biography.

The study also interviewed 19 arts professionals from across China, including curators, contemporary museum professionals, contemporary art gallery directors, contemporary art space project managers, and cultural policymakers. The interviewees are from a mixture of government, independent, and private organizations within the contemporary art sector. However, this second set of interviews with arts professionals are for the purposes of providing broader context and understanding on the overview of what is happening in the contemporary art sector and how the sector is being influenced by new digital technologies such as AI. The interviews were carried out during 2023, either in person or online. Participants are of different ages ranging from 27 to 59 years old. This wide age range was chosen to gain a broader perspective on use of digital technologies and AI in particular. The Results section includes some perspectives from contemporary curators discuss the topic of AI and new digital technologies in their exhibitions or who use AI in their exhibition design process, such as Wang Xiquan and Jenny.

This is coupled with a systematic review and analysis of government policy documents on national digitization strategy, national cultural development directives, contemporary art sector policies, (digital) cultural policy, AI policy, and directives for the integration of culture and technology. Analysis of interviews was based on these same theme of digital work culture, changing work practices in the contemporary art sector, how culture and technology have been integrated in artworks and creative workers' entire working practices, and how the "culture" of work in the sector overall is changing. Interview analysis was conducted to see how national government policy has impacted the sector in actuality.

The participants are all trained arts professionals or artists, having graduated from an art school, academy, or university. They define themselves as either artist, "cultural worker," digital artist, or painter. They include different types of artists like sculptors, painters, digital artists, video artists, new media artists, and mixed-media installation artists. In recruiting stage, they did not need to have any previous experience

with technologies. Subsequently, the sample includes a wide range of artists and cultural professionals to understand the broader perspectives on use of AI and nature of artists' work today.

AI adoption and regulation in China

In a relatively short period of time, China has become one of the world's most technologically advanced nations. Due to a streamlined and mature digital infrastructure, AI has spread rapidly and is now being used in many creative industry sectors including art, music, and film. This is being funded through large-scale collaborations with big brands and tech companies. AI has also developed rapidly due to government backing and the increasing value the government places in culture, technology, and innovation. Policy efforts on digital transformation in China have been progressive and forward-thinking, clearly showing its investment in the creative industries and the digital cultural economy. This is reflected in the government's long-term strategy for economic and national development (Montgomery and Keane, 2004). The 14th Five-Year Plan for Cultural Development states that "it is necessary to further develop and expand the cultural industry, and give full play to the role of culture in activating development momentum, and promoting the optimization and upgrading of economic structure" and, particularly, to promote the "integration of culture, science, and technology" (CHINESE GOVERNMENT, 2022). In addition, the Chinese government is now developing the digital creative industries for economic growth and national development goals (Zhang Jie, China Daily.com, 8th September 2022).

The creative industries, particularly the contemporary art sector, have been rapidly and radically combined with digital technology over the past 7 years. Related policies for the development of digital technology into the contemporary art sector were introduced in 2016. In 2023, a national digitization strategy was outlined towards 2025 to promote the integration of new digital technologies into various industries, including the contemporary art sector with "the integration of art and technology" (CHINESE GOVERNMENT, 2021). As a direct result of these policies, many artists are now creating digital artworks and using more digital processes. These methods are now preferred by many and have replaced the traditional artistic creation process. This means that AI is influencing artwork aesthetics and techniques *and* the working conditions of artists. The working conditions in the contemporary art sector in China today are characterized by self-employment along with small- and micro- art enterprises. Artists and arts professionals tend to have project-based careers and a high degree of mobility, they often have an irregular and unpredictable income, and they combine several jobs to earn a living. The fully online conditions during the COVID-19 pandemic accelerated developments in

digital technologies but has also normalized these digital working conditions. Hence, this unique situation can show other countries and regions what working conditions after rapid digital transition and the adoption of AI looks like in the contemporary art sector.

In particular, China is ahead of many countries in the adoption of AI. The Chinese Government began supporting the AI industry at the national level in 2016. For instance, the 13th Five-Year Plan (2016–2020) specified AI as key for achieving economic growth and the 14th Five-Year Plan (2021–2025) outlined a plan for continued state investment in AI. In 2017, the Chinese Government introduced a vision for the development of AI in the Next Generation Artificial Intelligence Development Plan (新一代人工智能发展规划) (NGAIDP). The Plan outlined China's strategy of using AI for socio-economic development and creating an AI industry that would position China as the world leader in AI by 2030, and to emerge as the global leader in defining ethical norms and standards for AI. China wanted to make AI "the main driving force for China's industrial upgrading and economic transformation" (CHINESE GOVERNMENT, 2017). The NGAIDP is the first national-level legislation that focuses on the development of AI as a unified strategy.

