\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Layer (type) Output Shape Param # Connected to

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

input\_11 (InputLayer) [(None, 224, 224, 3 0 []

)]

conv1\_pad (ZeroPadding2D) (None, 230, 230, 3) 0 ['input\_11[0][0]']

conv1\_conv (Conv2D) (None, 112, 112, 64 9472 ['conv1\_pad[0][0]']

)

conv1\_bn (BatchNormalization) (None, 112, 112, 64 256 ['conv1\_conv[0][0]']

)

conv1\_relu (Activation) (None, 112, 112, 64 0 ['conv1\_bn[0][0]']

)

pool1\_pad (ZeroPadding2D) (None, 114, 114, 64 0 ['conv1\_relu[0][0]']

)

pool1\_pool (MaxPooling2D) (None, 56, 56, 64) 0 ['pool1\_pad[0][0]']

conv2\_block1\_1\_conv (Conv2D) (None, 56, 56, 64) 4160 ['pool1\_pool[0][0]']

conv2\_block1\_1\_bn (BatchNormal (None, 56, 56, 64) 256 ['conv2\_block1\_1\_conv[0][0]']

ization)

conv2\_block1\_1\_relu (Activatio (None, 56, 56, 64) 0 ['conv2\_block1\_1\_bn[0][0]']

n)

conv2\_block1\_2\_conv (Conv2D) (None, 56, 56, 64) 36928 ['conv2\_block1\_1\_relu[0][0]']

conv2\_block1\_2\_bn (BatchNormal (None, 56, 56, 64) 256 ['conv2\_block1\_2\_conv[0][0]']

ization)

conv2\_block1\_2\_relu (Activatio (None, 56, 56, 64) 0 ['conv2\_block1\_2\_bn[0][0]']

n)

conv2\_block1\_0\_conv (Conv2D) (None, 56, 56, 256) 16640 ['pool1\_pool[0][0]']

conv2\_block1\_3\_conv (Conv2D) (None, 56, 56, 256) 16640 ['conv2\_block1\_2\_relu[0][0]']

conv2\_block1\_0\_bn (BatchNormal (None, 56, 56, 256) 1024 ['conv2\_block1\_0\_conv[0][0]']

ization)

conv2\_block1\_3\_bn (BatchNormal (None, 56, 56, 256) 1024 ['conv2\_block1\_3\_conv[0][0]']

ization)

conv2\_block1\_add (Add) (None, 56, 56, 256) 0 ['conv2\_block1\_0\_bn[0][0]',

'conv2\_block1\_3\_bn[0][0]']

conv2\_block1\_out (Activation) (None, 56, 56, 256) 0 ['conv2\_block1\_add[0][0]']

conv2\_block2\_1\_conv (Conv2D) (None, 56, 56, 64) 16448 ['conv2\_block1\_out[0][0]']

conv2\_block2\_1\_bn (BatchNormal (None, 56, 56, 64) 256 ['conv2\_block2\_1\_conv[0][0]']

ization)

conv2\_block2\_1\_relu (Activatio (None, 56, 56, 64) 0 ['conv2\_block2\_1\_bn[0][0]']

n)

conv2\_block2\_2\_conv (Conv2D) (None, 56, 56, 64) 36928 ['conv2\_block2\_1\_relu[0][0]']

conv2\_block2\_2\_bn (BatchNormal (None, 56, 56, 64) 256 ['conv2\_block2\_2\_conv[0][0]']

ization)

conv2\_block2\_2\_relu (Activatio (None, 56, 56, 64) 0 ['conv2\_block2\_2\_bn[0][0]']

n)

conv2\_block2\_3\_conv (Conv2D) (None, 56, 56, 256) 16640 ['conv2\_block2\_2\_relu[0][0]']

conv2\_block2\_3\_bn (BatchNormal (None, 56, 56, 256) 1024 ['conv2\_block2\_3\_conv[0][0]']

ization)

conv2\_block2\_add (Add) (None, 56, 56, 256) 0 ['conv2\_block1\_out[0][0]',

'conv2\_block2\_3\_bn[0][0]']

conv2\_block2\_out (Activation) (None, 56, 56, 256) 0 ['conv2\_block2\_add[0][0]']

conv2\_block3\_1\_conv (Conv2D) (None, 56, 56, 64) 16448 ['conv2\_block2\_out[0][0]']

conv2\_block3\_1\_bn (BatchNormal (None, 56, 56, 64) 256 ['conv2\_block3\_1\_conv[0][0]']

ization)

conv2\_block3\_1\_relu (Activatio (None, 56, 56, 64) 0 ['conv2\_block3\_1\_bn[0][0]']

n)

conv2\_block3\_2\_conv (Conv2D) (None, 56, 56, 64) 36928 ['conv2\_block3\_1\_relu[0][0]']

conv2\_block3\_2\_bn (BatchNormal (None, 56, 56, 64) 256 ['conv2\_block3\_2\_conv[0][0]']

ization)

conv2\_block3\_2\_relu (Activatio (None, 56, 56, 64) 0 ['conv2\_block3\_2\_bn[0][0]']

n)

conv2\_block3\_3\_conv (Conv2D) (None, 56, 56, 256) 16640 ['conv2\_block3\_2\_relu[0][0]']

conv2\_block3\_3\_bn (BatchNormal (None, 56, 56, 256) 1024 ['conv2\_block3\_3\_conv[0][0]']

ization)

conv2\_block3\_add (Add) (None, 56, 56, 256) 0 ['conv2\_block2\_out[0][0]',

'conv2\_block3\_3\_bn[0][0]']

conv2\_block3\_out (Activation) (None, 56, 56, 256) 0 ['conv2\_block3\_add[0][0]']

conv3\_block1\_1\_conv (Conv2D) (None, 28, 28, 128) 32896 ['conv2\_block3\_out[0][0]']

conv3\_block1\_1\_bn (BatchNormal (None, 28, 28, 128) 512 ['conv3\_block1\_1\_conv[0][0]']

ization)

conv3\_block1\_1\_relu (Activatio (None, 28, 28, 128) 0 ['conv3\_block1\_1\_bn[0][0]']

n)

conv3\_block1\_2\_conv (Conv2D) (None, 28, 28, 128) 147584 ['conv3\_block1\_1\_relu[0][0]']

