



BROWN

## GANET

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## Motivation

1. Artistic work is generally recognized through an artist's brush strokes, color choices and so on. Each artist's style is unique and hard to replicate.
2. With advancements in computer vision, Generative Adversarial Networks or GANs are now able to mimic such nuances in a very convincing way.
3. We intend to use GANs to replicate Claude Monet's artistic style and see if our GANs can create museum-worthy paintings themselves!

## Problem Definition

1. We aim to train a Cyclic Generative Adversarial Network (C-GAN) in order to accurately and efficiently perform style transfers on regular images into the style of Claude Monet and vice-versa.
2. We also intend to use the Cyclic GAN model to apply styles from one artist onto a painting by another artist.

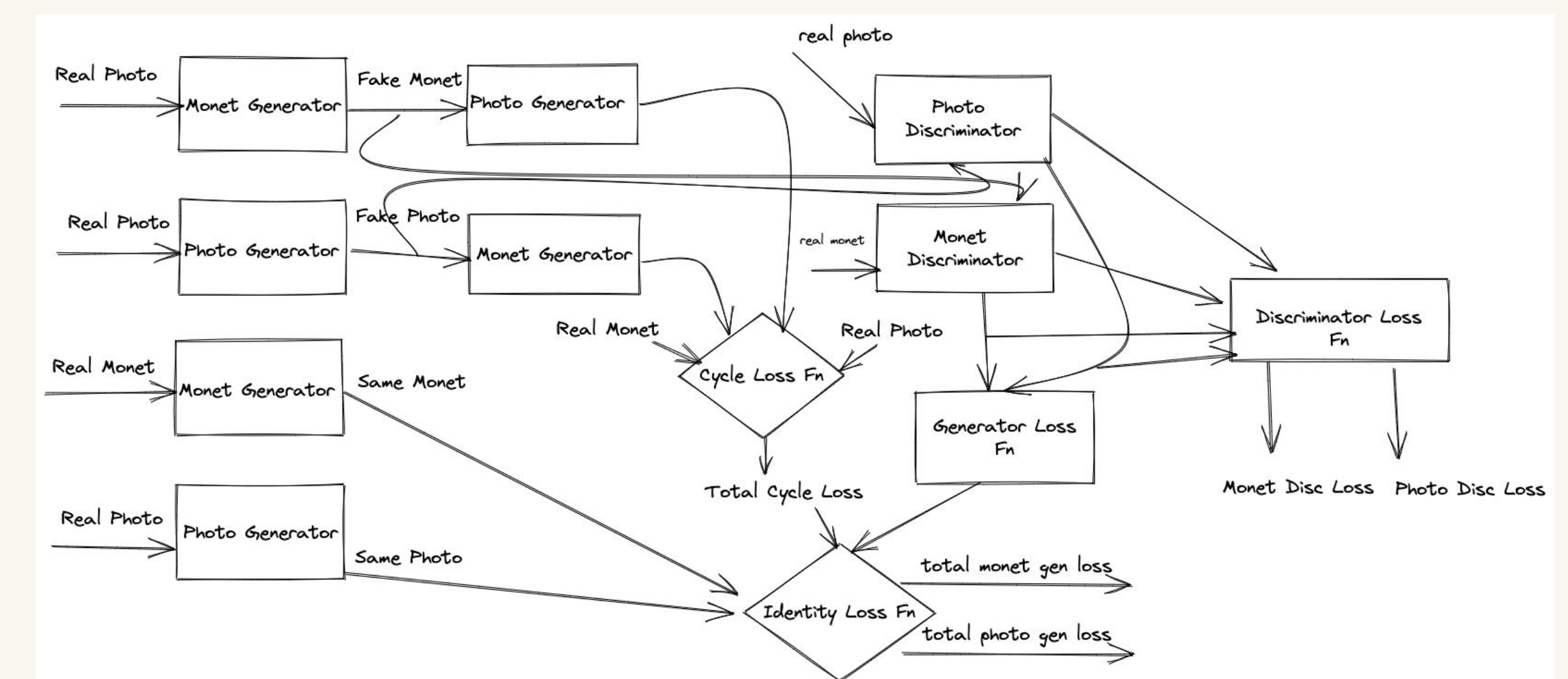
## Goal

1. Generate monet styled images from real life photo images.
2. Generate real life photo images from monet images.
3. Apply monet styles on paintings by other artists to generate new versions in the style of Claude Monet and vice-versa.

