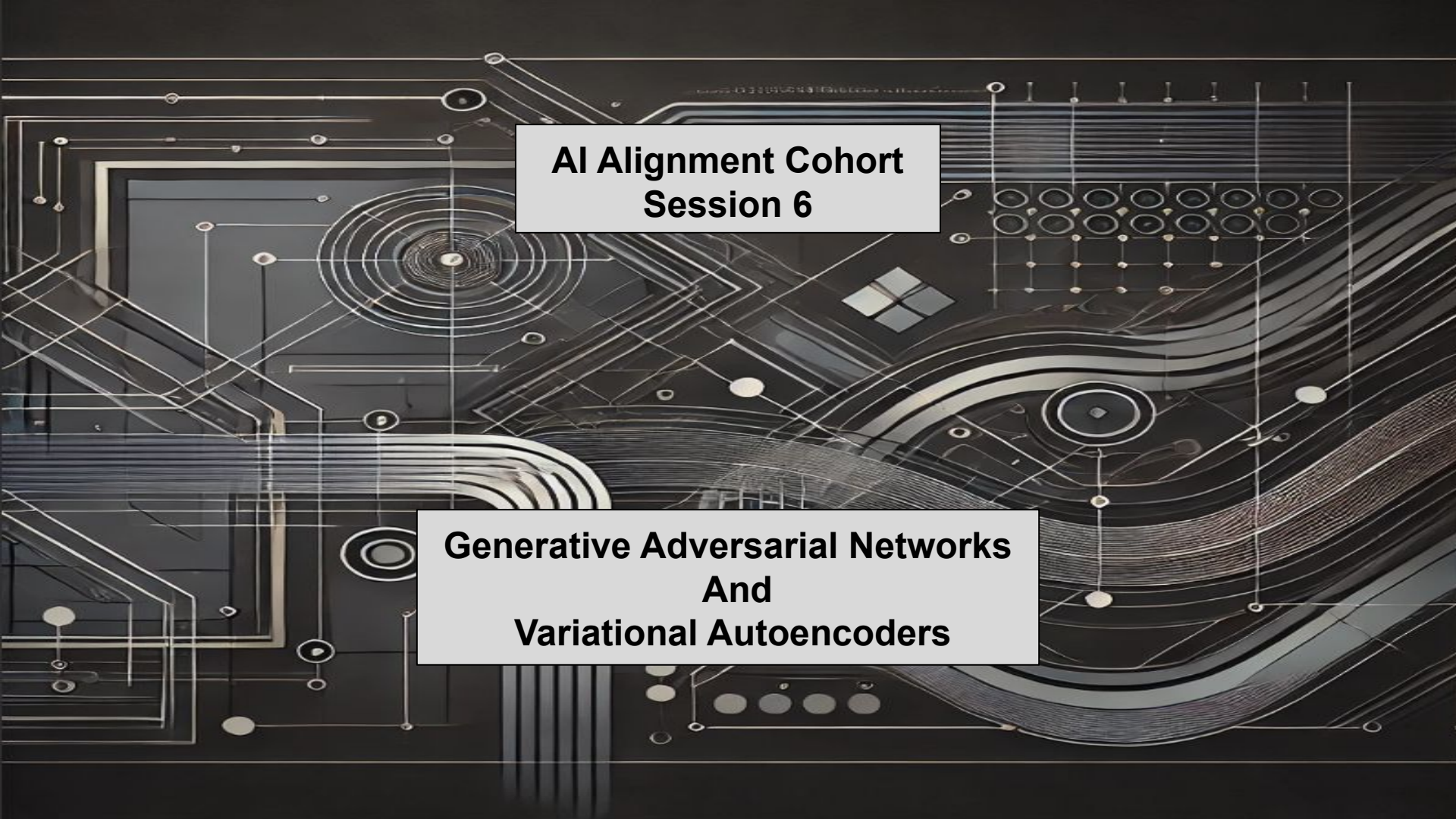