From 2020 until 2022, several AI laws have been published at various levels in China in response to these broader strategies. At the regional level, China's first provincial law on AI development took effect on 1 October 2020, with the publication of the *Shanghai Regulations on Promoting the Development of the AI Industry*, which sought to promote the AI industry at the municipal level in Shanghai. Also, the Shenzhen government passed a similar law on the *Regulations on Promoting Artificial Intelligence Industry in Shenzhen*, which took effect on 1 November 2022. At this time, Beijing also started outlining policies for specifically addressing generative AI systems. The *Internet Information Service Algorithmic Recommendation Management Provisions*, which set up a governance framework for regulating recommendation systems, came into effect on 1 March 2022. In addition, Beijing released more targeted rules for generative AI through the *Internet Service Deep Synthesis Management Provisions*, which came into effect on 10 January 2023, which applies particularly to deepfake outputs from AI technology. In 2023, China's central and local governments have issued AI-related policies, wherein the "artificial intelligence industry," "application of major artificial intelligence scenarios," "standard system," and a "technical security system" have become policy priorities (CHINESE GOVERNMENT, 2023a; CHINESE GOVERNMENT, 2023b).

In 2023, the "First National Artificial Intelligence Application Scenario Innovation Challenge" was officially launched (CHINESE GOVERNMENT, 2023b). This

competition is jointly sponsored by the Chinese Society of Artificial Intelligence and the New Generation Artificial Intelligence Development Research Center of the Ministry of Science and Technology, with the theme of "Scenario-driven Digital Intelligence Power," aiming to drive key core technologies of artificial intelligence with scenario innovation, focus on solving major application and industrialization problems of artificial intelligence, promote the deep integration of artificial intelligence and the real economy, and contribute to the transformation and upgrading of China's digital technology and the high-quality development of the economy (CHINESE GOVERNMENT, 2023b). These policies are guided by the report of the 20th National Congress of Xi Jinping in 2022, which outlined the implementation of the innovation-driven development strategy that aimed to strengthen the national strategic scientific and technological strength (Xinhua News Agency, 2022).

On 13 July 2023, the Chinese government published its finalized rules on generative artificial intelligence, the *Interim Measures for the Management of Generative Artificial Intelligence Services* (CHINESE GOVERNMENT, 2023a) which came into effect on 15 August 2023. The objective of the *Interim Measures* is to regulate generative AI, which is primarily designed to generate content and promote the use of AI for national economic development, ease of use, and to promote business and individuals' innovation. This makes it one of the first countries to regulate the technology to promote its use.

These changes in policy are happening as policymakers globally carefully study the introduction of generative AI tools such as ChatGPT and increasingly view their regulation as a policy priority. In other parts of the world, such as the European Union and the US, governments are slowing developments and applications of AI with discussions on ethics and morals surrounding AI, copyright, ownership, and the artist's role. Subsequently, regulations in the EU are outlined to prevent the risks of using AI, while the regulations in the US are for ensuring more accountability and responsible use of AI. As the *World Economic Forum* (2022) states, "the need to resolve issues around the Responsible Use of Artificial Intelligence (AI) has become increasingly important for countries, citizens, and businesses over the last 8 years, with approximately 60 countries now having National AI Strategies and many have, or are creating, policies which allow for responsible use of this technology." That said, a survey by *Adobe* (2018) showed that three-quarters of visual artists in the United States, United Kingdom, Germany, and Japan would consider using AI as assistants, in areas such as image search, editing, and other "non-creative" tasks. As *Anantrasirichai and Bull* (2022) argue, this indicates a general acceptance of AI as a tool across the contemporary art sector globally.