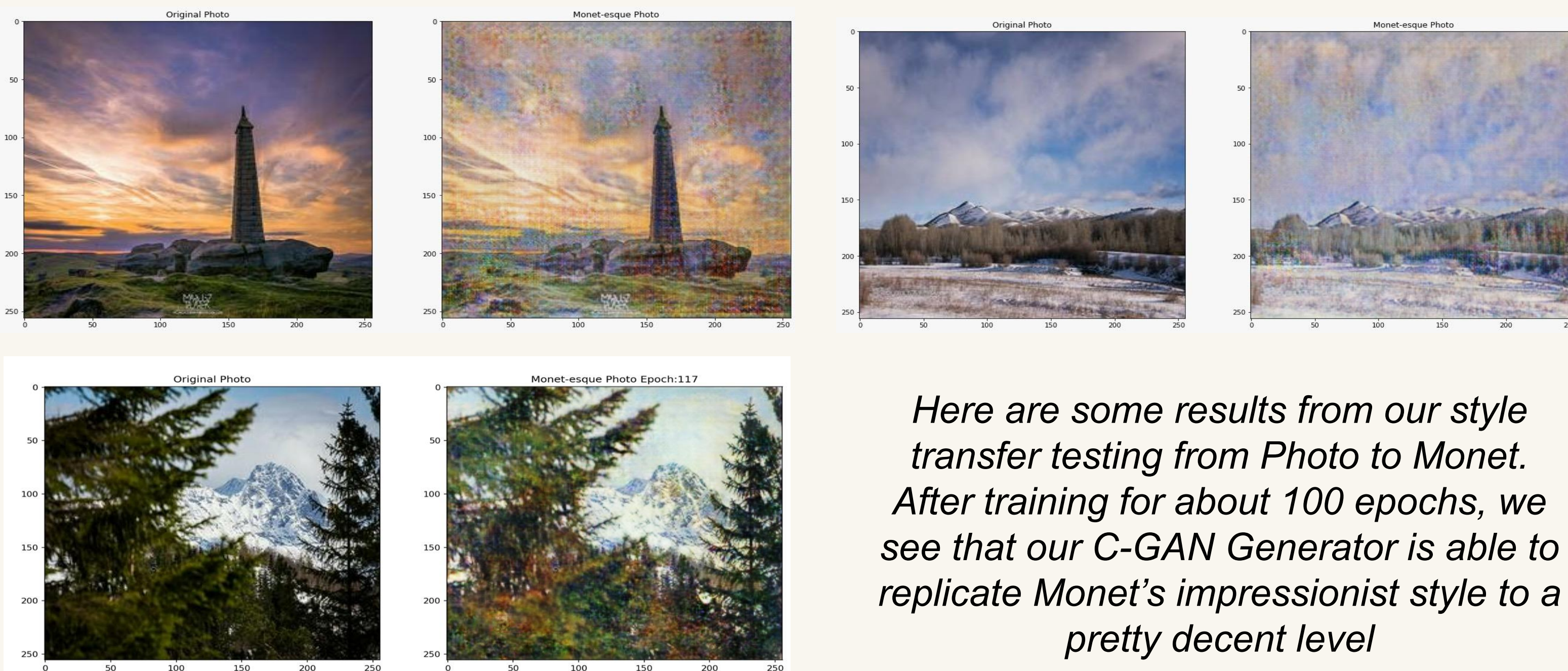
## Main Insight &amp; Technical Solution

1. One of the insights we drew from our data was that it was unpaired (i.e. the input and output domains are different). So, we needed to essentially learn the style delta between 2 different domains. Traditional GAN architectures would not work on unpaired data.
2. CycleGAN is a technique for training unsupervised image translation models via the GAN architecture using unpaired collections of images from two different domains. It consists of two Generators and two Discriminators that compete against each other and improve based on a Cycle Consistency Loss.
3. All Generators and Discriminators are trained alternatively in the same epoch and we run our training for a total of 100 epochs.

