RRDB(

(conv1): Conv3d(3, 48, kernel\_size=(3, 3, 3), stride=(2, 2, 2), padding=(1, 1, 1))

(res\_blocks\_e): Sequential(

(0): ResidualInResidualDenseBlock(

(dense\_blocks): Sequential(

(0): DenseResidualBlock(

(b1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b2): Sequential(

(0): BatchNorm3d(96, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(96, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b3): Sequential(

(0): BatchNorm3d(144, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(144, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b4): Sequential(

(0): BatchNorm3d(192, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(192, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b5): Sequential(

(0): BatchNorm3d(240, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(240, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

(1): DenseResidualBlock(

(b1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b2): Sequential(

(0): BatchNorm3d(96, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(96, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b3): Sequential(

(0): BatchNorm3d(144, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(144, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b4): Sequential(

(0): BatchNorm3d(192, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(192, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b5): Sequential(

(0): BatchNorm3d(240, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(240, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

(2): DenseResidualBlock(

(b1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b2): Sequential(

(0): BatchNorm3d(96, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(96, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b3): Sequential(

(0): BatchNorm3d(144, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(144, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b4): Sequential(

(0): BatchNorm3d(192, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(192, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b5): Sequential(

(0): BatchNorm3d(240, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(240, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

)

)

)

(transdown): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(2, 2, 2), padding=(1, 1, 1))

)

(res\_blocks\_c): Sequential(

(0): ResidualInResidualDenseBlock(

(dense\_blocks): Sequential(

(0): DenseResidualBlock(

(b1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b2): Sequential(

(0): BatchNorm3d(96, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(96, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b3): Sequential(

(0): BatchNorm3d(144, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(144, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b4): Sequential(

(0): BatchNorm3d(192, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(192, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b5): Sequential(

(0): BatchNorm3d(240, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(240, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

(1): DenseResidualBlock(

(b1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b2): Sequential(

(0): BatchNorm3d(96, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(96, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b3): Sequential(

(0): BatchNorm3d(144, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(144, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b4): Sequential(

(0): BatchNorm3d(192, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(192, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b5): Sequential(

(0): BatchNorm3d(240, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(240, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

(2): DenseResidualBlock(

(b1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b2): Sequential(

(0): BatchNorm3d(96, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(96, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b3): Sequential(

(0): BatchNorm3d(144, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(144, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b4): Sequential(

(0): BatchNorm3d(192, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(192, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b5): Sequential(

(0): BatchNorm3d(240, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(240, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

)

)

(1): ResidualInResidualDenseBlock(

(dense\_blocks): Sequential(

(0): DenseResidualBlock(

(b1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b2): Sequential(

(0): BatchNorm3d(96, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(96, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b3): Sequential(

(0): BatchNorm3d(144, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(144, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b4): Sequential(

(0): BatchNorm3d(192, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(192, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b5): Sequential(

(0): BatchNorm3d(240, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(240, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

(1): DenseResidualBlock(

(b1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b2): Sequential(

(0): BatchNorm3d(96, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(96, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b3): Sequential(

(0): BatchNorm3d(144, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(144, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b4): Sequential(

(0): BatchNorm3d(192, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(192, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b5): Sequential(

(0): BatchNorm3d(240, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(240, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

(2): DenseResidualBlock(

(b1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b2): Sequential(

(0): BatchNorm3d(96, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(96, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b3): Sequential(

(0): BatchNorm3d(144, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(144, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b4): Sequential(

(0): BatchNorm3d(192, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(192, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b5): Sequential(

(0): BatchNorm3d(240, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(240, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

)

)

)

(transup1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Upsample(size=[3, 21, 41], mode=nearest)

(3): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(res\_blocks\_d): Sequential(

(0): ResidualInResidualDenseBlock(

(dense\_blocks): Sequential(

(0): DenseResidualBlock(

(b1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b2): Sequential(

(0): BatchNorm3d(96, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(96, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b3): Sequential(

(0): BatchNorm3d(144, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(144, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b4): Sequential(

(0): BatchNorm3d(192, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(192, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b5): Sequential(

(0): BatchNorm3d(240, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(240, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

(1): DenseResidualBlock(

(b1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b2): Sequential(

(0): BatchNorm3d(96, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(96, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b3): Sequential(

