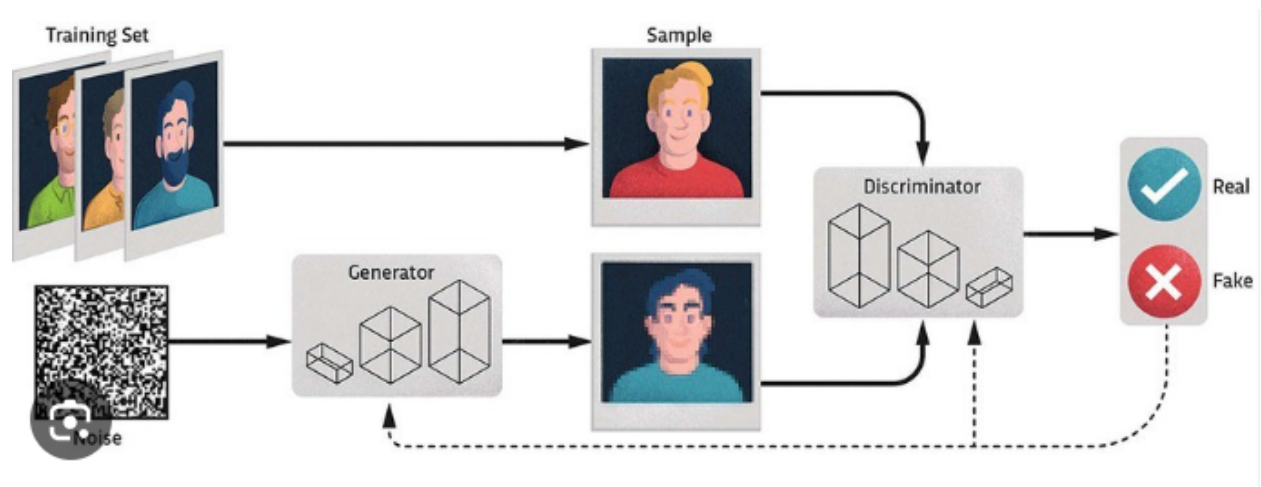
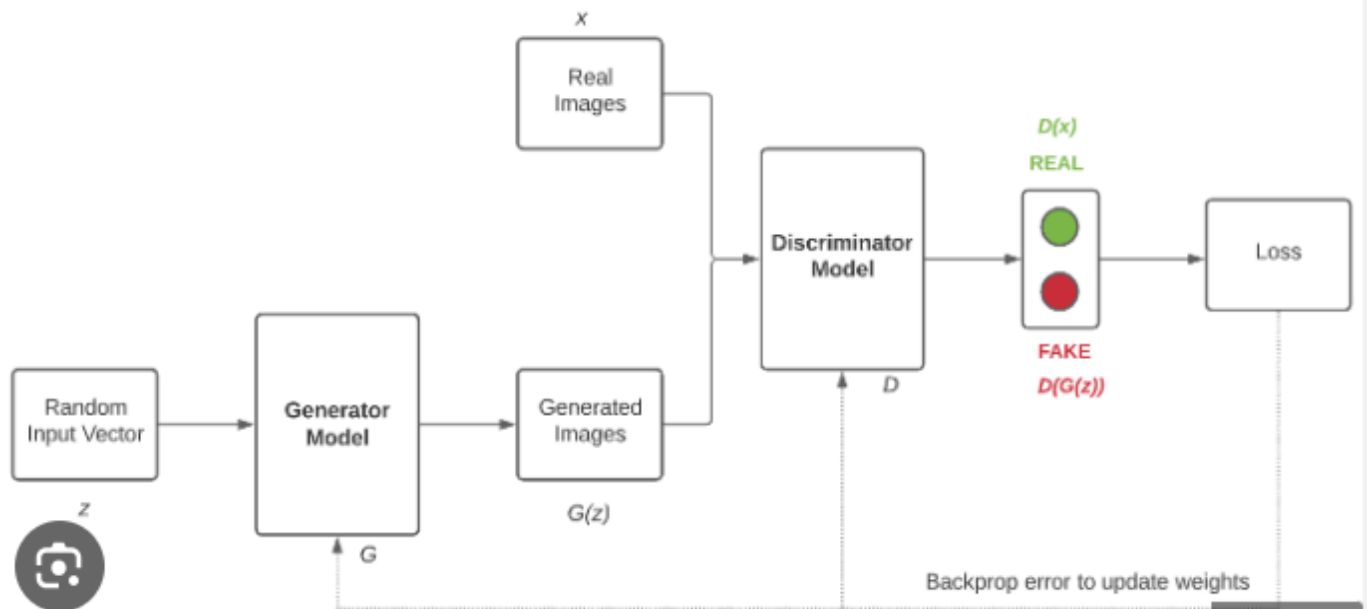


