

1 Exploring Latent Spaces

Figure 1a shows a systematic sample of VAE trained on FashionMNIST dataset. Figure 1b shows the latent space of an autoencoder on the same dataset.

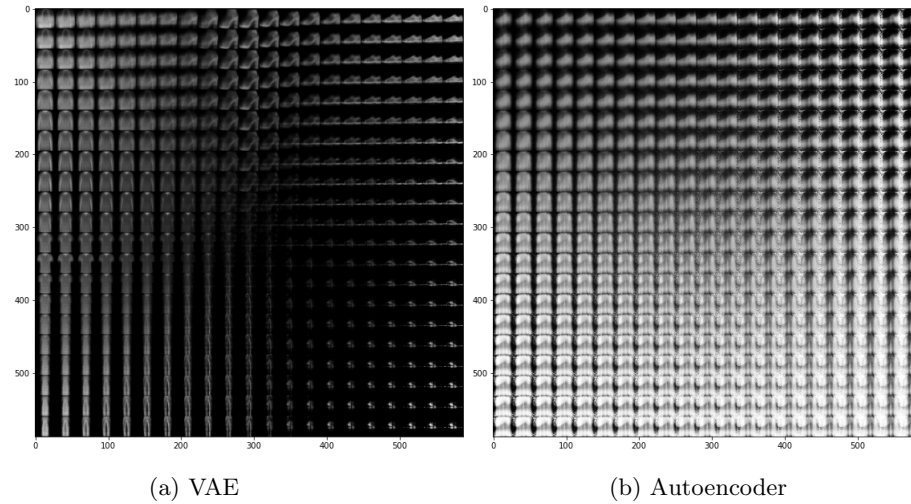


Figure 1: Latent Spaces.

Comparing the two images, we find that the biggest difference is VAE latent space contains a larger variation of samples. In addition, the autoencoder latent space features more fading overlay of various image classes, whereas VAE latent space samples tend to be clearer. This is perhaps due to the fact that VAEs use Gaussian prior, parameterised by μ, σ , causing each dimension in the latent space representation to be maximally separable. This results in the VAE being able to generate a wider range of samples in the latent space compared to an autoencoder, which has a bottleneck and only chooses the most discriminating features in the data, giving rise to more ‘compressed’ features.