(0): BatchNorm3d(144, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(144, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b4): Sequential(

(0): BatchNorm3d(192, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(192, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b5): Sequential(

(0): BatchNorm3d(240, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(240, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

(2): DenseResidualBlock(

(b1): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(48, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b2): Sequential(

(0): BatchNorm3d(96, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(96, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b3): Sequential(

(0): BatchNorm3d(144, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(144, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b4): Sequential(

(0): BatchNorm3d(192, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(192, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

(b5): Sequential(

(0): BatchNorm3d(240, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Conv3d(240, 48, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

)

)

)

(transup2): Sequential(

(0): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(1): mish()

(2): Upsample(size=[6, 41, 81], mode=nearest)

(3): Conv3d(48, 2, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1))

)

)

number of parameters: 11348930

number of layers: 2

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

Layer (type) Output Shape Param #

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

Conv3d-1 [-1, 48, 3, 21, 41] 3,936

BatchNorm3d-2 [-1, 48, 3, 21, 41] 96

mish-3 [-1, 48, 3, 21, 41] 0

Conv3d-4 [-1, 48, 3, 21, 41] 62,256

BatchNorm3d-5 [-1, 96, 3, 21, 41] 192

mish-6 [-1, 96, 3, 21, 41] 0

Conv3d-7 [-1, 48, 3, 21, 41] 124,464

BatchNorm3d-8 [-1, 144, 3, 21, 41] 288

mish-9 [-1, 144, 3, 21, 41] 0

Conv3d-10 [-1, 48, 3, 21, 41] 186,672

BatchNorm3d-11 [-1, 192, 3, 21, 41] 384

mish-12 [-1, 192, 3, 21, 41] 0

Conv3d-13 [-1, 48, 3, 21, 41] 248,880

BatchNorm3d-14 [-1, 240, 3, 21, 41] 480

mish-15 [-1, 240, 3, 21, 41] 0

Conv3d-16 [-1, 48, 3, 21, 41] 311,088

DenseResidualBlock-17 [-1, 48, 3, 21, 41] 0

BatchNorm3d-18 [-1, 48, 3, 21, 41] 96

mish-19 [-1, 48, 3, 21, 41] 0

Conv3d-20 [-1, 48, 3, 21, 41] 62,256

BatchNorm3d-21 [-1, 96, 3, 21, 41] 192

mish-22 [-1, 96, 3, 21, 41] 0

Conv3d-23 [-1, 48, 3, 21, 41] 124,464

BatchNorm3d-24 [-1, 144, 3, 21, 41] 288

mish-25 [-1, 144, 3, 21, 41] 0

Conv3d-26 [-1, 48, 3, 21, 41] 186,672

BatchNorm3d-27 [-1, 192, 3, 21, 41] 384

mish-28 [-1, 192, 3, 21, 41] 0

Conv3d-29 [-1, 48, 3, 21, 41] 248,880

BatchNorm3d-30 [-1, 240, 3, 21, 41] 480

mish-31 [-1, 240, 3, 21, 41] 0

Conv3d-32 [-1, 48, 3, 21, 41] 311,088

