

21/11/23

Deep Learning

- Recap: Diffusion Models

- Generative Adversarial Networks (GANs)

- Intro
- Problem Statement

- Goal: generate samples that look like they were drawn from the data distribution.  
 $p_{\text{data}}(x)$

- Approach: generator:  $z \rightarrow \boxed{G} \rightarrow \hat{x} = G(z)$

Discriminator:  $\hat{x}/x \rightarrow \boxed{D} \rightarrow \{0, 1\}$

- Problem:  $\min_G \max_D E_{x \sim p_{\text{data}}} [\log D(x)] + E_{z \sim p(z)} \log [1 - D(G(z))]$  - ①

- Discriminator  $D$  with params  $\theta_D$  is found by stochastic gradient ascent

- Generator  $G$  with params  $\theta_G$  is found by stochastic gradient descent

} using ①