Impacts of AI on art, the art industry, and work

This paper intervenes in literature on digital transformation in the contemporary art sector and trialing new technologies like AI in art. There is a lot of focus in the literature on digital techniques and digital aesthetics (Astle and Muir, 2002; Kucuk and Soydal, 2003; Yilmaz and Celic, 2011).⁹ In particular, some scholars discuss the artists relationship with AI and levels of control in this collaboration. In fact, some scholars understand AI as a favored collaborator in artistic creation. As Miller (2019) argues, “recent advancements in deep learning have reinvigorated interest at the intersection of art, creativity and machine learning.” This literature is concerned with whether it is possible to control these digital technologies. As Lopez (2023) argues, “AI has emerged as a desirable collaborator in artistic creation. Artists use AI as a creative tool and work with algorithms to set up specific rules [..]It is the artist who will train the AI and determine its environment and learning rules, which makes the AI dependent on the artist” (Lopez, 2023). Hence, there are some who say the artist can control AI by determining the environment, rules, and input data. There is also a small set of literature on the empowering nature of new digital technologies for artists’ work practices, although, this has not yet been applied to AI. For example, Edmonds et al. (2005) discuss how “the arrival of digital media and computational tools has opened up new possibilities for creative practice” and Mitchell et al. (2003) state that “the connection between technology and creative practice has yielded many economic benefits and cultural value,” arguing that technology can increase creatives’ productivity levels.

However, there are concerns about how digital image-making technologies are fundamentally changing understandings of art (Kittler, 1999; Kholeif, 2018; Lopez, 2023). These claims suggest that the “digital condition” induces a loss of trust in the image and a blurring of boundaries between artist and audience (Kittler, 1999). There is also a set of literature that discusses the changes in artworks (Kittler, 1999; Towse and Hanke, 2013; Douglas, 2015) due to digital technologies and how the fundamental meaning of and way of seeing art is changing due to new digital technologies such as AI. For example, Kholeif, (2018) argues that the viewer now sees artworks differently through digital technologies. Kholeif, (2018) argues that a new cultural and artistic landscape has taken shape since 2000, “the post-digital condition,” since when there is a new language for seeing, feeling, and experiencing art. Also, BRIDLE, (2014) argues “the new aesthetic refers to the increasing appearance of the visual language of digital technology and the internet in the physical world, and the blending of the virtual and physical.” There is a small set of literature about artists’ uses of AI in artworks (Mitchell et al., 2003; Edmonds et al., 2005; Miller, 2019; Lopez, 2023), which focuses on aesthetics and techniques. However, this requires discussion about how artists feel about working with AI and how they creatively (mis)use AI to maintain their control and authorship.

This paper also intervenes in another set of literature on the nature of work in the creative industries, which focuses on flexible, freelance, and “passion but precarious” working conditions (Serafini and Banks, 2020) and the totalizing nature of their work that leads to a blurring between work and life (Sigler, 2017). This relates to literature on the nature of creative vis-vis demanding artistic labour since the development of web 2.0 (Towse and Hanke, 2013; Douglas, 2015; Sigler, 2017), which hints at how the nature of work has become more about multi-tasking and pressured with online work. For example, Douglas, (2015) argues “technology and the internet inherently permeate the work of contemporary artists,” McHUGH, (2014) argues “you’re always on, always having to manage your online presence.” Kholeif (2018) mentions how today “artists are working in diverse contexts, from eBay auctions to augmented reality.” Troemel (2014) also argues “the divide between artist and viewer becomes negligible when users of social media are able to more powerfully define the context (and thus the meaning) of an artwork” and “artists on the internet need an audience to create for.” However, this set of literature on artists’ work has not yet been updated to include the changes in work conditions due to the introduction of AI.

Digital work as empowering

New digital skills are needed today, which require constant learning and often rapid and radical adaptation to new digital updates. This increase in “digital work” was accelerated by the COVID-19 pandemic as, during this time, a lot more content and practices shifted online. However, it was already very much established in their practices beforehand. As Wang Yiquan¹ says, “In the past 2–3 years, I have learnt more about and used more digital technologies, including AI. Because of covid the physical path was not possible so there was more online.”