DenseResidualBlock-33 [-1, 48, 3, 21, 41] 0

BatchNorm3d-34 [-1, 48, 3, 21, 41] 96

mish-35 [-1, 48, 3, 21, 41] 0

Conv3d-36 [-1, 48, 3, 21, 41] 62,256

BatchNorm3d-37 [-1, 96, 3, 21, 41] 192

mish-38 [-1, 96, 3, 21, 41] 0

Conv3d-39 [-1, 48, 3, 21, 41] 124,464

BatchNorm3d-40 [-1, 144, 3, 21, 41] 288

mish-41 [-1, 144, 3, 21, 41] 0

Conv3d-42 [-1, 48, 3, 21, 41] 186,672

BatchNorm3d-43 [-1, 192, 3, 21, 41] 384

mish-44 [-1, 192, 3, 21, 41] 0

Conv3d-45 [-1, 48, 3, 21, 41] 248,880

BatchNorm3d-46 [-1, 240, 3, 21, 41] 480

mish-47 [-1, 240, 3, 21, 41] 0

Conv3d-48 [-1, 48, 3, 21, 41] 311,088

DenseResidualBlock-49 [-1, 48, 3, 21, 41] 0

ResidualInResidualDenseBlock-50 [-1, 48, 3, 21, 41] 0

BatchNorm3d-51 [-1, 48, 3, 21, 41] 96

mish-52 [-1, 48, 3, 21, 41] 0

Conv3d-53 [-1, 48, 2, 11, 21] 62,256

BatchNorm3d-54 [-1, 48, 2, 11, 21] 96

mish-55 [-1, 48, 2, 11, 21] 0

Conv3d-56 [-1, 48, 2, 11, 21] 62,256

BatchNorm3d-57 [-1, 96, 2, 11, 21] 192

mish-58 [-1, 96, 2, 11, 21] 0

Conv3d-59 [-1, 48, 2, 11, 21] 124,464

BatchNorm3d-60 [-1, 144, 2, 11, 21] 288

mish-61 [-1, 144, 2, 11, 21] 0

Conv3d-62 [-1, 48, 2, 11, 21] 186,672

BatchNorm3d-63 [-1, 192, 2, 11, 21] 384

mish-64 [-1, 192, 2, 11, 21] 0

Conv3d-65 [-1, 48, 2, 11, 21] 248,880

BatchNorm3d-66 [-1, 240, 2, 11, 21] 480

mish-67 [-1, 240, 2, 11, 21] 0

Conv3d-68 [-1, 48, 2, 11, 21] 311,088

DenseResidualBlock-69 [-1, 48, 2, 11, 21] 0

BatchNorm3d-70 [-1, 48, 2, 11, 21] 96

mish-71 [-1, 48, 2, 11, 21] 0

Conv3d-72 [-1, 48, 2, 11, 21] 62,256

BatchNorm3d-73 [-1, 96, 2, 11, 21] 192

mish-74 [-1, 96, 2, 11, 21] 0

Conv3d-75 [-1, 48, 2, 11, 21] 124,464

BatchNorm3d-76 [-1, 144, 2, 11, 21] 288

mish-77 [-1, 144, 2, 11, 21] 0

Conv3d-78 [-1, 48, 2, 11, 21] 186,672

BatchNorm3d-79 [-1, 192, 2, 11, 21] 384

mish-80 [-1, 192, 2, 11, 21] 0

Conv3d-81 [-1, 48, 2, 11, 21] 248,880

BatchNorm3d-82 [-1, 240, 2, 11, 21] 480

mish-83 [-1, 240, 2, 11, 21] 0

Conv3d-84 [-1, 48, 2, 11, 21] 311,088

DenseResidualBlock-85 [-1, 48, 2, 11, 21] 0

BatchNorm3d-86 [-1, 48, 2, 11, 21] 96

mish-87 [-1, 48, 2, 11, 21] 0

Conv3d-88 [-1, 48, 2, 11, 21] 62,256

BatchNorm3d-89 [-1, 96, 2, 11, 21] 192

mish-90 [-1, 96, 2, 11, 21] 0

Conv3d-91 [-1, 48, 2, 11, 21] 124,464

BatchNorm3d-92 [-1, 144, 2, 11, 21] 288

mish-93 [-1, 144, 2, 11, 21] 0

Conv3d-94 [-1, 48, 2, 11, 21] 186,672

BatchNorm3d-95 [-1, 192, 2, 11, 21] 384

mish-96 [-1, 192, 2, 11, 21] 0

Conv3d-97 [-1, 48, 2, 11, 21] 248,880

BatchNorm3d-98 [-1, 240, 2, 11, 21] 480

mish-99 [-1, 240, 2, 11, 21] 0

Conv3d-100 [-1, 48, 2, 11, 21] 311,088

DenseResidualBlock-101 [-1, 48, 2, 11, 21] 0

ResidualInResidualDenseBlock-102 [-1, 48, 2, 11, 21] 0

BatchNorm3d-103 [-1, 48, 2, 11, 21] 96

mish-104 [-1, 48, 2, 11, 21] 0

Conv3d-105 [-1, 48, 2, 11, 21] 62,256

BatchNorm3d-106 [-1, 96, 2, 11, 21] 192

