Maverick* Research: AI Creativity Will Ruin Art — and That Would Be a Good Thing

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Initiatives: Artificial Intelligence

There is a general belief that some AI techniques that are democratizing creativity, including generative adversarial networks, could compromise the quality of art and undermine creativity. This Maverick research asks if AI creativity might actually fix the vulnerabilities in the current art market.

Overview

Specific Maverick Caution

This Maverick research breaks new ground by presenting a new creative medium, one that is powered by composite AI techniques and creates hyperpersonalized experiences as opposed to a definite static creation. However, the new medium will pose a challenge to the existing market model of “Art” and make it more democratized and accessible to the masses. Furthermore, this research contradicts the prevailing wisdom that AI-generated art is not "original" in the same way as a human-created piece. Since the economy of art created by a generative adversarial network (GAN) is still not established in the mainstream, the findings presented here should be read with caution.

Maverick Findings

- The market for fine art is currently unequally distributed. The price of famous artworks is getting higher, but emerging artists are finding it difficult to attract buyers.

- There are early signs of GAN art projects that identify a genre and different styles and follow the human behavior of learning by exposure to art and then create new art.

- GAN art may be a completely new discipline that is different from painting or sculpture and would be credited to an ensemble rather than any individual.
Maverick Recommendations

- Use the potential of AI algorithms to identify different styles of art and prioritize creating fundamentally new work rather than following “The Next X” pattern to cash in on a long-gone artist's popularity.

- Create an economic model that rewards all participants in a GAN project by including the humans in the loop who have either contributed with ideas, skills or code development.

- Exploit the potential of GAN by creating hyper personalized ‘experiences’ in the fields of marketing, advertisements and commercial art functions rather than creating static one-off projects.

Strategic Planning Assumptions

By 2025, almost 80% of all new creative projects will have one or more GAN components.

By 2025, almost 50% of all artworks created and sold will be created by GAN and will have more than one entity identified as creator.

Maverick Research

This is "Maverick" research, designed to spark new, unconventional insights. Maverick research is unconstrained by our typical broad consensus-formation process to deliver breakthrough, innovative and disruptive ideas from our research incubator. We are publishing a collection of several Maverick research lines this year, all designed for maximum value and impact. We'll explore each of these lines of research to help you be ahead of the mainstream and take advantage of trends and insights that could impact your IT strategy and your organization (see Note 1).

Analysis

Slowly but surely, AI is starting to affect every aspect of life. AI helped with "predictive text" in writing this research note. It helps with medical diagnosis. It puts together music playlists to match our mood. And, increasingly, it will create art as well.

This poses a number of questions:

- Can AI generate true art that people are willing to spend money on, or will AI devalue art?
In this research, we explore the answers to the above questions but first, let us take a look at the current state of affairs of the art market.

Is Everything Alright in the Art Market?

Despite the 22% drop from its previous year due to COVID-19 impacting the economy, Art Basel estimates that the global art market annual spend was an impressive $50.1 billion in 2020. The top five of the most expensive artworks sold in Christie's auctions in 2020 alone fetched $287 million. As one would expect, renowned artists such as David Hockney and Roy Lichtenstein featured in the luminaries with Nichols Canyon (1980) and Nude with Joyous Painting (1994) sold for $41 million and $46 million respectively.

A closer look at the above market shenanigans would reveal a definitive pattern. In most cases, the artworks fall under one of the following categories:

- **The latest work by a celebrated contemporary artist who is alive**: This subset is very niche. At the time of writing this research, no more than five living artists can sell individual works for more than $100 million.

- **An important work by a contemporary artist that was created earlier in their career**: The artwork may be a few decades old, but much celebrated by the established art world.

- **A controversial work or any work by an artist who is considered a genius (and is no longer alive)**: The artwork may not be of superior quality, but has been elevated in value because of the association with the artist. Salvator Mundi, a long-lost work thought to have been painted by Leonardo Da Vinci (that incidentally became the subject of a fringe conspiracy theory) sold for $450 million, making it the most expensive artwork of all time.

