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AI Art Generation Threat or Tool for Traditional Artists

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Abstract

The recent development of AI technology has created a discussion on how the new powerful tool affects the art world and traditional artists adversely. Yet some people insist that AI art generation is a threat to artists because it can replace them. Some people will consider it as an improved tool, which can complement the traditional methods of creative work. This paper provides a fair evaluation of the opportunities and risks associated with the AI art generation taking into account different angles used in the art context and the AI studies. Therefore, this paper concludes with a view that artificial intelligence art generation is a difficult task for conventional artists and also a new pathway to artistic and collaborative endeavours. Finally, the place of AI-art generation as a proper domain within the art world can be considered open only for further evolution regarding the symbiosis between human artists and AI artists.

Keywords: Artificial Intelligence (AI), Art Generation, Traditional Artists, Creative Expression, Art World

Introduction

Since the advancement of Artificial intelligence (AI) technology, the use of AI in producing art pieces has lately dominated the art market since the AI algorithms are now in a position of producing better artistry with better images, music among other



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forms of art. This has raised a question about the effects of AI art generation on the art industry and artists including traditional ones. Critics state that computer-assisted art creation erases artist's opportunity to earn living and compromises artistry. While some people consider it as a remarkably useful adjunct to individual human imagination and as such represents a very useful element of human creativity. This paper seeks to offer a consideration of the advantages and disadvantages of the AI art generation and has relied on different views from different perspectives including art and artificial intelligence.

Literature Review

Historical Overview of AI and Art

Art created with the help of artificial intelligence has existed for several decades, at least since the middle of the twentieth century when the first computer programs that were used as artists. Over the following decades the technology of AI develop and it became possible to create ever more elaborate and intricate works of art. For instance, in the 1990s, there were programs that employed AI to create music, poetry and any other artistic work. Even in the past couple of years with the emergence of deep learning algorithms defining art by AI is nearly impossible this gave rise to the issue of discussing AI art and considering it as art and its potential to threaten traditional artists. Today, AI can produce artwork in form of paintings, sculptures, installations, performances and more, with some of AI works selling at high price at social auctions and exhibitions. All in all, it is safe to conclude that AI is a continuing progressing approach to creating art and there might be even more innovative progressive development in future.

The Current State of AI-Generated Art

The present state of the discussion of AI generated art is still young and constantly improving. In a more detailed note, modern developments in the domain of AI include features of deep learning as well as neural networks that allow creating rather complex art. Techniques and numerous tools have made it possible for machines to create different forms of arts such as painting, sculpture installations and performances. Some are created with the intention of imitating the painting style of an artist while some are created through more random/recreation of an artist. It challenges both the conception of what art is and the role of the artist in a world in which artificial intelligence is capable of creating art which is visually almost indistinguishable from that crafted by a human. AI art is also on the rise in recent years, therefore, some of the AI-generated artworks are sold at many auctions and exhibitions. All in all, AI generated art with all its pros and cons is at the cusp of promising possibilities opening up the art world in the next few years.

Future Prospects of AI and Art

The future of AI and art is one of the most potentially promising and at the same time, the most discussed area of the interactions between art and new technology. When AI technology continues to grow, there is an opportunity to develop and design more



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complicated and intricate artistic masterpieces by the use of artificial intelligence technology. Several analysts have put their pens forward and marked that AI will gain widespread usage in the art world and the art makers through an AI program that will give an artwork that will be hard to distinguish from the ones made by artists. Some of them are even more pessimistic and insist that while creativity will always play a primary role in the art world, it will remain beyond the AI reach. However, one thing is certain: the future AI and art experience might be filled with more hitches as the limits between humans and AI in art creation becomes more blurred.

The integration of AI-driven systems, including AIoT frameworks, has shown immense potential in transforming various domains by facilitating accurate predictions and optimizing resource management, as demonstrated in agricultural disease forecasting [9]. The development of scalable data lakes has become crucial for managing massive volumes of data generated by IoT devices, which is a key consideration in various industries, including those impacted by AI technologies [10]. A holistic framework for energy management and crisis resolution is necessary for future-proofing industries, especially those heavily reliant on sustainable energy solutions, which can be further optimized by AI and IoT innovations in sectors such as digital art [11]. Cybersecurity within AI systems, including digital banking, requires robust threat detection models powered by AI to ensure user safety and privacy, drawing parallels to the evolving landscape of AI-based art generation and its impact on traditional mediums [12]. The application of federated machine learning techniques for sustainable energy management aligns with the challenges posed by AI in resource-intensive fields [13], highlighting the growing intersection of AI, IoT, and environmental concerns.

Artificial intelligence's unique talent for recognizing underlying correlations and structures has changed many art industries by allowing for unique creative outputs that were previously impossible [15]. AI-powered business intelligence has shown promise to optimize industries through efficient decision-making based on data, indicating that it can also be useful to artists to streamline their work [16]. Machine learning applications in medicine have revealed AI's versatility, which could also be harnessed to equip artists with novel generative instruments [17]. The use of AI together with quantum computing has increased the scale of resources available to depth and novel ideas, making it almost conceivable that AI built artwork will be original and complex in the near future [18]. AI's predictive algorithms in energy systems demonstrate its potential to optimize efficiency, which may in turn help artists manage their creative work economically [19]. Disruptive AI in predictive algorithms shows how the technology can provide artists with self directing focal points and solutions to problems which have never been solved [20]. Furthermore, AI strategies in smart grid optimization highlight how systems can be designed to be more productive which will help traditional artist increase their creativity and output [21].

