Artistic Style Generator Using CycleGAN, VGG16 and ResNet-50

Ayesha Binte Mostofa
Student ID: 1805062

Mahmudul Hasan
Student ID : 1805084

Base Paper : Paint like Vincent Van Gogh - Artistic Style Generator Using CycleGAN & VGG19

Paper link : paint like Vincent Van Gogh_paper

Publication venue : Stanford University, Fall 2020 Project
Link : project link

Problem Definition : Image to Image Style Transfer

1. Transfer the artistic style of one image onto the content of another
2. Create a new image that retains the content of the original but adopts the artistic characteristics of a reference image.
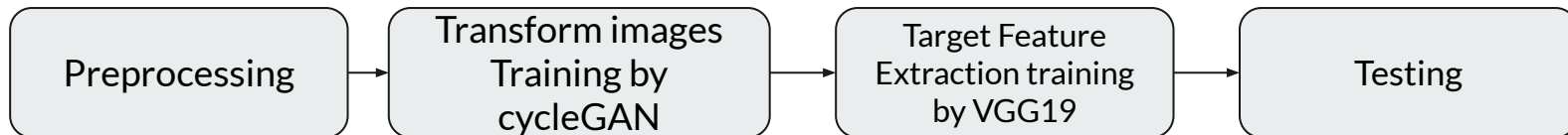

Figure 4: "strong" input/generated image vs. "weak" input/generated image

Key Idea

To address this problem, a combination of CycleGAN (Cycle-Consistent Generative Adversarial Network) and VGG19 (Visual Geometry Group 19-layer model) can be employed.

Solution Overview

```
Preprocessing → Transform images Training by cycleGAN → Target Feature Extraction training by VGG19 → Testing
```

Key results

FID for CycleGAN	FID for VGG
13.9289	203.6878

Table 1: The Frechet Inception Distance for last epoch

Figure 3: Originals(1st row) vs. Generated: CycleGAN(2nd row) vs. VGG19(3rd row)

Code and Datasets

Datasets :

1. **Best Artworks of All Time**
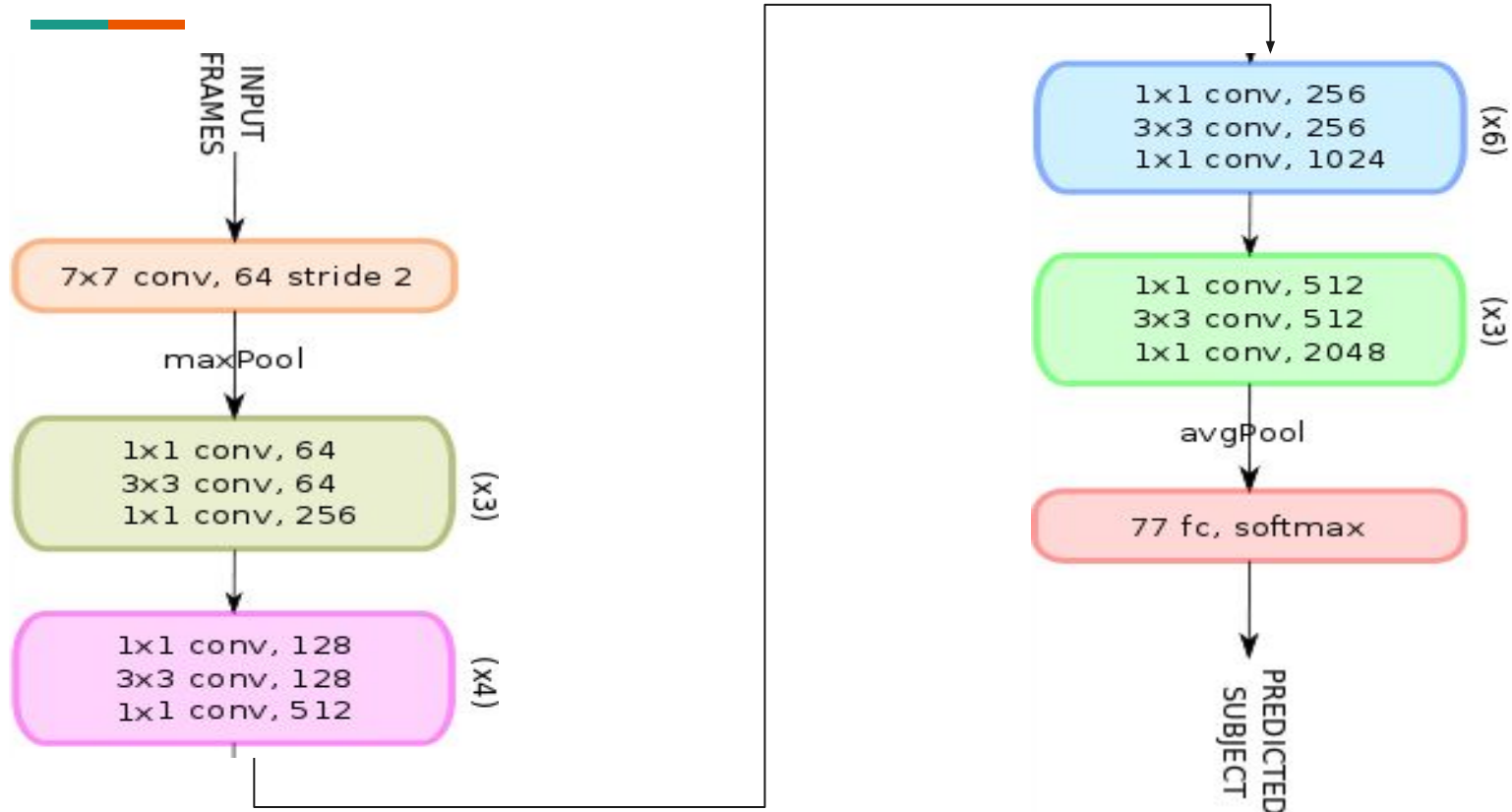
2. **I'm Something of a Painter Myself**

Code :

paint_like_vincent_van_gogh_Code

Proposed Experiment

- We will try to reproduce results from paper using the following architectures :
  1. ResNet–50
  2. VGGNet-16

- We will try to test on new Dataset

ResNet-50 Architecture

VGGNet-16 Architecture