- **A famous painting by a famous artist**: It is quite rare for this category to be available in the market. Nobody expects the Mona Lisa to suddenly come up for sale, but similar events have happened. For example, Italian Renaissance master Sandro Botticelli's Portrait of a Young Man Holding a Roundel sold at Sotheby’s in New York for a record-breaking $92.2 million.
Sales at the high-value end of the art market are driven by a small group of artists who are in turn represented by a small number of galleries.

Increasingly, it is becoming difficult for emerging artists to survive by selling their work. A Masters Degree in Fine Arts costs between £150,000 and $200,000 in tuition fees alone. According to .art, only 0.2 percent of Ivy League arts graduates can ever achieve a sale of their artwork at £10 million or more. 3 Even then, a large part of the price would go to galleries and auction houses if the work is sold in the secondary market. In short, the "highest" price for artworks is getting higher in a very unequally distributed way. In an interview with Vox, Olav Velthuis, a professor at the University of Amsterdam who studies sociology in the arts, notes "It's a winner-takes-all market," alluding to the biggest driver in the world of the art market — scarcity. 4

But now let us ask ourselves a question. Is scarcity a necessary trait for good art? We have looked at three definitions of art in philosophy by Plato, Hegel and Kant, and that has led us to answer with an emphatic “No!”

Plato said that art was representational, or mimetic (a word that is sometimes translated as “imitative”).

Kant said it is “a kind of representation that is purposive in itself and, though without an end, nevertheless promotes the cultivation of the mental powers for sociable communication.” 5

Hegel's account of art incorporates his view of beauty as the “sensuous/perceptual appearance or expression of absolute truth. The best artworks convey, by sensory/perceptual means, the deepest metaphysical truth.”

It is also interesting at this point to note, along with the aforementioned important transactions in the market, there is one that really grabbed the headlines.

A painting called The portrait of Edmond De Bellamy was sold at Christie's for $432,000. 6 The art piece was created by a French curator group called The Obvious that trained an algorithm created by a teenager, Robbie Barrot, with portraits from the renaissance era. 3 Interestingly, in the place of the artists' signature the painting is “signed” with the algorithmic formula. The event raised many questions including: “Can any art created by AI be called original?” (see Figure 1).
Figure 1: The Portrait of Edmond De Bellamy and Its Algorithmic “Signature”

Source: Adapted from Christie’s
GAN and the Art of Original

There is an ever-growing interest in AI-enabled platforms that help users with moderate or no artistic background to create artforms that resemble superior quality. Since the publication of our research note in 2019 (see Maverick* Research: Creativity Is Dead, Long Live AI Creativity!), use cases for creative AI have nearly tripled in numbers with some of them becoming quite mainstream. Applications such as Artbreeder, DeepArt.io, Deep Dream Generator and Playform have witnessed increasing popularity. Most of the platforms above work on a large library of samples collected over time representing work of renowned artists of the past mixed together with formats and persona of the end user. Some success stories include Phillippe Starck of Kartel brand, who designed critically acclaimed furniture with the help of 3D design software Autodesk, and graphic designer Nikolay Ironov from Russia's Lebedev Studio, who dazzled clients with his bold choices for logos and ad campaigns, despite being an AI.

Now the question is, if the Edmond Bellamy portrait is the result of a dataset from different Renaissance paintings, then can it be called original? Thought-provoking? Rebellious? There have even been discussions on the painterly blurriness at the edges of the artwork, which many have seen as an imitation of the style of Francis Bacon, and so not original. Art has always mirrored the society and culture of its day, and acted as an affirmation of the collective intelligentsia of a moment in time. In art, music and sculpture forms, creativity sometimes even provides missing pieces of the puzzle to science and technology questions. Apart from common practices or prevalent customs of a society, some artworks have cleverly presented evidence of minority viewpoints or even foresee a revolution that would later on usher in a new era.

