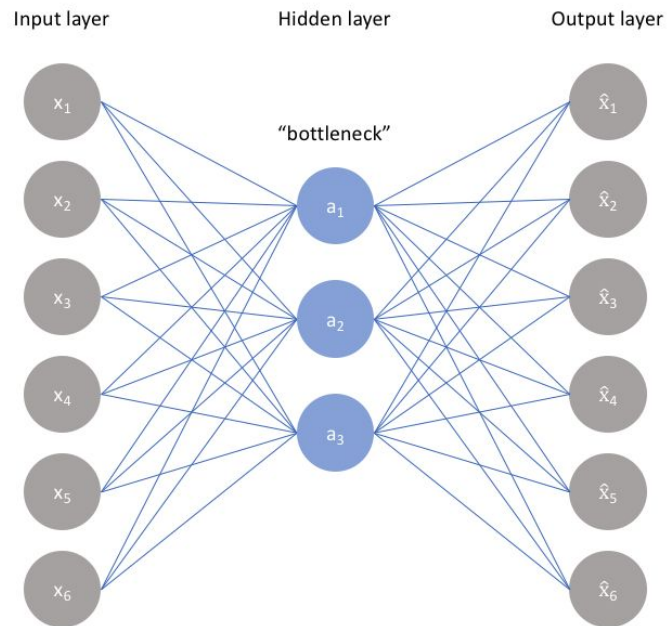


GANs

<https://github.com/timestocome/DeepLearning-Talks>

AutoEncoders

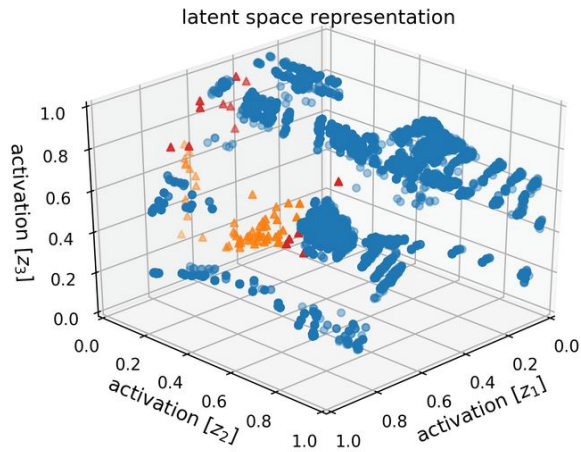
- Compression, noise removal
- Z space, Latent Space



Latent Space, Z space

Not continuous

Can be mapped onto data but
poorly grouped, can't create similar
data



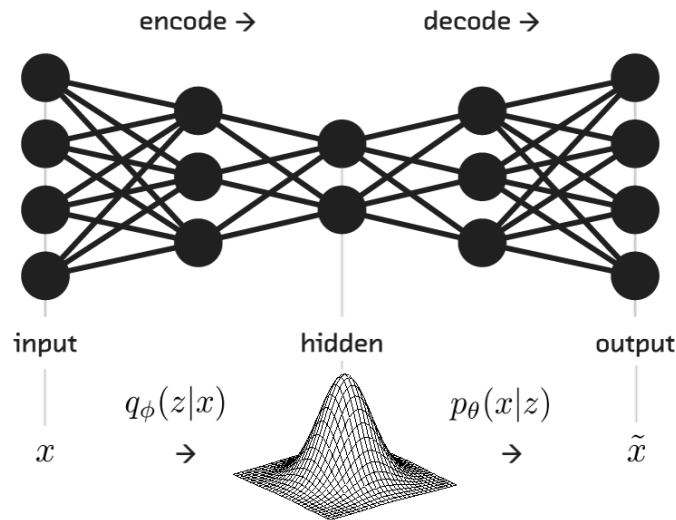
Variational Auto Encoders

- Continuous Z Space
- AE Cost function + KL Divergence
- Similar data grouped together
- Can create similar data

