**Confusions are bolded**  
Fundamental questions:

* Is AI art really art or just the output of “complex calculations” as the text puts it?
* What does this tech mean for human artists working in video games, art, music or TV (interestingly enough these are the areas that multimedia computing integrates with computer science)?
* Are their creativity and skills being devalued?

AI is trained on millions of images including copyrighted works by human artists who can’t opt out; some artists accept this while others see it as theft

Karla Ortiz, who is an illustrator and a board member of the Concept Art Association (CAA) says, “The first time I heard about these tools, I was actually quite curious. But the more I found out about how they are created, what kind of data they not only use, but need, to generate results, I started becoming much more hesitant, to the point where now I cannot in good conscience or good faith suggest to anybody in my industry to use these tools, whether they are a concept artist, an art director; not anybody.”

Programming computers to mimic human creativity dates back several decades (the earliest example being in 1973)

In the 2000s, innovation accelerated because of the development of computer coding resources for artists (e.g. p5.js), open-source projects and the public availability of huge datasets (e.g. ImageNet) that can be used to train algorithms to identify objects and classify photos

Recent improvements in GenAI have combined complex deep-learning techniques that act like a human brain with massive computing power

Specifically, they exploit neural networks trained on image datasets to detect and recognize underlying features and patterns and create a similar content “without being a carbon copy” based on user text prompts

Sometimes GenAI systems struggle to draw certain features like hands and feet, but have still rivaled human art

An AI generated work won the digital art category at the Colorado State Fair in the summer of 2022 even though the artist did not disclose that his work was AI generated; the winner said, “

Art is dead, dude” to the New York Times and insisted that he didn’t break any rules, but other artists were very angered by this

Dr. Mark Wright, the director of the Foundation for Art and Creative Technology at Liverpool John Moores University says to E&T, “AI art has some history to it, but these amazing deep-learning systems and convolutional networks seem to have produced a step change in competence, which is really remarkable. Where before artists had to be embedded with scientists or technical people to achieve anything using AI, today anyone can achieve results.”

Many artists also embrace AI and use it to enhance their work; one artist Xander Steenbrugge edits the open-source code of the AI to change the image output, showing that AI image generation can be creative and doesn’t have to be little to no effort

Professional illustrator Keith Rankin also experiments with Midjourney and is shocked by the jump in quality from its latest update which included the ability to accurately copy already existing human-created art; he says, “Right now, I see AI as a tool for creating references or generating ideas, but that could change quickly” and “Project that further and further into the future and the possibilities are even more overwhelming;” the first quote implying that AI can quickly become an artist of its own

AI may also be able to do tasks usually reserved for human artists, which may have damaging implications for the art profession because if AI has proved itself to be better than humans at a lot of tasks already (which it has), then how would art be any different?

Abhishek Gupta (also quoted in the *MIT Technology Review Article*) says, “There is an obvious implication for the livelihood of artists, in particular those who rely heavily on funding their creative pursuits through commissioned art like book covers, illustrations, and graphic design. An erosion of avenues to commercial gain for their hard work is sure to have the twin effect of depressing existing artists’ financial means and discouraging newer artists who want to pursue the field as a full-time career.”

Dan Eder, a senior video game character artist, adds, “One can’t help but feel like it’s a matter of time until our hard-earned skills are no longer needed,” but believes that artists should “find ways to bring their unique talents to the table in a way that machines simply aren’t able to achieve.”

Millions (sometimes billions) of images are scraped from the web and other sources to train models to identify and mimic patterns in data in order to have AI programs generate images; many of them are made by people and have some sort of copyright protection

CAA’s Ortiz says, “This type of AI isn’t just training to be an artist replacement; even more egregious, it wants to be your replacement using your own work” and “When people call it the democratisation of art, I see it as bringing art theft to the masses. That’s a bold statement, but these new technologies are improving all the time.”

Legally, it is still being determined whether human artists have any legal claim over the models or the content that they generate and if AI programs are capable of infringing copyright

AI researchers in the US are claiming fair-use

Fair-use might hold up when training models w/ other people’s data, but not when the generated content threatens the original art’s market (sounds similar to the unfair competition claims of the Andersen v. Stability AI); for example, if you prompt an AI trained on a painter’s art to paint a painting by that artist and then sell that paining at an auction then your intention is to compete with the original artist

The text writes that a class-action lawsuit against the AI system behind GitHub Copilot, which is designed by Microsoft and OpenAI, could give some clarity on the future legal landscape for GenAI, but **the text’s phrasing makes it unclear whether this lawsuit already exists or if the text is proposing a hypothetical lawsuit that would do as such**

A starting point for artists who believe that they have been copied (beyond legal implications) is to find out if their work has been used to train AI models:

OpenAI refused to share the data that DALL-E 2 was trained on, but Stability Diffusion’s code is open-source and shares details about the database of images that it’s trained on

Artists can also use the “Have I Been Trained?” website to search the images used to train AI models, including Stable Diffusion and Imagen; they can also opt in and out of training, set permissions for how their art styles and likeness are used and even offer their own training models to the public. Stability AI is even using this tool for opt-in/opt-out and is working with the Content Authenticity Initiative, which is advocating for an open industry standard for “content authenticity and provenance.”

The marketing and PR person at Stability, Nathan Lile, says, “Our current stance is that transformer architecture [neural network architecture] learns first principles and does not replicate any of the training materials.” E&T also reached out to Midjourney and OpenAI for this feature  
Steelbrugge is one of the artists willing to “opt in” and allow AI models to be trained on his portfolio; he says, “I feel like being against this is a bad strategy” and “The big benefit is people can much more quickly iterate and make variations and remixes of other people’s works. Rather than staring blind at the copyright issues, the upsides are also really large.”

Rankin says improving transparency in how AI models are trained is a step in the right direction to see how AI training works and where the images are coming from, but the next move should be to compensate or credit artists in some fashion when an image draws from a specific piece; in the future he envisions “more curated data sets, or community data sets” that address artists’ concerns

The content generated by GenAI can also be very harmful; it has the potential to be used for violent or abusive imagery, but Midjourney’s rules state that users shouldn’t “create images or use text prompts that are inherently disrespectful, aggressive, or otherwise abusive,” and moderators vet content

The way AI models are trained can cause them to reinforce societal biases, stereotypes and prejudices like racism, sexism and ableism (discrimination against disabled people)

**Not sure if this last section (Bias amplified) is out of the scope of my research?**