Implications of Traditional Artists

The use of AI for art creation has potentially huge impact on conventional artists, in particular it opens new opportunities, but also creates threats. On the one hand there is



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an opportunity for entertainment and new mediums for human artists – for example in using AI programs or working with them, or using AI to help in making art. On the other hand, the use AI art is even threatening now since it has become more advanced and complex; therefore, artists will find it difficult to come up with pieces that will be unique from other machine-made art. Old artists may find that the advancement in the AI field brings a little competition to their art works and this forces them to change how they do their work. In conclusion, the concerns brought up by writers, such as the impact AI-generated art has on conventional artists, are vast and convoluted and can be expected to grow in several dimensions as AI expands.

Methodology

Here in this section, we are to present one of the most widely used image generating tool named stable diffusion.

What is Stable Diffusion?

Stable diffusion is a mathematical model that can generate images using AI. The model is based on the principle of diffusion, a process by which particles or molecules spread out and become distributed evenly over a given area. In the context of AI-generated art, the stable diffusion algorithm can be used to evenly distribute the visual elements of an image, resulting in a more coherent and aesthetically pleasing final product [1].

To generate images using stable diffusion, the algorithm first creates a grid of pixels representing the image to be generated. The algorithm then uses a set of mathematical equations to simulate the diffusion of particles or molecules over the grid to distribute the visual elements of the image evenly. The algorithm repeats this process, updating the grid of pixels at each step until the desired diffusion level is achieved.

One of the key advantages of using stable diffusion to generate images is that it allows for a high degree of control over the final image. By adjusting the algorithm's parameters, it is possible to create a wide range of different visual effects, from smooth and blurry images to sharp and detailed ones. In addition, the stable diffusion algorithm can be applied to grayscale and color images, making it a versatile tool for generating various visual styles.

Implementation Details and Challenges

The fact that the stable diffusion algorithm would need to be implemented to produce art means the procedure is not for the inexperienced artist. In general, the algorithm can be programming using every programming language and with the help of frameworks like Python and TensorFlow. Nevertheless, one should emphasize that the stable diffusion algorithm under consideration is rather computationally demanding and it is better to use it having a decent machine with a powerful processor and adequate amount of memory at one's disposal. At the same time, the algorithm can be performed using cloud environments, for example, Google Colab with access to powerful computational means compared with personal computer.



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Another issue that allows the use of the stable diffusion algorithm is the choice of stabilization parameters for it. These parameters dictate the amount of diffusion applied to the image, the count of iterations and such factors that could potentially influence an output. Deciding the right values for these parameters may not always be easy and there is always a procedure of testing for the best values for the specified parameters. However, at times, the above-discussed stable diffusion algorithm may give unpleasant or rather different results particularly when it is applied on to images with noisy regions or having curved designs. It is understandable that stability-based diffusion is employed in producing art, but the aim has to be accomplished through proper tests and trials. [2]

Using Automatic1111 to Showcase AI-Generated Art

In this paper, we will be using automatic1111 which is an open-source web-based graphical user interface GUI for the stable diffusion algorithm [3]. The following GUI enables users with little or no technical knowledge as well as no programming experience to generate images characterized by stable diffusion. Here, an easy to navigate graphical user interface that enables the user to tweak parameters of the algorithm including the extent of diffusion and the number of stages, to achieve the desired results is demonstrated.

If users want to create images using automatic1111 locally, they have to download the GUI to their computer first. It can done this by installing the most recent software update on the official website as described in the installation manual. When installed, users can open a software and create images using toolbar and by choosing the type of input and modifying the parameters of the algorithm. Editing options are also interactive, users see what the image looks like with changes on the GUI in real time. After the generation of an image, if the user is satisfied with the result then the image may be retained and further processed or analysed.

In general, with the help of automatic1111, one is provided with an opportunity to generate images through the use of the stable diffusion algorithm in the most convenient and easily understandable manner. Therefore, this GUI employing the AI and the introduced stable diffusion model provides new opportunities for developing more qualitatively concentrated and aesthetically valuable paintings.

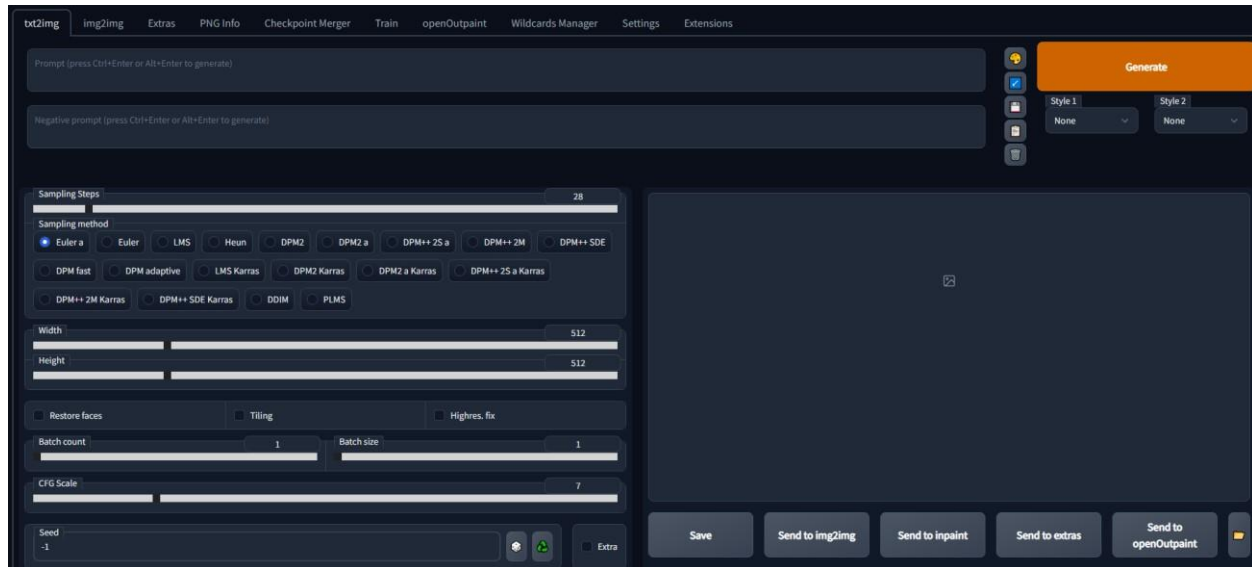


Figure 1: Automatic1111 WebUI

Experiments using Stable Diffusion

Stable diffusion will be run locally for the experiments needed here with the help of the open-source automatic1111 web-ui for art generation in this section.

