

Siddhant Mishra-Sharma (MIT/AI FI) | AI FI Summer School

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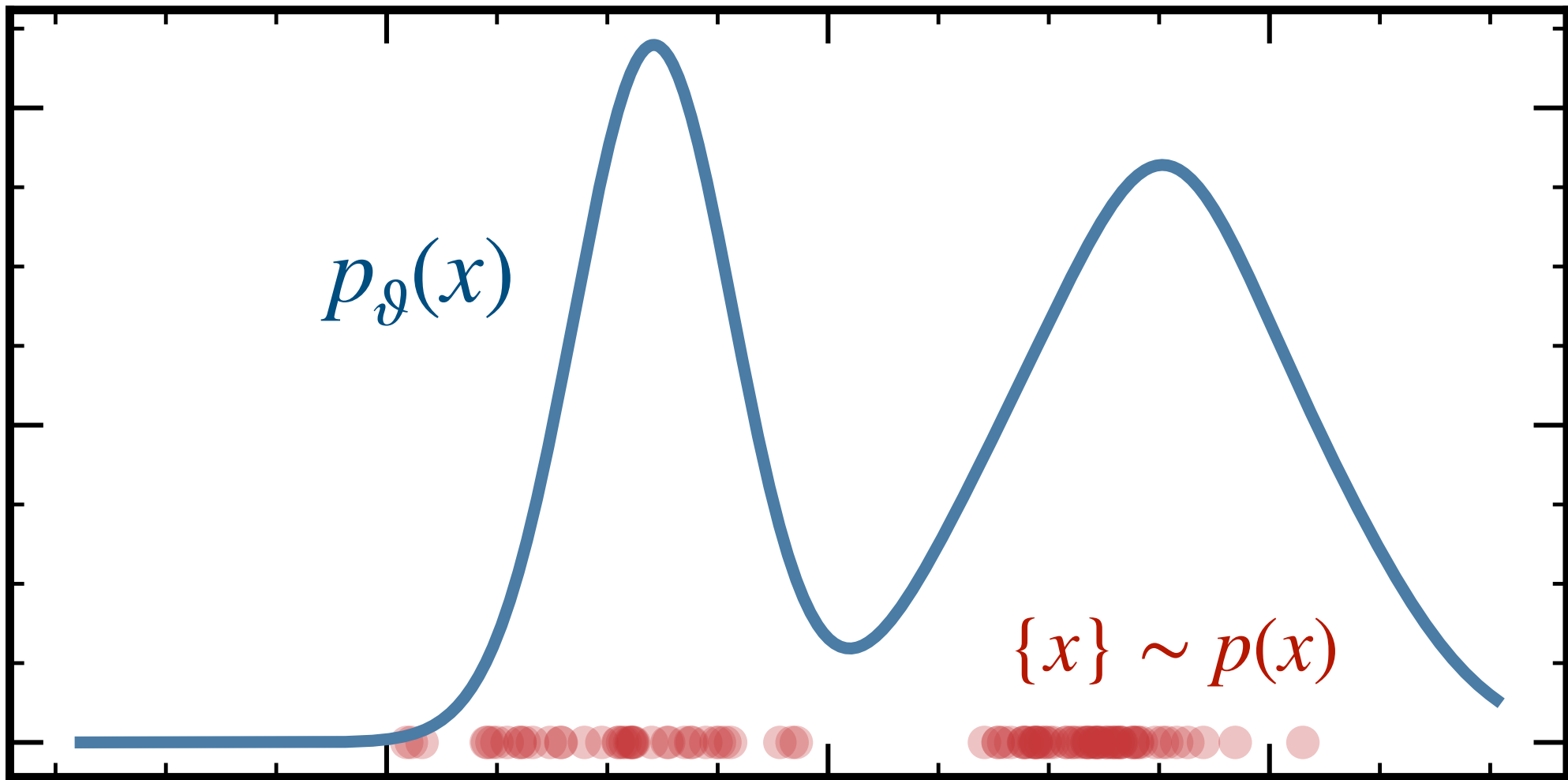
Generative models