Digital technologies are difficult to operate and, hence, consume more work in order to learn and master. However, many artists in the current generation are unprepared because they have not studied these digital skills at art academy or university. Hence, many spend hours learning, testing, and trialing before they start their actual artistic creation. However, they seem to be of the mindset that you should

1 Wang Yiquan (b. 1987) is a curator and designer based in Shanghai. He is one of the founding partners of Acts and Pathways, which is a design company that he established in 2018 with designer Wu Jiayin. His research interests as a curator focus on the relationship between the city and art as well as the relationship between art and the economy. He has also contributed to a wide range of urban spatial designs and research projects in Shanghai, Beijing, and Hangzhou. Wang Yiquan received a BA Degree in Journalism from the Beijing International Studies University. He also studied Visual Communication Design at the Central Academy of Fine Arts in Beijing and completed an MA Degree in Narrative Environments at Central Saint Martins in London. Yiquan is originally from Beijing and now lives and works in Shanghai.

have a constant state of learning and be able to easily adapt to new technologies. Indeed, Shi Zheng² likes to have this feeling of newness with her projects and it has now become normal to learn a new technology and systems for each new project. As Shi Zheng says,

“digital technology is definitely more convenient ... But using it I think is something that takes time to learn ... Technology change is actually always there, and because I use different technologies for each project, there will be a learning phase to constantly learn and use a system inside each work. It may add some freshness. I think for the project being done to maintain a state of learning, rather than a technology is used for a long time after the very skilled to produce. I may have such a habit.”

AI is used to help in this learning process. As Wang Xin³ says,

I have spent a lot of time self-learning those things [coding, AI] and self-taught myself how to use this as my tool to help my artworks. I have to update myself, and because I use it everyday it is easy to update. Always learning. Actually I enjoy. AI can help me to learn now. Like ChatGPT is really helpful to fix the coding part. I write coding and sometimes it's not right, so I copy and paste to ChatGPT and it fixes the code. Actually I use ChatGPT almost everyday to help me fix my code. Maybe before I spent several days to fix but now they can do it in several second. So it really helped to improve my progress.

- 2 Shi Zheng (b. 1990) is a contemporary visual artist based in Shanghai and New York. Shi's artworks include audio-visual installations, digital music, and live performance. Shi is interested in virtual simulation, "machine vision," and the philosophy of technology. Alongside his individual artistic creations, Shi also collaborates with other artists in various fields. For instance, he works as part of an artist group called RMBit that was founded in 2013 by Shi and Nenghuo, Wang Zhipeng, and Weng Wei. This artist group focuses on the current context of social media. Additionally, Shi is part of the Audio-Visual performance group called Open Super Control (OSC). Shi's individual and group works have been exhibited at museums, art institutions, and media art festivals in China and internationally. Some of these institutions include TANK Shanghai, Sifang Art Museum, MOCA Yinchuan, Sound Art China, Beijing Biennial, FILE Electronic Language International Festival, Ars Electronica, Institute of Contemporary Arts London, and Castello di Rivara. Shi received a BA Degree from China Academy of Art and received an MFA Degree from the School of the Art Institute in Chicago.
- 3 Wang Xin (b. 1983) is an artist who is based in Shanghai. Her work focuses on the topics of the status of the artist, the functioning of the art market, and the use of AI for hypnosis therapy. In 2016, Xin had a solo show at the de Sarthe Gallery, Hong Kong, titled "Every Artist Should Have A Solo Show". Some of her works include commentary about her own position and relation to the art world with the use of a sense of humor. Her second solo show, titled "The Must-See Art Show Where You Can Find 10,000 Artists", exhibited at de Sarthe Gallery in Hong Kong, focuses on the functioning of the art world. Both exhibitions include interactive, site-specific installations. Wang is also a certified hypnotist and has explored using hypnosis in her art with the use of AI. Wang received a BFA Degree from China Academy of Art in 2007 and received an MFA Degree from the Art Institute of Chicago in 2011. Wang is from Yichang, Hubei, and currently lives and works in Shanghai.

Some artists express how they are empowered by using AI. Some feel AI gives them power, stimulation, creativity, enhances their mental and imaginative capabilities, and improving their accuracy and progress. Miao Xiaochun⁴ says, "the new technology gives me four hands." They feel AI gives them more power, speed, and time. As Yan Xiaojing⁵ says, "digital is good for accuracy and allows me to compute large amount of information in little time." Techniques or ideas that used to be impossible are now possible with new technology. Hence, artists say that they can think of doing whole new things and it expands their imagination.

Only two artists were worried about losing their jobs to AI, while the majority see AI and digital software as "tools," "thinking systems," "stimulants," "another pair of hands" to enhance their performance. The majority are comfortable using AI for creating their ideas, images, and producing artworks and are not openly worried about losing creativity or their position as an artist.