conv3\_block1\_2\_bn (BatchNormal (None, 28, 28, 128) 512 ['conv3\_block1\_2\_conv[0][0]']

ization)

conv3\_block1\_2\_relu (Activatio (None, 28, 28, 128) 0 ['conv3\_block1\_2\_bn[0][0]']

n)

conv3\_block1\_0\_conv (Conv2D) (None, 28, 28, 512) 131584 ['conv2\_block3\_out[0][0]']

conv3\_block1\_3\_conv (Conv2D) (None, 28, 28, 512) 66048 ['conv3\_block1\_2\_relu[0][0]']

conv3\_block1\_0\_bn (BatchNormal (None, 28, 28, 512) 2048 ['conv3\_block1\_0\_conv[0][0]']

ization)

conv3\_block1\_3\_bn (BatchNormal (None, 28, 28, 512) 2048 ['conv3\_block1\_3\_conv[0][0]']

ization)

conv3\_block1\_add (Add) (None, 28, 28, 512) 0 ['conv3\_block1\_0\_bn[0][0]',

'conv3\_block1\_3\_bn[0][0]']

conv3\_block1\_out (Activation) (None, 28, 28, 512) 0 ['conv3\_block1\_add[0][0]']

conv3\_block2\_1\_conv (Conv2D) (None, 28, 28, 128) 65664 ['conv3\_block1\_out[0][0]']

conv3\_block2\_1\_bn (BatchNormal (None, 28, 28, 128) 512 ['conv3\_block2\_1\_conv[0][0]']

ization)

conv3\_block2\_1\_relu (Activatio (None, 28, 28, 128) 0 ['conv3\_block2\_1\_bn[0][0]']

n)

conv3\_block2\_2\_conv (Conv2D) (None, 28, 28, 128) 147584 ['conv3\_block2\_1\_relu[0][0]']

conv3\_block2\_2\_bn (BatchNormal (None, 28, 28, 128) 512 ['conv3\_block2\_2\_conv[0][0]']

ization)

conv3\_block2\_2\_relu (Activatio (None, 28, 28, 128) 0 ['conv3\_block2\_2\_bn[0][0]']

n)

conv3\_block2\_3\_conv (Conv2D) (None, 28, 28, 512) 66048 ['conv3\_block2\_2\_relu[0][0]']

conv3\_block2\_3\_bn (BatchNormal (None, 28, 28, 512) 2048 ['conv3\_block2\_3\_conv[0][0]']

ization)

conv3\_block2\_add (Add) (None, 28, 28, 512) 0 ['conv3\_block1\_out[0][0]',

'conv3\_block2\_3\_bn[0][0]']

conv3\_block2\_out (Activation) (None, 28, 28, 512) 0 ['conv3\_block2\_add[0][0]']

conv3\_block3\_1\_conv (Conv2D) (None, 28, 28, 128) 65664 ['conv3\_block2\_out[0][0]']

conv3\_block3\_1\_bn (BatchNormal (None, 28, 28, 128) 512 ['conv3\_block3\_1\_conv[0][0]']

ization)

conv3\_block3\_1\_relu (Activatio (None, 28, 28, 128) 0 ['conv3\_block3\_1\_bn[0][0]']

n)

conv3\_block3\_2\_conv (Conv2D) (None, 28, 28, 128) 147584 ['conv3\_block3\_1\_relu[0][0]']

conv3\_block3\_2\_bn (BatchNormal (None, 28, 28, 128) 512 ['conv3\_block3\_2\_conv[0][0]']

ization)

conv3\_block3\_2\_relu (Activatio (None, 28, 28, 128) 0 ['conv3\_block3\_2\_bn[0][0]']

n)

conv3\_block3\_3\_conv (Conv2D) (None, 28, 28, 512) 66048 ['conv3\_block3\_2\_relu[0][0]']

conv3\_block3\_3\_bn (BatchNormal (None, 28, 28, 512) 2048 ['conv3\_block3\_3\_conv[0][0]']

ization)

conv3\_block3\_add (Add) (None, 28, 28, 512) 0 ['conv3\_block2\_out[0][0]',

'conv3\_block3\_3\_bn[0][0]']

conv3\_block3\_out (Activation) (None, 28, 28, 512) 0 ['conv3\_block3\_add[0][0]']

conv3\_block4\_1\_conv (Conv2D) (None, 28, 28, 128) 65664 ['conv3\_block3\_out[0][0]']

conv3\_block4\_1\_bn (BatchNormal (None, 28, 28, 128) 512 ['conv3\_block4\_1\_conv[0][0]']

ization)

conv3\_block4\_1\_relu (Activatio (None, 28, 28, 128) 0 ['conv3\_block4\_1\_bn[0][0]']

n)

conv3\_block4\_2\_conv (Conv2D) (None, 28, 28, 128) 147584 ['conv3\_block4\_1\_relu[0][0]']

conv3\_block4\_2\_bn (BatchNormal (None, 28, 28, 128) 512 ['conv3\_block4\_2\_conv[0][0]']

ization)

conv3\_block4\_2\_relu (Activatio (None, 28, 28, 128) 0 ['conv3\_block4\_2\_bn[0][0]']

n)

conv3\_block4\_3\_conv (Conv2D) (None, 28, 28, 512) 66048 ['conv3\_block4\_2\_relu[0][0]']

conv3\_block4\_3\_bn (BatchNormal (None, 28, 28, 512) 2048 ['conv3\_block4\_3\_conv[0][0]']

ization)

conv3\_block4\_add (Add) (None, 28, 28, 512) 0 ['conv3\_block3\_out[0][0]',

'conv3\_block4\_3\_bn[0][0]']

conv3\_block4\_out (Activation) (None, 28, 28, 512) 0 ['conv3\_block4\_add[0][0]']

conv4\_block1\_1\_conv (Conv2D) (None, 14, 14, 256) 131328 ['conv3\_block4\_out[0][0]']

conv4\_block1\_1\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block1\_1\_conv[0][0]']

ization)

conv4\_block1\_1\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block1\_1\_bn[0][0]']

n)

conv4\_block1\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block1\_1\_relu[0][0]']

conv4\_block1\_2\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block1\_2\_conv[0][0]']

ization)

conv4\_block1\_2\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block1\_2\_bn[0][0]']

n)

conv4\_block1\_0\_conv (Conv2D) (None, 14, 14, 1024 525312 ['conv3\_block4\_out[0][0]']