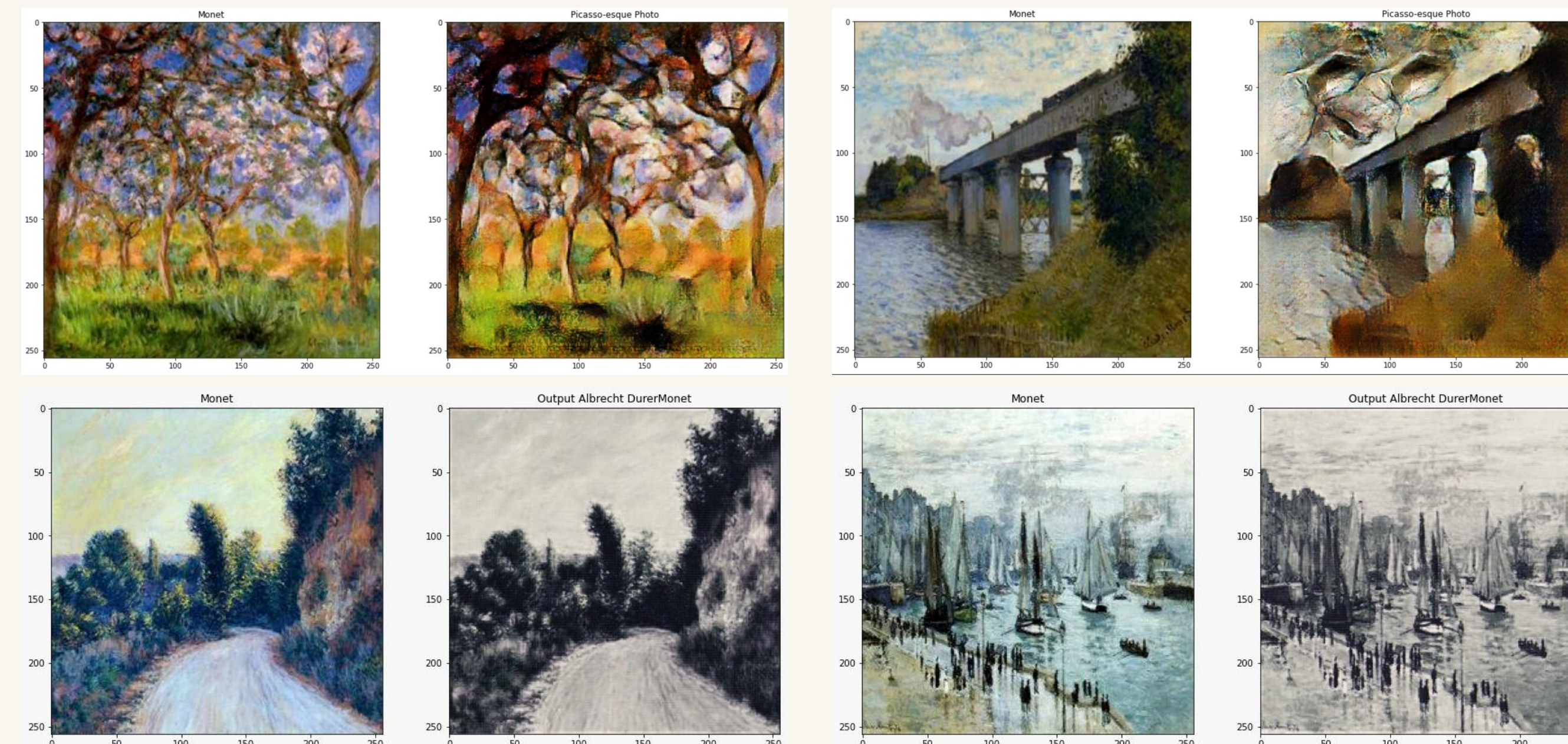
## Network Architecture



## Results



## Additional Results



Some more interesting results where we try and convert Monet paintings into the style of Pablo Picasso

...And even more interesting results from trying to convert Monet painting into the style of Albrecht Durer, primarily known for his engravings and woodcut prints

## References

- [1] Dataset from Kaggle: <https://www.kaggle.com/c/gan-getting-started/data>  
 [2] Jun-Yan Zhu, Taesung Park, Phillip Isola, and Alexei A. Efros.. Unpaired Image-to-Image Translation using Cycle-Consistent Adversarial Networks : <https://arxiv.org/abs/1703.10593>

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