Digital artistic creation processes

87.5% of participants use AI, regardless of their age or art medium and including both artists and arts professionals. The most popular AI software are MidJourney, DALL-E, Stable Diffusion, and ChatGPT. 18 said that they have used AI for testing ideas, 2 use AI for research, 4 use AI for idea creation, 3 use AI for image creation, 5 use it as a research tool, and 3 use it for text writing for the final piece (particularly video artists), and 7 have used AI in the final visual piece or exhibition. For example, some use DALL-E as it is easy to use but they notice it is not as powerful as MidJourney. Some use AI generated images for inspiration while others use them for

- 4 Miao Xiaochun (b. 1964) is a new media artist who is based in Beijing. Miao is known for his large-scale photographs and panoramas of modern Chinese cityscapes. His artworks include computer-generated installations including one notable artwork titled "The Last Judgement in Cyberspace". This is a 3D monochrome reworking of Michelangelo's "The Last Judgment" from the Sistine Chapel, whereby Miao has replaced every figure with a virtual model of himself. He began exploring the connection between the real and the virtual in the 1990s. He received a BA Degree from Nanjing University in 1986. He received an MA Degree from the Central Academy of Fine Arts in Beijing in 1989 and received a second MA Degree from Kassel Academy of Fine Arts in Germany in 1999. He also teaches Art Photography and Digital Media at the Central Academy of Fine Arts in Beijing. He was born in Wuxi, Jiangsu Province, and now lives and works in Beijing.
- 5 Yan Xiaojing (b. 1978) is a contemporary mixed-media artist based in Shanghai, Nanjing, and Toronto. She is known for her sculpture, installation, and public artworks. Her current artwork focus on how nature transcends culture through references to the eternal and natural geological time. This research and exploration began with an artwork titled "Spirit Cloud," which is a large oscillating cloud composed of individual freshwater pearls suspended on filaments of fishing wire. She received a BA Degree in Decorative Arts from Nanjing University of the Arts. She also received an MA Degree from George Brown College in Toronto in Jewelry Design and an MA Degree from Indiana University of Pennsylvania in Sculpture. She is originally from Nanjing but currently works in Shanghai, Nanjing, and Toronto.

their art creation process and others use them for the final artwork. Some use ChatGPT to create poems or scripts for final artworks, either by inputting their own question or an existing text into ChatGPT and waiting for it to generate text.

“I use AI and ChatGPT for research, to find out answers to my questions. It makes me feel less lonely in the creation process[...].I use machine learning for idea creation, and I use rendering and modelling for visualizing. And I use Blender and some mixed with Photoshop for generating the exhibition view.” (Maggie)

AI has a clear purpose and role in artists' work processes, either to help with idea creation, research, helping to create scripts, or as a central part of the final artwork. Hence, these artists' work increasingly revolves around using a combination of AI, machine learning, and digital software from idea stage to factory production stage. AI is used as part of the creation process and in combination with other digital software. They have gone past the stage of testing AI; AI is very much integrated into their artistic creation process. AI is most commonly used in the initial stage of artistic creation, before using digital rendering, modelling, or game engine design software. As Blair⁶ says, “Today, they can make the whole piece from digital. Digital-born art. More young artists are doing that. It is very new.”

As Wang Yiquan says, “because AI changes the image and the ecology of the image a lot and how we can make an image, the whole creation process has been subverted.” AI has its own distinct position and role in this digital artistic creation process. As CHILLCHILL⁷ says, “I think AI has its own beauty, aesthetic and style, totally different than 3D software and rendering.”

These artists apply this digital work process for the creation of artworks because they see it as efficient, cost-effective, and practical. As Armida⁸ says, “It's convenience, such as ChatGPT, it's really beneficial

to the creation of your work.” Maggie⁹ says “more people are doing it digitally in China, just because the production side of it is more approachable. With factories. Cheaper, more efficient, quicker.”

Artists can complete more work in a shorter amount of time with the aid of AI. This makes them feel they can achieve more, move forward quicker with ideas, and be more efficient and productive in their work. As Wang Yiquan says, “it moves my ideas forward.” This brings work satisfaction because the digital way makes them feel more accomplished. CHILLCHILL states the practical reasons for moving from being a painter to internet artist:

“I switched to 3D animation, it gives me more motion, and painting takes too much time. If I use the computer I can do it quickly, so it's more convenient, so I switched to the digital way. Painting needs a big studio with a high roof, you need to live outside of the city, but I like to live inside the city, so like this studio, it has to be small, too small for painting.”