)

conv4\_block1\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block1\_2\_relu[0][0]']

)

conv4\_block1\_0\_bn (BatchNormal (None, 14, 14, 1024 4096 ['conv4\_block1\_0\_conv[0][0]']

ization) )

conv4\_block1\_3\_bn (BatchNormal (None, 14, 14, 1024 4096 ['conv4\_block1\_3\_conv[0][0]']

ization) )

conv4\_block1\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block1\_0\_bn[0][0]',

) 'conv4\_block1\_3\_bn[0][0]']

conv4\_block1\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block1\_add[0][0]']

)

conv4\_block2\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block1\_out[0][0]']

conv4\_block2\_1\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block2\_1\_conv[0][0]']

ization)

conv4\_block2\_1\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block2\_1\_bn[0][0]']

n)

conv4\_block2\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block2\_1\_relu[0][0]']

conv4\_block2\_2\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block2\_2\_conv[0][0]']

ization)

conv4\_block2\_2\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block2\_2\_bn[0][0]']

n)

conv4\_block2\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block2\_2\_relu[0][0]']

)

conv4\_block2\_3\_bn (BatchNormal (None, 14, 14, 1024 4096 ['conv4\_block2\_3\_conv[0][0]']

ization) )

conv4\_block2\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block1\_out[0][0]',

) 'conv4\_block2\_3\_bn[0][0]']

conv4\_block2\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block2\_add[0][0]']

)

conv4\_block3\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block2\_out[0][0]']

conv4\_block3\_1\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block3\_1\_conv[0][0]']

ization)

conv4\_block3\_1\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block3\_1\_bn[0][0]']

n)

conv4\_block3\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block3\_1\_relu[0][0]']

conv4\_block3\_2\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block3\_2\_conv[0][0]']

ization)

conv4\_block3\_2\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block3\_2\_bn[0][0]']

n)

conv4\_block3\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block3\_2\_relu[0][0]']

)

conv4\_block3\_3\_bn (BatchNormal (None, 14, 14, 1024 4096 ['conv4\_block3\_3\_conv[0][0]']

ization) )

conv4\_block3\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block2\_out[0][0]',

) 'conv4\_block3\_3\_bn[0][0]']

conv4\_block3\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block3\_add[0][0]']

)

conv4\_block4\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block3\_out[0][0]']

conv4\_block4\_1\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block4\_1\_conv[0][0]']

ization)

conv4\_block4\_1\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block4\_1\_bn[0][0]']

n)

conv4\_block4\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block4\_1\_relu[0][0]']

conv4\_block4\_2\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block4\_2\_conv[0][0]']

ization)

conv4\_block4\_2\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block4\_2\_bn[0][0]']

n)

conv4\_block4\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block4\_2\_relu[0][0]']

)

conv4\_block4\_3\_bn (BatchNormal (None, 14, 14, 1024 4096 ['conv4\_block4\_3\_conv[0][0]']

ization) )

conv4\_block4\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block3\_out[0][0]',

) 'conv4\_block4\_3\_bn[0][0]']

conv4\_block4\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block4\_add[0][0]']

)

conv4\_block5\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block4\_out[0][0]']

conv4\_block5\_1\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block5\_1\_conv[0][0]']

ization)

conv4\_block5\_1\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block5\_1\_bn[0][0]']

n)

conv4\_block5\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block5\_1\_relu[0][0]']

conv4\_block5\_2\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block5\_2\_conv[0][0]']

ization)

conv4\_block5\_2\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block5\_2\_bn[0][0]']

n)

conv4\_block5\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block5\_2\_relu[0][0]']

)

conv4\_block5\_3\_bn (BatchNormal (None, 14, 14, 1024 4096 ['conv4\_block5\_3\_conv[0][0]']

ization) )

conv4\_block5\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block4\_out[0][0]',

) 'conv4\_block5\_3\_bn[0][0]']

conv4\_block5\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block5\_add[0][0]']

)

conv4\_block6\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block5\_out[0][0]']

conv4\_block6\_1\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block6\_1\_conv[0][0]']

ization)

conv4\_block6\_1\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block6\_1\_bn[0][0]']

n)

conv4\_block6\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block6\_1\_relu[0][0]']

conv4\_block6\_2\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block6\_2\_conv[0][0]']

ization)

conv4\_block6\_2\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block6\_2\_bn[0][0]']

n)

conv4\_block6\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block6\_2\_relu[0][0]']

)

conv4\_block6\_3\_bn (BatchNormal (None, 14, 14, 1024 4096 ['conv4\_block6\_3\_conv[0][0]']

ization) )

conv4\_block6\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block5\_out[0][0]',

) 'conv4\_block6\_3\_bn[0][0]']

conv4\_block6\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block6\_add[0][0]']

)

conv4\_block7\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block6\_out[0][0]']

conv4\_block7\_1\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block7\_1\_conv[0][0]']

ization)

conv4\_block7\_1\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block7\_1\_bn[0][0]']

n)

conv4\_block7\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block7\_1\_relu[0][0]']

conv4\_block7\_2\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block7\_2\_conv[0][0]']

ization)

conv4\_block7\_2\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block7\_2\_bn[0][0]']

n)

conv4\_block7\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block7\_2\_relu[0][0]']

)

conv4\_block7\_3\_bn (BatchNormal (None, 14, 14, 1024 4096 ['conv4\_block7\_3\_conv[0][0]']

ization) )

conv4\_block7\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block6\_out[0][0]',

) 'conv4\_block7\_3\_bn[0][0]']

conv4\_block7\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block7\_add[0][0]']

)

conv4\_block8\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block7\_out[0][0]']

conv4\_block8\_1\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block8\_1\_conv[0][0]']

ization)

conv4\_block8\_1\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block8\_1\_bn[0][0]']

n)

conv4\_block8\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block8\_1\_relu[0][0]']

conv4\_block8\_2\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block8\_2\_conv[0][0]']

ization)

conv4\_block8\_2\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block8\_2\_bn[0][0]']

n)

conv4\_block8\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block8\_2\_relu[0][0]']

)

conv4\_block8\_3\_bn (BatchNormal (None, 14, 14, 1024 4096 ['conv4\_block8\_3\_conv[0][0]']

ization) )

conv4\_block8\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block7\_out[0][0]',

