Project: Neural Style Transfer

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Github Repo: https://github.com/Actuweary/Projects.git

(This Project will be stored in folder named 'Proj 9')

Project Outline:

The ultimate purpose of this project is to develop Python code which will learn the style of a painting and apply it to another image creating a pastiche of the two images.

Background:

Artificial intelligence (AI) has revolutionized the way we create and consume art. With the help of machine learning algorithms, it is now possible for computers to learn an artist's style and generate new works of art in that style. This technology has given rise to a new form of art known as AI-generated art, which has gained significant popularity in recent years. However, as with any new technology, AI-generated art raises several ethical and moral questions. One of the primary issues surrounding AI-generated art is the question of authorship. Who should be considered the creator of the artwork—the artist who trained the machine learning algorithm or the algorithm itself? This essay will explore this question and other issues surrounding AI-generated art, particularly in relation to an artist's style and prior work.

One of the most significant challenges with AI-generated art is that it blurs the line between the creator and the tool used to create the artwork. In the traditional sense, an artist's style is unique to them, and it is a product of their individual experiences, skills, and creative decisions. However, with AI-generated art, the artist's style is learned by the algorithm, and it is the algorithm that creates the artwork. This raises the question of whether the algorithm should be considered the artist or merely a tool used by the artist. On the one hand, some argue that the algorithm is the creator of the artwork, and therefore, it should be given credit as such. After all, the algorithm is responsible for the creative decisions that went into making the artwork, and without the algorithm, the artwork would not exist. However, others argue that the algorithm is merely a tool used by the artist and that it is the artist who should be credited as the creator of the artwork.

Another issue with AI-generated art is the question of originality. While the algorithm may be able to learn an artist's style and create new works of art in that style, it is not capable of producing truly original artwork. This is because the algorithm is limited by the data it is trained on and is unable to think creatively or make unique artistic decisions. As a result, AI-generated art may be viewed as a copy or imitation of the original artist's work, rather than an original creation. Moreover, there is the risk of AI-generated art becoming formulaic, as the algorithm relies on the patterns and structures it learns from the artist's work. This could result in a lack of diversity and creativity in the artwork produced by the algorithm, which could ultimately lead to a loss of interest in AI-generated art as a whole.

Another ethical issue with AI-generated art is the question of ownership. Since the algorithm is responsible for creating the artwork, it is unclear who should own the rights to it. Should it be the artist who trained the algorithm, or should it be the developer of the algorithm? If the latter is true, then there is the risk of developers owning the rights to all AI-generated artwork, effectively monopolizing the industry.

Furthermore, the use of AI-generated art raises questions about the role of the artist in society. If AI-generated art becomes more prevalent, will it reduce the value and significance of human creativity and artistic expression? Additionally, there is the concern that AI-generated art could replace human artists, leading to job loss and a decline in the importance of art as a human endeavor.

AI-generated art raises several ethical and moral questions, particularly in relation to an artist's style and prior work. The question of authorship is a significant challenge, as the algorithm blurs the line between the creator and the tool used to create the artwork. Additionally, there is the question of originality, as the algorithm is not capable of producing truly original artwork. Moreover, the issue of ownership is unclear, as it is uncertain who should own the rights to the resultant works. Undoubtedly, there will be many a court case which may help draw the lines in this developing battlefield.

Discrete steps to be solved:

1) Import appropriate Python libraries
2) Import images
3) Import pre-trained mode
4) Create new image with style applied and save it
5) Make a variety of input/output files with several styles and resolutions

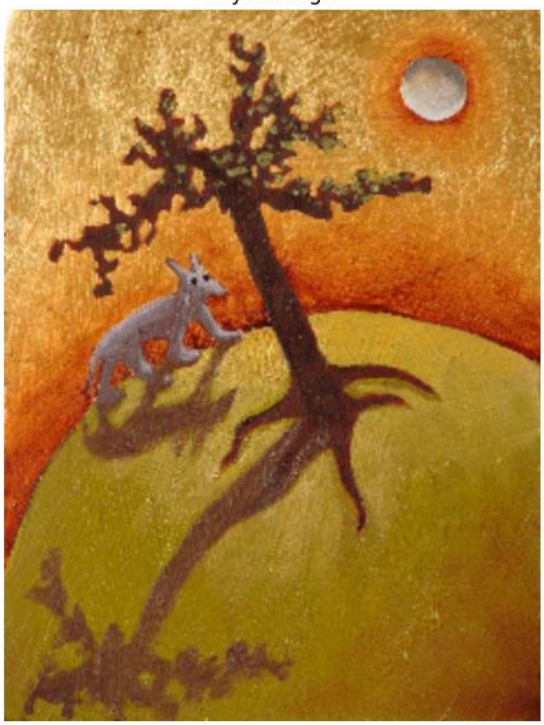
Likely questions from audience:

1) How long did it take to train the model?
2) What resolution of pictures did you use for Base and Style pics?
3) How do you import the file locally instead of a path?
4) How many different pre-trained models are there for applying styles?
5) What ethical considerations did you consider?
6) Can anyone use this tool/technique?
7) Is a GPU needed to run this code efficiently?
8) What were the three respective files sizes used/created?
9) What did the artist think of the created pastiche?
10) What other AI generated art projects will you investigate next, if any?

Illustrations: *('Style Image', used with permission on the artist, Christine Brennan)*

Content Image

Style Image



<u>The resultant stylized pastiche image:</u>