

AI GENERATED ART AND ARTISTS

Ms. Sneha Roy

Abstract

GenAI or Generative AI is a groundbreaking development in the world of artificial intelligence. It defies the traditional distinction between machine and human creativity. GenAI boasts applications across text, images, audio, video, animation, music, code, and beyond, promising limitless possibilities.

Text generation, exemplified by ChatGPT's rapid adoption, represents one of the most advanced and widely used domains. However, GenAI isn't without its challenges, including the phenomenon of "hallucinations" where it fabricates seemingly realistic but false information when data is lacking.

Image generation, though less professionally employed than text generation, is gaining traction in graphic design, advertising, and personal creativity. These models are trained on extensive datasets, allowing them to produce images based on textual prompts. Nevertheless, they have high error rates, particularly in rendering human anatomy.

The usage of AI-generated art is a complex and ethically intricate terrain, raising questions about inspiration, plagiarism, and ethical considerations. GenAI's evolution poses a range of challenges, from ethical concerns to addressing its limitations, and it remains distinct from human creativity, serving as a creative tool with immense potential and ethical complexities.

Keywords: Artificial Intelligence, Art, GenAI

JEL Classifications: O330, A120, 031

1. What is GenAI?

Machines are great at cognitive tasks like crunching numbers, finding patterns, and identifying anomalies almost at superhuman speeds. Humans are great at creative tasks like painting a picture, writing a song, and making a film. And until recently machines had no chance of beating humans at the latter. But now there is a new class of artificial intelligence (AI), generative AI (GenAI). And it's ready to take on the challenge of beating humans in the creative realm as well. This class of AI can create things that are beautiful, believable, usually relevant, and always fast. And starting in 2022, it has become widely accessible globally thanks to the availability of cheaper computing.

2. Applications of GenAI?

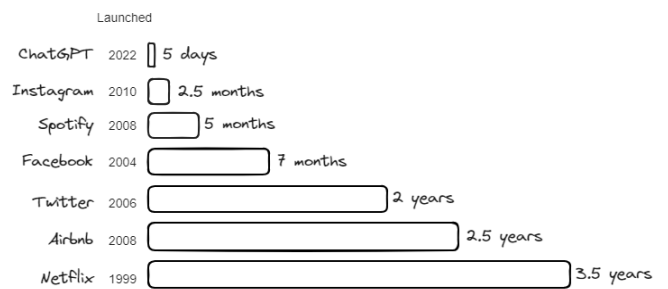
Just as creativity has no limits, applications of GenAI are countless. They can be in the fields of text, image, audio, video, animation, music, code, video games and so much more. But the most commonly used form of GenAI is text generation with image generation coming at a close second (Huang & Grady, 2022).

2.1. Text generation

GenAI is not only the most advanced in

users. See more businesses and their race to the first million users below.

Applications of text generation



commonly include generating summaries of large corpora of text for research, creating emails by virtual sales staff, and writing chat responses by virtual customer service representatives. AI-generated text is significantly more realistic than previous-generation robo-communications.

However, there is a major pitfall that consumers of this technology should be aware of. It is the concept of hallucinations. A GenAI model is known to be hallucinating when it makes up random facts that appear very realistic to an unknowing user but are completely made up. The model is prone to doing this when it doesn't find the answer to a question asked by the user in the provided corpora of text.

Image generation: This domain of

Text	Image	Code	Audio	Video	Animation
Marketing content Sales emails Support chat Creative writing Note taking	Graphic design Advertising Consumer products Social media	Text to code Code documentation	Voice synthesis Audio summarization Music generation Voice over	Video editing Short film generation	Video games 3D models Medicine Chemistry

this domain but is also the most used. ChatGPT reached 1 million active users within 5 days of its launch (Ahmed, 2023). For comparison, it took other online services like Netflix and Twitter over 2 years to get their first million

GenAI is starting to find its place in graphic designing, advertising, media, and sales. However, currently, it is used much less professionally than text generation and is more used for personal use. It is much more fun and creative too.

If we can imagine it, AI can generate it - whether it's a grizzly bear flying a kite in space or an underwater car race. The internet is flooded with portraits generated in the style of Leonardo da Vinci and modern landscapes painted in the style of Claude Monet (Seehawer, 2023). These models are trained on the history of art and contemporary culture and it is up to the user to think of creative prompts to generate amalgamations of all the images these large models have seen and learned from.

3. How does Image Generation work?

Image generation models are trained on an enormous corpus of data. One of the most

popular and largest-scale open-source dataset available for research purposes is LAION-5B. It has over 5 billion image-text pairs. This dataset was collected by scraping the internet for images and corresponding text describing the images.

