

Model Metrics

ResNet

Model: "model_18"

Layer (type)	Output Shape	Param #	Connected to
=====			
input_2 (InputLayer)	(None, 200, 200, 3)	0	[]
conv1_pad (ZeroPadding2D)	(None, 206, 206, 3)	0	['input_2[0]']
conv1_conv (Conv2D)	(None, 100, 100, 64)	9472	['conv1_pad[0][0]']
conv1_bn (BatchNormalization)	(None, 100, 100, 64)	256	['conv1_conv[0][0]']
conv1_relu (Activation)	(None, 100, 100, 64)	0	['conv1_bn[0][0]']
pool1_pad (ZeroPadding2D)	(None, 102, 102, 64)	0	['conv1_relu[0][0]']
pool1_pool (MaxPooling2D)	(None, 50, 50, 64)	0	['pool1_pad[0][0]']
conv2_block1_1_conv (Conv2D)	(None, 50, 50, 64)	4160	['pool1_pool[0][0]']
conv2_block1_1_bn (BatchNormalization)	(None, 50, 50, 64)	256	['conv2_block1_1_conv[0][0]']

conv2_block1_1_relu (Activation)	(None, 50, 50, 64)	0	['conv2_block1_1_bn[0][0]']
conv2_block1_2_conv (Conv2D)	(None, 50, 50, 64)	36928	['conv2_block1_2_bn[0][0]']
conv2_block1_2_bn (Batch Normalization)	(None, 50, 50, 64)	256	['conv2_block1_2_conv[0][0]']
conv2_block1_2_relu (Activation)	(None, 50, 50, 64)	0	['conv2_block1_2_bn[0][0]']
conv2_block1_0_conv (Conv2D)	(None, 50, 50, 256)	16640	['pool1_pool1[0][0]']
conv2_block1_3_conv (Conv2D)	(None, 50, 50, 256)	16640	['conv2_block1_2_relu[0][0]']
conv2_block1_0_bn (Batch Normalization)	(None, 50, 50, 256)	1024	['conv2_block1_0_conv[0][0]']
conv2_block1_3_bn (Batch Normalization)	(None, 50, 50, 256)	1024	['conv2_block1_3_conv[0][0]']
conv2_block1_add (Add)	(None, 50, 50, 256)	0	['conv2_block1_0_bn[0][0]', ['conv2_block1_3_bn[0][0]']
conv2_block1_out (Activation)	(None, 50, 50, 256)	0	['conv2_block1_add[0][0]']
conv2_block2_1_conv (Conv2D)	(None, 50, 50, 64)	16448	['conv2_block1_out[0][0]']
conv2_block2_1_bn (Batch Normalization)	(None, 50, 50, 64)	256	['conv2_block2_1_conv[0][0]']

conv2_block2_1_relu (Activation)	(None, 50, 50, 64)	0	['conv2_block2_1_bn[0][0]']
conv2_block2_2_conv (Conv2D)	(None, 50, 50, 64)	36928	['conv2_block2_1_relu[0][0]']
conv2_block2_2_bn (BatchNormalization)	(None, 50, 50, 64)	256	['conv2_block2_2_conv[0][0]']
conv2_block2_2_relu (Activation)	(None, 50, 50, 64)	0	['conv2_block2_2_bn[0][0]']
conv2_block2_3_conv (Conv2D)	(None, 50, 50, 256)	16640	['conv2_block2_2_relu[0][0]']
conv2_block2_3_bn (BatchNormalization)	(None, 50, 50, 256)	1024	['conv2_block2_3_conv[0][0]']
conv2_block2_add (Add)	(None, 50, 50, 256)	0	['conv2_block2_3_bn[0][0]', k1_out[0][0]']
conv2_block2_out (Activation)	(None, 50, 50, 256)	0	['conv2_block2_add[0][0]']
conv2_block3_1_conv (Conv2D)	(None, 50, 50, 64)	16448	['conv2_block2_out[0][0]']
conv2_block3_1_bn (BatchNormalization)	(None, 50, 50, 64)	256	['conv2_block3_1_conv[0][0]']
conv2_block3_1_relu (Activation)	(None, 50, 50, 64)	0	['conv2_block3_1_bn[0][0]']
conv2_block3_2_conv (Conv2D)	(None, 50, 50, 64)	36928	['conv2_block3_1_relu[0][0]']

