Multi-Object Representation Learning with Iterative Variational Inference

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Multi-Object Representation Learning

Object Representations

Image Representation

slots

VAE

IODINE  (ours)

VAE
Iterative Object Decomposition Inference NETwork

- Built on the VAE framework
- Incorporates multi-object structure
- Iterative variational inference
Iterative Object Decomposition Inference NEtwork

- Built on the VAE framework
- Incorporates multi-object structure
- Iterative variational inference

Decoder Structure

Iterative Inference
Iterative Object Decomposition Inference NEtwork

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- Iterative variational inference

Decoder Structure

Iterative Inference

Iteration 1

Iteration 2
Object Decomposition by IODINE

Inpainting of occluded parts
Multi-Object Disentanglement

VAE

IODINE

-2  0  2
Single latent traversal

x
y
size
color
material

-2  0  2
Single latent traversal
Summary

- **Multi-object** representation learning
- Completely **unsupervised**
- Decomposes an image into individual **objects**
- Learns **disentangled** object representations

Thank you for your Attention!