This total turn to “the digital way” is germane to the culture and recent history of rapid digital transformation in China. The distinctiveness of China's technological development and its influences on the way artists work is shared by participants:

“In China now the digital things develop so rapidly and all the designing ways and techniques change in recent years so we need to study and create many new things with new rules and online tools.” (Santy)¹⁰

“In China, it's about how perfect you can do things, and then we have the technology, which can do better, so why not let the tech do things. This is many people's mindset. But if you want to be creative, you can get trapped with what the dig tech can allow you to do.” (Jenny)

6 Blair (b. 1996) is a member of staff in the Public Education Department at West Bund Museum in Shanghai, which is a privately funded contemporary art museum. She was born in Fujian but now currently lives and works in Shanghai. She received a BA Degree in Musicology from Shanghai Conservatory of Music and then received an MA Degree in Arts and Cultural Management from Pratt Institute in New York.

7 CHILLCHILL (b.1990) is a digital artist, internet artist, and 3D animator. He also works in the club scene to exhibit his artworks. His artworks have a digital aesthetic and feature a dystopian exploration of society today and in the future. One recurring theme in his work is the “share economy,” which is represented in examples of Mobike and Alipay. He graduated from Sichuan Fine Art Institute after studying Oil Painting. Several key galleries and museums have exhibited his work, including Ota Fine Arts, Shanghai. He is originally from Beihai and currently lives in Shanghai.

8 Zhou Chengzhou (Armida) (周承舟; b. 1982) is a film director and photographer. His work is concerned with problems relating to the mental and spiritual wellbeing of individuals. Zhou's work also revolves around the concepts of industry, urbanization, and marginalization. He was born in Changde, Hunan. He studied literature and language and Peking University.

9 Maggie Menghan Chen (Maggie) (b. 1998, Beijing) is a sculptor and mixed-media artist. She lives and works in Beijing and London. She obtained her MA Degree in Fine Art at Chelsea College of Arts following her BA degree in Art History at New York University. Maggie Menghan Chen explores the growth and metamorphosis of life in her sculpture works. Chen creates surreal sculptures that are hybrids of real and non-real elements. A lot of her inspiration comes from flora and fauna. Chen also sees her work as metaphors for the human psyche. The ferocity of beasts and delicacy of flowers represent the struggle between aggression and sensitivity in the mind.

10 Ting Sun (Santy) is an Associate Professor in the School of Art at Nantong University. She is also a researcher at the International Public Art Association and Shanghai Collaborative Center for Public Art. She graduated from Shanghai Academy of Fine Arts with a doctorate degree. Her research interests include urban public art and rural revitalization. Currently she studies at as a visiting scholar in the department of Computer Graphics Technology at Purdue University. Her research is committed to constructing a Chinese path of public art evaluation from the perspective of public participation, taking into account the development characteristics of public art and the transformation needs of urban-rural integration. Her public art work “Yuyangli Square” was selected in the “2021–2022 China Landscape Design Yearbook,” and she has acted as a curator of the 4th China Design Exhibition and Public Art Exhibition in 2023, and moderator of the 5th International Public Art Forum in 2020.

As a result, the role of the artist is changing, as they collaborate now with a digital suite and are always changing or updating their skills. This means that, as Wang Yiquan says, “the lone-scholar-artist tradition in China is changing.” The scholar of one material is not favoured by this generation of artists, who are always learning new systems for every project.

Artists’ creative (mis)uses of AI and digital software

Some artists discuss how they creatively misuse AI. They are also using AI and other digital software in novel ways and not in the ways the technology was intended to be used. Importantly, all are using AI in combination with other digital software, including Blender, Unreal Engine, Unity, Miya, and Premier Pro. They are combining software, mixing mediums such as video and game, or purposefully misusing the software. Participants use words to describe this creative control they have found, using words such as “training,” “controlling,” “mixing,” “breaking” and “influencing.” They say they do this to get creative results. CHILLCHILL says “I don’t like to use the software in the correct way. I don’t want to use it correctly. I want to mess around and do something new. Definitely, this way can be creative.” Also, Shi Zheng says “I break the system to use it well. I use a different technologies for each artwork to get good results [...] I try to think of other ways to influence it [the AI].”