Description of the Experiment Setup

The experimental setup for the stable diffusion experiments in the AI art generation study consists of running the automatic1111 algorithm on a local computer system. The system must meet the following software and hardware requirements:

- A 64-bit operating system (Windows, MacOS, or Linux)
- At least 8 GB of RAM
- A dedicated graphics card with at least 2 GB of VRAM
- The latest version of Python 3, with the following packages installed: TensorFlow, NumPy, and Pillow

All our tests were conducted on a PC with the following configurations:

- 64-bit Windows
- Intel i5 3470 Processor
- 12Gb 1600Mhz RAM
- Nvidia GTX 1060 3Gb Graphics Card
- The latest version of Python 3, with the following packages installed: TensorFlow, NumPy, and Pillow

Generating Art using Stable Diffusion through Text

In this section we will be generating art of different genres using different stable diffusion models. We will use Automatic1111 web GUI for stable diffusion. Once it is all set up users can start generating images in both the text to image and image to image

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sections. Starting with the text to image section users can adjust a variety of parameters to adjust the appearance of the generated output.

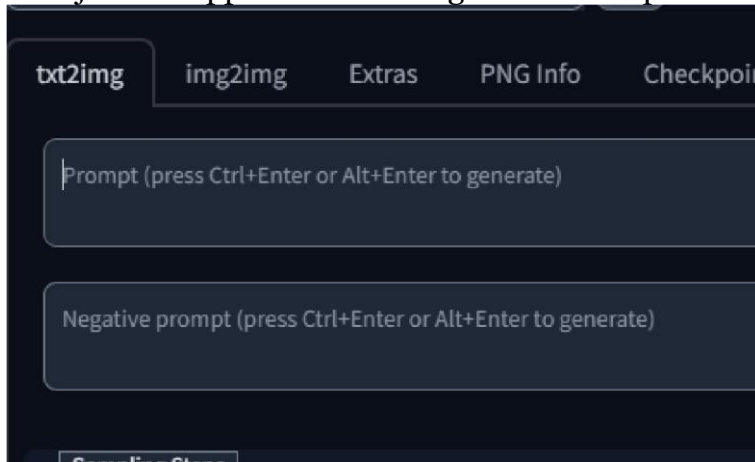


Figure 2: Automatic1111 WebUI prompt input fields

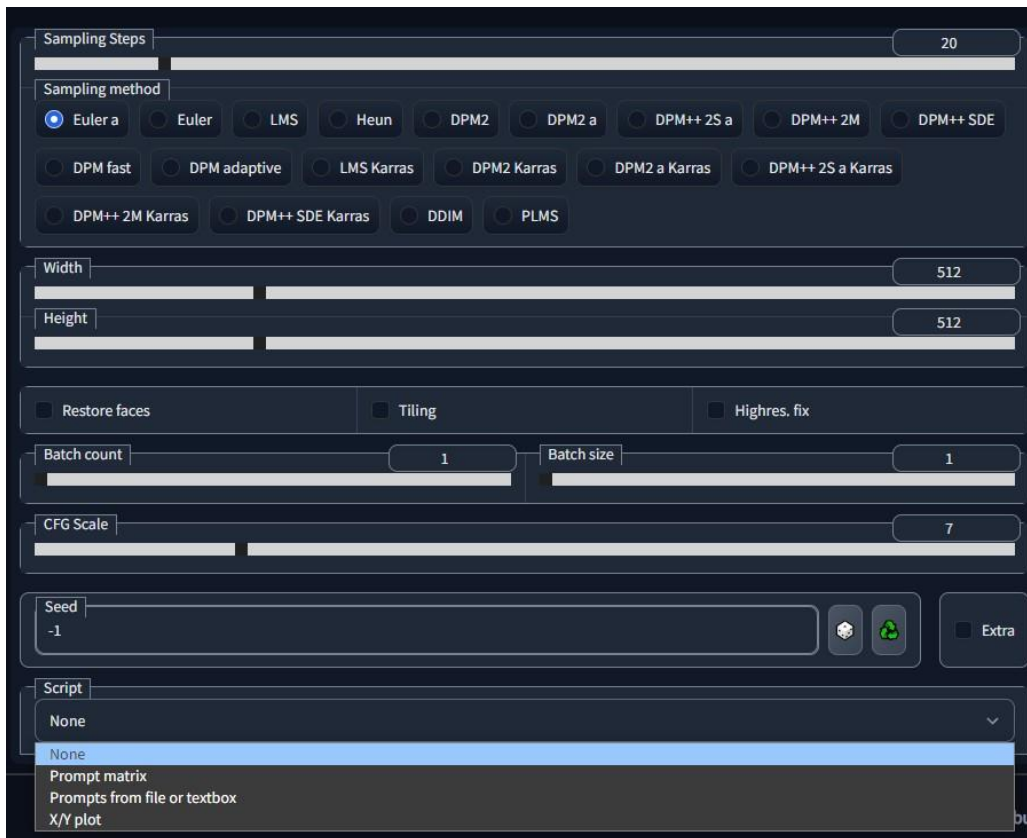


Figure 3: Automatic1111 WebUI Parameter View



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These parameters include the sampling steps and sampling method which controls the method used to generate the final image and the number of times it would be refined. Furthermore, users can control the width and height of their image as well from 64x64 pixels to 2048x2048 pixels. Users can also enable the restore faces option which uses face restoring models such as codeformer to fix up the faces in the final image. Users can make their images tileable as well along with the Highres. Fix option which basically generates a smaller than defined image first then upscales it to the defined size. The batch count and batch size option controls how many images are generated at once and how many batches of it. The Classifier Free Guidance (CFG) scale controls how much influence the prompts given by the user have. The rest of the options include the seed and the script which are used to control the randomness in the generated images.

