Converting Human faces to Cat and Dogs using Pre-Build CycleGan Model

In the project we are using one of the popular model (CycleGan) to convert human faces to cat and dogs faces. For the data-preprocessing we are using two datasets (dataset A- humans, dataset B- cats and dogs), Initially we are loading the files into google drive and unzipping the file locally in google colab, Once the unzip is done, we are extracting all the images into single directory separately for human faces and cats and dog's faces. Then we are selecting 10000 images from celebrity dataset and 12500 images from cats and dog's dataset. Once the Images are extracted, we are converting the images into numpy array's and saving it as compressed numpy file, it saves lot of times since for training we will only need the numpy file, we don't have to preprocess the images again and again, we can simply use the numpy file to train the model. For building the model we have taken the source code form https://machinelearningmastery.com/cyclegan-tutorial-with-keras/. The model was configured to save the weights every 5000 passes and output image samples every 5000. This allowed the best model to be selected from the saved weights by looking over the image samples. We are passing the saved weights after every 2 epochs. We ran total 12 epochs, after 12 epochs best checkpoints and weights were chosen and generated weights were loaded, the generators were used to generate new cats and dogs faces.

Results: By using CycleGan we were only able to perform texture transformation to some extent, while trying to perform geometrical transformation it is not performing well. It is one of the drawbacks mentioned in the paper.

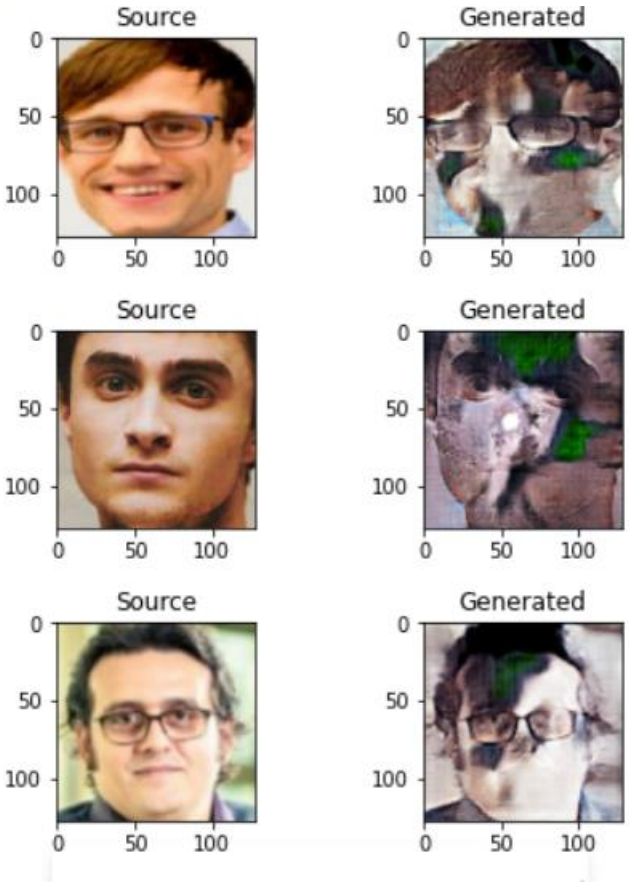

Fig 1: Converting human faces to cats and Dogs