) 'conv4\_block8\_3\_bn[0][0]']

conv4\_block8\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block8\_add[0][0]']

)

conv4\_block9\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block8\_out[0][0]']

conv4\_block9\_1\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block9\_1\_conv[0][0]']

ization)

conv4\_block9\_1\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block9\_1\_bn[0][0]']

n)

conv4\_block9\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block9\_1\_relu[0][0]']

conv4\_block9\_2\_bn (BatchNormal (None, 14, 14, 256) 1024 ['conv4\_block9\_2\_conv[0][0]']

ization)

conv4\_block9\_2\_relu (Activatio (None, 14, 14, 256) 0 ['conv4\_block9\_2\_bn[0][0]']

n)

conv4\_block9\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block9\_2\_relu[0][0]']

)

conv4\_block9\_3\_bn (BatchNormal (None, 14, 14, 1024 4096 ['conv4\_block9\_3\_conv[0][0]']

ization) )

conv4\_block9\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block8\_out[0][0]',

) 'conv4\_block9\_3\_bn[0][0]']

conv4\_block9\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block9\_add[0][0]']

)

conv4\_block10\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block9\_out[0][0]']

conv4\_block10\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block10\_1\_conv[0][0]']

lization)

conv4\_block10\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block10\_1\_bn[0][0]']

on)

conv4\_block10\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block10\_1\_relu[0][0]']

conv4\_block10\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block10\_2\_conv[0][0]']

lization)

conv4\_block10\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block10\_2\_bn[0][0]']

on)

conv4\_block10\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block10\_2\_relu[0][0]']

)

conv4\_block10\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block10\_3\_conv[0][0]']

lization) )

conv4\_block10\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block9\_out[0][0]',

) 'conv4\_block10\_3\_bn[0][0]']

conv4\_block10\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block10\_add[0][0]']

)

conv4\_block11\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block10\_out[0][0]']

conv4\_block11\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block11\_1\_conv[0][0]']

lization)

conv4\_block11\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block11\_1\_bn[0][0]']

on)

conv4\_block11\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block11\_1\_relu[0][0]']

conv4\_block11\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block11\_2\_conv[0][0]']

lization)

conv4\_block11\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block11\_2\_bn[0][0]']

on)

conv4\_block11\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block11\_2\_relu[0][0]']

)

conv4\_block11\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block11\_3\_conv[0][0]']

lization) )

conv4\_block11\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block10\_out[0][0]',

) 'conv4\_block11\_3\_bn[0][0]']

conv4\_block11\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block11\_add[0][0]']

)

conv4\_block12\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block11\_out[0][0]']

conv4\_block12\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block12\_1\_conv[0][0]']

lization)

conv4\_block12\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block12\_1\_bn[0][0]']

on)

conv4\_block12\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block12\_1\_relu[0][0]']

conv4\_block12\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block12\_2\_conv[0][0]']

lization)

conv4\_block12\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block12\_2\_bn[0][0]']

on)

conv4\_block12\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block12\_2\_relu[0][0]']

)

conv4\_block12\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block12\_3\_conv[0][0]']

lization) )

conv4\_block12\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block11\_out[0][0]',

) 'conv4\_block12\_3\_bn[0][0]']

conv4\_block12\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block12\_add[0][0]']

)

conv4\_block13\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block12\_out[0][0]']

conv4\_block13\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block13\_1\_conv[0][0]']

lization)

conv4\_block13\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block13\_1\_bn[0][0]']

on)

conv4\_block13\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block13\_1\_relu[0][0]']

conv4\_block13\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block13\_2\_conv[0][0]']

lization)

conv4\_block13\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block13\_2\_bn[0][0]']

on)

conv4\_block13\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block13\_2\_relu[0][0]']

)

conv4\_block13\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block13\_3\_conv[0][0]']

lization) )

conv4\_block13\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block12\_out[0][0]',

) 'conv4\_block13\_3\_bn[0][0]']

conv4\_block13\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block13\_add[0][0]']

)

conv4\_block14\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block13\_out[0][0]']

conv4\_block14\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block14\_1\_conv[0][0]']

lization)

conv4\_block14\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block14\_1\_bn[0][0]']

on)

conv4\_block14\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block14\_1\_relu[0][0]']

conv4\_block14\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block14\_2\_conv[0][0]']

lization)

conv4\_block14\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block14\_2\_bn[0][0]']

on)

conv4\_block14\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block14\_2\_relu[0][0]']

)

conv4\_block14\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block14\_3\_conv[0][0]']

lization) )

conv4\_block14\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block13\_out[0][0]',

) 'conv4\_block14\_3\_bn[0][0]']

conv4\_block14\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block14\_add[0][0]']

)

conv4\_block15\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block14\_out[0][0]']

conv4\_block15\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block15\_1\_conv[0][0]']

lization)

conv4\_block15\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block15\_1\_bn[0][0]']

on)

conv4\_block15\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block15\_1\_relu[0][0]']

conv4\_block15\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block15\_2\_conv[0][0]']

lization)

conv4\_block15\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block15\_2\_bn[0][0]']

on)

conv4\_block15\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block15\_2\_relu[0][0]']

)

conv4\_block15\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block15\_3\_conv[0][0]']

lization) )

conv4\_block15\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block14\_out[0][0]',

) 'conv4\_block15\_3\_bn[0][0]']

conv4\_block15\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block15\_add[0][0]']

)

conv4\_block16\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block15\_out[0][0]']

conv4\_block16\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block16\_1\_conv[0][0]']

lization)

conv4\_block16\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block16\_1\_bn[0][0]']

on)

conv4\_block16\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block16\_1\_relu[0][0]']

conv4\_block16\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block16\_2\_conv[0][0]']

lization)

conv4\_block16\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block16\_2\_bn[0][0]']

on)

conv4\_block16\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block16\_2\_relu[0][0]']

)

conv4\_block16\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block16\_3\_conv[0][0]']

lization) )

conv4\_block16\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block15\_out[0][0]',

) 'conv4\_block16\_3\_bn[0][0]']

conv4\_block16\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block16\_add[0][0]']