conv2_block3_2_bn (BatchNormal k3_2_conv[0][0]') ization)	(None, 50, 50, 64)	256	['conv2_bloc
conv2_block3_2_relu (Activatio k3_2_bn[0][0]') n)	(None, 50, 50, 64)	0	['conv2_bloc
conv2_block3_3_conv (Conv2D) k3_2_relu[0][0]')	(None, 50, 50, 256)	16640	['conv2_bloc
conv2_block3_3_bn (BatchNormal k3_3_conv[0][0]') ization)	(None, 50, 50, 256)	1024	['conv2_bloc
conv2_block3_add (Add) k2_out[0][0]', k3_3_bn[0][0]')	(None, 50, 50, 256)	0	['conv2_bloc 'conv2_bloc
conv2_block3_out (Activation) k3_add[0][0]')	(None, 50, 50, 256)	0	['conv2_bloc
conv3_block1_1_conv (Conv2D) k3_out[0][0]')	(None, 25, 25, 128)	32896	['conv2_bloc
conv3_block1_1_bn (BatchNormal k1_1_conv[0][0]') ization)	(None, 25, 25, 128)	512	['conv3_bloc
conv3_block1_1_relu (Activatio k1_1_bn[0][0]') n)	(None, 25, 25, 128)	0	['conv3_bloc
conv3_block1_2_conv (Conv2D) k1_1_relu[0][0]')	(None, 25, 25, 128)	147584	['conv3_bloc
conv3_block1_2_bn (BatchNormal k1_2_conv[0][0]') ization)	(None, 25, 25, 128)	512	['conv3_bloc
conv3_block1_2_relu (Activatio k1_2_bn[0][0]')	(None, 25, 25, 128)	0	['conv3_bloc

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n)

conv3_block1_0_conv (Conv2D)      (None, 25, 25, 512) 131584      ['conv2_bloc
k3_out[0][0]']

conv3_block1_3_conv (Conv2D)      (None, 25, 25, 512) 66048       ['conv3_bloc
k1_2_relu[0][0]']

conv3_block1_0_bn (BatchNormal    (None, 25, 25, 512) 2048        ['conv3_bloc
k1_0_conv[0][0]']
ization)

conv3_block1_3_bn (BatchNormal    (None, 25, 25, 512) 2048        ['conv3_bloc
k1_3_conv[0][0]']
ization)

conv3_block1_add (Add)             (None, 25, 25, 512) 0            ['conv3_bloc
k1_0_bn[0][0]',
                                     'conv3_bloc
k1_3_bn[0][0]']

conv3_block1_out (Activation)      (None, 25, 25, 512) 0            ['conv3_bloc
k1_add[0][0]']

conv3_block2_1_conv (Conv2D)      (None, 25, 25, 128) 65664       ['conv3_bloc
k1_out[0][0]']

conv3_block2_1_bn (BatchNormal    (None, 25, 25, 128) 512         ['conv3_bloc
k2_1_conv[0][0]']
ization)

conv3_block2_1_relu (Activatio    (None, 25, 25, 128) 0            ['conv3_bloc
k2_1_bn[0][0]']
n)

conv3_block2_2_conv (Conv2D)      (None, 25, 25, 128) 147584      ['conv3_bloc
k2_1_relu[0][0]']

conv3_block2_2_bn (BatchNormal    (None, 25, 25, 128) 512         ['conv3_bloc
k2_2_conv[0][0]']
ization)

conv3_block2_2_relu (Activatio    (None, 25, 25, 128) 0            ['conv3_bloc
k2_2_bn[0][0]']

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n)

conv3_block2_3_conv (Conv2D)      (None, 25, 25, 512)  66048      ['conv3_bloc
k2_2_relu[0][0]']

conv3_block2_3_bn (BatchNormal    (None, 25, 25, 512)  2048      ['conv3_bloc
k2_3_conv[0][0]']
ization)

conv3_block2_add (Add)             (None, 25, 25, 512)  0          ['conv3_bloc
k1_out[0][0]',
                                     'conv3_bloc
k2_3_bn[0][0]']

conv3_block2_out (Activation)      (None, 25, 25, 512)  0          ['conv3_bloc
k2_add[0][0]']

conv3_block3_1_conv (Conv2D)      (None, 25, 25, 128)  65664      ['conv3_bloc
k2_out[0][0]']