We can start generating our images by using the positive and negative prompt fields. The positive prompts include what we want it to generate and in the negative prompt we include what we do not want it to include in the final picture.

Using Different Models to Generate Images through Text

In this section we will be using different stable diffusion models to generate various types of images.

Using the following settings we were able to generate the following images:

- **Positive Prompt:** *A beautiful painting of a singular lighthouse, shining its light across a tumultuous sea of blood by greg rutkowski and thomas kinkade, Trending on artstation.* Figures 4, 5, and 6 depict image generation from this positive prompt.
- **Negative Prompt:** -
- **Sampling Steps:** 120, **Sampling Method:** euler a, **Width:** 512, **Height:** 768, **Restore Faces:** No, **Tiling:** No, **Highres. Fix:** No, **Batch Count:** 1, **Batch Size:** 2, **CFG Scale:** 12, **Seed:** -1(random), **Script:** None, **Model:** SD1.5 [4]

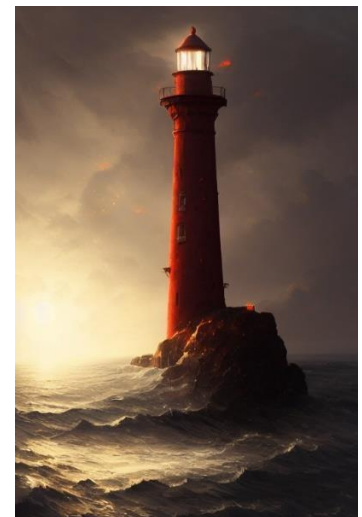


Figure 4: Generated Image with seed **Figure 5:** Generated Image with **Figure 6:** Generated Image with



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1721740445 using parameters given seed 1721740443 using parameters seed
1721740440 using above given above parameters given above

Using the following settings we were able to generate the following images:

- **Positive Prompt:** Professional oil painting of establishing shot of canal surrounded by verdant ((blue)) modern curved rustic Greek tiled buildings, professional majestic oil painting by Ed Blinkey, Atey Ghailan, Studio Ghibli, by ((Jeremy Mann)), Greg Manchess, Antonio Moro, (((trending on ArtStation))), trending on CGSociety, volumetric lighting, dramatic lighting, (dawn), water, canoes, refraction, high definition, sharp. Figures 7,8,9 were generated using this positive prompt.
- **Negative Prompt:** amateur, poorly drawn, ugly, flat
- **Sampling Steps:** 150, **Sampling Method:** euler a, **Width:** 768, **Height:** 512, **Restore Faces:** No, **Tiling:** No, **Highres. Fix:** No, **Batch Count:** 1, **Batch Size:** 3, **CFG Scale:** 9, **Seed:** -1(random), **Script:** None, **Model:** SD1.4 [5]



Figure 7: Generated Image with seed 2124702085 using parameters given above



Figure 8: Generated Image with seed 2450533737 using parameters given above



Figure 9: Generated Image with seed 2124702084 using parameters given above

Using the following settings we were able to generate the following images:

- **Positive Prompt:** perspective, epic scale, boat ride through the flooded street full of 油屋, ghibli's intricate Bathhouse in spirited away, beautiful elaborate architecture, sparkling water, stylized cascading houses, mythic and mysterious,



cinematic, embellished, limpid, nuanced, authentic :: lightrays, visual clarity, refined smooth details and textures, enhanced, retouch, analogous sunset tones with minimal contrast, color grading, transparent, translucent, retouch, DOF, clear reflection, clean precise lines, spectacular and finest details, post production + post-processing, soft lighting :: --style Sam Bosma --style Miyazaki --style Frits Thaulow --style Stephanie Law --style john dyer baizley --style Gabriella Barouch --style RHADS :: animated by Ghibli, Madhouse INC, Studio Trigger, Kyoto Animation, zelda, botw, CGI, unreal engine 5 :: 8k hyper detailed PBR, Procreate, super AMOLED, VFX, SFX, noise removal, Super-Resolution, Soft Lighting, Ray Tracing Global Illumination, Crystalline, Lumen Reflections --ar 9:19 --c 39 --v 3 --q 4.As shown in figures 10 and 11.

- **Negative Prompt:** -
- **Sampling Steps:** 120, **Sampling Method:** euler a, **Width:** 512, **Height:** 768, **Restore Faces:** No, **Tiling:** No, **Highres. Fix:** No, **Batch Count:** 1, **Batch Size:** 2, **CFG Scale:** 8, **Seed:** -1(random), **Script:** None, **Model:** SD1.5 [5]



Figure 10: Generated Image with seed 293470249 using parameters given above



Figure 11: Generated Image with seed 293470247 using parameters given above

Using the following settings we were able to generate the following images:

- **Positive Prompt:** *painted portrait of rugged zeus, god of thunder, greek god, white hair, masculine, mature, handsome, upper body, muscular, hairy torso, fantasy, intricate, elegant, highly detailed, digital painting, artstation, concept art,*



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smooth, sharp focus, illustration, art by gaston bussiere and alphonse mucha.
Figures 12 and 13 depict image generation from this positive prompt.

