Autoencoders

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Vanilla autoencoder
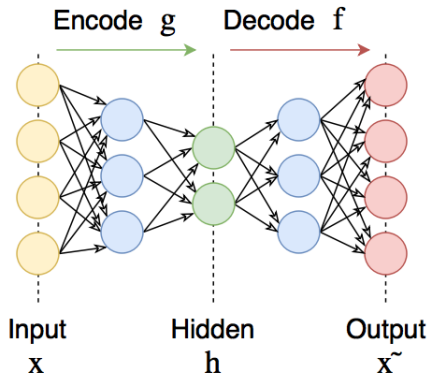
- $\|f(g(x)) - x\| \to 0$

Use cases

- unsupervised learning of first layers
- dimension reduction
- generation of new content
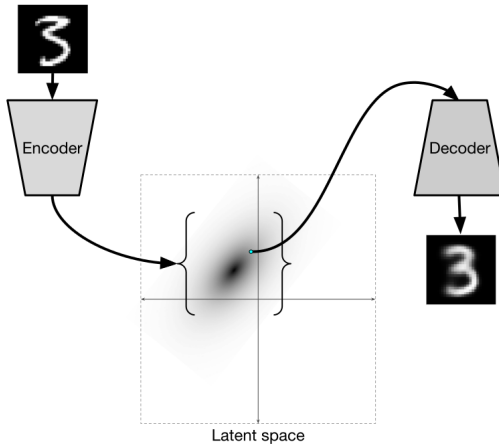
- not used for data enconding!

Denoising autoencoder

- $\|f(g(x')) - x\| \to 0$
- $x' = x + Norm(0,1)$

Sparse autoencoder

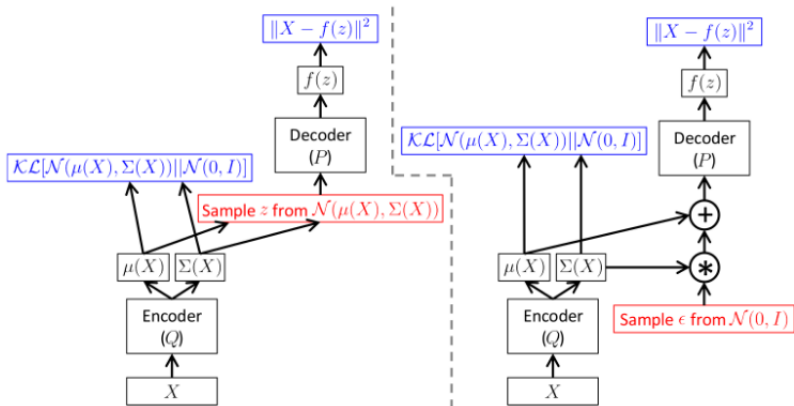- $\|f(g(x)) - x\| + \Omega(h) \to 0$
- $h = g(x)$ - embedding (code)

Variational autoencoder

Latent space

- ▶ Tutorial on Variational Autoencoders
- ▶ other tutorial from habr

Sampling new images

Sampling new images