**Motivation**

- Generate image inbetween based on Generative models using variational autoencoders.

**Restrictions with previous approaches**

- Cannot capture what is not present in the picture
- Often produce blurry image

**Long Term Goal – Image inBetween**

**Proposed Method - Latent-variable based inbetweening**

- Directly generate inbetween frame, from other frames

**‘Latent-variable’ based method**

- Interpolate in the latent space and generate inbetween frame

**Evaluation**

- Image reconstruction
- Image inbetween

**Image Reconstruction**

**Dataset**

**Image Inbetween**

**Conclusion**

- Model predicts the spatial location of the object. With the strong interpolation term we still can reconstruct a fair image. For future, we will work with complex objects and video.

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**Generative Models**

- Learns rich and hierarchical probabilistic model.

**Variational Autoencoder (VAE)**

- Learns a latent representation of the hidden structures of its input data.

**Proposed – Loss Function**

\[ l(x_0, x_1, x_2) = l_{VAE}(x_0) + l_{VAE}(x_1) + l_{VAE}(x_2) + \alpha D_{KL}(q(x_1)\|q(x_0) + q(x_2)) \]

**Goal**

Minimize: difference of (Z_1 and Z')

**Finding:**

- Drawback: Network loss increases
- With zero coefficient we have no reconstruction
- Increasing the coefficient network loss increase

**How to have ‘such’ latent space?**

\[ Z' = Z_0 + Z_2 \]