



Create Arts With any GenAI

you will bring that style to your photos or recreate the style from scratch!

1. Overview

In this challenge, you'll tap into your artistic side and either transform your photos with a unique style or craft that style from the ground up!

With the rapid strides in computer vision, Generative AI now has the power to create incredibly lifelike renditions of various objects. But when it comes to producing museum-quality art, many still consider it more art than science. So, can **Generative AI** work its magic and fool classifiers into thinking you've conjured up a true Monet? That's the creative experiment you'll embark on!

2. Description

2.1 The Challenge:

In this task, you'll harness the power of Generative AI, which relies on two core models: a generator and a discriminator. The generator, a neural network, crafts the images, while the discriminator is responsible for evaluating them.

For this challenge, your mission is to generate images inspired by Monet's style. The generator model will attempt to create authentic-looking artwork, while the discriminator tries to distinguish between the real Monet paintings and those generated by the AI.

Your ultimate goal? To develop a Generative AI system capable of producing between 2,000 - 5,000 Monet-style images, with the generator working tirelessly to outsmart the discriminator.

2.2 Getting Started:

Details on the dataset can be found [here](#) and an overview of the evaluation process can be found below.

3. Dataset Description:

The dataset consists of four key directories: *monet_tfrec*, *photo_tfrec*, *monet_jpg*, and *photo_jpg*. Both *monet_tfrec* and *monet_jpg* hold the same set of Monet paintings, while *photo_tfrec* and *photo_jpg* contain identical photos in different formats.

We encourage you to explore *TFRecords* as this is a great opportunity to familiarize yourself with this efficient data format. However, JPEG images are also available if you prefer.

In the *monet* directories, you'll find authentic Monet paintings. Use these images to train your Generative AI model.

In the *photo* directories, you'll find standard photos. Your task is to add a Monet-like artistic style to these images. **Once transformed, submit your generated JPEG images in a single zip file, with a limit of 5,000 images and minimum limit of 2000 images. You are free to stylize other photos, but ensure your submission stays within the limit.**

Files

monet_jpg - 300 Monet paintings sized 256x256 in JPEG format

monet_tfrec - 300 Monet paintings sized 256x256 in TFRecord format

photo_jpg - 7028 photos sized 256x256 in JPEG format
photo_tfrec - 7028 photos sized 256x256 in TFRecord format

4. Submission format

Your kernel's output must be called **images.zip** and contain 2,000-5,000 images sized 256x256.

5. Evaluation Script

Your submission will be evaluated by modified script given [here \(drive\)](#) you can also check your accuracy by running this script by giving input images path and output images folder path.

FID Originally published [here \(github\)](#), FID, along with [Inception Score \(IS\)](#), are both commonly used in recent publications as the standard for evaluation methods of GANs.

In FID, we use the Inception network to extract features from an intermediate layer. Then we model the data distribution for these features using a multivariate Gaussian distribution with mean μ and covariance Σ . The FID between the real images r and generated images g is computed as:

$$FID = ||\mu_r - \mu_g||^2 + Tr(\Sigma_r + \Sigma_g - 2(\Sigma_r \Sigma_g)^{1/2})$$

where Tr sums up all the diagonal elements. FID is calculated by computing the Fréchet distance between two Gaussians fitted to feature representations of the Inception network.

6. Competition Rules

- Apply Gen Ai concepts
- Don't cheat! Apply yourself! Have fun!
- Plagiarism + Manual check will be done on codes and outputs
- **Cheating results in zero in component**