)

conv4\_block17\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block16\_out[0][0]']

conv4\_block17\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block17\_1\_conv[0][0]']

lization)

conv4\_block17\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block17\_1\_bn[0][0]']

on)

conv4\_block17\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block17\_1\_relu[0][0]']

conv4\_block17\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block17\_2\_conv[0][0]']

lization)

conv4\_block17\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block17\_2\_bn[0][0]']

on)

conv4\_block17\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block17\_2\_relu[0][0]']

)

conv4\_block17\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block17\_3\_conv[0][0]']

lization) )

conv4\_block17\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block16\_out[0][0]',

) 'conv4\_block17\_3\_bn[0][0]']

conv4\_block17\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block17\_add[0][0]']

)

conv4\_block18\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block17\_out[0][0]']

conv4\_block18\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block18\_1\_conv[0][0]']

lization)

conv4\_block18\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block18\_1\_bn[0][0]']

on)

conv4\_block18\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block18\_1\_relu[0][0]']

conv4\_block18\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block18\_2\_conv[0][0]']

lization)

conv4\_block18\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block18\_2\_bn[0][0]']

on)

conv4\_block18\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block18\_2\_relu[0][0]']

)

conv4\_block18\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block18\_3\_conv[0][0]']

lization) )

conv4\_block18\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block17\_out[0][0]',

) 'conv4\_block18\_3\_bn[0][0]']

conv4\_block18\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block18\_add[0][0]']

)

conv4\_block19\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block18\_out[0][0]']

conv4\_block19\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block19\_1\_conv[0][0]']

lization)

conv4\_block19\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block19\_1\_bn[0][0]']

on)

conv4\_block19\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block19\_1\_relu[0][0]']

conv4\_block19\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block19\_2\_conv[0][0]']

lization)

conv4\_block19\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block19\_2\_bn[0][0]']

on)

conv4\_block19\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block19\_2\_relu[0][0]']

)

conv4\_block19\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block19\_3\_conv[0][0]']

lization) )

conv4\_block19\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block18\_out[0][0]',

) 'conv4\_block19\_3\_bn[0][0]']

conv4\_block19\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block19\_add[0][0]']

)

conv4\_block20\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block19\_out[0][0]']

conv4\_block20\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block20\_1\_conv[0][0]']

lization)

conv4\_block20\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block20\_1\_bn[0][0]']

on)

conv4\_block20\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block20\_1\_relu[0][0]']

conv4\_block20\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block20\_2\_conv[0][0]']

lization)

conv4\_block20\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block20\_2\_bn[0][0]']

on)

conv4\_block20\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block20\_2\_relu[0][0]']

)

conv4\_block20\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block20\_3\_conv[0][0]']

lization) )

conv4\_block20\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block19\_out[0][0]',

) 'conv4\_block20\_3\_bn[0][0]']

conv4\_block20\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block20\_add[0][0]']

)

conv4\_block21\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block20\_out[0][0]']

conv4\_block21\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block21\_1\_conv[0][0]']

lization)

conv4\_block21\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block21\_1\_bn[0][0]']

on)

conv4\_block21\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block21\_1\_relu[0][0]']

conv4\_block21\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block21\_2\_conv[0][0]']

lization)

conv4\_block21\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block21\_2\_bn[0][0]']

on)

conv4\_block21\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block21\_2\_relu[0][0]']

)

conv4\_block21\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block21\_3\_conv[0][0]']

lization) )

conv4\_block21\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block20\_out[0][0]',

) 'conv4\_block21\_3\_bn[0][0]']

conv4\_block21\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block21\_add[0][0]']

)

conv4\_block22\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block21\_out[0][0]']

conv4\_block22\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block22\_1\_conv[0][0]']

lization)

conv4\_block22\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block22\_1\_bn[0][0]']

on)

conv4\_block22\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block22\_1\_relu[0][0]']

conv4\_block22\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block22\_2\_conv[0][0]']

lization)

conv4\_block22\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block22\_2\_bn[0][0]']

on)

conv4\_block22\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block22\_2\_relu[0][0]']

)

conv4\_block22\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block22\_3\_conv[0][0]']

lization) )

conv4\_block22\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block21\_out[0][0]',

) 'conv4\_block22\_3\_bn[0][0]']

conv4\_block22\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block22\_add[0][0]']

)

conv4\_block23\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 ['conv4\_block22\_out[0][0]']

conv4\_block23\_1\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block23\_1\_conv[0][0]']

lization)

conv4\_block23\_1\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block23\_1\_bn[0][0]']

on)

conv4\_block23\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 ['conv4\_block23\_1\_relu[0][0]']

conv4\_block23\_2\_bn (BatchNorma (None, 14, 14, 256) 1024 ['conv4\_block23\_2\_conv[0][0]']

lization)

conv4\_block23\_2\_relu (Activati (None, 14, 14, 256) 0 ['conv4\_block23\_2\_bn[0][0]']

on)

conv4\_block23\_3\_conv (Conv2D) (None, 14, 14, 1024 263168 ['conv4\_block23\_2\_relu[0][0]']

)

conv4\_block23\_3\_bn (BatchNorma (None, 14, 14, 1024 4096 ['conv4\_block23\_3\_conv[0][0]']

lization) )

conv4\_block23\_add (Add) (None, 14, 14, 1024 0 ['conv4\_block22\_out[0][0]',

) 'conv4\_block23\_3\_bn[0][0]']

conv4\_block23\_out (Activation) (None, 14, 14, 1024 0 ['conv4\_block23\_add[0][0]']