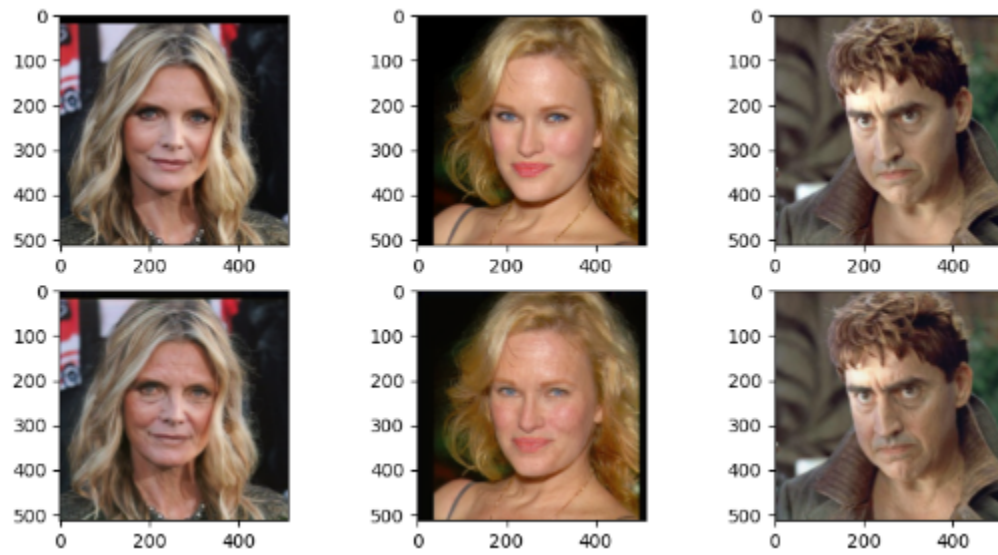
<https://this-person-does-not-exist.com/en>

<https://www.faceapp.com/>

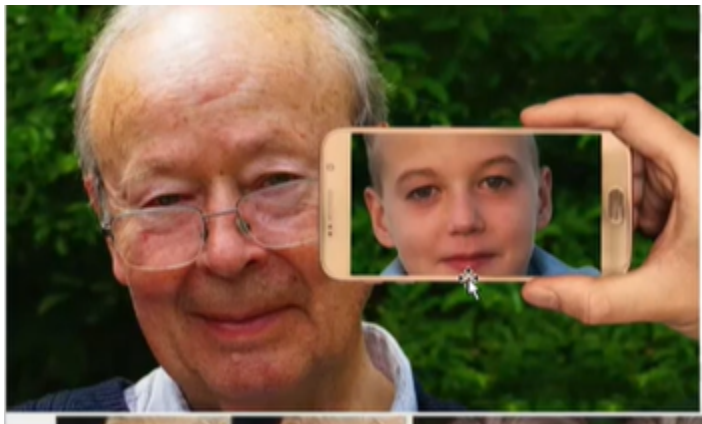
Generative Adversarial Networks (GANs) are powerful machine learning models capable of generating realistic image, video, and voice outputs.