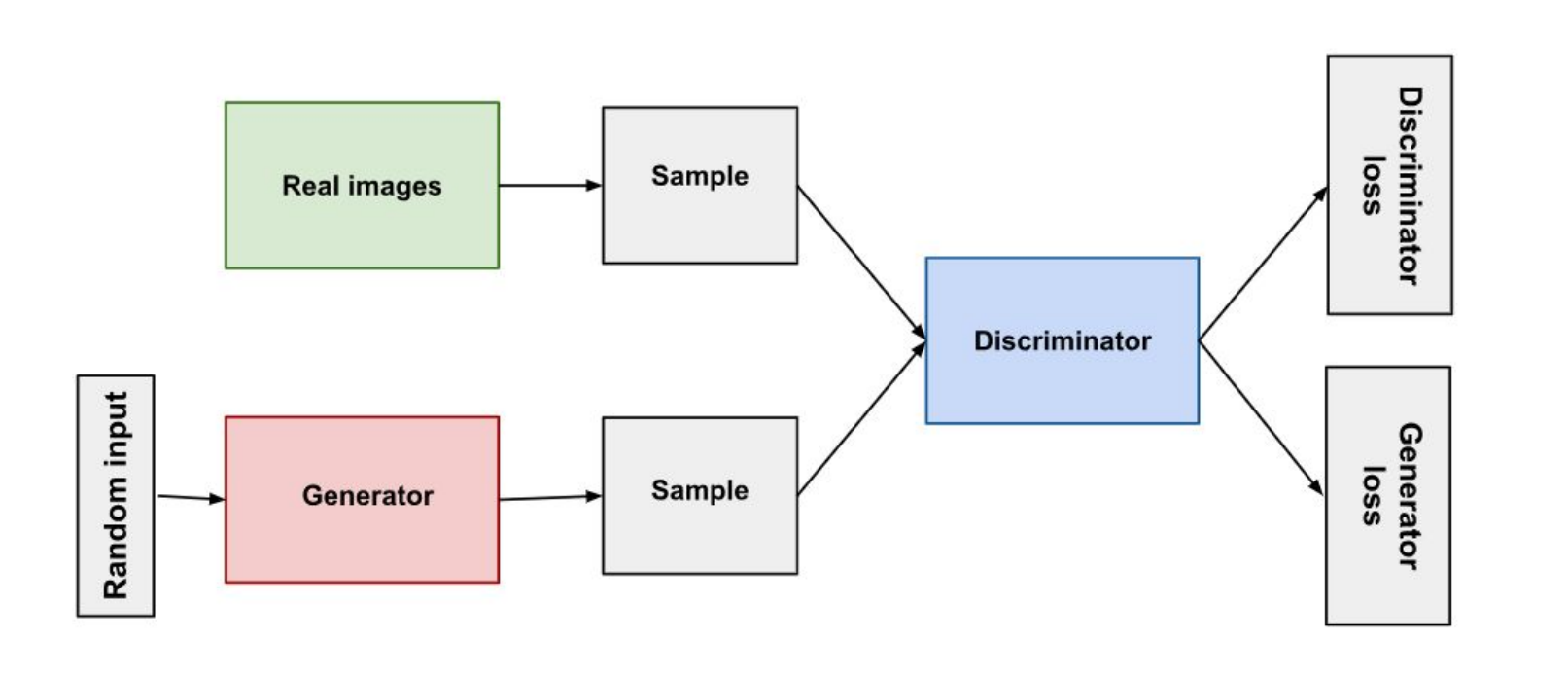