)

conv5\_block1\_1\_conv (Conv2D) (None, 7, 7, 512) 524800 ['conv4\_block23\_out[0][0]']

conv5\_block1\_1\_bn (BatchNormal (None, 7, 7, 512) 2048 ['conv5\_block1\_1\_conv[0][0]']

ization)

conv5\_block1\_1\_relu (Activatio (None, 7, 7, 512) 0 ['conv5\_block1\_1\_bn[0][0]']

n)

conv5\_block1\_2\_conv (Conv2D) (None, 7, 7, 512) 2359808 ['conv5\_block1\_1\_relu[0][0]']

conv5\_block1\_2\_bn (BatchNormal (None, 7, 7, 512) 2048 ['conv5\_block1\_2\_conv[0][0]']

ization)

conv5\_block1\_2\_relu (Activatio (None, 7, 7, 512) 0 ['conv5\_block1\_2\_bn[0][0]']

n)

conv5\_block1\_0\_conv (Conv2D) (None, 7, 7, 2048) 2099200 ['conv4\_block23\_out[0][0]']

conv5\_block1\_3\_conv (Conv2D) (None, 7, 7, 2048) 1050624 ['conv5\_block1\_2\_relu[0][0]']

conv5\_block1\_0\_bn (BatchNormal (None, 7, 7, 2048) 8192 ['conv5\_block1\_0\_conv[0][0]']

ization)

conv5\_block1\_3\_bn (BatchNormal (None, 7, 7, 2048) 8192 ['conv5\_block1\_3\_conv[0][0]']

ization)

conv5\_block1\_add (Add) (None, 7, 7, 2048) 0 ['conv5\_block1\_0\_bn[0][0]',

'conv5\_block1\_3\_bn[0][0]']

conv5\_block1\_out (Activation) (None, 7, 7, 2048) 0 ['conv5\_block1\_add[0][0]']

conv5\_block2\_1\_conv (Conv2D) (None, 7, 7, 512) 1049088 ['conv5\_block1\_out[0][0]']

conv5\_block2\_1\_bn (BatchNormal (None, 7, 7, 512) 2048 ['conv5\_block2\_1\_conv[0][0]']

ization)

conv5\_block2\_1\_relu (Activatio (None, 7, 7, 512) 0 ['conv5\_block2\_1\_bn[0][0]']

n)

conv5\_block2\_2\_conv (Conv2D) (None, 7, 7, 512) 2359808 ['conv5\_block2\_1\_relu[0][0]']

conv5\_block2\_2\_bn (BatchNormal (None, 7, 7, 512) 2048 ['conv5\_block2\_2\_conv[0][0]']

ization)

conv5\_block2\_2\_relu (Activatio (None, 7, 7, 512) 0 ['conv5\_block2\_2\_bn[0][0]']

n)

conv5\_block2\_3\_conv (Conv2D) (None, 7, 7, 2048) 1050624 ['conv5\_block2\_2\_relu[0][0]']

conv5\_block2\_3\_bn (BatchNormal (None, 7, 7, 2048) 8192 ['conv5\_block2\_3\_conv[0][0]']

ization)

conv5\_block2\_add (Add) (None, 7, 7, 2048) 0 ['conv5\_block1\_out[0][0]',

'conv5\_block2\_3\_bn[0][0]']

conv5\_block2\_out (Activation) (None, 7, 7, 2048) 0 ['conv5\_block2\_add[0][0]']

conv5\_block3\_1\_conv (Conv2D) (None, 7, 7, 512) 1049088 ['conv5\_block2\_out[0][0]']

conv5\_block3\_1\_bn (BatchNormal (None, 7, 7, 512) 2048 ['conv5\_block3\_1\_conv[0][0]']

ization)

conv5\_block3\_1\_relu (Activatio (None, 7, 7, 512) 0 ['conv5\_block3\_1\_bn[0][0]']

n)

conv5\_block3\_2\_conv (Conv2D) (None, 7, 7, 512) 2359808 ['conv5\_block3\_1\_relu[0][0]']

conv5\_block3\_2\_bn (BatchNormal (None, 7, 7, 512) 2048 ['conv5\_block3\_2\_conv[0][0]']

ization)

conv5\_block3\_2\_relu (Activatio (None, 7, 7, 512) 0 ['conv5\_block3\_2\_bn[0][0]']

n)

conv5\_block3\_3\_conv (Conv2D) (None, 7, 7, 2048) 1050624 ['conv5\_block3\_2\_relu[0][0]']

conv5\_block3\_3\_bn (BatchNormal (None, 7, 7, 2048) 8192 ['conv5\_block3\_3\_conv[0][0]']

ization)

conv5\_block3\_add (Add) (None, 7, 7, 2048) 0 ['conv5\_block2\_out[0][0]',

'conv5\_block3\_3\_bn[0][0]']

conv5\_block3\_out (Activation) (None, 7, 7, 2048) 0 ['conv5\_block3\_add[0][0]']

flatten\_4 (Flatten) (None, 100352) 0 ['conv5\_block3\_out[0][0]']

dense\_4 (Dense) (None, 1) 100353 ['flatten\_4[0][0]']

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

Total params: 42,758,529

Trainable params: 100,353

Non-trainable params: 42,658,176

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Epoch 1/100

55/55 [==============================] - 58s 931ms/step - loss: 1.0835 - accuracy: 0.5588 - val\_loss: 0.6333 - val\_accuracy: 0.6129 - lr: 0.0010

Epoch 2/100

55/55 [==============================] - 49s 883ms/step - loss: 0.5160 - accuracy: 0.7425 - val\_loss: 0.4993 - val\_accuracy: 0.7558 - lr: 0.0010

Epoch 3/100

55/55 [==============================] - 49s 885ms/step - loss: 0.4751 - accuracy: 0.7776 - val\_loss: 0.4620 - val\_accuracy: 0.7926 - lr: 0.0010

Epoch 4/100

55/55 [==============================] - 49s 885ms/step - loss: 0.4426 - accuracy: 0.7828 - val\_loss: 0.4425 - val\_accuracy: 0.8111 - lr: 0.0010

Epoch 5/100

55/55 [==============================] - 48s 872ms/step - loss: 0.4082 - accuracy: 0.8093 - val\_loss: 0.4209 - val\_accuracy: 0.8203 - lr: 0.0010

Epoch 6/100

55/55 [==============================] - 49s 885ms/step - loss: 0.5361 - accuracy: 0.7512 - val\_loss: 0.3903 - val\_accuracy: 0.8203 - lr: 0.0010

Epoch 7/100

55/55 [==============================] - 48s 874ms/step - loss: 0.3992 - accuracy: 0.8093 - val\_loss: 0.4477 - val\_accuracy: 0.7972 - lr: 0.0010

Epoch 8/100

55/55 [==============================] - 48s 876ms/step - loss: 0.4111 - accuracy: 0.8151 - val\_loss: 0.5405 - val\_accuracy: 0.7327 - lr: 0.0010

Epoch 9/100

55/55 [==============================] - 48s 854ms/step - loss: 0.6174 - accuracy: 0.7247 - val\_loss: 0.4338 - val\_accuracy: 0.8180 - lr: 0.0010

