----------------------------------------------------------------

Layer (type) Output Shape Param #

================================================================

Conv2d-1 [-1, 64, 64, 64] 4,800

BatchNorm2d-2 [-1, 64, 64, 64] 128

ReLU-3 [-1, 64, 64, 64] 0

Conv2d-4 [-1, 128, 32, 32] 204,800

BatchNorm2d-5 [-1, 128, 32, 32] 256

ReLU-6 [-1, 128, 32, 32] 0

Conv2d-7 [-1, 256, 16, 16] 819,200

BatchNorm2d-8 [-1, 256, 16, 16] 512

ReLU-9 [-1, 256, 16, 16] 0

Conv2d-10 [-1, 256, 8, 8] 1,638,400

BatchNorm2d-11 [-1, 256, 8, 8] 512

ReLU-12 [-1, 256, 8, 8] 0

Linear-13 [-1, 2048] 33,554,432

BatchNorm1d-14 [-1, 2048] 4,096

ReLU-15 [-1, 2048] 0

Linear-16 [-1, 128] 262,272

Linear-17 [-1, 128] 262,272

================================================================

Total params: 36,751,680

Trainable params: 36,751,680

Non-trainable params: 0

----------------------------------------------------------------

Input size (MB): 0.19

Forward/backward pass size (MB): 10.92

Params size (MB): 140.20

Estimated Total Size (MB): 151.31

----------------------------------------------------------------

----------------------------------------------------------------

Layer (type) Output Shape Param #

================================================================

Linear-1 [-1, 16384] 2,097,152

BatchNorm1d-2 [-1, 16384] 32,768

ReLU-3 [-1, 16384] 0

ConvTranspose2d-4 [-1, 256, 16, 16] 1,638,400

BatchNorm2d-5 [-1, 256, 16, 16] 512

ReLU-6 [-1, 256, 16, 16] 0

ConvTranspose2d-7 [-1, 128, 32, 32] 819,200

BatchNorm2d-8 [-1, 128, 32, 32] 256

ReLU-9 [-1, 128, 32, 32] 0

ConvTranspose2d-10 [-1, 64, 64, 64] 204,800

BatchNorm2d-11 [-1, 64, 64, 64] 128

ReLU-12 [-1, 64, 64, 64] 0

ConvTranspose2d-13 [-1, 32, 128, 128] 51,200

BatchNorm2d-14 [-1, 32, 128, 128] 64

ReLU-15 [-1, 32, 128, 128] 0

Conv2d-16 [-1, 3, 128, 128] 2,403

Tanh-17 [-1, 3, 128, 128] 0

================================================================

Total params: 4,846,883

Trainable params: 4,846,883

Non-trainable params: 0

----------------------------------------------------------------

Input size (MB): 0.00

Forward/backward pass size (MB): 23.62

Params size (MB): 18.49

Estimated Total Size (MB): 42.11

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Layer (type) Output Shape Param #

================================================================

ConvTranspose2d-1 [-1, 1024, 4, 4] 2,097,152

BatchNorm2d-2 [-1, 1024, 4, 4] 2,048

ReLU-3 [-1, 1024, 4, 4] 0

ConvTranspose2d-4 [-1, 512, 8, 8] 13,107,200

BatchNorm2d-5 [-1, 512, 8, 8] 1,024

ReLU-6 [-1, 512, 8, 8] 0

ConvTranspose2d-7 [-1, 256, 16, 16] 3,276,800

BatchNorm2d-8 [-1, 256, 16, 16] 512

ReLU-9 [-1, 256, 16, 16] 0

ConvTranspose2d-10 [-1, 128, 32, 32] 819,200

BatchNorm2d-11 [-1, 128, 32, 32] 256

ReLU-12 [-1, 128, 32, 32] 0

ConvTranspose2d-13 [-1, 64, 64, 64] 204,800

BatchNorm2d-14 [-1, 64, 64, 64] 128

ReLU-15 [-1, 64, 64, 64] 0

ConvTranspose2d-16 [-1, 3, 128, 128] 4,800

Tanh-17 [-1, 3, 128, 128] 0

================================================================

Total params: 19,513,920

Trainable params: 19,513,920

Non-trainable params: 0

----------------------------------------------------------------

Input size (MB): 0.00

Forward/backward pass size (MB): 12.38

Params size (MB): 74.44

Estimated Total Size (MB): 86.82

----------------------------------------------------------------

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Layer (type) Output Shape Param #