mish-107 [-1, 96, 2, 11, 21] 0

Conv3d-108 [-1, 48, 2, 11, 21] 124,464

BatchNorm3d-109 [-1, 144, 2, 11, 21] 288

mish-110 [-1, 144, 2, 11, 21] 0

Conv3d-111 [-1, 48, 2, 11, 21] 186,672

BatchNorm3d-112 [-1, 192, 2, 11, 21] 384

mish-113 [-1, 192, 2, 11, 21] 0

Conv3d-114 [-1, 48, 2, 11, 21] 248,880

BatchNorm3d-115 [-1, 240, 2, 11, 21] 480

mish-116 [-1, 240, 2, 11, 21] 0

Conv3d-117 [-1, 48, 2, 11, 21] 311,088

DenseResidualBlock-118 [-1, 48, 2, 11, 21] 0

BatchNorm3d-119 [-1, 48, 2, 11, 21] 96

mish-120 [-1, 48, 2, 11, 21] 0

Conv3d-121 [-1, 48, 2, 11, 21] 62,256

BatchNorm3d-122 [-1, 96, 2, 11, 21] 192

mish-123 [-1, 96, 2, 11, 21] 0

Conv3d-124 [-1, 48, 2, 11, 21] 124,464

BatchNorm3d-125 [-1, 144, 2, 11, 21] 288

mish-126 [-1, 144, 2, 11, 21] 0

Conv3d-127 [-1, 48, 2, 11, 21] 186,672

BatchNorm3d-128 [-1, 192, 2, 11, 21] 384

mish-129 [-1, 192, 2, 11, 21] 0

Conv3d-130 [-1, 48, 2, 11, 21] 248,880

BatchNorm3d-131 [-1, 240, 2, 11, 21] 480

mish-132 [-1, 240, 2, 11, 21] 0

Conv3d-133 [-1, 48, 2, 11, 21] 311,088

DenseResidualBlock-134 [-1, 48, 2, 11, 21] 0

BatchNorm3d-135 [-1, 48, 2, 11, 21] 96

mish-136 [-1, 48, 2, 11, 21] 0

Conv3d-137 [-1, 48, 2, 11, 21] 62,256

BatchNorm3d-138 [-1, 96, 2, 11, 21] 192

mish-139 [-1, 96, 2, 11, 21] 0

Conv3d-140 [-1, 48, 2, 11, 21] 124,464

BatchNorm3d-141 [-1, 144, 2, 11, 21] 288

mish-142 [-1, 144, 2, 11, 21] 0

Conv3d-143 [-1, 48, 2, 11, 21] 186,672

BatchNorm3d-144 [-1, 192, 2, 11, 21] 384

mish-145 [-1, 192, 2, 11, 21] 0

Conv3d-146 [-1, 48, 2, 11, 21] 248,880

BatchNorm3d-147 [-1, 240, 2, 11, 21] 480

mish-148 [-1, 240, 2, 11, 21] 0

Conv3d-149 [-1, 48, 2, 11, 21] 311,088

DenseResidualBlock-150 [-1, 48, 2, 11, 21] 0

ResidualInResidualDenseBlock-151 [-1, 48, 2, 11, 21] 0

BatchNorm3d-152 [-1, 48, 2, 11, 21] 96

mish-153 [-1, 48, 2, 11, 21] 0

Upsample-154 [-1, 48, 3, 21, 41] 0

Conv3d-155 [-1, 48, 3, 21, 41] 62,256

BatchNorm3d-156 [-1, 48, 3, 21, 41] 96

mish-157 [-1, 48, 3, 21, 41] 0

Conv3d-158 [-1, 48, 3, 21, 41] 62,256

BatchNorm3d-159 [-1, 96, 3, 21, 41] 192

mish-160 [-1, 96, 3, 21, 41] 0

Conv3d-161 [-1, 48, 3, 21, 41] 124,464

BatchNorm3d-162 [-1, 144, 3, 21, 41] 288

mish-163 [-1, 144, 3, 21, 41] 0

Conv3d-164 [-1, 48, 3, 21, 41] 186,672

BatchNorm3d-165 [-1, 192, 3, 21, 41] 384

mish-166 [-1, 192, 3, 21, 41] 0

Conv3d-167 [-1, 48, 3, 21, 41] 248,880

BatchNorm3d-168 [-1, 240, 3, 21, 41] 480

mish-169 [-1, 240, 3, 21, 41] 0

Conv3d-170 [-1, 48, 3, 21, 41] 311,088

DenseResidualBlock-171 [-1, 48, 3, 21, 41] 0

BatchNorm3d-172 [-1, 48, 3, 21, 41] 96

mish-173 [-1, 48, 3, 21, 41] 0

Conv3d-174 [-1, 48, 3, 21, 41] 62,256

BatchNorm3d-175 [-1, 96, 3, 21, 41] 192

mish-176 [-1, 96, 3, 21, 41] 0

Conv3d-177 [-1, 48, 3, 21, 41] 124,464

BatchNorm3d-178 [-1, 144, 3, 21, 41] 288

mish-179 [-1, 144, 3, 21, 41] 0