Some artists are combining software for creative effect. As CHILLCHILL says,

“I want to mix them together [the software] to have something fun out of it. I just want to play with it, and see what I can get from it. I started using ChatGPT this year, Mid Journey and AI stuff. I am mixing them together[...] I get more and more freedom because now I can add more things inside and it changed my work a lot, made more freedom. There is more possibility than still image. The creating part with AI and software is more fun to me, because I can combine image, video, music, and then it’s like the whole performance. I really get used to using dig technologies.”

Many are purposefully not using the software in the correct way for creative effect. Instead, they want to “mess” and “play” around and do something new. As Yan Zhou¹¹ says,

“right now I’m working on my new work using Unity software that I use a lot, back in 2012 its totally different because if you know about lots of video artists they are doing the shooting they are using the camera to do the shooting and putting the footage into the software like FinalCut or PremierPro. So what I do is kind of different. Because I use this software *a lot* so right now I am doing something really experimental—I am using this real-time, this is prof game design software—but I use them as a video editing software.”

Discussion

These artists consciously use AI while still being mindful to maintain control over their creation process. This allows them to find space for creativity, originality, and authorship. Creativity, originality, and authorship come from mixing AI with digital software, misusing these technologies, or mixing mediums. Hence, they have changed the type of or way of producing and ensuring creativity, which is now comes in the form of mixing, combining, and misusing. However, this is only possible with the mastery of this digital technology. Nevertheless, many see AI as a tool they can control. They find ways of controlling AI so that they can maintain their positions as artists.

New digital software is seamlessly integrated into the artistic creation process because there was already an established digital process in place in China. AI is the latest edition to their suite of digital technologies for creation. This is the case for many types of artists, not only internet or mixed-media artists. Painters, sculptors, and installation artists also now use the same “digital way” and so also become “digital artists” or at least have become accustomed to digital art *work*. This can expand the meaning and definition of “digital artist” and shows what working conditions are like in an digital advanced environment. Importantly these artists seem to have moved well beyond only testing AI, as it is now well established in their daily work lives.

The increasingly close collaboration with AI is changing the artists’ role in the creation process. There is less physical labour involved in terms of playing with and creating physical materials. Subsequently, these artists have become a director or manager, using a suite of digital software as their team. Even though this is creating efficiency and convenience as participants say, the findings show how the increasing presence and reliance on new digital technologies places new labour demands on these artists. They believe that they should have the ability to learn this new technology and feel that those who can do this will have an advantage today. This learning of new technologies and accruing new digital skills has been felt acutely and as largely normalized across industry sectors and in society in China due to recent rapid and radical adaptations to new digital technologies.

11 Yan Zhou (b. 1988) is a new media artist. He is originally from Beijing, China. He received his BFA from the China Central Academy of Fine Art in 2012 and his Post-Baccalaureate Certificate in Visual Communication from the School of Art Institute of Chicago in 2013. He is currently MFA candidate 2015 in Visual Communication. Yan Zhou is an interdisciplinary artist and designer. His works combine daily experiences with conceptual understanding. Yan works with various media including printmaking, painting, drawing, films, and interactive design.

Conclusion

Currently, AI is being spoken about internationally in isolation and about what it can(not) do and its negative impacts on creatives and industries. However, the example of China can show an international audience how it is also beneficial to understand how people are using AI in creative combination or mixture with other digital software or using it in the wrong way for creativity and innovation and understand how artists are themselves pushing and developing the technology for their own ends. This can also show how *humans* can control this technology, how *humans* can generate creativity and innovation in collaboration with AI, maintain the position of the human artist, and create growth in the sector through these kinds of uses of AI. In fact, AI can make artists more creative and empower them as it can help them to move forward with their ideas faster and more accurately. Unlike many other countries that are still testing and trialling AI, these Chinese artists have mastered the technology and have found a space for themselves to be creative, experimental, and still be an artist within the technology. Forward-looking government policies on the integration of culture and technology have shown in this paper to have a direct impact and influence on how and how much artists and other cultural workers are using AI and dig software in their practices. This is also important to share with an international audience.

This paper has provided new ways to illuminate and better understand the platform-mixing and creative (mis)uses of digital technologies, including AI, in artists' creative process. It has illuminated bottom-up initiatives and ways of using AI. Hence, these findings provide an alternative perspective to concerns that tech companies have control in developing the tech and are moral arbiters of how you can use the digital technologies (Ganesh and Moss, 2022; Ross et al., 2022) and concerns around the underlying digital systems used by artists that dictate how they create, store, and present work. In fact, these Chinese artists are breaking the ways the software was designed to create works that reflect their own authorship.

