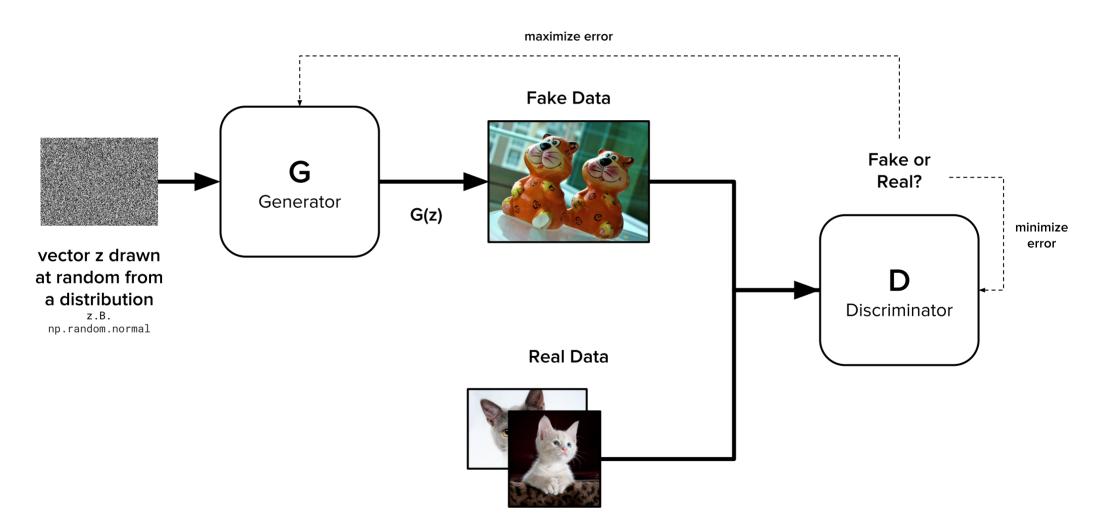
# **Generative Adversarial Networks**



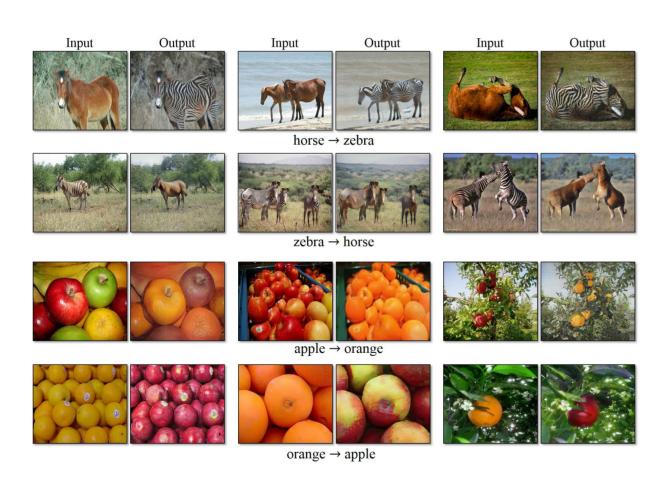
### **Generator network**

np.random.normal

```
model.add(Dense(128 * 7 * 7, activation="relu", input_dim=self.latent_dim))
model.add(Reshape((7, 7, 128)))
model.add(UpSampling2D())
model.add(Conv2D(128, kernel_size=3, padding="same"))
                                                                                                                   128
                                                                                                  256
                                                                               512
                                                                                                                               64
                                                        1024
                                                                                                     Stride 2
                                                                                            16
                                                                                                               32
                                                                                                                                   Stride 2
                                                                                    Stride 2
                                                                                                                        Stride 2
                                     Project and reshape
                                                                    CONV 1
   vector z drawn
                                                                                          CONV 2
                                                                                                              CONV<sub>3</sub>
                                                                                                                                   64
   at random from
    a distribution
                                                                                                                              CONV 4
                                                                                                                                       G(z)
          z.B.
```

## CycleGAN I

#### Image to Image Translation: Zebra to Horse, Horse to Zebra



No pairings for training required!



## CycleGAN II

## 4 Networks, how to combine and train them?

G1

Zebra to Horse Generator G2

Horse to Zebra Generator **D1** 

Real or Generated Zebra? Discriminator **D2** 

Real or Generate Horse? Discriminator

## CycleGAN III