Conv3d-180 [-1, 48, 3, 21, 41] 186,672

BatchNorm3d-181 [-1, 192, 3, 21, 41] 384

mish-182 [-1, 192, 3, 21, 41] 0

Conv3d-183 [-1, 48, 3, 21, 41] 248,880

BatchNorm3d-184 [-1, 240, 3, 21, 41] 480

mish-185 [-1, 240, 3, 21, 41] 0

Conv3d-186 [-1, 48, 3, 21, 41] 311,088

DenseResidualBlock-187 [-1, 48, 3, 21, 41] 0

BatchNorm3d-188 [-1, 48, 3, 21, 41] 96

mish-189 [-1, 48, 3, 21, 41] 0

Conv3d-190 [-1, 48, 3, 21, 41] 62,256

BatchNorm3d-191 [-1, 96, 3, 21, 41] 192

mish-192 [-1, 96, 3, 21, 41] 0

Conv3d-193 [-1, 48, 3, 21, 41] 124,464

BatchNorm3d-194 [-1, 144, 3, 21, 41] 288

mish-195 [-1, 144, 3, 21, 41] 0

Conv3d-196 [-1, 48, 3, 21, 41] 186,672

BatchNorm3d-197 [-1, 192, 3, 21, 41] 384

mish-198 [-1, 192, 3, 21, 41] 0

Conv3d-199 [-1, 48, 3, 21, 41] 248,880

BatchNorm3d-200 [-1, 240, 3, 21, 41] 480

mish-201 [-1, 240, 3, 21, 41] 0

Conv3d-202 [-1, 48, 3, 21, 41] 311,088

DenseResidualBlock-203 [-1, 48, 3, 21, 41] 0

ResidualInResidualDenseBlock-204 [-1, 48, 3, 21, 41] 0

BatchNorm3d-205 [-1, 48, 3, 21, 41] 96

mish-206 [-1, 48, 3, 21, 41] 0

Upsample-207 [-1, 48, 6, 41, 81] 0

Conv3d-208 [-1, 2, 6, 41, 81] 2,594

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

Total params: 11,348,930

Trainable params: 11,348,930

Non-trainable params: 0

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

Input size (MB): 0.23

Forward/backward pass size (MB): 257.82

Params size (MB): 43.29

Estimated Total Size (MB): 301.35

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

DenseED(

(features): Sequential(

(in\_conv): Conv3d(3, 48, kernel\_size=[3, 7, 7], stride=(2, 2, 2), padding=[1, 3, 3], bias=False)

(encblock1): \_DenseBlock(

(denselayer1): \_DenseLayer(

(norm1): BatchNorm3d(48, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(48, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer2): \_DenseLayer(

(norm1): BatchNorm3d(88, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(88, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer3): \_DenseLayer(

(norm1): BatchNorm3d(128, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(128, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer4): \_DenseLayer(

(norm1): BatchNorm3d(168, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(168, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer5): \_DenseLayer(

(norm1): BatchNorm3d(208, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(208, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

)

(down1): \_Transition(

(norm1): BatchNorm3d(248, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(248, 124, kernel\_size=(1, 1, 1), stride=(1, 1, 1), bias=False)

(norm2): BatchNorm3d(124, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu2): ReLU(inplace=True)

(conv2): Conv3d(124, 124, kernel\_size=(3, 3, 3), stride=(2, 2, 2), padding=(1, 1, 1), bias=False)

)