- **Negative Prompt:** -
- **Sampling Steps:** 80, **Sampling Method:** euler a, **Width:** 512, **Height:** 768, **Restore Faces:** Yes, **Tiling:** No, **Highres. Fix:** No, **Batch Count:** 1, **Batch Size:** 2, **CFG Scale:** 8, **Seed:** -1(random), **Script:** None, **Model:** SD1.4 [5]



Figure 12: Generated Image with seed 293470247 using parameters given above



Figure 13: Generated Image with seed 293470248 using parameters given above

Using the following settings we were able to generate the following images:

- **Positive Prompt:** *portrait ((Bob Ross)) focus cute eye enchanted official fanart behance hd artstation by Jesper Ejsing, by RHADS, Makoto Shinkai and Lois van baarle, ilya kuvshinov, rossdraws portrait, highly detailed, digital painting, concept art, sharp focus, cinematic lighting, art by artgerm and greg rutkowski and alphonse mucha radiant light, peter mohrbacher, ferdinand knab, artgerm, portrait happy colors, bright eyes, clear eyes, warm smile.* Figures 14 and 15 are generated from this prompt as shown below.
- **Negative Prompt:** -
- **Sampling Steps:** 120, **Sampling Method:** euler a, **Width:** 512, **Height:** 512, **Restore Faces:** No, **Tiling:** No, **Highres. Fix:** No, **Batch Count:** 1, **Batch Size:** 2, **CFG Scale:** 8, **Seed:** -1(random), **Script:** None, **Model:** SD1.5 [5]



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Figure 14: Generated Image with seed 2182565800 using parameters given above



Figure 15: Generated Image with seed 1713485051 using parameters given above

Using the following settings we were able to generate the following images:

- **Positive Prompt:** anthropomorphic cat, cyberpunk, Big eyes, (arcane:1.3), nvinkpunk. Below the figures 16 and 17 are generated from a this prompt.
- **Negative Prompt:** doll, 3D
- **Sampling Steps:** 80, **Sampling Method:** euler a, **Width:** 512, **Height:** 768, **Restore Faces:** Yes, **Tiling:** No, **Highres. Fix:** No, **Batch Count:** 1, **Batch Size:** 1, **CFG Scale:** 8, **Seed:** -1(random), **Script:** None, **Model:** Inkpunk-Diffusion-v2 [6]



Figure 16: Generated Image with seed 543572747



Figure 17: Generated Image with seed 543572745 using parameters given above

using parameters given above 543572745 using parameters given above



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Using the following settings we were able to generate the following images:

- **Positive Prompt:** *SKSKS art style, scary, haunted.* Figures 18,19,20,and 21 depict image generation from this positive prompt.
- **Negative Prompt:** amateur, poorly drawn, ugly
- **Sampling Steps:** 100,**Sampling Method:** euler a, **Width:** 512, **Height:** 512, **Restore Faces:** No, **Tiling:** No, **Highres. Fix:** No, **Batch Count:** 1, **Batch Size:** 8, **CFG Scale:** 8, **Seed:** -1(random), **Script:** None, **Model:** Pixel V1 [7]

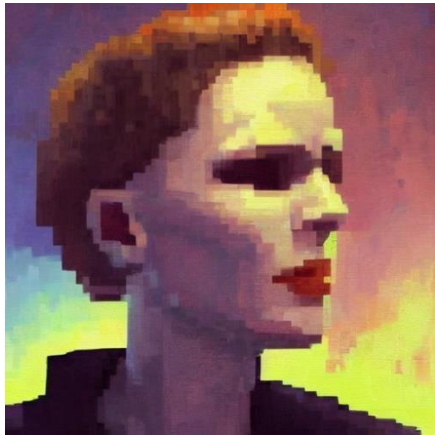


Figure 18: Generated Image with seed 123634137 using parameters given above



Figure 19: Generated Image with seed 123634123 using parameters given above

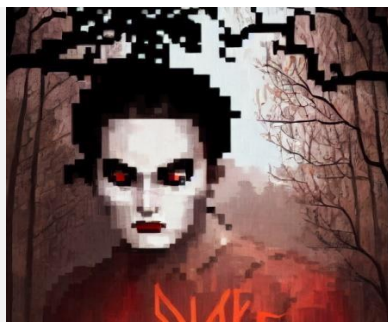


Figure 20: Generated Image with seed 123634126 using parameters given above



Figure 21: Generated Image with seed 123634130 using parameters given above

Using the following settings we were able to generate the following images:

- **Positive Prompt:** *ninkpunk, scary, An extremely detailed illustration of a scary haunted beautiful anime girl in a dark shady environment, caustics, no pupils, smirk, disdain, contempt, trending, artist, artist, pendent, random hair color, perfect eyes, perfect body, (anime illustration), ((detailed water)), (detailed sky), (detailed sea), {detailed eyes}. (dramatic lighting), ((Masterpiece)), ((blue bubble)),*



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((perfect detailed hands)), detailed splashes, ((intricate detail)), (((young girl))), Jewellike eyes, (floating hair), long hair, (((smooth wet skin))), (flowers), sunlight, ((surrounded by floating petal)), focus on the subject, chiaroscuro, swimming ring, waves, coconut trees, HD wallpaper, UHD image, trending on Pixiv. Below is shown that figures 22 and 23 are generated from this prompt.