Epoch 10/100

55/55 [==============================] - 48s 873ms/step - loss: 0.3307 - accuracy: 0.8433 - val\_loss: 0.3590 - val\_accuracy: 0.8341 - lr: 1.0000e-04

Epoch 11/100

55/55 [==============================] - 49s 884ms/step - loss: 0.3227 - accuracy: 0.8531 - val\_loss: 0.3558 - val\_accuracy: 0.8364 - lr: 1.0000e-04

Epoch 12/100

55/55 [==============================] - 48s 854ms/step - loss: 0.3206 - accuracy: 0.8548 - val\_loss: 0.3571 - val\_accuracy: 0.8387 - lr: 1.0000e-04

Epoch 13/100

55/55 [==============================] - 49s 887ms/step - loss: 0.3175 - accuracy: 0.8589 - val\_loss: 0.3512 - val\_accuracy: 0.8433 - lr: 1.0000e-04

Epoch 14/100

55/55 [==============================] - 48s 881ms/step - loss: 0.3151 - accuracy: 0.8612 - val\_loss: 0.3576 - val\_accuracy: 0.8249 - lr: 1.0000e-04

Epoch 15/100

55/55 [==============================] - 48s 866ms/step - loss: 0.3132 - accuracy: 0.8594 - val\_loss: 0.3607 - val\_accuracy: 0.8249 - lr: 1.0000e-04

Epoch 16/100

55/55 [==============================] - 48s 882ms/step - loss: 0.3089 - accuracy: 0.8652 - val\_loss: 0.3506 - val\_accuracy: 0.8249 - lr: 1.0000e-04

Epoch 17/100

55/55 [==============================] - 48s 877ms/step - loss: 0.3066 - accuracy: 0.8675 - val\_loss: 0.3501 - val\_accuracy: 0.8410 - lr: 1.0000e-04

Epoch 18/100

55/55 [==============================] - 48s 863ms/step - loss: 0.3054 - accuracy: 0.8664 - val\_loss: 0.3457 - val\_accuracy: 0.8249 - lr: 1.0000e-04

Epoch 19/100

55/55 [==============================] - 49s 885ms/step - loss: 0.3054 - accuracy: 0.8606 - val\_loss: 0.3435 - val\_accuracy: 0.8272 - lr: 1.0000e-04

Epoch 20/100

55/55 [==============================] - 48s 884ms/step - loss: 0.3047 - accuracy: 0.8687 - val\_loss: 0.3417 - val\_accuracy: 0.8433 - lr: 1.0000e-04

Epoch 21/100

55/55 [==============================] - 48s 880ms/step - loss: 0.3009 - accuracy: 0.8733 - val\_loss: 0.3405 - val\_accuracy: 0.8433 - lr: 1.0000e-04

Epoch 22/100

55/55 [==============================] - 48s 881ms/step - loss: 0.2977 - accuracy: 0.8738 - val\_loss: 0.3528 - val\_accuracy: 0.8525 - lr: 1.0000e-04

Epoch 23/100

55/55 [==============================] - 49s 885ms/step - loss: 0.3012 - accuracy: 0.8692 - val\_loss: 0.3383 - val\_accuracy: 0.8364 - lr: 1.0000e-04

Epoch 24/100

55/55 [==============================] - 48s 878ms/step - loss: 0.2989 - accuracy: 0.8727 - val\_loss: 0.3381 - val\_accuracy: 0.8318 - lr: 1.0000e-04

Epoch 25/100

55/55 [==============================] - 48s 877ms/step - loss: 0.3003 - accuracy: 0.8669 - val\_loss: 0.3400 - val\_accuracy: 0.8318 - lr: 1.0000e-04

Epoch 26/100

55/55 [==============================] - 48s 874ms/step - loss: 0.2998 - accuracy: 0.8715 - val\_loss: 0.3526 - val\_accuracy: 0.8341 - lr: 1.0000e-04

Epoch 27/100

55/55 [==============================] - 48s 880ms/step - loss: 0.3030 - accuracy: 0.8750 - val\_loss: 0.3377 - val\_accuracy: 0.8571 - lr: 1.0000e-04

Epoch 28/100

55/55 [==============================] - 48s 879ms/step - loss: 0.2989 - accuracy: 0.8664 - val\_loss: 0.3328 - val\_accuracy: 0.8433 - lr: 1.0000e-04

Epoch 29/100

55/55 [==============================] - 48s 874ms/step - loss: 0.2912 - accuracy: 0.8808 - val\_loss: 0.3365 - val\_accuracy: 0.8410 - lr: 1.0000e-04

Epoch 30/100

55/55 [==============================] - 48s 875ms/step - loss: 0.2898 - accuracy: 0.8854 - val\_loss: 0.3522 - val\_accuracy: 0.8479 - lr: 1.0000e-04

Epoch 31/100

55/55 [==============================] - 48s 882ms/step - loss: 0.2931 - accuracy: 0.8785 - val\_loss: 0.3423 - val\_accuracy: 0.8548 - lr: 1.0000e-04

Epoch 32/100

55/55 [==============================] - 48s 878ms/step - loss: 0.2873 - accuracy: 0.8819 - val\_loss: 0.3304 - val\_accuracy: 0.8433 - lr: 1.0000e-05

Epoch 33/100

55/55 [==============================] - 48s 882ms/step - loss: 0.2869 - accuracy: 0.8796 - val\_loss: 0.3302 - val\_accuracy: 0.8433 - lr: 1.0000e-05

Epoch 34/100

55/55 [==============================] - 49s 893ms/step - loss: 0.2856 - accuracy: 0.8836 - val\_loss: 0.3290 - val\_accuracy: 0.8456 - lr: 1.0000e-05

Epoch 35/100

55/55 [==============================] - 49s 882ms/step - loss: 0.2859 - accuracy: 0.8848 - val\_loss: 0.3287 - val\_accuracy: 0.8479 - lr: 1.0000e-05

Epoch 36/100

55/55 [==============================] - 48s 877ms/step - loss: 0.2857 - accuracy: 0.8865 - val\_loss: 0.3300 - val\_accuracy: 0.8433 - lr: 1.0000e-05

Epoch 37/100

55/55 [==============================] - 49s 885ms/step - loss: 0.2859 - accuracy: 0.8836 - val\_loss: 0.3285 - val\_accuracy: 0.8479 - lr: 1.0000e-05

