

I have switched directions for my project; I'm now attempting to emulate and adapt work done by Soumith Chintala^[1] and Robbie Barrat^[2] in the field of Generative Adversarial Networks (GANs). The GANs developed by Chintala and Barrat are both deep convolutional neural networks, with an emphasis on image generation. Barrat adapted Chintala's work to generate artwork and trained their model on the WikiArt database of images. I have downloaded the WikiArt dataset, and also gained access to the Behance Artistic Media (BAM) Dataset curated by Cornell and Adobe.

I have successfully emulated Barrat's work, which was made easier by their GitHub page. I previously tried to come up with a model structure in TensorFlow and then the TensorFlow wrapper Keras but got poor results. GANs can be complex, but in general there is a generator and a discriminator; the generator makes images with the intent of fooling the discriminator. The discriminator is trying to figure out which images are real, and which are fake. My discriminator model includes layers for reshaping, convolving, dropouts (sporadic deactivation of nodes), and consolidating. My generator model includes layers for consolidating, dropouts, batch normalization, reshaping, and convolving.

I developed the following goals when I switched projects:

1. Emulate what Barret has already accomplished
2. Attempt to convert Barret's code to TensorFlow/Keras (I'm more familiar with these than Torch and Lua, which Barret used)
3. Adapt Barret's generator and discriminator algorithms to work on 256px by 256px images (Barret's models can only handle up to 128px by 128px)
4. Make the model exportable and importable so that re-training isn't necessary for each type of artwork desired

So far, I have accomplished goal #1. I expect to complete goal #3 in the next few weeks, and goals #2 and #4 by the end of the semester. I welcome any feedback on my progress and trajectory going forwards. All of my current code is available on [my GitHub repo](#).

[1] <https://github.com/soumith/dcgan.torch>

[2] <https://github.com/robbiebarrat/art-DCGAN>