================================================================

Conv2d-1 [-1, 128, 64, 64] 9,600

BatchNorm2d-2 [-1, 128, 64, 64] 256

LeakyReLU-3 [-1, 128, 64, 64] 0

Conv2d-4 [-1, 256, 32, 32] 819,200

BatchNorm2d-5 [-1, 256, 32, 32] 512

LeakyReLU-6 [-1, 256, 32, 32] 0

Conv2d-7 [-1, 512, 16, 16] 3,276,800

BatchNorm2d-8 [-1, 512, 16, 16] 1,024

LeakyReLU-9 [-1, 512, 16, 16] 0

Conv2d-10 [-1, 1024, 8, 8] 13,107,200

BatchNorm2d-11 [-1, 1024, 8, 8] 2,048

LeakyReLU-12 [-1, 1024, 8, 8] 0

Conv2d-13 [-1, 2048, 4, 4] 52,428,800

BatchNorm2d-14 [-1, 2048, 4, 4] 4,096

LeakyReLU-15 [-1, 2048, 4, 4] 0

Conv2d-16 [-1, 1, 1, 1] 32,768

Sigmoid-17 [-1, 1, 1, 1] 0

================================================================

Total params: 69,682,304

Trainable params: 69,682,304

Non-trainable params: 0

----------------------------------------------------------------

Input size (MB): 0.19

Forward/backward pass size (MB): 23.25

Params size (MB): 265.82

Estimated Total Size (MB): 289.25

Vaegan pixel wise encoder, decoder and discriminator----------------------------------------------------------------