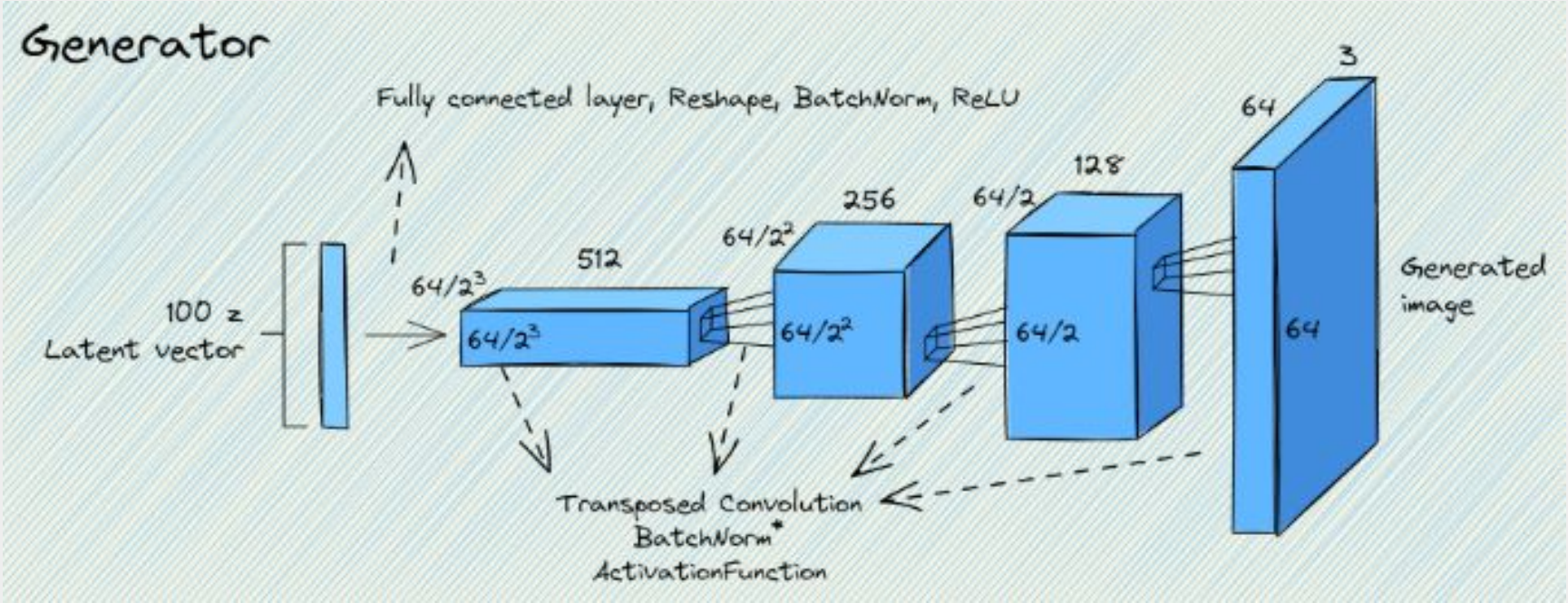