Furthermore, a different set of considerations have emerged through speaking with contemporary artists, compared with from the IT sector, academic sector, or business sector, because artists are working independent from the bottom-up. This has also provided the human side in this mainly technological/business/commercial/company-based global discussion. With this new knowledge, considerations can be made for the future of artists' jobs, roles, and skillsets amidst digital transition. This can be applied in the future to ensure sustainability of artists' practices, creativity, and jobs and to maintain value in the art sector going forward. Digital technologies can be used for development; however, there is a need to know the reality of creatives' work and their first-hand, in the moment, perspectives on these digital technologies, to be able to understand how the art sector can sustainably go forward in the future.

This paper has shown how AI is changing the contemporary art sector and how it might impact the direction and nature of the contemporary art sector in the future. The paper has specifically addressed independent artists and their studio work practices in this shift in the industry. AI is discussed as taking over human creativity . . . but this paper shows it has changed working conditions in terms of making them more efficient, accurate, convenient, and allows them to move forward with their ideas more quickly. Hence, AI can serve as a facilitator for more efficient working conditions. In order to ensure sustainable jobs for artists and the development of the contemporary art sector, the following should be applied. We should set standards for best practices in using AI in art that can be applied in the future to ensure sustainability of artists' practices, creativity, and jobs and to maintain value in the art sector going forward. We need to understand and respect how artists are mixing AI with other software for creativity, mixing different mediums like game and video with art to make it creative but also to ensure their position is sustainable. If we want to respect and value this new medium long-term and for sustainable longevity use, then cultural managers and policymakers need to ensure the value of this new medium and recognize this medium as a carrier of culture in itself. There should be policy to ensure that artists' time can be used for artistic creation. The precariousness of continual learning and unpaid digital labour in learning new software should be regulated. There needs to be a clear cultural policy and management strategy to outline standards and protocol for regular training for independent artists.

This paper connected two sets of literature on precarious creative work (Sigler, 2017; Serafini and Banks, 2020) and on digital aesthetics and techniques (Astle and Muir, 2002; Kucuk and Soydal, 2003; Yilmaz and Celic, 2011; Manovich, 2018; Contreras-Koterbay, 2019; Liang, 2022) in order to raise awareness on and increase the amount of literature on the impact of AI on working cultures. As a result, this paper has been able to more concretely demonstrate how "digital art work" is much broader than previously conceived in the literature as only digital artworks, the digital aesthetics applied, and digital techniques of the artworks (Astle and Muir, 2002; Kucuk and Soydal, 2003; Yilmaz and Celic, 2011; Manovich, 2018; Contreras-Koterbay, 2019; Liang, 2022). This has been achieved by showing digitality in artists' everyday work practices rather than only final artworks. This paper has also helped update literature on the nature of work in the contemporary art sector and has also progressed this literature by exposing the shifts in work practices that have taken place due to the introduction of AI. There is now a digital working culture that includes more efficiency and innovation as well as new digital labour demands. Rather, existing scholarship has a lot to do with creative labour as "freelance," "precarious," or "passion but precarious" working conditions (Serafini and

Banks, 2020) and the totalizing nature of their work that leads to a blurring between work and life (Sigler, 2017). However, this paper has updated these conceptions of “creative work” and “creative workers” by showing the nature of digital work, the digital nature of contemporary visual artists’ artistic creation process, and contemporary visual artists’ feelings about AI and digital software. Moreover, this paper has provided a new perspective on this topic from China today rather than existing literature that is more commonly about the West and Global North. Hence, this paper has updated and expanded literature on digital techniques and aesthetics and the opportunities of AI to provide more efficiency at work by talking to contemporary visual artists.

Data availability statement

The datasets presented in this article are not readily available because they are secure and private. Requests to access the datasets should be directed to emmaduester@sjtu.edu.cn.

Ethics statement

The studies involving humans were approved by the USC-SJTU Institute of Cultural and Creative Industry, Shanghai Jiao Tong University Ethics Committee Board. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided verbal or written informed consent to participate in this study.

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Permission was also gained for use of specific quotes from participants that are used in this paper. Participants included in this paper have also agreed to be identified and have provided their names.

Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontierspartnerships.org/articles/10.3389/ejcmp.2024.12470/full#supplementary-material>

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