$p(x)$

$p_{\vartheta}(x)$

$\{x\} \sim p(x)$

x



Generative models are simulators of the data

1. Sampling

$$x \sim p_{\vartheta}(x)$$

2. Density estimation

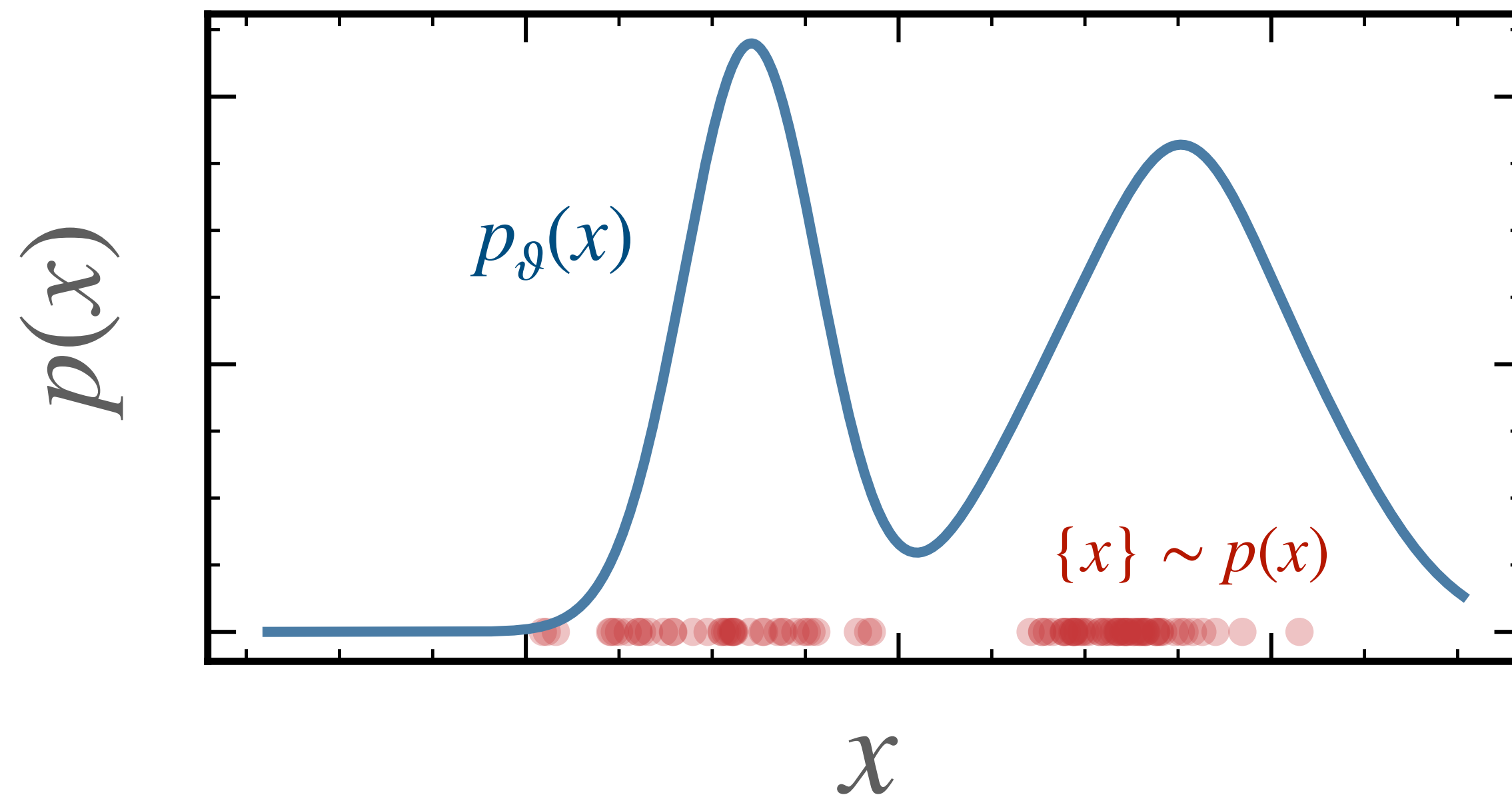
$$\log p_{\vartheta}(x)$$

Goal: learn a probability distribution $p_g(x)$ that is as close as possible to the true underlying data distribution $p(x)$

Generative models

Generative models are simulators of the data

Goal: learn a probability distribution $p_\theta(x)$ that is as close as possible to the true underlying data distribution $p(x)$



1. Sampling
 $x \sim p_\theta(x)$

2. Density estimation
 $\log p_\theta(x)$

Evolution of deep generative models



Variational autoencoders
(from Kingma et al 2013)