Generative AI Models
ECE 598 LV – Lecture 6

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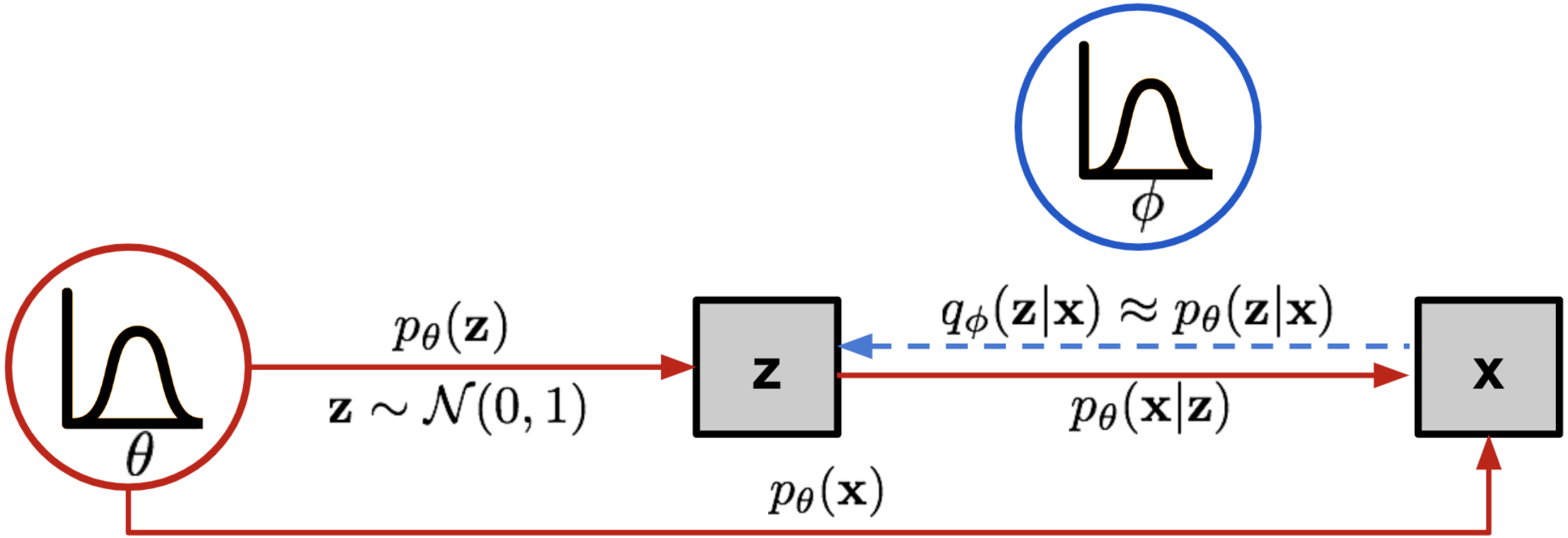

The graphical model involved in Variational Autoencoder. Solid lines denote the generative distribution $p_\theta(.)$ and dashed lines denote the distribution $q_\phi(z|x)$ to approximate the intractable posterior $p_\theta(z|x)$.

https://lilianweng.github.io/lil-log/2018/08/12/from-autoencoder-to-beta-vae.html