AI Alignment Cohort
Session 6
Generative Adversarial Networks
And
Variational Autoencoders

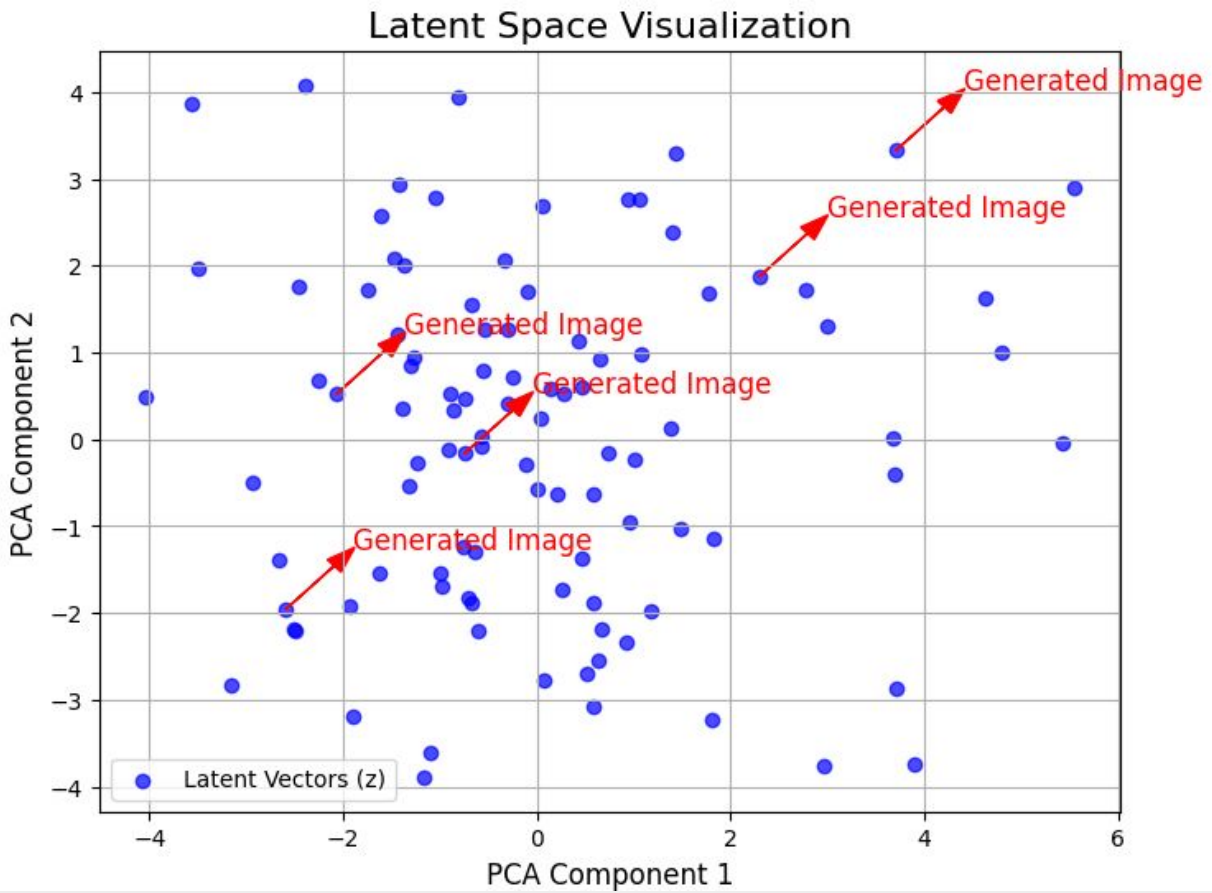
Generative Adversarial Networks Architecture