conv3_block3_1_bn (BatchNormal    (None, 25, 25, 128)  512        ['conv3_bloc
k3_1_conv[0][0]']
ization)

conv3_block3_1_relu (Activatio    (None, 25, 25, 128)  0          ['conv3_bloc
k3_1_bn[0][0]']
n)

conv3_block3_2_conv (Conv2D)      (None, 25, 25, 128)  147584     ['conv3_bloc
k3_1_relu[0][0]']

conv3_block3_2_bn (BatchNormal    (None, 25, 25, 128)  512        ['conv3_bloc
k3_2_conv[0][0]']
ization)

conv3_block3_2_relu (Activatio    (None, 25, 25, 128)  0          ['conv3_bloc
k3_2_bn[0][0]']
n)

conv3_block3_3_conv (Conv2D)      (None, 25, 25, 512)  66048      ['conv3_bloc
k3_2_relu[0][0]']

conv3_block3_3_bn (BatchNormal    (None, 25, 25, 512)  2048      ['conv3_bloc
k3_3_conv[0][0]']

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ization)				
conv3_block3_add (Add)	(None, 25, 25, 512)	0		['conv3_bloc
k2_out[0][0]',				'conv3_bloc
k3_3_bn[0][0]']				
conv3_block3_out (Activation)	(None, 25, 25, 512)	0		['conv3_bloc
k3_add[0][0]']				
conv3_block4_1_conv (Conv2D)	(None, 25, 25, 128)	65664		['conv3_bloc
k3_out[0][0]']				
conv3_block4_1_bn (BatchNormal	(None, 25, 25, 128)	512		['conv3_bloc
k4_1_conv[0][0]']				
ization)				
conv3_block4_1_relu (Activatio	(None, 25, 25, 128)	0		['conv3_bloc
k4_1_bn[0][0]']				
n)				
conv3_block4_2_conv (Conv2D)	(None, 25, 25, 128)	147584		['conv3_bloc
k4_1_relu[0][0]']				
conv3_block4_2_bn (BatchNormal	(None, 25, 25, 128)	512		['conv3_bloc
k4_2_conv[0][0]']				
ization)				
conv3_block4_2_relu (Activatio	(None, 25, 25, 128)	0		['conv3_bloc
k4_2_bn[0][0]']				
n)				
conv3_block4_3_conv (Conv2D)	(None, 25, 25, 512)	66048		['conv3_bloc
k4_2_relu[0][0]']				
conv3_block4_3_bn (BatchNormal	(None, 25, 25, 512)	2048		['conv3_bloc
k4_3_conv[0][0]']				
ization)				
conv3_block4_add (Add)	(None, 25, 25, 512)	0		['conv3_bloc
k3_out[0][0]',				'conv3_bloc
k4_3_bn[0][0]']				

conv3_block4_out (Activation)	(None, 25, 25, 512)	0	['conv3_bloc
k4_add[0][0]']			
conv4_block1_1_conv (Conv2D)	(None, 13, 13, 256)	131328	['conv3_bloc
k4_out[0][0]']			
conv4_block1_1_bn (BatchNormal	(None, 13, 13, 256)	1024	['conv4_bloc
k1_1_conv[0][0]']			
ization)			
conv4_block1_1_relu (Activatio	(None, 13, 13, 256)	0	['conv4_bloc
k1_1_bn[0][0]']			
n)			
conv4_block1_2_conv (Conv2D)	(None, 13, 13, 256)	590080	['conv4_bloc
k1_1_relu[0][0]']			
conv4_block1_2_bn (BatchNormal	(None, 13, 13, 256)	1024	['conv4_bloc
k1_2_conv[0][0]']			
ization)			
conv4_block1_2_relu (Activatio	(None, 13, 13, 256)	0	['conv4_bloc
k1_2_bn[0][0]']			
n)			
conv4_block1_0_conv (Conv2D)	(None, 13, 13, 1024	525312	['conv3_bloc
k4_out[0][0]'])		
conv4_block1_3_conv (Conv2D)	(None, 13, 13, 1024	263168	['conv4_bloc
k1_2_relu[0][0]'])		
conv4_block1_0_bn (BatchNormal	(None, 13, 13, 1024	4096	['conv4_bloc
k1_0_conv[0][0]'])		
ization)			
conv4_block1_3_bn (BatchNormal	(None, 13, 13, 1024	4096	['conv4_bloc
k1_3_conv[0][0]'])		
ization)			
conv4_block1_add (Add)	(None, 13, 13, 1024	0	['conv4_bloc
k1_0_bn[0][0]',			


