

DIY Projects

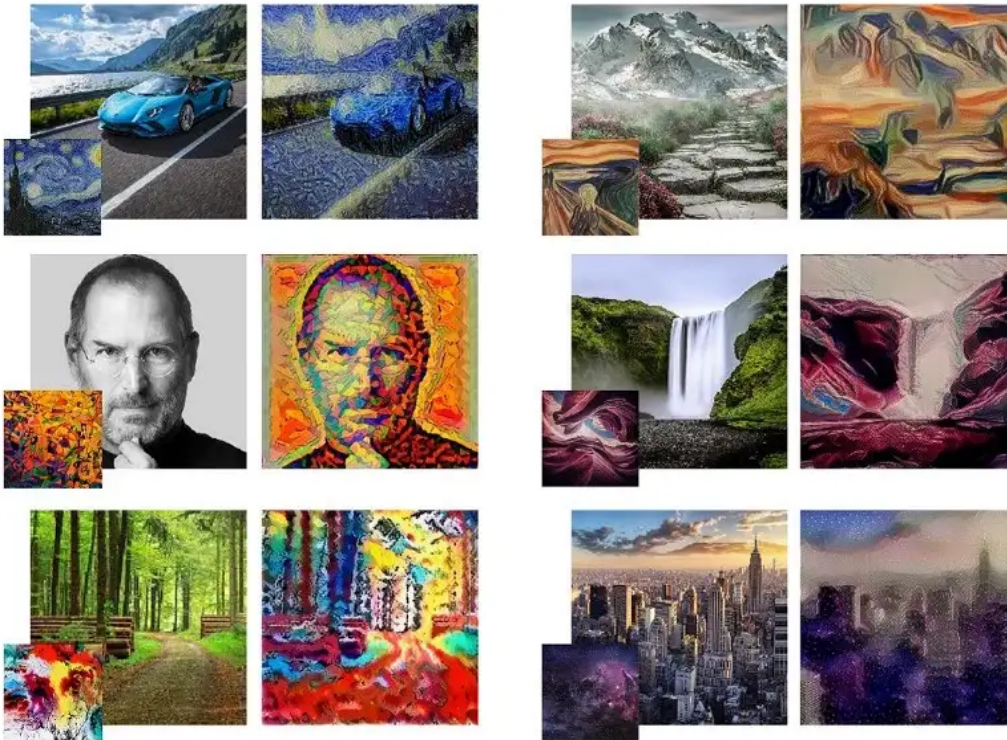
Neural Style Transfer

Difficulty - **Intermediate**

Expected time to finish **7-10 Days**

Introduction

Neural style transfer (NST) is a very neat idea. It allows you to blend two images (one containing content and one containing style) together to create new art. Convolutional Neural Network is a very important topic of deep learning and this project serves as a great introduction to it!



Tech Stack

- Python
- PyTorch

Pre-Requisites

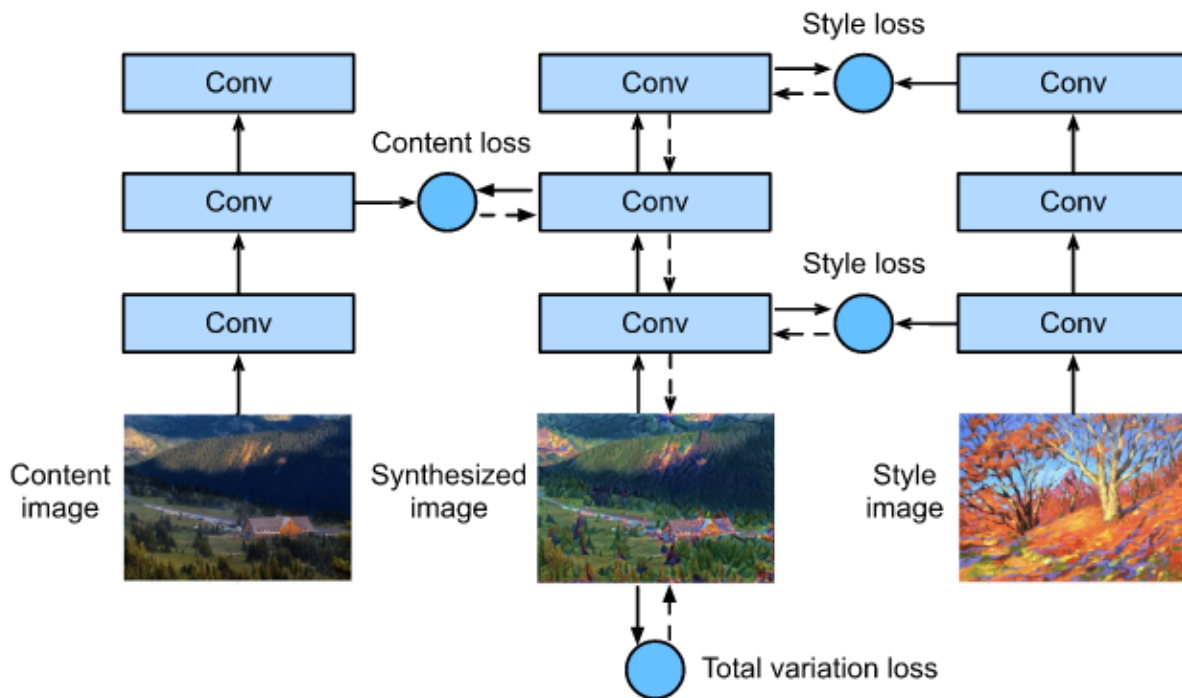
- Basic knowledge of PyTorch
- Basic knowledge about Neural Networks

Resources

- Anaconda (to set up Python env):
[▶ Install Anaconda and Jupyter on Windows \(2020\)](#)
- Python with VSCode (or any IDE of your choice):
[▶ How to Run Python in Visual Studio Code on Windows 10 2022 B...](#)
- Deep Learning with PyTorch:
[▶ Deep Learning With PyTorch - Full Course](#)
- Concepts of CNN:
[▶ MIT 6.S191: Convolutional Neural Networks](#)


Implementation

Start by reading this paper Gatys et al (<https://arxiv.org/pdf/1508.06576.pdf>). Understand the idea behind NST, style and content components, and its loss function. The concept is very intuitive. You can also take help from the [video series](#) (from 37 to 41).



Pick a pre-trained model, most popular being VGG19 (a model, with weights pre-trained on ImageNet. ImageNet, which is a dataset of over 15 million labeled high-resolution images with around 22,000 categories.), to extract features of an image.

Additional Resources

-  Neural Style Transfer : From Theory to Pytorch Implementation
- [Gatys Image Style Transfer CVPR 2016 paper](#)
- <https://github.com/gordicaleksa/pytorch-neural-style-transfer>

Note:

This project is not very easy in itself and requires reading up and a lot of patience while training and debugging. But that's the entire beauty of Deep Learning! With patience and resources, you will get astounding results! You may refer to the code from the links above but do not blindly copy the code. You should be able to understand each block of the architecture. All the best!

Submission

Form Link - <https://forms.gle/sHmvzS1gT4LBxXa28>