Art generation for the screen background

python

Our primary goal is to generate a background based on a chosen category. For our first implementation, we are planning on creating a single category of art and feeding the network a dataset based on this category. It will then learn the form of art that is chosen and generate an image based off of that. This topic piqued our interest because we find the idea of allowing a computer to generate art fascinating as computers are generally made to think within the box and this idea somewhat contradicts this. Some goals we hope to accomplish from the beginning is to first generate an image based off of one category. Then we would like to polish this up and proceed to including multiple categories. We plan on using python to mainly run this code.

We will implement our program through the use of a General Adversarial Network (GAN), good for learning and generating patterns. The GAN is made of two different neural networks: The generator and discriminator. The generator is what outputs the pixel values to generate the image, and the result is tested against the discriminator with the goal of tricking it into believing the generated art is real. This means we want to train the generator based on what *lowers* the discriminator’s performance.

One fundamental difficulty in evaluating our results is the fact that art is subjective, so there exists no way to objectively determine its accuracy beyond fooling the discriminator.

* What is the problem that you will be investigating? Why is it interesting?
* What reading will you examine to provide context and background?
* What data will you use? If you are collecting new data, how will you do it?
* What method or algorithm are you proposing? If there are existing implementations, will you use them, and how? How do you plan to improve or modify such implementations? You don't have to have an exact answer at this point, but you should have a general sense of how you will approach the problem you are working on.
* How will you evaluate your results? Qualitatively, what kind of results do you expect (e.g., plots or figures)? Quantitatively, what kind of analysis will you use to evaluate and/or compare your results (e.g., what performance metrics or statistical tests)?