(decblock1): \_DenseBlock(

(denselayer1): \_DenseLayer(

(norm1): BatchNorm3d(124, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(124, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer2): \_DenseLayer(

(norm1): BatchNorm3d(164, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(164, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer3): \_DenseLayer(

(norm1): BatchNorm3d(204, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(204, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer4): \_DenseLayer(

(norm1): BatchNorm3d(244, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(244, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer5): \_DenseLayer(

(norm1): BatchNorm3d(284, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(284, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer6): \_DenseLayer(

(norm1): BatchNorm3d(324, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(324, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer7): \_DenseLayer(

(norm1): BatchNorm3d(364, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(364, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer8): \_DenseLayer(

(norm1): BatchNorm3d(404, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(404, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer9): \_DenseLayer(

(norm1): BatchNorm3d(444, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(444, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer10): \_DenseLayer(

(norm1): BatchNorm3d(484, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(484, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

)

(up1): \_Transition(

(norm1): BatchNorm3d(524, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(524, 262, kernel\_size=(1, 1, 1), stride=(1, 1, 1), bias=False)

(norm2): BatchNorm3d(262, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu2): ReLU(inplace=True)

(convT2): ConvTranspose3d(262, 262, kernel\_size=(3, 3, 3), stride=(2, 2, 2), padding=(1, 1, 1), bias=False)

)

(decblock2): \_DenseBlock(

(denselayer1): \_DenseLayer(

(norm1): BatchNorm3d(262, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(262, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer2): \_DenseLayer(

(norm1): BatchNorm3d(302, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(302, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer3): \_DenseLayer(

(norm1): BatchNorm3d(342, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(342, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer4): \_DenseLayer(

(norm1): BatchNorm3d(382, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(382, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

(denselayer5): \_DenseLayer(

(norm1): BatchNorm3d(422, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(422, 40, kernel\_size=(3, 3, 3), stride=(1, 1, 1), padding=(1, 1, 1), bias=False)

)

)

(up2): \_Transition(

(norm1): BatchNorm3d(462, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu1): ReLU(inplace=True)

(conv1): Conv3d(462, 231, kernel\_size=(1, 1, 1), stride=(1, 1, 1), bias=False)

(norm2): BatchNorm3d(231, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(relu2): ReLU(inplace=True)

(convT2): ConvTranspose3d(231, 2, kernel\_size=[3, 5, 5], stride=(2, 2, 2), padding=[1, 2, 2], output\_padding=[1, 0, 0], bias=False)

)

)

)