Face Aging



Face De-aging



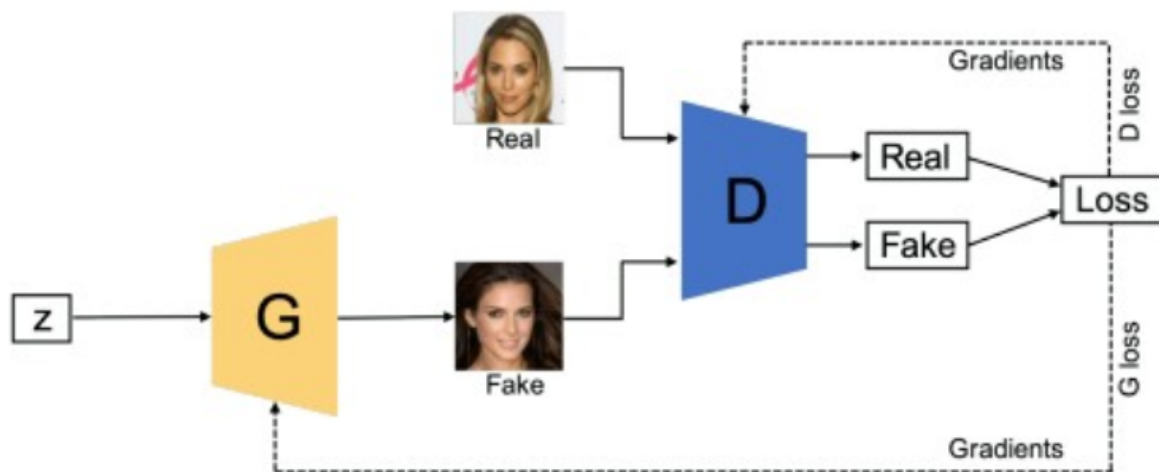
Text to Imaging

This flower has
yellow petals along
with green and
yellow stamen

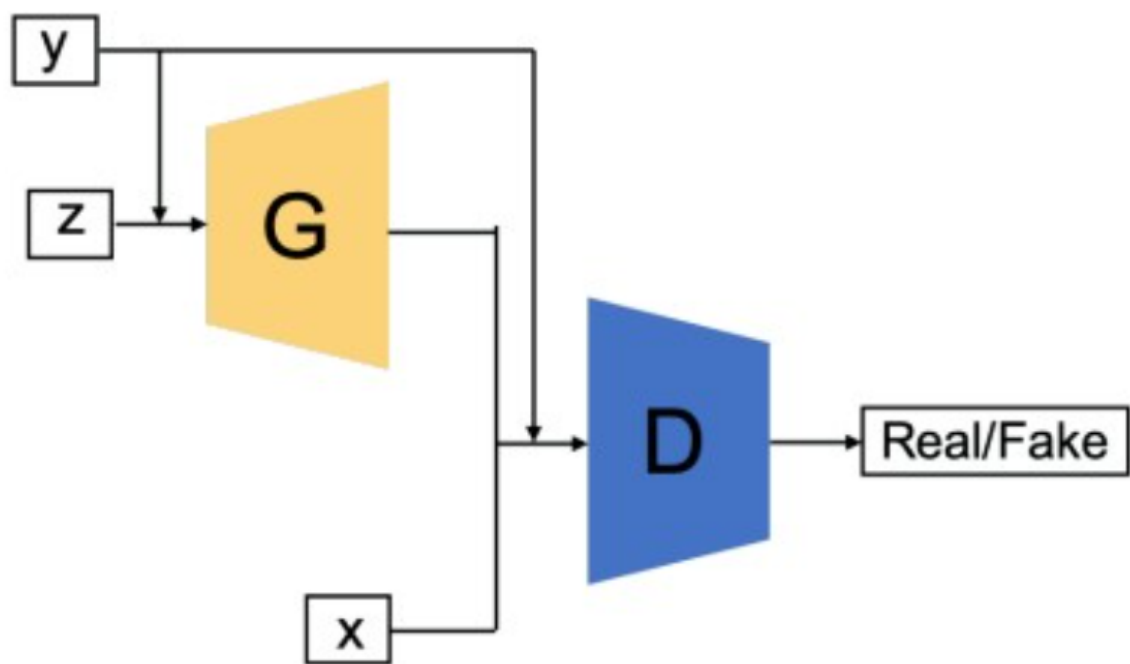


Types:

Vanilla GAN - The Vanilla GAN is the simplest type of GAN made up of the generator and discriminator, where the classification and generation of images is done by the generator and discriminator internally with the use of multi layer perceptrons.

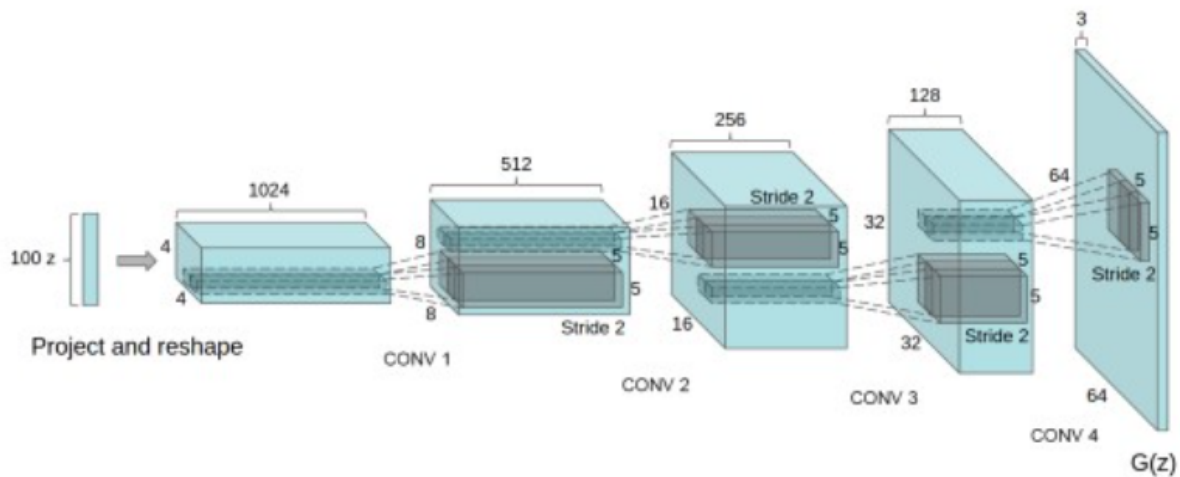


Conditional Gan (CGAN) - In this GAN the generator and discriminator both are provided with additional information that could be a class label or any modal data.