$$D(p||q) = \sum_{x \in X} p(x) \log \frac{p(x)}{q(x)}.$$

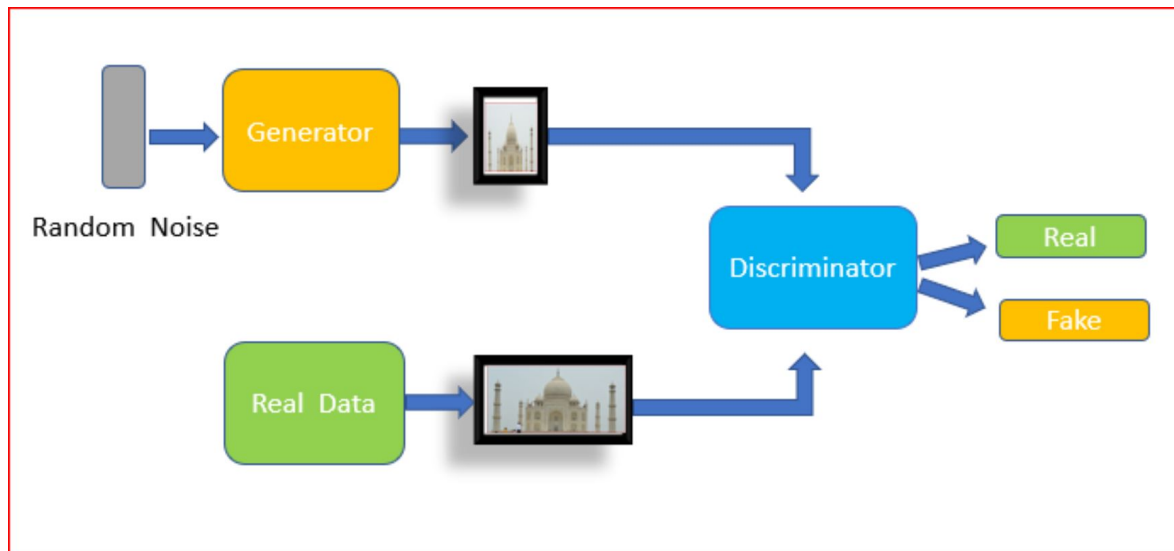
- No clear way to measure how similar

How VanGogh is it?



GANs

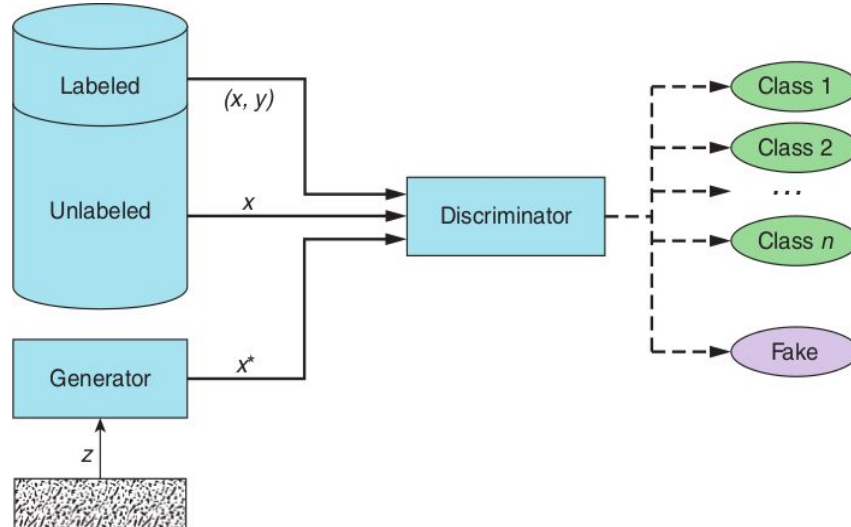
- Discriminator (Critic) determines error
- Generator can be used to create new data (medical imaging)



Semi Supervised GAN

Can be used with partially labeled data (Kannada/MNIST)

(different distribution btwn train/test/val data, used only 4k labeled images of 40k, 81% accuracy)



Code

- RL GANs — World Models <https://worldmodels.github.io/>
- Really Awesome GAN resources
<https://github.com/nightrome/really-awesome-gan>
- Keras GANs <https://github.com/eriklindernoren/Keras-GAN>
- Numpy GAN https://github.com/shinseung428/gan_numpy

Kannada code

<https://github.com/timestocome/Kaggle/tree/master/SemiSupervised%20GAN%20Kannada%20MNIST>

Resources

Paper

- Generative Adversarial Nets
- <https://papers.nips.cc/paper/5423-generative-adversarial-nets.pdf>

Books

- Generative Deep Learning: Teaching Machines to Paint, Write, Compose, and Play (O'Reilly)
- GANs in Action (Manning)