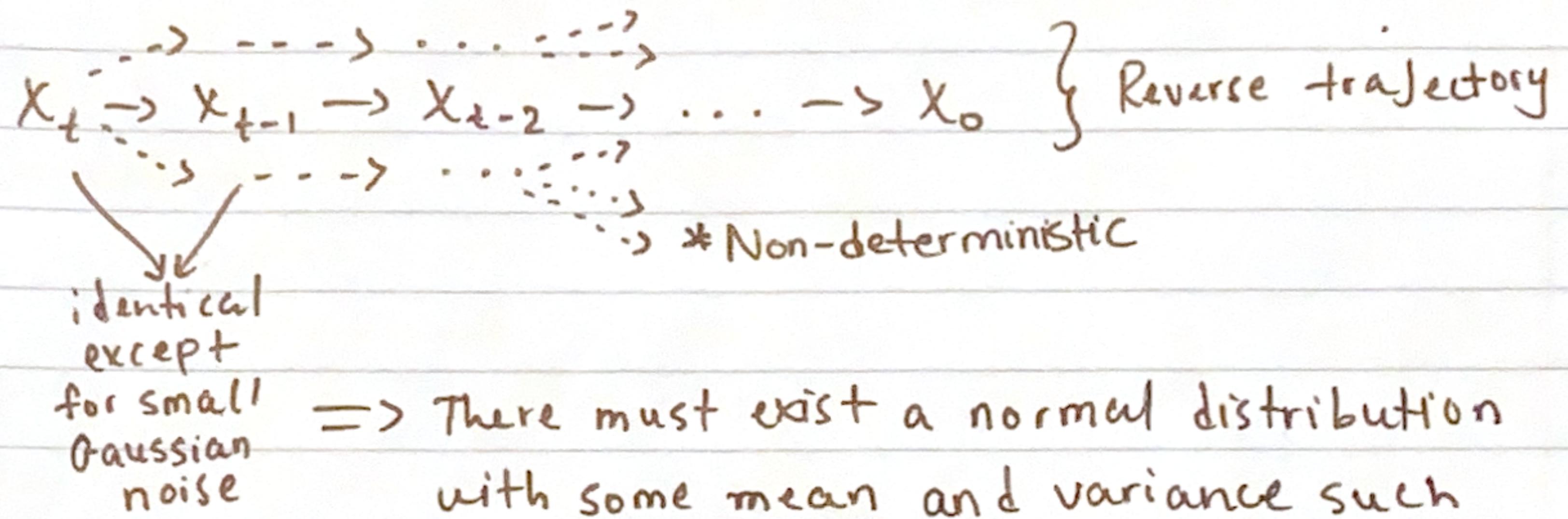


## REVERSE DIFFUSION PROCESS

Given a sample  $x_t$  that is almost all noise, we want to find a good image  $x_0$ .



Lets approximate  $q(x_{t-1}|x_t)$ ,  $q(x_{t-2}|x_{t-1})$ , etc with a neural network.

To sample a realistic image, we generate a random noisy image directly from Gaussian and iteratively reveal a real image by predicting the noise at each step using our NN.

\* But: We know noise is Gaussian so our NN actually just predicts the mean and variance at each step and we sample the noise to remove.

How might we train such a model?

- KL Divergence
- MSE
- CNNs
- UNets