Liberty Leading the People, a painting by French artist Eugene Delacroix commemorating the July revolution of 1830, is considered a marker to the end of the Age of Enlightenment and the start of the Romantic era. The Scream (originally titled The Scream of Nature) by Edward Munch, reflects the depression and grim climate consequences of the Industrial Revolution.
Can a GAN-created artwork ever hope to do all of this? The way GAN works is that it operates on an “adversarial” model, as its name suggests (see Innovation Insight for Generative AI). The main components of the model — the “generator” and the “discriminator” — are at war with each other in a fashion that the former is trying to be probabilistic and the later deterministic. The generator (let’s call it a “con artist”) processes a noise signal, and passes it on to the discriminator (let’s call that a “detective”) for checking. Now the detective matches the work with the training dataset and produces a fitness score based on the match. Rejecting the ones with low scores, and feeding back the generator with samples that are close to the training dataset. With each cycle of positive reinforcement, the con artist gets better and better, eventually reaching “Nash equilibrium” where each character knows what the other is playing at, and producing a work that is barely distinguishable from the training dataset and fooling/convincing the detective.

Many earlier GAN models concentrated on the deep generative model, but did not make the discriminator part deterministic — perhaps a reason for the fuzziness in the Edmond De Bellamy portrait. However, in a recent development, two students at Williams College — Kenny Jones and Derrick Bonafilia — have created a project called GANGogh that introduces an additional global conditioning vector.

This vector helps the discriminator identify not just patterns, but the genre and style of the art. The model isolates one hot vector that acts as the catalyst to influence the genre to be what it is. By doing so it can learn about the distinctive style and apply that style to the generative style of another genre. This is exactly how the human mind works when it uses “exposure to art” to learn and interpret life experiences and “create new art.”

In future, two-tiered GAN models could be improved with additional conditioning information, specifically in addition to genre conditioning, another hot vector with style information could be used. And then further division of AI-generated art combinations could be explored, such as the renaissance portrait versus the abstract portrait. This approach also opens the possibilities of realizing previously impossible artworks combining more than one medium, such as sculpting based on Bartolomé Esteban Murillo’s style of painting.

In future, GAN models should incorporate the following three composite AI techniques:

1. Linguistic analysis that can scan a society’s output and pick up on the “zeitgeist” of the culture.

2. Determine what kind of artistic styles can convey the emotions detected in 1.
GAN Art and Pricing

Why are some artworks more expensive than the others? Or more importantly, why is one artwork sold for millions while another that uses the same colors, materials, canvas and school of painting is sold for a tiny fraction of that? Many factors influence the price of an artwork — its history, its creator (and which phase of their career they were in when the work was created), which gallery is selling the work, and many other factors. So, what happens to contemporary artists? Do they achieve recognition in their lifetime? They do, but only a very few of them. Generally, a very small set of art critics, studios, and galleries build a consensus as to which work is a cut above the rest. Then comes the art connoisseurs and frenetic bidding wars start in auction houses. However, as stated above, only a handful of artists see their creations receive high-end prices.

So, how will GAN art be priced?

The portrait of Edmond De Belamy was sold at Christie's for $432,000. However, this perhaps will not be the case in future as the next in the series (created by the same team), La Baronne de Belamy, sold at Sotheby's for just $25,000. A similar fate befell the other nine paintings that were created as part of the La Famille de Belamy series. More and more, GAN-created art is being sold or made available as a hyperpersonalized experience. German artist Mario Klingemann has created a video installation called “Memories of a Passerby” that displays a never ending stream of images that last for only a few seconds. Every visitor will see a portrait that is unique to them. Robbie Barrat's (of Edmond De Belamy fame) latest work is a collaboration with a painter named Ronan Barrot, training a GAN on the latter's many paintings of skulls. The project is a “peepshow” box, which only one person can look at at a time. Each person peeping into the box and pressing a button will see an image of a skull that will never be displayed again.
As GAN is repeatable, it is likely to become more accessible through open, democratized platforms. It could break the barriers that favor wealthy collectors and keep out normal art lovers. Also, as GAN is natively digital, the market is likely to be online, further shifting the control away from auction houses and galleries. Artists will no longer be forced to concede hefty commissions to galleries and dealers. Although the “premium” price of art will likely come down, art will find its way to more everyday objects and enrich the lives of a broader mass of people (see Figure 2).

**GAN and Ownership**

One of the motivations behind anyone pursuing art is the admiration that the artists get from society. So, would you recognize a GAN artist or a project by name (for example, Robbie Barrot) in a similar way as perhaps a Rembrandt or a Hockney?