- **Negative Prompt:** *(((Blurry Eyes))), (((bad anatomy))), ((disabled body)), ((deformed body)), ((missing finger)), ((mutant hands)), ((more than five fingers)), badly drawn hands, lack of detail, (((Low resolution))), ((bad hands)), ((text)), error, cropped, low-quality image, normal quality, jpeg artifacts, signature, watermark, username, blurry, lack of details in the image, ((MORE THAN ONE PERSON))*
- **Sampling Steps:** 100, **Sampling Method:** DPM++ 2M Karras, **Width:** 960, **Height:** 640, **Restore Faces:** No, **Tiling:** No, **Highres. Fix:** No, **Batch Count:** 1, **Batch Size:** 4, **CFG Scale:** 7, **Seed:** 1(random), **Script:** None, **Model:** AnythingInkPunk [8]

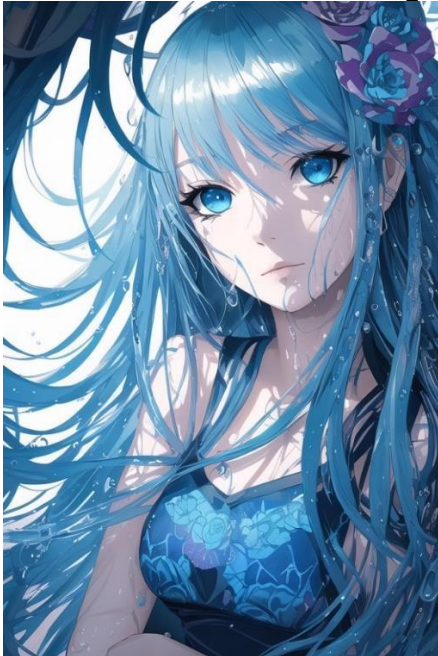


Figure 22: Generated Image with seed 2359882468 using parameters given above

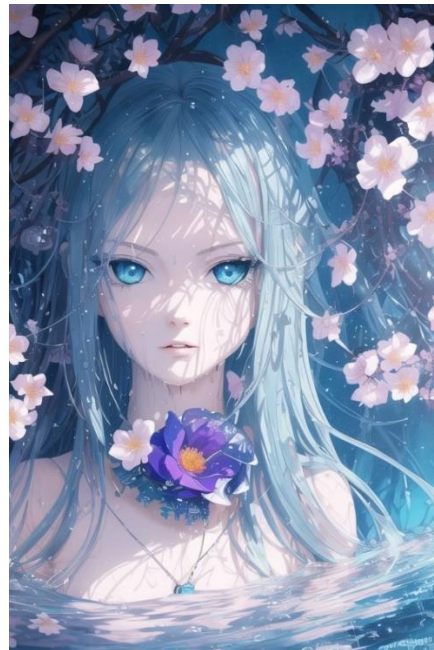


Figure 23: Generated Image with seed 2359882472 using parameters given above

Using the following settings we were able to generate the following images:

- **Positive Prompt:** *Mediterranean villa, interior and exterior, 8k, luxurious, sunny, modern. Figures 24,25, and 26 were generated using this prompt as shown below.*



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- **Negative Prompt:** *lowres, bad anatomy, bad hands, text, error, missing fingers, extra digit, fewer digits, cropped, worst quality, low quality, normal quality, jpeg artifacts, signature, watermark, username, blurry, artist name, ancient.*
- **Sampling Steps:** 80, **Sampling Method:** DPM++ 2M Karras, **Width:** 896, **Height:** 640, **Restore Faces:** No, **Tiling:** No, **Highres. Fix:** No, **Batch Count:** 1, **Batch Size:** 4, **CFG Scale:** 10, **Seed:** -1(random), **Script:** None, **Model:** Anything-V3 [14]



Figure 24: Generated Image with seed 915974287 with seed using parameters given above



Figure 25: Generated Image with seed 915974282 using parameters given above



Figure 26: Generated Image with seed 915974291 using parameters given above

Using the following settings we were able to generate the following images:

- **Positive Prompt:** *samdoesarts style, closeup of beautiful redhead blushing, mix of Emma Watson and Taylor Swift, looking away, shy, big eyes.* As shown below in Figures 27,28, and 29.



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- **Negative Prompt:** *text, heavy contrast, out of focus, cropped, low details, two faces, ((poorly drawn hands)), ((poorly drawn face)), (((mutation))), (((deformed))), ((ugly)), ((bad anatomy)), (((bad proportions))), out of frame, clone face, watermark, red nose, curved hands, split image .*
- **Sampling Steps:** 80, **Sampling Method:** euler a, **Width:** 512, **Height:** 704, **Restore Faces:** Yes, **Tiling:** No, **Highres. Fix:** Yes (Default Settings), **Batch Count:** 1, **Batch Size:** 2, **CFG Scale:** 9, **Seed:** -1(random), **Script:** None, **Model:** SamDoesArt-V3 [22]