Epoch 38/100

55/55 [==============================] - 49s 887ms/step - loss: 0.2854 - accuracy: 0.8831 - val\_loss: 0.3284 - val\_accuracy: 0.8502 - lr: 1.0000e-05

Epoch 39/100

55/55 [==============================] - 48s 878ms/step - loss: 0.2855 - accuracy: 0.8825 - val\_loss: 0.3293 - val\_accuracy: 0.8433 - lr: 1.0000e-05

Epoch 40/100

55/55 [==============================] - 49s 883ms/step - loss: 0.2849 - accuracy: 0.8831 - val\_loss: 0.3282 - val\_accuracy: 0.8456 - lr: 1.0000e-05

Epoch 41/100

55/55 [==============================] - 48s 880ms/step - loss: 0.2847 - accuracy: 0.8859 - val\_loss: 0.3285 - val\_accuracy: 0.8456 - lr: 1.0000e-05

Epoch 42/100

55/55 [==============================] - 48s 876ms/step - loss: 0.2847 - accuracy: 0.8859 - val\_loss: 0.3300 - val\_accuracy: 0.8433 - lr: 1.0000e-05

Epoch 43/100

55/55 [==============================] - 48s 880ms/step - loss: 0.2850 - accuracy: 0.8836 - val\_loss: 0.3277 - val\_accuracy: 0.8502 - lr: 1.0000e-05

Epoch 44/100

55/55 [==============================] - 48s 879ms/step - loss: 0.2848 - accuracy: 0.8802 - val\_loss: 0.3280 - val\_accuracy: 0.8479 - lr: 1.0000e-05

Epoch 45/100

55/55 [==============================] - 48s 880ms/step - loss: 0.2851 - accuracy: 0.8842 - val\_loss: 0.3280 - val\_accuracy: 0.8456 - lr: 1.0000e-05

Epoch 46/100

55/55 [==============================] - 48s 873ms/step - loss: 0.2839 - accuracy: 0.8836 - val\_loss: 0.3317 - val\_accuracy: 0.8456 - lr: 1.0000e-05

Epoch 47/100

55/55 [==============================] - 48s 879ms/step - loss: 0.2857 - accuracy: 0.8808 - val\_loss: 0.3288 - val\_accuracy: 0.8456 - lr: 1.0000e-06

Epoch 48/100

55/55 [==============================] - 49s 886ms/step - loss: 0.2838 - accuracy: 0.8836 - val\_loss: 0.3277 - val\_accuracy: 0.8479 - lr: 1.0000e-06

Epoch 49/100

55/55 [==============================] - 48s 880ms/step - loss: 0.2834 - accuracy: 0.8854 - val\_loss: 0.3274 - val\_accuracy: 0.8456 - lr: 1.0000e-06

Epoch 50/100

55/55 [==============================] - 48s 883ms/step - loss: 0.2834 - accuracy: 0.8854 - val\_loss: 0.3273 - val\_accuracy: 0.8479 - lr: 1.0000e-06

Epoch 51/100

55/55 [==============================] - 48s 882ms/step - loss: 0.2833 - accuracy: 0.8842 - val\_loss: 0.3273 - val\_accuracy: 0.8479 - lr: 1.0000e-06

Epoch 52/100

55/55 [==============================] - 48s 880ms/step - loss: 0.2834 - accuracy: 0.8854 - val\_loss: 0.3273 - val\_accuracy: 0.8479 - lr: 1.0000e-06

Epoch 53/100

55/55 [==============================] - 48s 877ms/step - loss: 0.2832 - accuracy: 0.8854 - val\_loss: 0.3273 - val\_accuracy: 0.8479 - lr: 1.0000e-07

Epoch 54/100

55/55 [==============================] - 48s 883ms/step - loss: 0.2832 - accuracy: 0.8854 - val\_loss: 0.3273 - val\_accuracy: 0.8479 - lr: 1.0000e-07

Epoch 55/100

55/55 [==============================] - 48s 880ms/step - loss: 0.2832 - accuracy: 0.8854 - val\_loss: 0.3273 - val\_accuracy: 0.8479 - lr: 1.0000e-07

Epoch 56/100

55/55 [==============================] - 48s 878ms/step - loss: 0.2832 - accuracy: 0.8854 - val\_loss: 0.3273 - val\_accuracy: 0.8479 - lr: 1.0000e-08

Epoch 57/100

55/55 [==============================] - 48s 876ms/step - loss: 0.2832 - accuracy: 0.8854 - val\_loss: 0.3273 - val\_accuracy: 0.8479 - lr: 1.0000e-08

Epoch 58/100

55/55 [==============================] - 49s 882ms/step - loss: 0.2832 - accuracy: 0.8854 - val\_loss: 0.3273 - val\_accuracy: 0.8479 - lr: 1.0000e-08

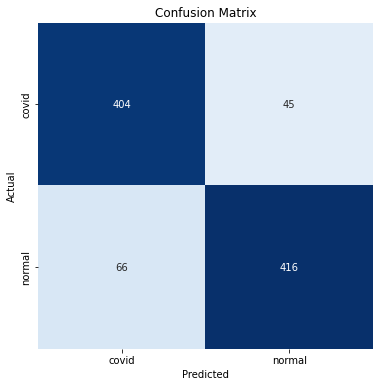
INFO:tensorflow:Assets written to: /content/drive/MyDrive/ResNet101Split0.7noAug/assets

Test Loss: 0.30487

Test Accuracy: 88.08%

/usr/local/lib/python3.7/dist-packages/ipykernel\_launcher.py:123: DeprecationWarning: `np.int` is a deprecated alias for the builtin `int`. To silence this warning, use `int` by itself. Doing this will not modify any behavior and is safe. When replacing `np.int`, you may wish to use e.g. `np.int64` or `np.int32` to specify the precision. If you wish to review your current use, check the release note link for additional information.

Deprecated in NumPy 1.20; for more details and guidance: <https://numpy.org/devdocs/release/1.20.0-notes.html#deprecations>



Classification Report:

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precision recall f1-score support

covid 0.86 0.90 0.88 449

normal 0.90 0.86 0.88 482

accuracy 0.88 931

macro avg 0.88 0.88 0.88 931

weighted avg 0.88 0.88 0.88 931