The answer lies in the “signature” for the portrait of Edmond Bellamy. We must treat GAN art as a different medium for art or entertainment.

Comparing traditional art with GAN creations would be like comparing books with movies. Movies treat novels as the source, but add more dimensions to make a narrative palatable and consumable for the masses. Similarly, GAN may help create art that is more democratized and accessible.
We would see challenges with copyright in the inceptive days of mainstream adoption of GAN. Questions such as “How close can a GAN-created work get to an artist's style before it becomes subject to copyright?” would arise. The danger for the artist is that they paint a couple of pictures in a new style and then the GANs flood the market with many variants of it, making the new style unremarkable. However, GAN operator platforms and open-source networks should devise a copyright method that identifies all the actors behind a creation. No one individual is credited with the making or success of a movie. It is regarded as a joint effort of the director, screenwriter, actors, and the entire crew, including the post-production artists. GAN creations can similarly be identified by the humans in the loop, the original artist, and the algorithm itself.

GAN Art Will Be Different From Conventional Art

GAN art will not replace the traditional art market overnight. There will always be a parallel market for original, hand-painted work. However, an artist can develop a particular style or technique, that can only produce a limited number of artworks, and only those with money can afford to buy them. But there is another reason why people buy art. Not as a financial investment, but simply because people like art. It touches them. People are drawn to an artwork because of its beauty. GAN Art may turn this deeply rooted principle around and create a new type of art: a shift from people being drawn to an artwork, to an artwork that is drawn to a person.

If AI can generate art of similar aesthetic quality to that of a renowned artist, and can be produced on demand, then art can be democratized in a true sense, where everyone can enjoy it. What sets GAN apart is the promise of “Infinite outcomes.” Hyperpersonalized art becomes something more than a token or trophy to be displayed as a sign of “taste” or “wealth.” GAN art would emphasize the qualities of art that are defined by the philosophical definitions of art such as “the cultivation of mental powers of sociable communication” or any individual's view of beauty. If appreciation of art helps build a better society, and causes people to contemplate more, then being able to generate it cheaply and distribute it widely or even dynamically at will should be a good thing.
Acronym Key and Glossary Terms

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<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Creative AI</td>
<td>Creative AI is a subcategory of generative AI that produces art and work guided by the imagination of an artist and powered by machine learning methods that study a representation of artifacts from historical data, and use it to generate brand new and unique creations.</td>
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<tr>
<td>GAN</td>
<td>Generative adversarial network.</td>
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<tr>
<td>Generative AI</td>
<td>Generative artificial intelligence refers to algorithms that can create novel digital media content, synthetic data and digital models of physical objects for a wide range of use cases.</td>
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Evidence

1. The Art Market 2021, Art Basel and UBS
2. The Most Expensive Artworks Sold in 2020, Artsy
3. AI-Generated Portrait Sold for More Than 40 Times Its Estimate, .art
4. Why Is Some Art So Expensive? The $63 Billion Art Market, Explained, Vox
5. Kant, Critique of the Power of Judgment, Guyer translation, section 44, 46
6. Is Artificial Intelligence Set to Become Art's Next Medium? Christie's
7. These Funky AI-Designed Chairs Are the First Commercial Product Created by a Generative Algorithm, Adweek
8. Clients Loved This Designer's Work. Turns Out, He Was an AI, Fast Company
9. GANGogh: Creating Art with GANs, Kenny Jones
10. Memories of Passersby by Mario Klingemann, Vimeo
11. AI Artist Robbie Barrat And Painter Ronan Barrot Collaborate On “Infinite Skulls,” Artnome
Note 1 Roots of the Word “Maverick”

Derived from the name of Texas rancher Samuel Maverick and his steadfast refusal to brand his cattle, “maverick” connotes someone who willfully takes an independent — and frequently disruptive or unorthodox — stand against prevailing modes of thought and action.

Note 2: AI Use in Other Artforms

Although we have highlighted GAN's application in painting, AI has proliferated all forms of art. Here are some OpenAI examples of projects in different fields:

MuseGAN, An AI for Music Generation

Artificial intelligence — Combining GPT-2 and BERT to Make a Fake Person

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