Machine Learning Project

<u>**Team**</u>

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Introduction

<u>You might not think that programmers are artists, but programming is an extremely creative profession. It's logic-based creativity. - John Romero</u>

There was a time when we could get our personal images only via a photobooth. Many people didn't get the luxury to get their photos clicked. But now with the evolution of technology over the years,it has now become possible to generate our own past images from our current images using GANs. The Gan architecture majorly comprised two components called generator and discriminator. Generator learns and produces fake images where on the other side the discriminator tries to discriminate the images produced as fake or real. Likewise at one stage the model will be able to generate images just as the real one. Using this method we can recreate the individual's younger image.

Problem Statement

Generating childlike images of adults using Generative Adversarial Models.

Dataset

1)*Faces:Age Detection Dataset*
Description about the dataset
The dataset has three labels
YOUNG-6706
OLD-2396
MIDDLE-10804

2)*UTKFace Dataset*
The UTKFace dataset is a large-scale face dataset with long age span (range from 0 to 116 years old). The dataset consists of over 20,000 face images with annotations of age, gender, and ethnicity. The images cover large variation in pose, facial expression, illumination, occlusion, resolution, etc.

3)*FamilyGan*
The dataset is already pre-processed and scaled and is ready to use.

4)Facebook's 10 Year old Challenge Dataset

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Selected dataset: dataset containing images of old men and women and young adults.

Related Works

1) FamilyGan: Generating a Child's Face using his Parents
2) Age Estimation on UTKFace
3) Generative Adversarial Style Transfer Networks for Face Aging
   https://openaccess.thecvf.com/content_cvpr_2018_workshops/papers/w41/Palsson_
   Generative_Adversarial_Style_CVPR_2018_paper.pdf

Limitations of Existing Work

1) We can't find datasets of people with their young images in the 90s.
2) There is not much work or implementation of GAN to generate young images of individuals.
3) From parent's data,the images might not be very accurate as both parents contribute to the genes and hence facial features of an individual.

Advantages of proposed solution

1) The model can be useful to replicate young images according to different facial types.
2) Style GAN has better architecture than conventional GAN. this will increase the accuracy because it grants control over the characteristic of the generated image.