

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

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Another application: as a galaxy prior for gravitational lensing

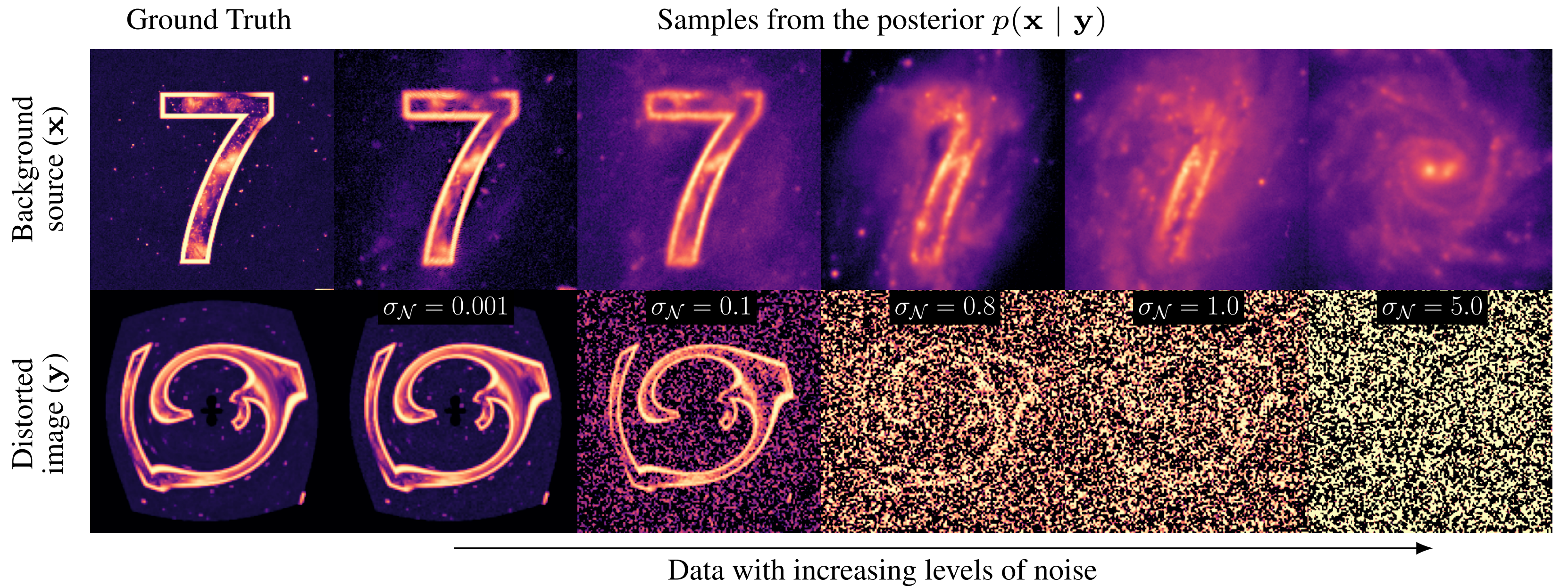
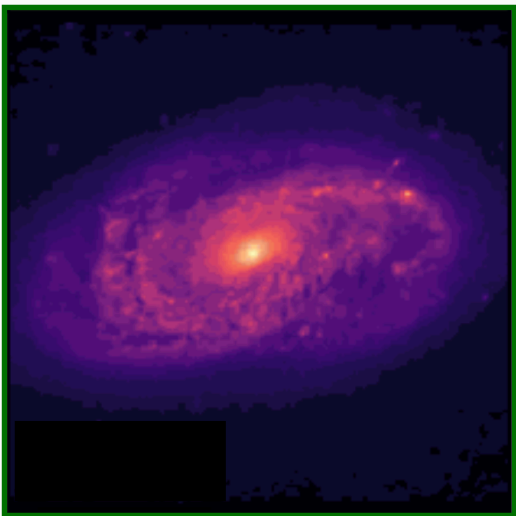
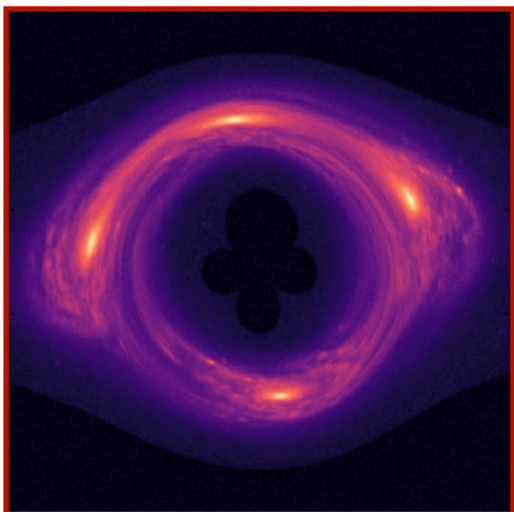


