

Discriminative models

Generative models

$$p(y|\bar{x})$$

$$p(\bar{x}, y)$$

Log. regr.
Lin. regr

$$p(y|\bar{x}) = \sigma(\bar{w}^T \bar{x})$$

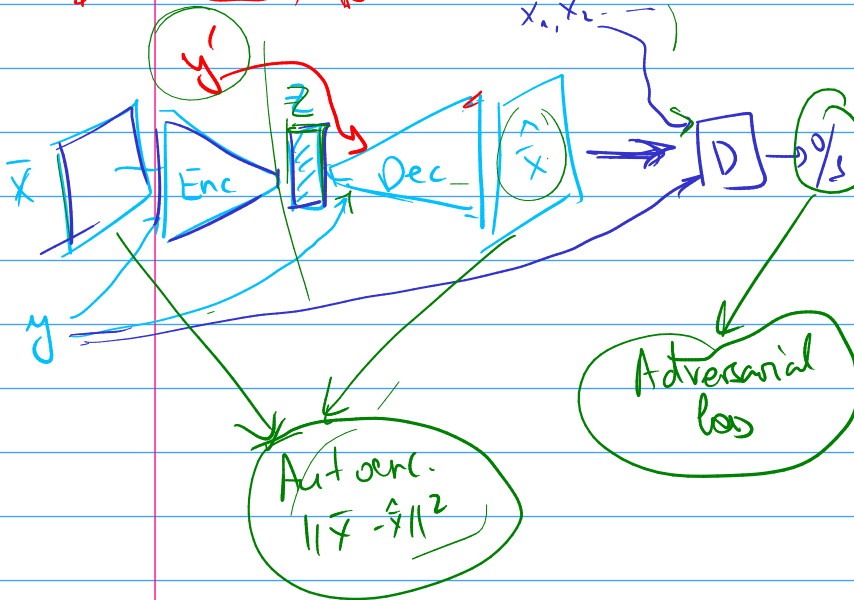
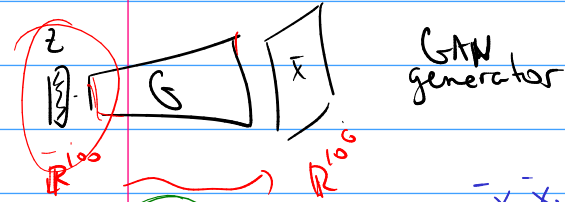
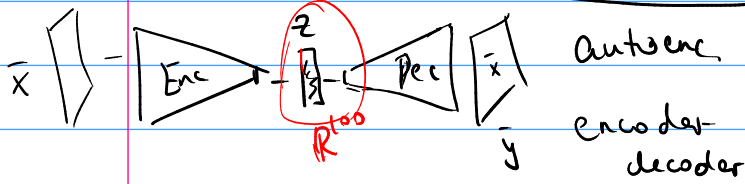
$$p(y|\bar{x}) = \mathcal{N}(y|\bar{w}^T \bar{x}, \sigma^2)$$

cat/dog

Naive
Bayes

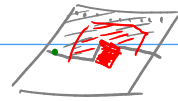
$$p(y|\bar{x}) \propto p(\bar{x}, y)$$

$$p(\bar{x}, y) = p(y)p(\bar{x}|y) = p(y) \cdot \prod_n p(x_n|y)$$



PixelCNN
PixelCNN

$$\sum_n \log p(\bar{x}_n|\theta) = E_{p_{data}(\bar{x})} [\log p_{model}(\bar{x}_n)] - E_{p_{data}} [\log p_{data}] = -KL(p_{data} || p_{model})$$



$$p(\bar{x}) = p(x_1)p(x_2|x_1)p(x_3|x_1, x_2) \dots p(x_n|x_1 \dots x_{n-1})$$

