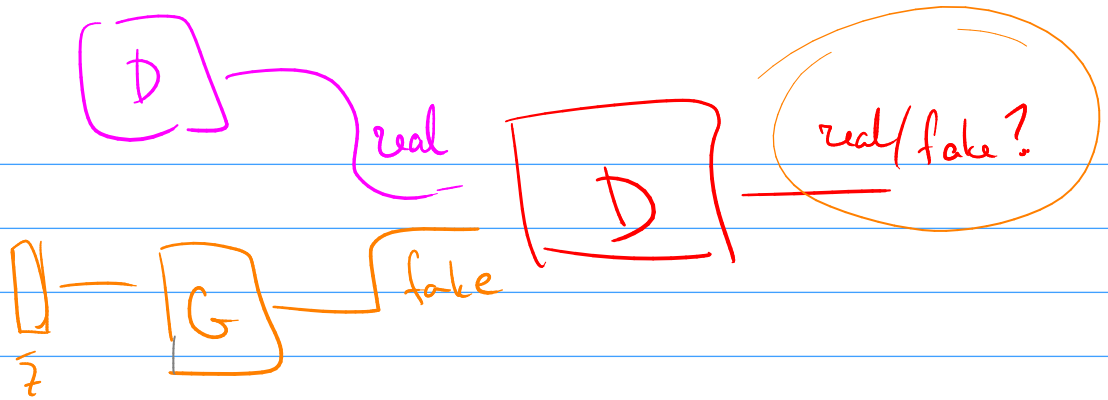


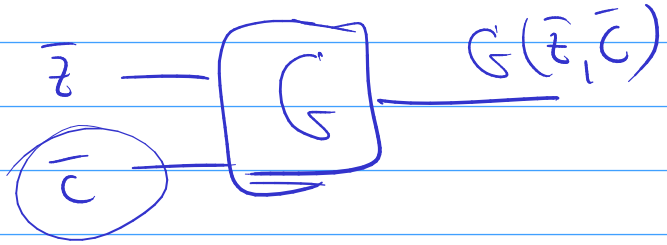
Adversarial loss

GAN: $E_z[-\log D(G(\bar{z}))]$

LSGAN: $E_z[(D(G(\bar{z})) - c)^2]$

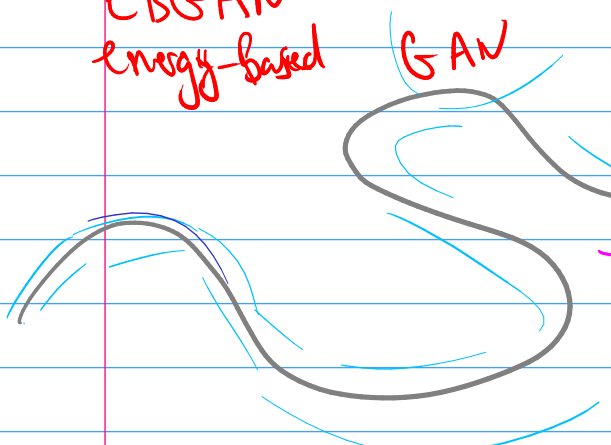
Discr. loss: $E_z[(D(G(\bar{z}))-b)^2] + E_{\bar{x} \sim real}[(G(\bar{z})-a)^2]$