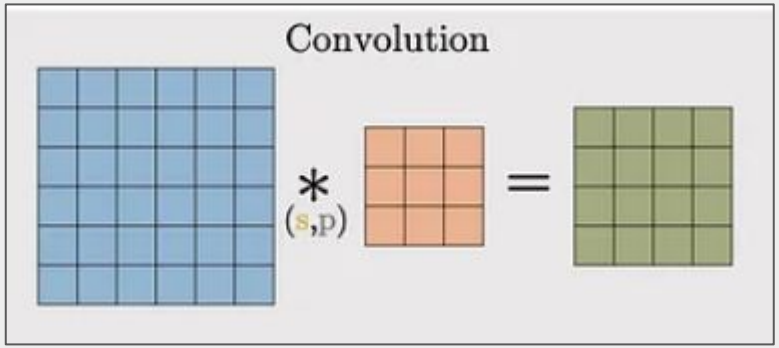
Generator

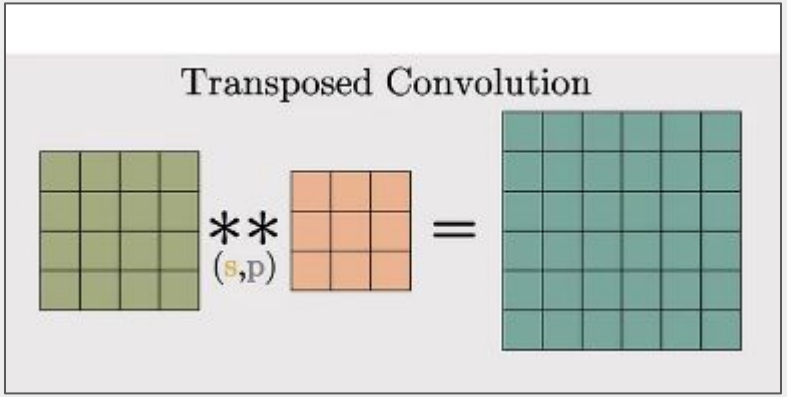

Generator
Fully connected layer, Reshape, BatchNorm, ReLU
100 z
Latent vector
64/2^3
512
64/2^3
64/2^2
256
64/2^2
64/2
128
64/2
64
3
64
Generated image
Transposed Convolution
BatchNorm*
ActivationFunction

Latent Space

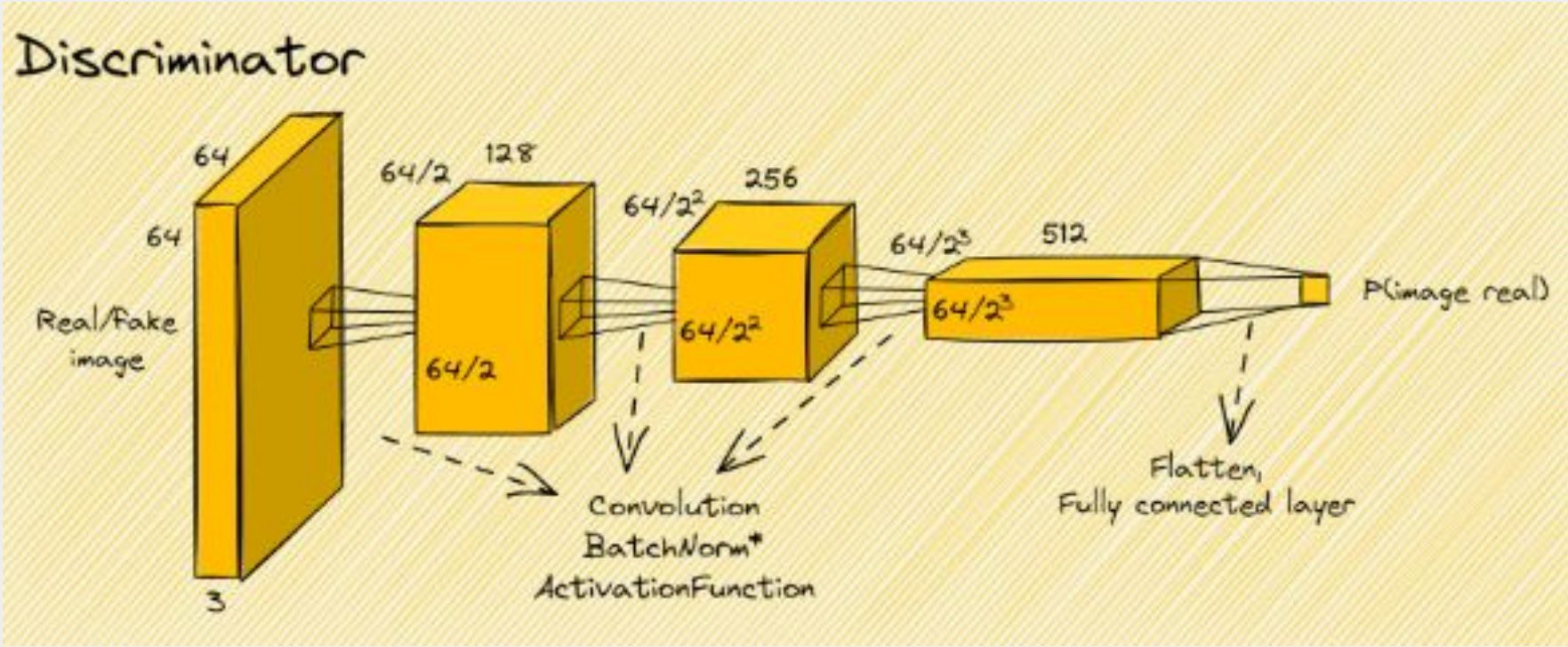


Transposed Convolutions





Discriminator



Loss functions in GANs

Minimax Loss:

$$E_x[log(D(x))] + E_z[log(1 - D(G(z)))]$$

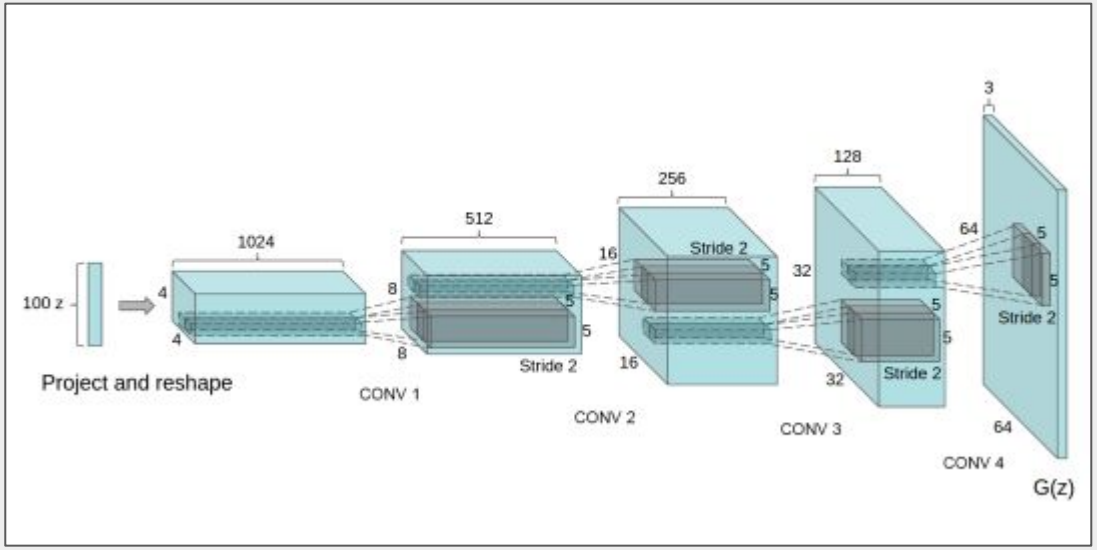
Wasserstein Loss:

Critic Loss: `D(x) - D(G(z))`

Generator Loss: `D(G(z))`

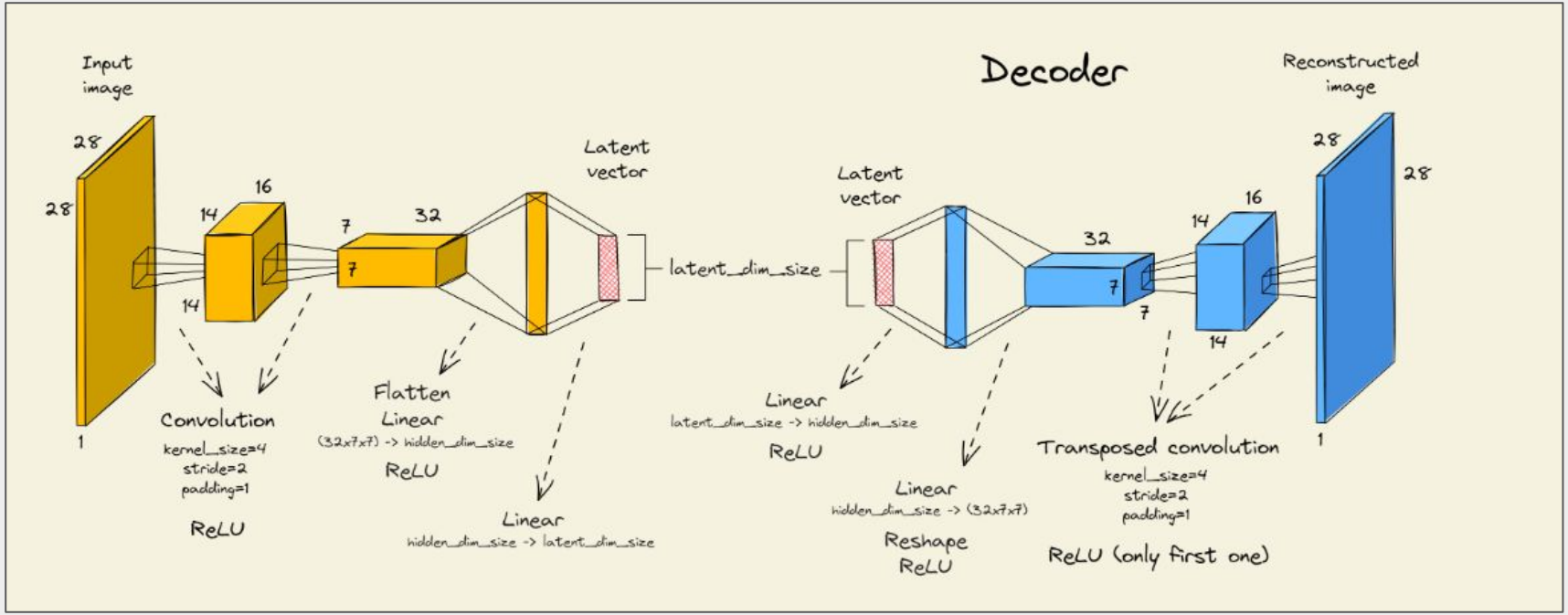
Convergence

DCGAN Architecture

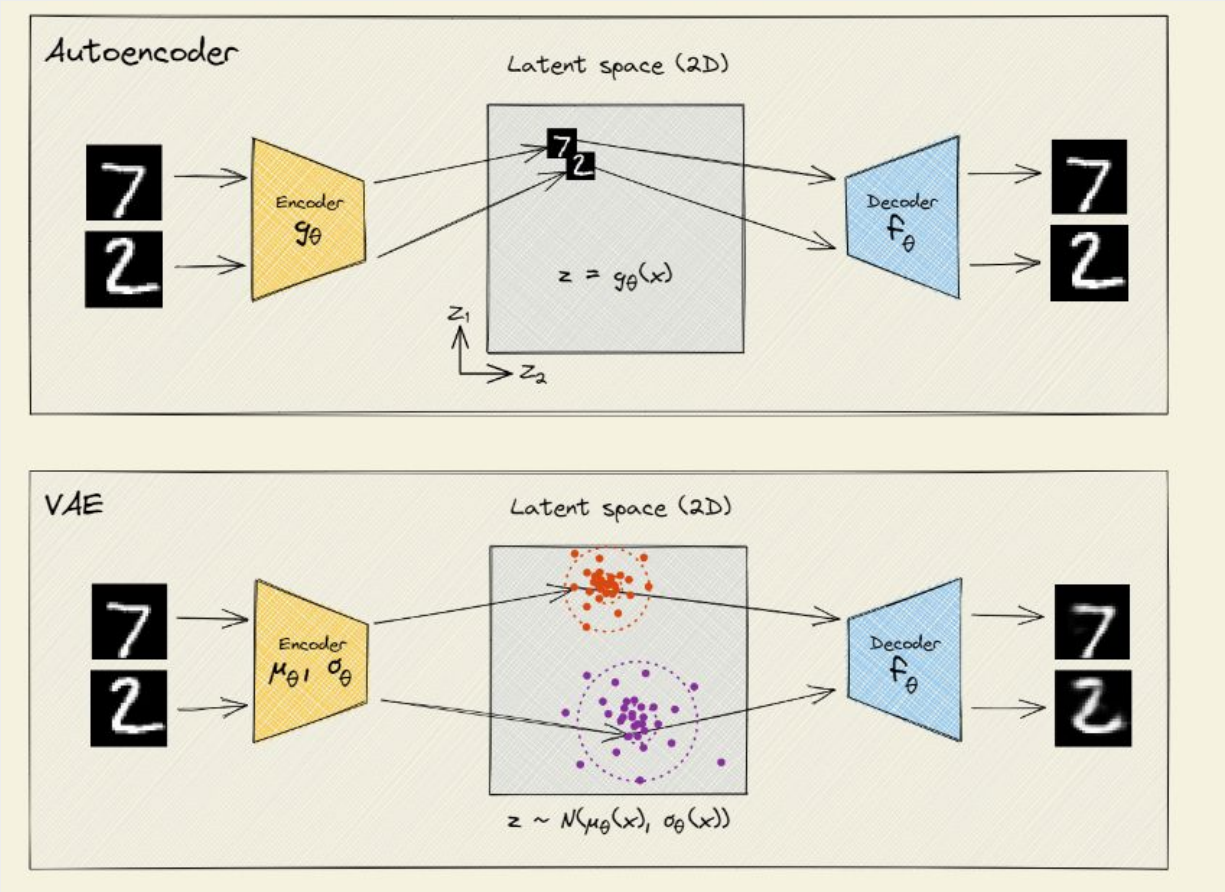


DCGAN generator used for LSUN scene modeling