Figure 2: Application of the method to a lensing system with a highly out-of-distribution source. The ground truth is given in the leftmost panel. Other panels show increasingly noisy data (lower row) and a sample from their corresponding source posterior (upper row). As the likelihood becomes less informative, the prior dominates, making the sources increasingly look like galaxies.

$p(\text{galaxies})$



*Gravitational
lensing*



[Adam, Cogan, Malkin et al 2022]

Another application: as a *galaxy prior* for *gravitational lensing*

[Adam, Coogan, Malkin et al 2022]

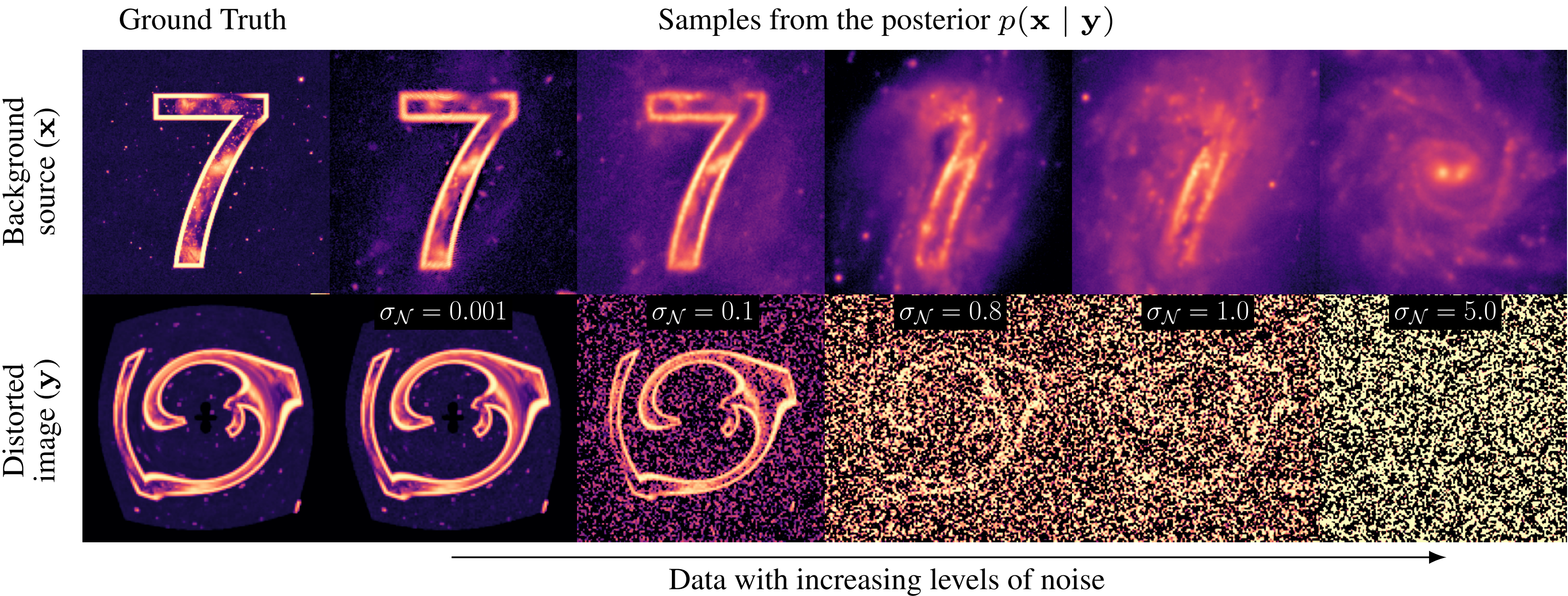
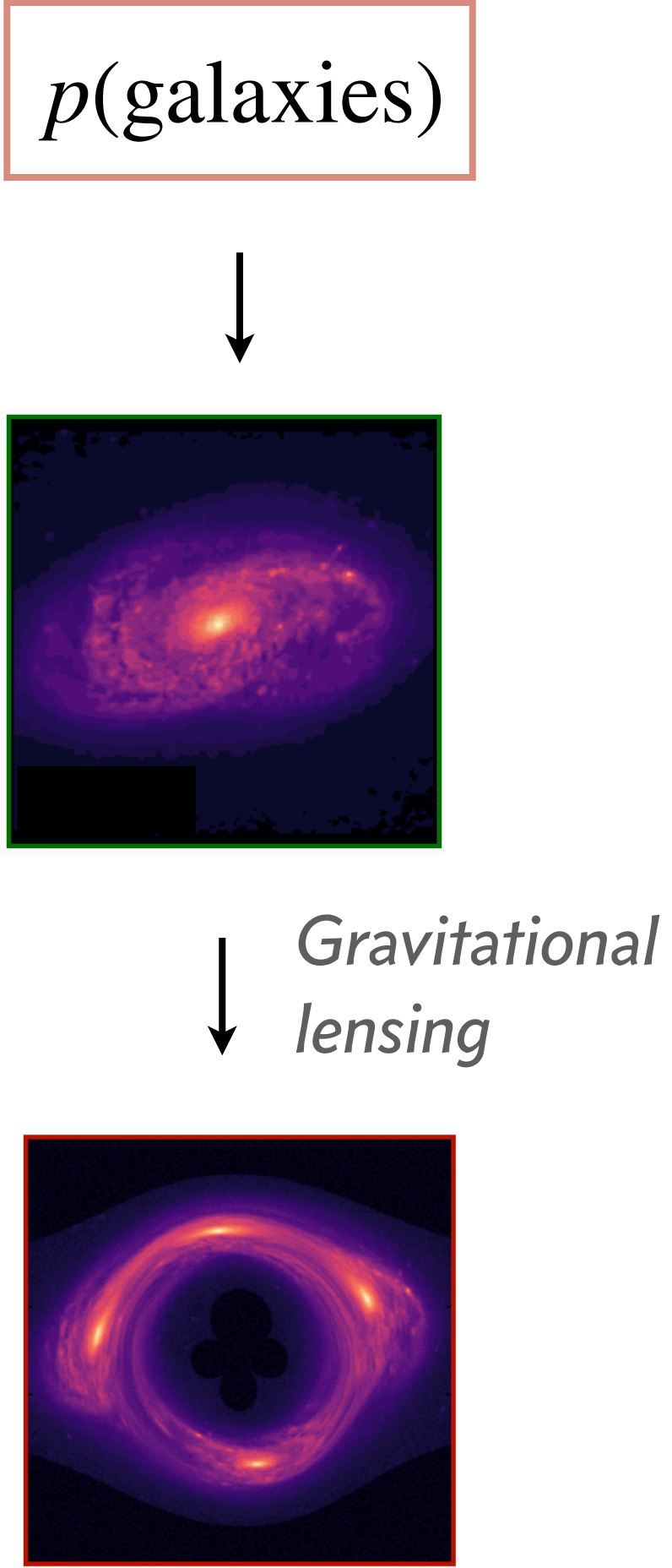
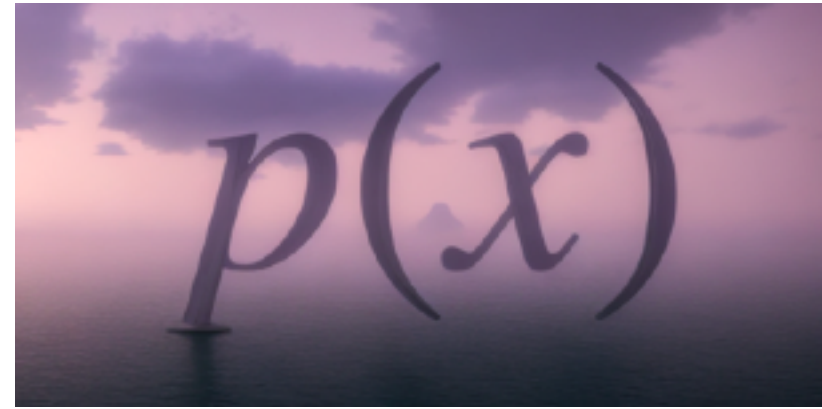