Layer (type) Output Shape Param #

================================================================

Conv2d-1 [-1, 64, 64, 64] 4,800

BatchNorm2d-2 [-1, 64, 64, 64] 128

ReLU-3 [-1, 64, 64, 64] 0

Conv2d-4 [-1, 128, 32, 32] 204,800

BatchNorm2d-5 [-1, 128, 32, 32] 256

ReLU-6 [-1, 128, 32, 32] 0

Conv2d-7 [-1, 256, 16, 16] 819,200

BatchNorm2d-8 [-1, 256, 16, 16] 512

ReLU-9 [-1, 256, 16, 16] 0

Conv2d-10 [-1, 256, 8, 8] 1,638,400

BatchNorm2d-11 [-1, 256, 8, 8] 512

ReLU-12 [-1, 256, 8, 8] 0

Linear-13 [-1, 2048] 33,554,432

BatchNorm1d-14 [-1, 2048] 4,096

ReLU-15 [-1, 2048] 0

Linear-16 [-1, 128] 262,272

Linear-17 [-1, 128] 262,272

================================================================

Total params: 36,751,680

Trainable params: 36,751,680

Non-trainable params: 0

----------------------------------------------------------------

Input size (MB): 0.19

Forward/backward pass size (MB): 10.92

Params size (MB): 140.20

Estimated Total Size (MB): 151.31

----------------------------------------------------------------

----------------------------------------------------------------

Layer (type) Output Shape Param #

================================================================

Linear-1 [-1, 16384] 2,097,152

BatchNorm1d-2 [-1, 16384] 32,768

ReLU-3 [-1, 16384] 0

ConvTranspose2d-4 [-1, 256, 16, 16] 1,638,400

BatchNorm2d-5 [-1, 256, 16, 16] 512

ReLU-6 [-1, 256, 16, 16] 0

ConvTranspose2d-7 [-1, 128, 32, 32] 819,200

BatchNorm2d-8 [-1, 128, 32, 32] 256

ReLU-9 [-1, 128, 32, 32] 0

ConvTranspose2d-10 [-1, 64, 64, 64] 204,800

BatchNorm2d-11 [-1, 64, 64, 64] 128

ReLU-12 [-1, 64, 64, 64] 0

ConvTranspose2d-13 [-1, 32, 128, 128] 51,200

BatchNorm2d-14 [-1, 32, 128, 128] 64

ReLU-15 [-1, 32, 128, 128] 0

Conv2d-16 [-1, 3, 128, 128] 2,403

Tanh-17 [-1, 3, 128, 128] 0

================================================================

Total params: 4,846,883

Trainable params: 4,846,883

Non-trainable params: 0

----------------------------------------------------------------

Input size (MB): 0.00

Forward/backward pass size (MB): 23.62

Params size (MB): 18.49

Estimated Total Size (MB): 42.11

----------------------------------------------------------------

----------------------------------------------------------------

Layer (type) Output Shape Param #

================================================================

Conv2d-1 [-1, 32, 64, 64] 2,400

ReLU-2 [-1, 32, 64, 64] 0

Conv2d-3 [-1, 128, 32, 32] 102,400

BatchNorm2d-4 [-1, 128, 32, 32] 256

ReLU-5 [-1, 128, 32, 32] 0

Conv2d-6 [-1, 256, 16, 16] 819,200

BatchNorm2d-7 [-1, 256, 16, 16] 512

ReLU-8 [-1, 256, 16, 16] 0

Conv2d-9 [-1, 256, 8, 8] 1,638,400

BatchNorm2d-10 [-1, 256, 8, 8] 512

ReLU-11 [-1, 256, 8, 8] 0

Linear-12 [-1, 512] 8,389,120

BatchNorm1d-13 [-1, 512] 1,024

ReLU-14 [-1, 512] 0

Linear-15 [-1, 1] 513

Sigmoid-16 [-1, 1] 0

================================================================

Total params: 10,954,337

Trainable params: 10,954,337

Non-trainable params: 0

----------------------------------------------------------------

Input size (MB): 0.19

Forward/backward pass size (MB): 6.89

Params size (MB): 41.79

Estimated Total Size (MB): 48.86

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Layer (type) Output Shape Param #

================================================================

Conv2d-1 [-1, 64, 64, 64] 4,800

BatchNorm2d-2 [-1, 64, 64, 64] 128

ReLU-3 [-1, 64, 64, 64] 0

Conv2d-4 [-1, 128, 32, 32] 204,800

BatchNorm2d-5 [-1, 128, 32, 32] 256

ReLU-6 [-1, 128, 32, 32] 0

Conv2d-7 [-1, 256, 16, 16] 819,200

BatchNorm2d-8 [-1, 256, 16, 16] 512

ReLU-9 [-1, 256, 16, 16] 0

Conv2d-10 [-1, 256, 8, 8] 1,638,400

BatchNorm2d-11 [-1, 256, 8, 8] 512

ReLU-12 [-1, 256, 8, 8] 0

Linear-13 [-1, 2048] 33,554,432

BatchNorm1d-14 [-1, 2048] 4,096

ReLU-15 [-1, 2048] 0

Linear-16 [-1, 128] 262,272

Linear-17 [-1, 128] 262,272

================================================================

Total params: 36,751,680

Trainable params: 36,751,680

Non-trainable params: 0

----------------------------------------------------------------

Input size (MB): 0.19

Forward/backward pass size (MB): 10.92

Params size (MB): 140.20

Estimated Total Size (MB): 151.31

----------------------------------------------------------------

----------------------------------------------------------------

Layer (type) Output Shape Param #

================================================================

Linear-1 [-1, 16384] 2,097,152

BatchNorm1d-2 [-1, 16384] 32,768

ReLU-3 [-1, 16384] 0

ConvTranspose2d-4 [-1, 256, 16, 16] 1,638,400

BatchNorm2d-5 [-1, 256, 16, 16] 512

ReLU-6 [-1, 256, 16, 16] 0

ConvTranspose2d-7 [-1, 128, 32, 32] 819,200

BatchNorm2d-8 [-1, 128, 32, 32] 256

ReLU-9 [-1, 128, 32, 32] 0

ConvTranspose2d-10 [-1, 64, 64, 64] 204,800

BatchNorm2d-11 [-1, 64, 64, 64] 128

ReLU-12 [-1, 64, 64, 64] 0

ConvTranspose2d-13 [-1, 32, 128, 128] 51,200

BatchNorm2d-14 [-1, 32, 128, 128] 64

ReLU-15 [-1, 32, 128, 128] 0

Conv2d-16 [-1, 3, 128, 128] 2,403

Tanh-17 [-1, 3, 128, 128] 0

================================================================

Total params: 4,846,883

Trainable params: 4,846,883

Non-trainable params: 0

----------------------------------------------------------------

Input size (MB): 0.00

Forward/backward pass size (MB): 23.62

Params size (MB): 18.49

Estimated Total Size (MB): 42.11

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Layer (type) Output Shape Param #

================================================================

Conv2d-1 [-1, 32, 64, 64] 2,400

ReLU-2 [-1, 32, 64, 64] 0

Conv2d-3 [-1, 128, 32, 32] 102,400

BatchNorm2d-4 [-1, 128, 32, 32] 256

ReLU-5 [-1, 128, 32, 32] 0

Conv2d-6 [-1, 256, 16, 16] 819,200

BatchNorm2d-7 [-1, 256, 16, 16] 512

ReLU-8 [-1, 256, 16, 16] 0

Conv2d-9 [-1, 256, 8, 8] 1,638,400

BatchNorm2d-10 [-1, 256, 8, 8] 512

ReLU-11 [-1, 256, 8, 8] 0

Linear-12 [-1, 512] 8,389,120

BatchNorm1d-13 [-1, 512] 1,024

ReLU-14 [-1, 512] 0

Linear-15 [-1, 1] 513

Sigmoid-16 [-1, 1] 0

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Total params: 10,954,337

Trainable params: 10,954,337

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----------------------------------------------------------------

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