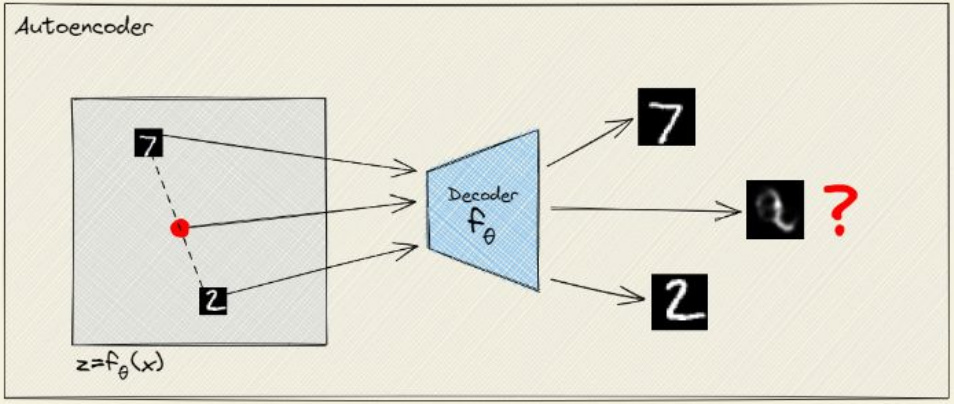
Autoencoders Architecture

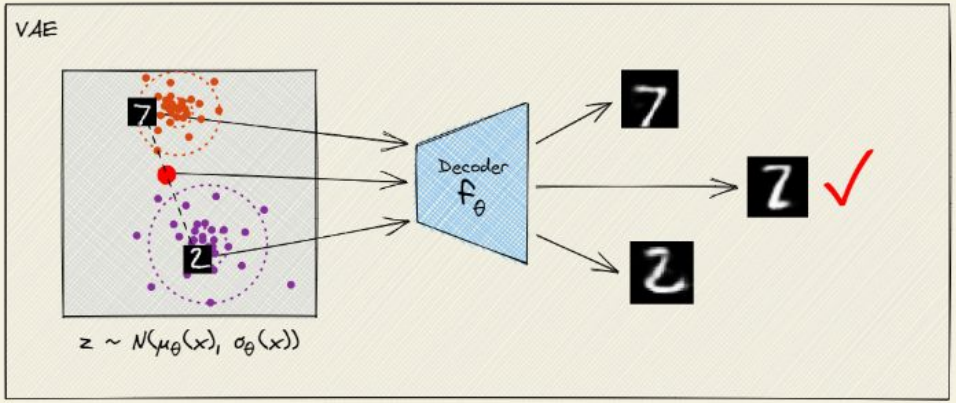


Variational Autoencoders



Variational Autoencoders





Reparametrization in VAEs