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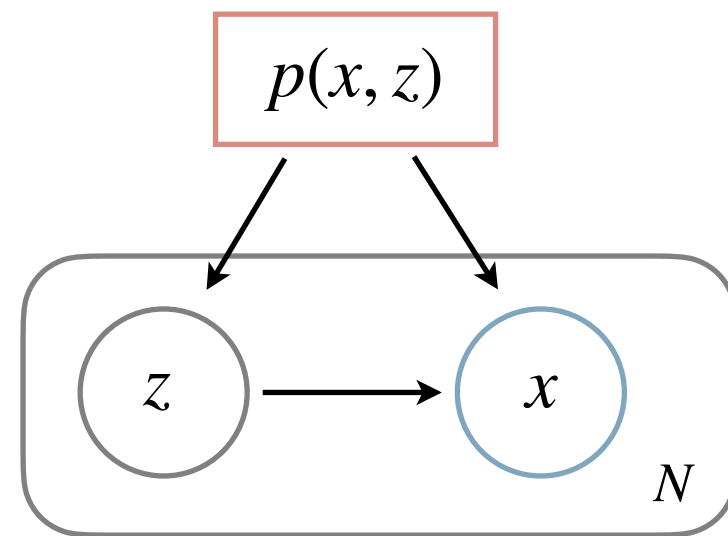


Outline



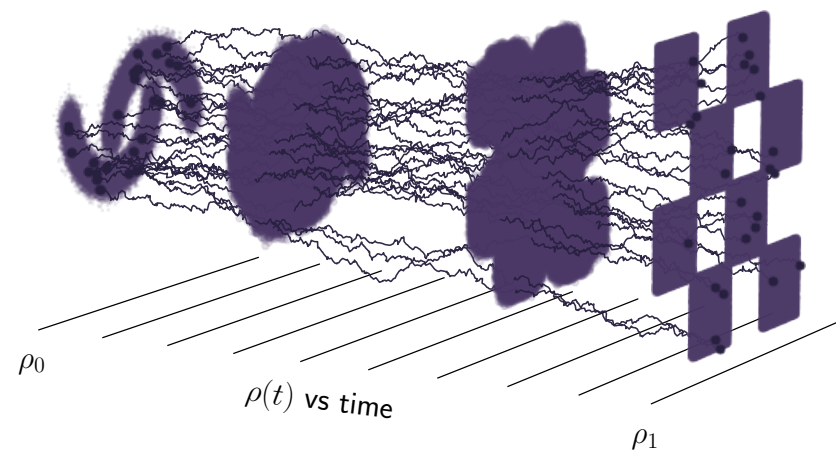
Why (deep) generative modeling?

What is it, and what can it do for you?



Variational auto encoders

Latent-variable modeling, and compression is all you need



Diffusion models

Models based on iterative refinement



Normalizing flows

Invertible transformations