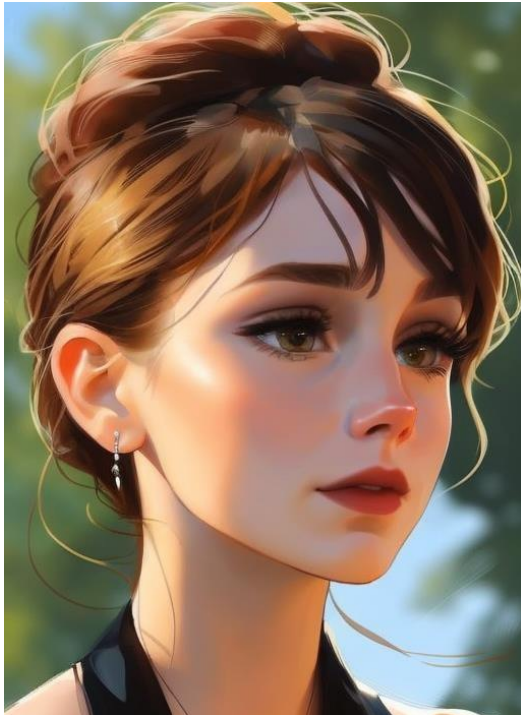


Figure 27: Generated Image with seed 3029272160 using parameters given above



Figure 28: Generated Image with seed 3029272161 using parameters given above

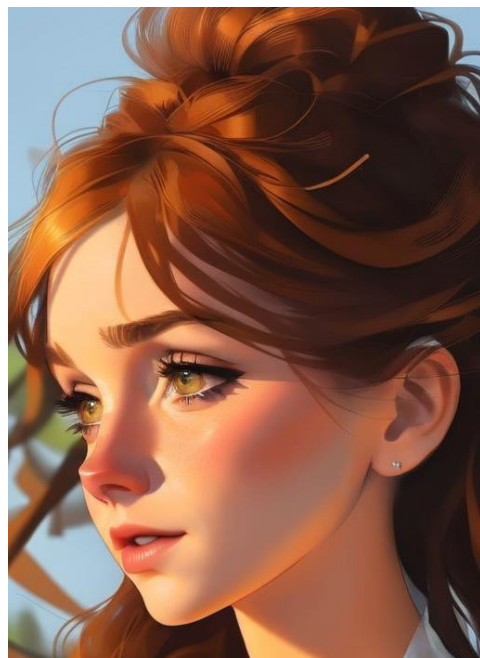


Figure 29: Generated Image with seed 3029272175 using parameters given above

Results and Conclusions

This section shall analyse our experiments and the effects that the advancements in AI art is set to produce in the art market.

Overview of AI Art-Generation Experiment

For this study, we wanted to look into the possibilities of today's AI art-generation applications and attempted a series of image-generation experiments. Lastly, we used the Stable Diffusion method to create a number of abstract paintings in different styles. We made new settings and passed many models to generate images with different characteristics. The purpose of the experiments that we conducted was to determine the quality, and applicability of the features created by the AI art generation methods, and to consider the problems and limitations that may be encountered in their implementation. We also wanted to learn of the effects this kind of AI art generation may impose on art industry and for tradition artists.

Our results imply that the AI art generation is capable of creating good quality images that are visually similar to traditional art works but might have certain differences or finer features that could be optimized.

Comparison of AI-Generated Art to Traditional Art

Our experiments also revealed the close resemblance of AI-Constructed art with conventional art in various aspects. The images shared the same degree of intricacy and resolution, and similar color preferences and shot synthesis were applied as well. However, on further observation, we also discovered certain variations that exist



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between the AI generated art and the conventional art. One of the profound contrasts was that the artificial work contained fine off-notes or peculiarities that are definitely inconceivable in the general picture. For instance, some of the images yielded a feeling that one of the parts was placed wrongly or that it was too large or too small, or the generated art way skewed in portraying some object or feature.

On balance, based on our findings we can say that deep learning algorithms can replicate a significant number of features of traditional art, but there can be some issues or obstacles in terms of mimicking all details of traditional art. This puts forward a question of whether AI art generative models can be classified as a substitute to conventional traditional artistic depiction or rather tool which can be used in conjunction with, with traditional artistic depictive strategies, procedures and practices.

Impact of AI Art-Generation on the Art Industry

it is unclear at the present time what the specific effects of the use of AI art generation are going to be in the field of art. Nonetheless, one can point out that the art creation with the help of AI tools has already influenced the interactions between people obtaining and using artwork. The use of AI for generation of art work brings about the question of how traditional artists work and earn their income might be affected. However, the nature of digital art allows easy reproduction that when outsourced some artists are forced to standardize their work to cut on the costs. On the other hand, it is also possible to view AI art generation as a tool with which the traditional artists may work while also employing their own hand-made techniques to create art or while experimenting with material and discursive approaches to art that may not be available to them in traditional practices.

I believe that integration of AI in art generation will have another effect in the worth and value of the art work. The potential, therefore, exists for the quality of the output, the potential value of an AI-artwork, or even the difference between a great 'artificial' image and a poor one to be harder to determine on account of the sheer number of such creations now freely available. This might eventually affect ways through which art is sold and promoted, and could also influence the art market scenario in general.

One may assert that the AI art generation is paving the way to the new epoch in art industry evolution and it will be rather piqued to observe further development of the discussed methods and their impact on the evaluation and creation of art in several years.

Potential Benefits and Challenges of AI Art-Generation for Traditional Artists

First of the potential advantages of AI art generation for the traditional artists is that the generated art could complement traditional artists' concepts and approaches. For instance, AI art generation could be employed to produce several poor drawings or several ideas within a few minutes of time which conventional artists can take time and polish. This may reduce costs and exertion for artists and may enable them to develop and experiment further freely. Of course, there are also strengths and weaknesses of traditional artists during the application of AI art generation. The first opposition is that



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real art generation through an AI tool can be interpreted not as an inspiring supplement to conventional method of creating, but rather as their complete replacement. This could culminate to decreased demand for traditional art and in extension may impact the earnings of a traditional artist.

