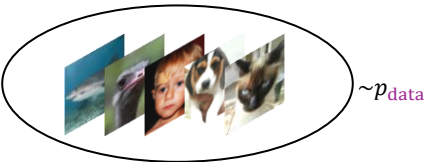
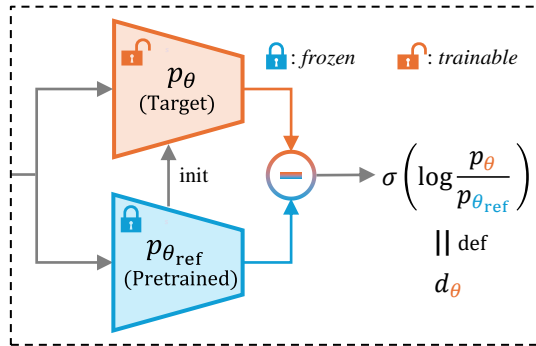


Training Dataset



Model Samples



Discriminator

Real/Fake?

$$\begin{aligned} & \log \sigma\left(\log \frac{p_{\theta} \uparrow}{p_{\theta_{\text{ref}}}}\right) \\ & \log \left(1 - \sigma\left(\log \frac{p_{\theta} \downarrow}{p_{\theta_{\text{ref}}}}\right)\right) \end{aligned}$$

$$\max_{\theta} \mathbb{E}_{p_{\text{data}}(x)} \log d_{\theta}(x) + \mathbb{E}_{p_{\theta_{\text{ref}}}(x)} \log(1 - d_{\theta}(x))$$

GAN discriminator loss