number of parameters: 8434802

number of layers: 27

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

Layer (type) Output Shape Param #

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

Conv3d-1 [-1, 48, 3, 21, 41] 21,168

BatchNorm3d-2 [-1, 48, 3, 21, 41] 96

ReLU-3 [-1, 48, 3, 21, 41] 0

Conv3d-4 [-1, 40, 3, 21, 41] 51,840

BatchNorm3d-5 [-1, 88, 3, 21, 41] 176

ReLU-6 [-1, 88, 3, 21, 41] 0

Conv3d-7 [-1, 40, 3, 21, 41] 95,040

BatchNorm3d-8 [-1, 128, 3, 21, 41] 256

ReLU-9 [-1, 128, 3, 21, 41] 0

Conv3d-10 [-1, 40, 3, 21, 41] 138,240

BatchNorm3d-11 [-1, 168, 3, 21, 41] 336

ReLU-12 [-1, 168, 3, 21, 41] 0

Conv3d-13 [-1, 40, 3, 21, 41] 181,440

BatchNorm3d-14 [-1, 208, 3, 21, 41] 416

ReLU-15 [-1, 208, 3, 21, 41] 0

Conv3d-16 [-1, 40, 3, 21, 41] 224,640

BatchNorm3d-17 [-1, 248, 3, 21, 41] 496

ReLU-18 [-1, 248, 3, 21, 41] 0

Conv3d-19 [-1, 124, 3, 21, 41] 30,752

BatchNorm3d-20 [-1, 124, 3, 21, 41] 248

ReLU-21 [-1, 124, 3, 21, 41] 0

Conv3d-22 [-1, 124, 2, 11, 21] 415,152

BatchNorm3d-23 [-1, 124, 2, 11, 21] 248

ReLU-24 [-1, 124, 2, 11, 21] 0

Conv3d-25 [-1, 40, 2, 11, 21] 133,920

BatchNorm3d-26 [-1, 164, 2, 11, 21] 328

ReLU-27 [-1, 164, 2, 11, 21] 0

Conv3d-28 [-1, 40, 2, 11, 21] 177,120

BatchNorm3d-29 [-1, 204, 2, 11, 21] 408

ReLU-30 [-1, 204, 2, 11, 21] 0

Conv3d-31 [-1, 40, 2, 11, 21] 220,320

BatchNorm3d-32 [-1, 244, 2, 11, 21] 488

ReLU-33 [-1, 244, 2, 11, 21] 0

Conv3d-34 [-1, 40, 2, 11, 21] 263,520

BatchNorm3d-35 [-1, 284, 2, 11, 21] 568

ReLU-36 [-1, 284, 2, 11, 21] 0

Conv3d-37 [-1, 40, 2, 11, 21] 306,720

BatchNorm3d-38 [-1, 324, 2, 11, 21] 648

ReLU-39 [-1, 324, 2, 11, 21] 0

Conv3d-40 [-1, 40, 2, 11, 21] 349,920

BatchNorm3d-41 [-1, 364, 2, 11, 21] 728

ReLU-42 [-1, 364, 2, 11, 21] 0

Conv3d-43 [-1, 40, 2, 11, 21] 393,120

BatchNorm3d-44 [-1, 404, 2, 11, 21] 808

ReLU-45 [-1, 404, 2, 11, 21] 0

Conv3d-46 [-1, 40, 2, 11, 21] 436,320

BatchNorm3d-47 [-1, 444, 2, 11, 21] 888

ReLU-48 [-1, 444, 2, 11, 21] 0

Conv3d-49 [-1, 40, 2, 11, 21] 479,520

BatchNorm3d-50 [-1, 484, 2, 11, 21] 968

ReLU-51 [-1, 484, 2, 11, 21] 0

Conv3d-52 [-1, 40, 2, 11, 21] 522,720

BatchNorm3d-53 [-1, 524, 2, 11, 21] 1,048

ReLU-54 [-1, 524, 2, 11, 21] 0

Conv3d-55 [-1, 262, 2, 11, 21] 137,288

BatchNorm3d-56 [-1, 262, 2, 11, 21] 524

ReLU-57 [-1, 262, 2, 11, 21] 0

ConvTranspose3d-58 [-1, 262, 3, 21, 41] 1,853,388

BatchNorm3d-59 [-1, 262, 3, 21, 41] 524

ReLU-60 [-1, 262, 3, 21, 41] 0

Conv3d-61 [-1, 40, 3, 21, 41] 282,960

BatchNorm3d-62 [-1, 302, 3, 21, 41] 604

ReLU-63 [-1, 302, 3, 21, 41] 0

Conv3d-64 [-1, 40, 3, 21, 41] 326,160

BatchNorm3d-65 [-1, 342, 3, 21, 41] 684

ReLU-66 [-1, 342, 3, 21, 41] 0

Conv3d-67 [-1, 40, 3, 21, 41] 369,360

BatchNorm3d-68 [-1, 382, 3, 21, 41] 764

ReLU-69 [-1, 382, 3, 21, 41] 0

Conv3d-70 [-1, 40, 3, 21, 41] 412,560

BatchNorm3d-71 [-1, 422, 3, 21, 41] 844

ReLU-72 [-1, 422, 3, 21, 41] 0

Conv3d-73 [-1, 40, 3, 21, 41] 455,760

BatchNorm3d-74 [-1, 462, 3, 21, 41] 924

ReLU-75 [-1, 462, 3, 21, 41] 0

Conv3d-76 [-1, 231, 3, 21, 41] 106,722

BatchNorm3d-77 [-1, 231, 3, 21, 41] 462

ReLU-78 [-1, 231, 3, 21, 41] 0

ConvTranspose3d-79 [-1, 2, 6, 41, 81] 34,650

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

Total params: 8,434,802

Trainable params: 8,434,802

Non-trainable params: 0

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

Input size (MB): 0.23

Forward/backward pass size (MB): 185.63

Params size (MB): 32.18

Estimated Total Size (MB): 218.03

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