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References

- [1] A. B. D. L. P. E. B. O. Robin Rombach, "High-resolution image synthesis with latent diffusion models in press," 17 11 2022. [Online]. Available: <https://ommerlab.com/research/latent-diffusion-models/>. [Accessed 19 12 2022].
- [2] r. e. al., "CompVis stable diffusion," CompVis, 17 11 2022. [Online]. Available: <https://github.com/CompVis/stablediffusion>. [Accessed 19 12 2022].
- [3] A. e. al., "Automatic1111 stable diffusion web ui," AUTOMATIC1111, 11 12 2022. [Online]. Available: <https://github.com/AUTOMATIC1111/stable-diffusion-webui>. [Accessed 19 12 2022].
- [4] A. G. e. al., "runwayml/stable-diffusion-v1-5," runawayml, 15 11 2022. [Online]. Available: <https://huggingface.co/runwayml/stable-diffusion-v1-5>. [Accessed 19 12 2022].
- [5] R. R. e. al., "CompVis/stable-diffusion-v-1-4-original," CompVis, 9 11 2022. [Online]. Available: <https://huggingface.co/CompVis/stable-diffusion-v-1-4-original>. [Accessed 19 12 2022].
- [6] E. Ai, "Envvi/Inkpunk-Diffusion," Envvi, 29 11 2022. [Online]. Available: <https://huggingface.co/Envvi/InkpunkDiffusion>. [Accessed 19 12 2022].
- [7] P. Prompts, "Pixel V1," Public Prompts, 19 12 2022. [Online]. Available: <https://promptdb.ai/prompt/280/pixel-v1>. [Accessed 19 12 2022].
- [8] T. K. (KGUY1), "KGUY1/AnythingInkPunk," KGUY1, 24 12 2022. [Online]. Available: <https://huggingface.co/KGUY1/AnythingInkPunk>. [Accessed 24 12 2022].
- [9] Linaqruf, "Linaqruf/anything-v3.0," Linaqruf, 2 12 2022. [Online]. Available: <https://huggingface.co/Linaqruf/anythingv3.0>. [Accessed 24 12 2022].
- [10] T. Abbas, J. I. and M. Irfan, "Proposed Agricultural Internet of Things (AIoT) Based Intelligent System of Disease Forecaster for Agri-Domain," 2023 International Conference on Computer and Applications (ICCA), Cairo, Egypt, 2023, pp. 1-6, doi: 10.1109/ICCA59364.2023.10401794.
- [11] A. Nuthalapati, "Building Scalable Data Lakes For Internet Of Things (IoT) Data Management," Educational Administration: Theory and Practice, vol. 29, no. 1, pp. 412- 424, Jan. 2023, doi:10.53555/kuey.v29i1.7323.
- [12] J. I., O. Anwer and A. Saber, "Management Framework for Energy Crisis & Shaping Future Energy Outlook in Pakistan," 2023 IEEE Jordan International Joint



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- Conference on Electrical Engineering and Information Technology (JEEIT), Amman, Jordan, 2023, pp. 312-317, doi: 10.1109/JEEIT58638.2023.10185730.
- [13] Suri Babu Nuthalapati. (2023). AI-Enhanced Detection and Mitigation of Cybersecurity Threats in Digital Banking. *Educational Administration: Theory and Practice*, 29(1), 357–368. <https://doi.org/10.53555/kuey.v29i1.6908>
- [14] T. M. Ghazal et al., "Fuzzy-Based Weighted Federated Machine Learning Approach for Sustainable Energy Management with IoE Integration," 2024 Systems and Information Engineering Design Symposium (SIEDS), Charlottesville, VA, USA, 2024, pp. 112-117, doi: 10.1109/SIEDS61124.2024.10534747.
- [15] Abdullah Al Noman, Md Tanvir Rahman Tarafder, S. M. Tamim Hossain Rimon, Asif Ahamed, Shahriar Ahmed, and Abdullah Al Sakib, "Discoverable Hidden Patterns in Water Quality through AI, LLMs, and Transparent Remote Sensing," *The 17th International Conference on Security of Information and Networks (SIN-2024)*, Sydney, Australia, 2024, pp. 259–264.
- [16] S. M. T. H. Rimon, Mohammad A. Sufian, Zenith M. Guria, Niaz Morshed, Ahmed I. Mosaddeque, and Asif Ahamed, "Impact of AI-Powered Business Intelligence on Smart City Policy-Making and Data-Driven Governance," *International Conference on Green Energy, Computing and Intelligent Technology (GEN-CITY 2024)*, Johor, Malaysia, 2024.
- [17] M. A. Sufian, Z. M. Guria, N. Morshed, S. M. T. H. Rimon, A. I. Mosaddeque, and A. Ahamed, "Leveraging Machine Learning for Strategic Business Gains in the Healthcare Sector," *2024 International Conference on TVET Excellence & Development (ICTeD-2024)*, Melaka, Malaysia, 2024.
- [18] A. I. Mosaddeque, Z. M. Guria, N. Morshed, M. A. Sufian, A. Ahamed, and S. M. T. H. Rimon, "Transforming AI and Quantum Computing to Streamline Business Supply Chains in Aerospace and Education," *2024 International Conference on TVET Excellence & Development (ICTeD-2024)*, Melaka, Malaysia, 2024.
- [19] A. Ahamed, N. Ahmed, J. I. Janjua, Z. Hossain, E. Hasan, and T. Abbas, "Advances and Evaluation of Intelligent Techniques in Short-Term Load Forecasting," *2024 International Conference on Computer and Applications (ICCA-2024)*, Cairo, Egypt, 2024.
- [20] M. T. R. Tarafder, M. M. Rahman, N. Ahmed, T.-U. Rahman, Z. Hossain, and A. Ahamed, "Integrating Transformative AI for Next-Level Predictive Analytics in Healthcare," *2024 IEEE Conference on Engineering Informatics (ICEI-2024)*, Melbourne, Australia, 2024.
- [21] A. Ahamed, M. T. R. Tarafder, S. M. T. H. Rimon, E. Hasan, and M. A. Amin, "Optimizing Load Forecasting in Smart Grids with AI-Driven Solutions," *2024 IEEE International Conference on Data & Software Engineering (ICoDSE-2024)*, Gorontalo, Indonesia, 2024.
- [22] Sandro-Halpo, "Sandro-Halpo/SamDoesArt-V3," Sandro-Halpo, 5 12 2022. [Online]. Available: <https://huggingface.co/Sandro-Halpo/SamDoesArt-V3/tree/main>. [Accessed 24 12 2022].