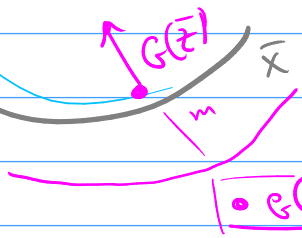
WGAN



EBGAN
energy-based

GAN

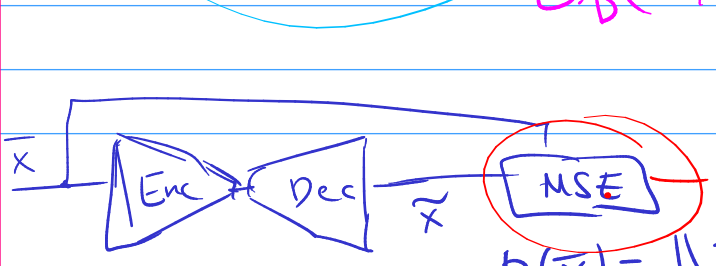




D: Energy $\xrightarrow{real}$ min, $\xrightarrow{fake}$ max

G: Energy $\xrightarrow{fake}$ min

$$L_D(\bar{x},\bar{z}) = D(\bar{x}) + [m - D(G(\bar{z}))]^+$$



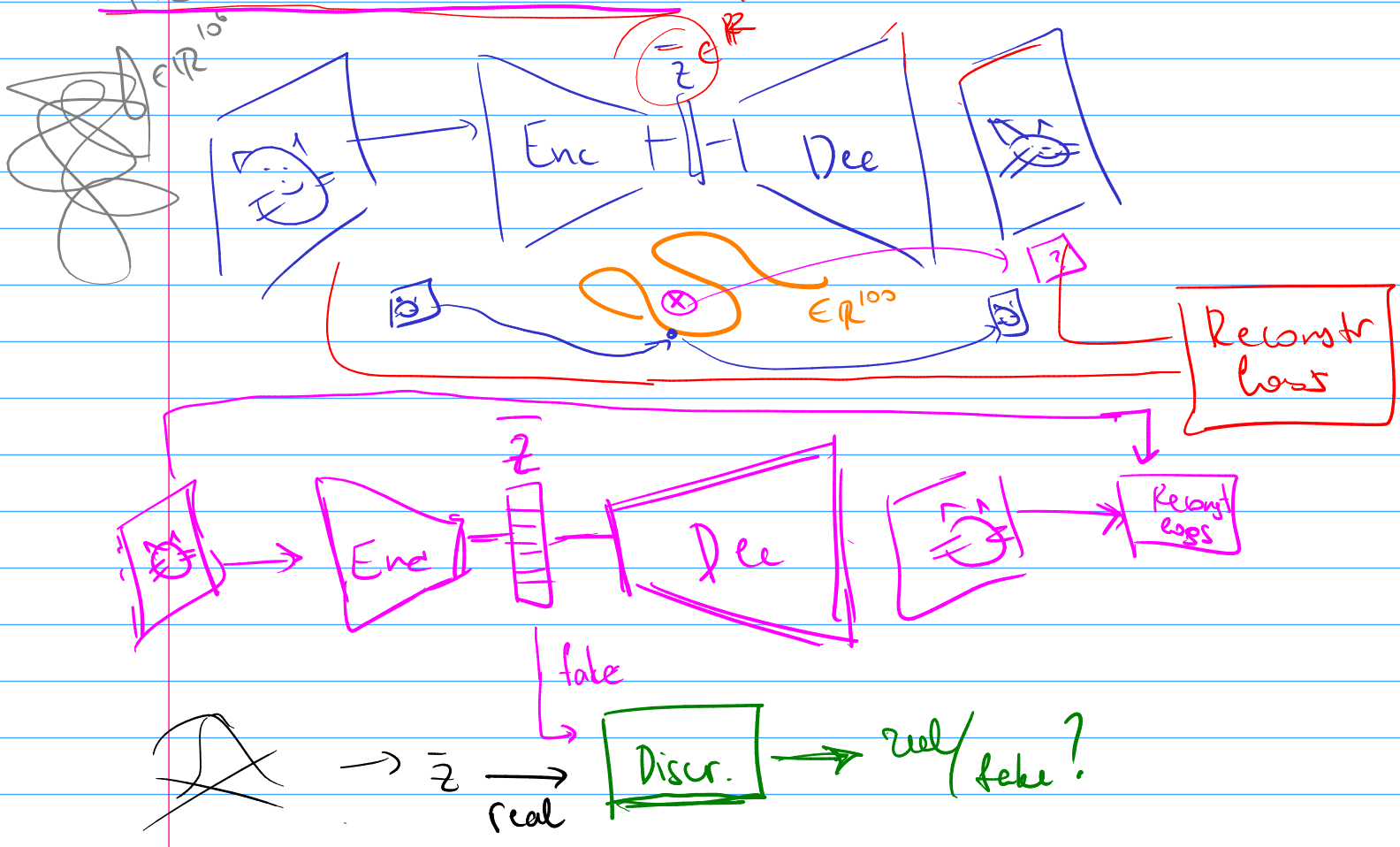
D:

$$D(\bar{x}) = \|\bar{x} - Dec(Enc(\bar{x}))\|^2$$

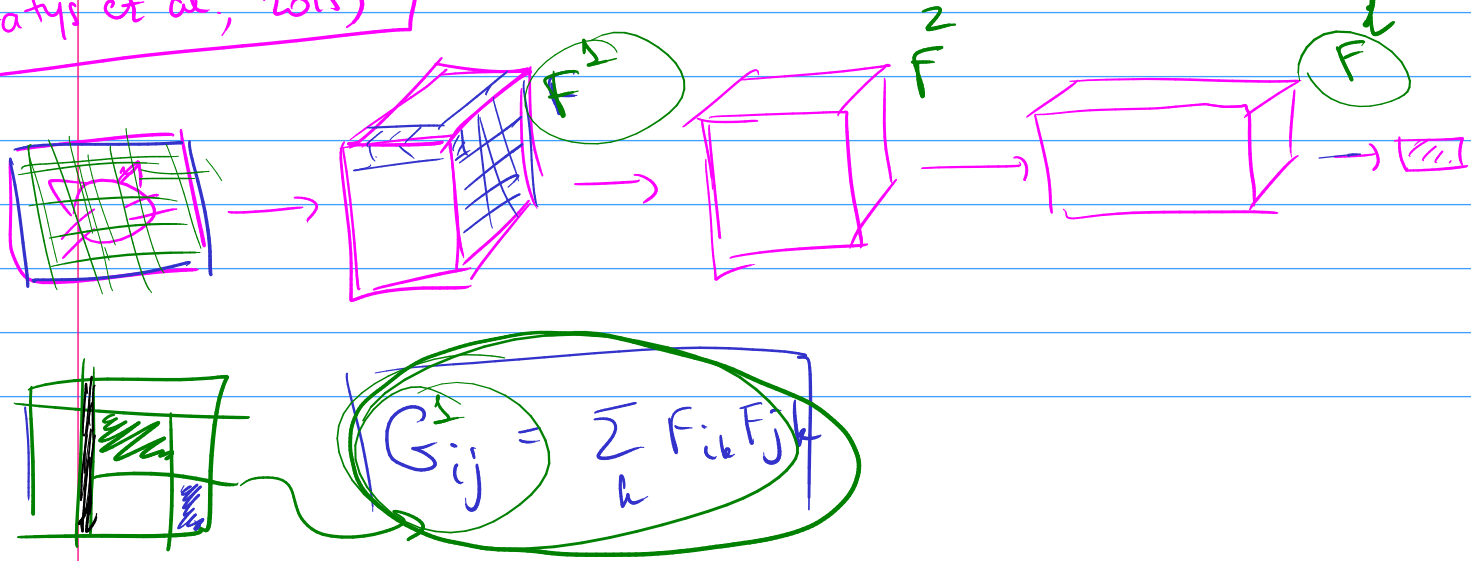
BEGAN - boundary equilibrium

mini-batch

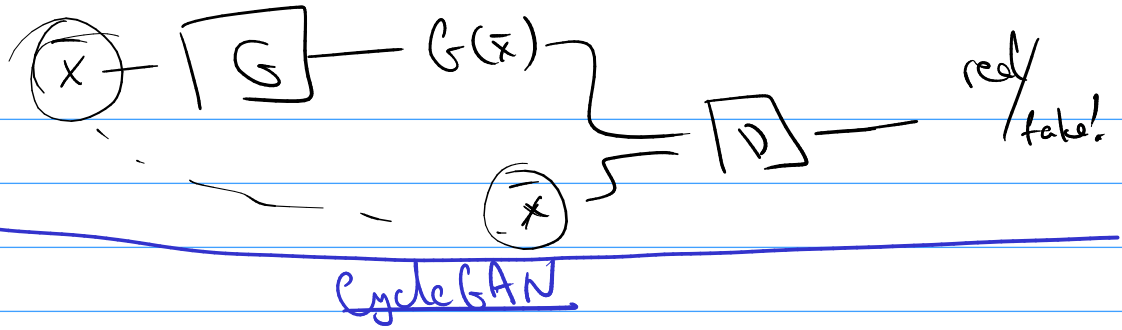
AAE - adversarial autoencoder



(Gatys et al., 2015)



pix2pix



X - photo

Y - Monet

CycleGAN