This type of dataset consisting of image-text pairs is used to train generative models to learn how to create new images. During training the model sees a text description and an image. It then repeatedly and progressively hides parts of the images and tries to recreate the hidden parts. This is very similar to how we see an image or a scene and try to recreate it from memory. We then compare our drawing with the reference image to see where we need to improve and practice until we perfect it.

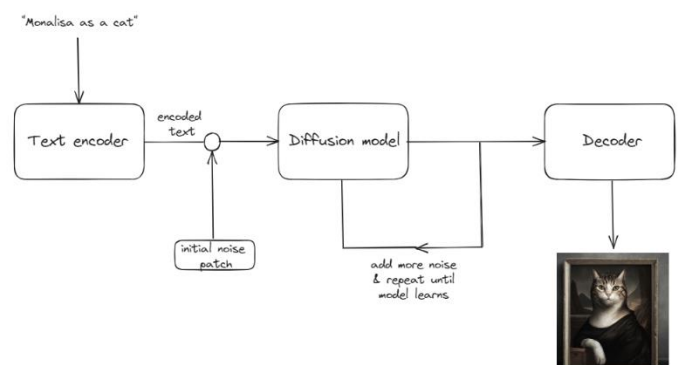
One class of such text-to-image generative AI models is called Diffusion models. This type of model gradually adds Gaussian noise to an image, in a way diffusing the image. This process gradually hides parts of

the image. Here the model learns the path taken to make the image noisier over time and then tries to reverse the process by navigating back, removing the noise, and drawing the missing parts of the image (Stenbit et al., 2022)

Image Source:

<https://laion.ai/blog/laion-5b/>

The most popular AI generator tools like DALLÉ-2, MidJourney, and Stable Diffusion use their versions of Diffusion models following the above principle of adding noise to hide and



removing noise to recreate an image to align with a text description, also known as a user prompt (Altexsoft, 2023).

Who uses AI-generated Art and how?

Open-source AI art generators are not approved for commercial use by most businesses. And the businesses that do intend to use AI-generated art commercially may need to get the AI art generators' licensing requirements met regarding specific usage of the generated art as well as be wary of copyright issues related to individual components of the generated art. With all the complications around the commercial usage of AI art generators, it's rarely used for those purposes.

However, this does not always stop users from generating art using AI and selling them commercially. This is because licensing and copywriting AI art is very tricky and still quite fuzzy. If

we think of the machine as a human artist for a minute - it's learning from and getting inspiration from the artworks of other artists and then generating something completely new



that did not exist before - just like a human artist would do.

The artists whose artwork, the machine used for inspiration do not know or approve of their art being used to learn from - just like they did not approve another human artist to look at their art, be inspired, and create their own art from it. The massive difference between the machine and the human artist taking inspiration to create art is that the machine can do in a few seconds what would take a human artist days or months to do.

The Perspective of an Artist

This seems unfair to the artists whose artwork was used to train these large image generation models, especially since they were just scraped off the internet and no credits were given to the artists. But it's even more unfair when a user takes this tool, generates art in another artist's style, and then sells it. This capitalization on another artist's creation seems to be what artists are most unhappy about and rightly so. For an artist, it's an entire process and an experience creating artwork. And having their art being used as a product that can be so easily recreated and sold without any credit to the original creator seems wrong.

The Perspective of a Data Scientist

Developers of this tool have a perspective as well. The emphasis is on the fact that this is just a tool - just like a computer or a knife is. We can use a knife to cook up a delicious meal or we can use it to hurt someone. The plagiarism is not coming from AI but from the users of this AI tool, specifically, those wanting to generate art in another artist's style. Developers agree on the need for many more guardrails to be added within the models to prevent results for such prompts, at least discouraging plagiarism. There also need to be stronger guidelines around usage. And there need to be regulations around the commercialization of AI art to protect an artist's creative property.

Another important factor from the perspective of the developers of this tool is the error rate. AI art generators have an extremely high error rate, especially when it comes to faces, fingers, and limbs

- which cover a majority of the human anatomy. This is largely due to the fact that the models just haven't seen as many of these images as they need to be able to learn to draw them accurately.

4. Closing thoughts

There is a lot that needs to be addressed and figured out in the GenAI world, specifically the image generation world. All parties involved should be accountable for the ethical use of this very powerful tool. It will only get better and more powerful over time. But it's not quite at the same level of sophistication as human artists yet. So, on a mildly nightmarish end note, let's take a look at some artwork generated by AI that will prove that despite all the hype around AI art, it is far from generating art like an everyday human artist (Tangermann, 2023).

Image Source:

<https://www.vecteezy.com/>

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