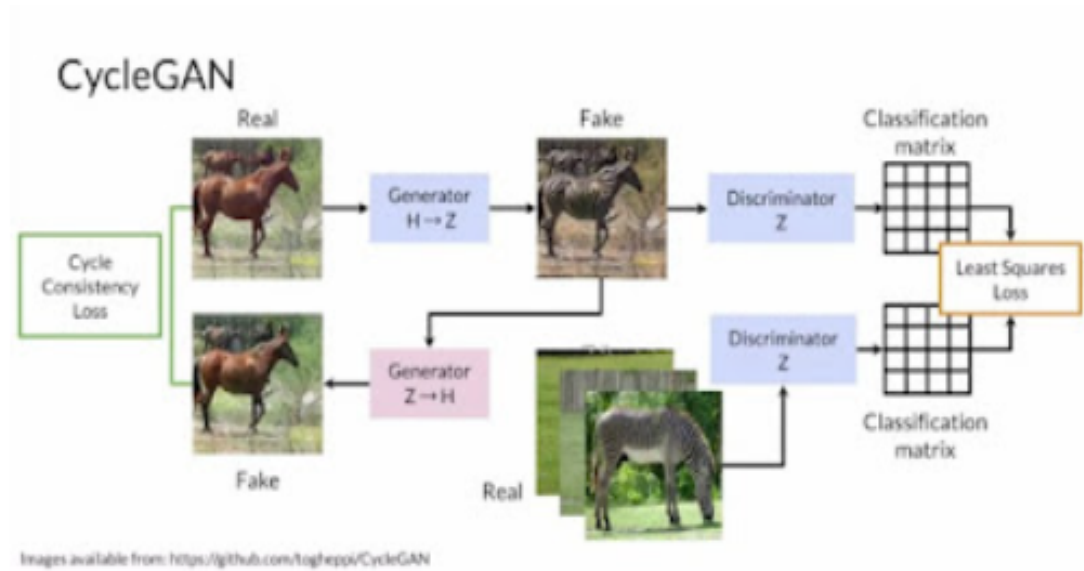


Deep Convolutional GAN (DCGAN)

This is the first GAN where the [generator used deep convolutional network](#), hence generating high resolution and quality images to be differentiated. ReLU activation is used in Generator all layers except last one where Tanh activation is used, meanwhile in Discriminator all layers use the Leaky-ReLu activation function. Adam optimizer is used with a learning rate of 0.0002.



CycleGAN - This GAN is made for Image-to-Image translations, meaning one image to be mapped with another image.



SELU has been shown to outperform other activation functions like ReLU and Leaky ReLU in many deep learning tasks, especially when dealing with deep networks.

StyleGANs

These GANs build upon traditional GAN architectures, offering enhanced control over generated images, especially in terms of style and appearance.

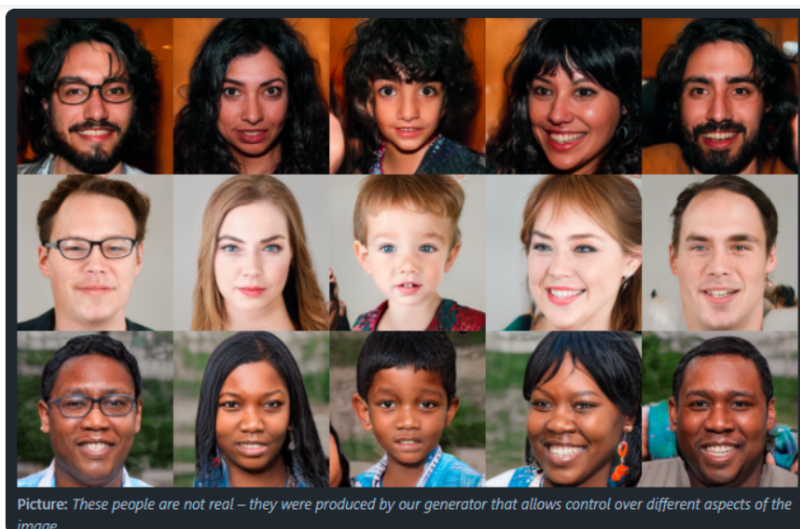
It uses a style-based generator that separates the image generation into two parts:



Unlike traditional GANs, which take a noise vector as input, the StyleGAN generator takes a style vector as input and uses it to modulate the features generated by the network.

StyleGAN defines the high-level attributes of the image:

- The position of the face.
- The personality of a person.
- Gender.
- Hairstyle.
- Freckles and other details.



source: <https://arxiv.org/abs/1406.2661>

Super Resolution GAN (SRGAN)- The main purpose of this type of GAN is to make a low resolution picture into a more detailed picture.