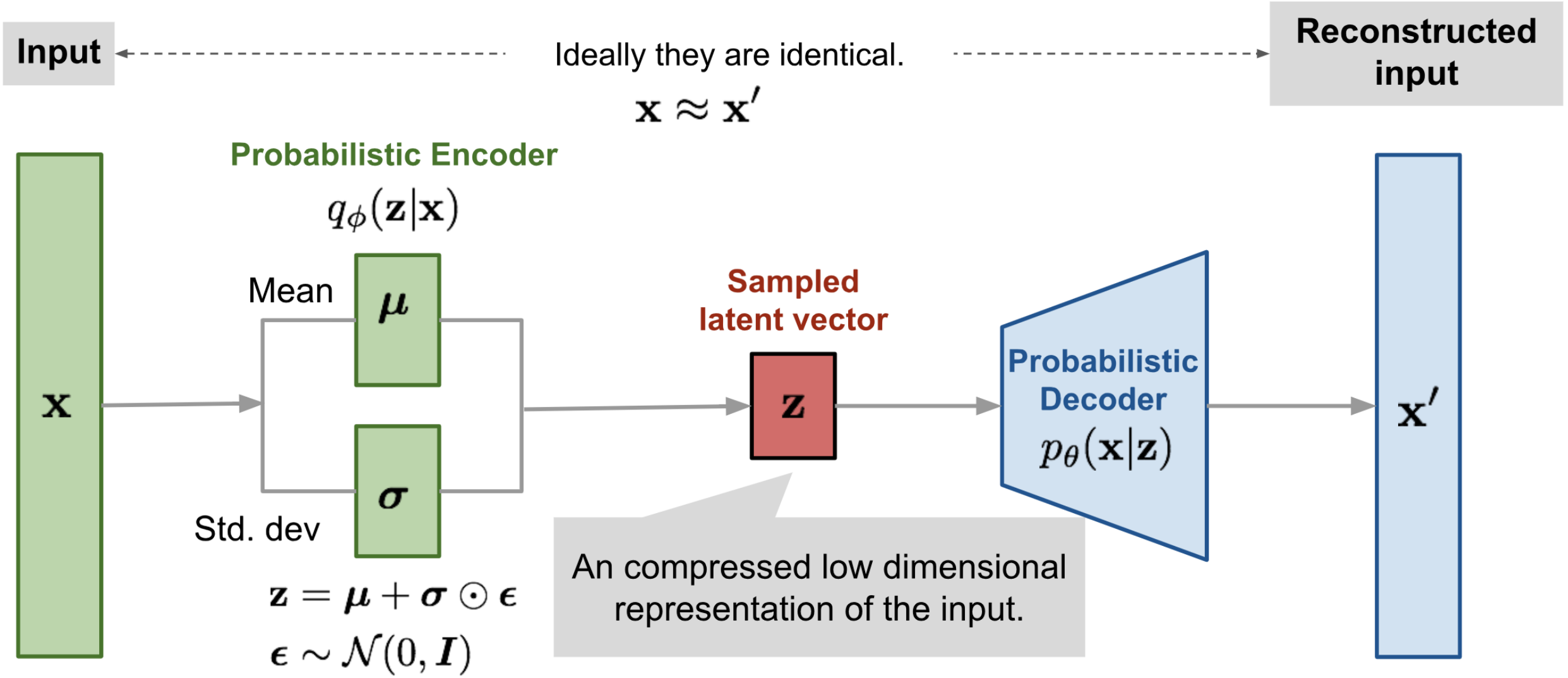

Illustration of variational autoencoder model with the multivariate Gaussian assumption.

https://lilianweng.github.io/lil-log/2018/08/12/from-autoencoder-to-beta-vae.html

Figure 1: Class-conditional 256x256 image samples from a two-level model trained on ImageNet.

[Razavi, van den Oord, and Vinyals, 2019]

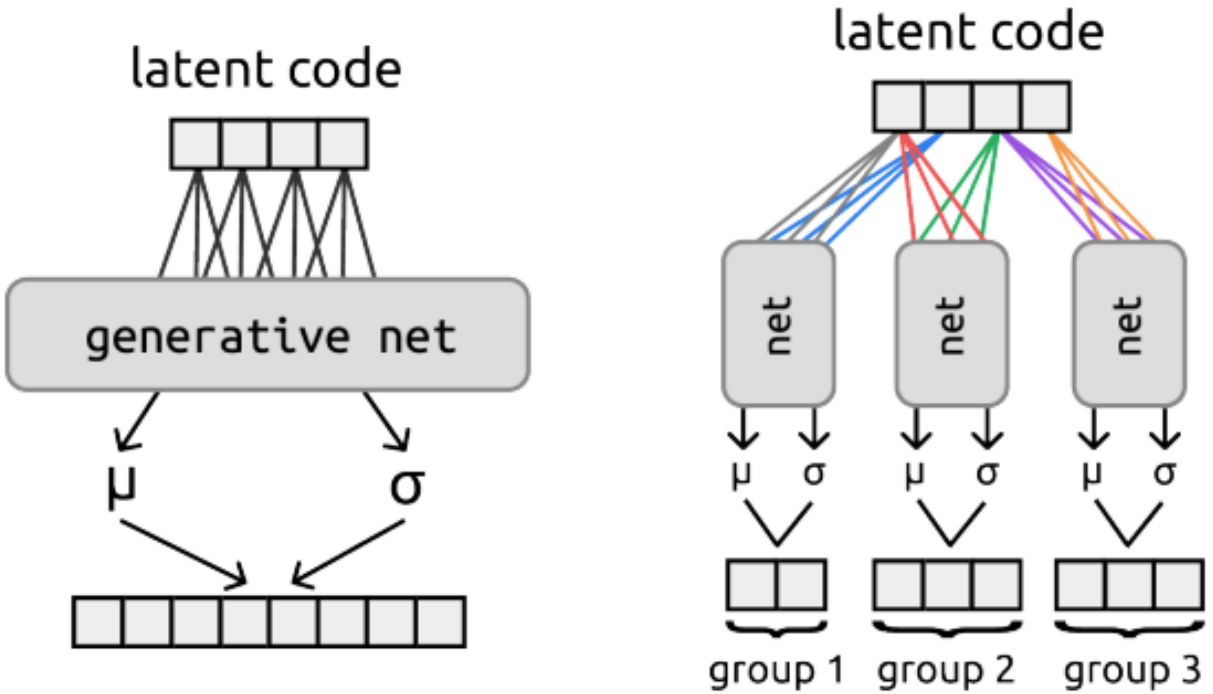

Figure 1. VAE (*left*) and oi-VAE (*right*) generative models. The oi-VAE considers group-specific generators and a linear latent-to-generator mapping with weights from a single latent dimension to a specific group sharing the same color. The group-sparse prior is applied over these grouped weights in order to promote a disentangled latent representation in which a particular latent component only interacts with a sparse subset of groups.

[Ainsworth, Foti, Lee, and Fox, 2018]