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k1_3_bn[0][0]']

conv4_block1_out (Activation) (None, 13, 13, 1024 0 ['conv4_bloc
k1_add[0][0]']

)

conv4_block2_1_conv (Conv2D) (None, 13, 13, 256) 262400 ['conv4_bloc
k1_out[0][0]']

conv4_block2_1_bn (BatchNormal (None, 13, 13, 256) 1024 ['conv4_bloc
k2_1_conv[0][0]']
ization)

conv4_block2_1_relu (Activatio (None, 13, 13, 256) 0 ['conv4_bloc
k2_1_bn[0][0]']
n)

conv4_block2_2_conv (Conv2D) (None, 13, 13, 256) 590080 ['conv4_bloc
k2_1_relu[0][0]']

conv4_block2_2_bn (BatchNormal (None, 13, 13, 256) 1024 ['conv4_bloc
k2_2_conv[0][0]']
ization)

conv4_block2_2_relu (Activatio (None, 13, 13, 256) 0 ['conv4_bloc
k2_2_bn[0][0]']
n)

conv4_block2_3_conv (Conv2D) (None, 13, 13, 1024 263168 ['conv4_bloc
k2_2_relu[0][0]']

)

conv4_block2_3_bn (BatchNormal (None, 13, 13, 1024 4096 ['conv4_bloc
k2_3_conv[0][0]']
ization)

)

conv4_block2_add (Add) (None, 13, 13, 1024 0 ['conv4_bloc
k1_out[0][0]'],

) 'conv4_bloc
k2_3_bn[0][0]']

conv4_block2_out (Activation) (None, 13, 13, 1024 0 ['conv4_bloc
k2_add[0][0]']

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conv4_block3_1_conv (Conv2D)      (None, 13, 13, 256) 262400      ['conv4_bloc
k2_out[0][0]']

conv4_block3_1_bn (BatchNormalal  (None, 13, 13, 256) 1024      ['conv4_bloc
k3_1_conv[0][0]']
ization)

conv4_block3_1_relu (Activatio  (None, 13, 13, 256) 0      ['conv4_bloc
k3_1_bn[0][0]']
n)

conv4_block3_2_conv (Conv2D)      (None, 13, 13, 256) 590080      ['conv4_bloc
k3_1_relu[0][0]']

conv4_block3_2_bn (BatchNormalal  (None, 13, 13, 256) 1024      ['conv4_bloc
k3_2_conv[0][0]']
ization)

conv4_block3_2_relu (Activatio  (None, 13, 13, 256) 0      ['conv4_bloc
k3_2_bn[0][0]']
n)

conv4_block3_3_conv (Conv2D)      (None, 13, 13, 1024 263168      ['conv4_bloc
k3_2_relu[0][0]']

)

conv4_block3_3_bn (BatchNormalal  (None, 13, 13, 1024 4096      ['conv4_bloc
k3_3_conv[0][0]']
ization)

)

conv4_block3_add (Add)             (None, 13, 13, 1024 0      ['conv4_bloc
k2_out[0][0]',

)

'conv4_bloc
k3_3_bn[0][0]']

conv4_block3_out (Activation)      (None, 13, 13, 1024 0      ['conv4_bloc
k3_add[0][0]']

)

conv4_block4_1_conv (Conv2D)      (None, 13, 13, 256) 262400      ['conv4_bloc
k3_out[0][0]']

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conv4_block4_1_bn (BatchNormal k4_1_conv[0][0]') ization)	(None, 13, 13, 256)	1024	['conv4_bloc
conv4_block4_1_relu (Activatio k4_1_bn[0][0]') n)	(None, 13, 13, 256)	0	['conv4_bloc
conv4_block4_2_conv (Conv2D) k4_1_relu[0][0]')	(None, 13, 13, 256)	590080	['conv4_bloc
conv4_block4_2_bn (BatchNormal k4_2_conv[0][0]') ization)	(None, 13, 13, 256)	1024	['conv4_bloc
conv4_block4_2_relu (Activatio k4_2_bn[0][0]') n)	(None, 13, 13, 256)	0	['conv4_bloc
conv4_block4_3_conv (Conv2D) k4_2_relu[0][0]')	(None, 13, 13, 1024	263168	['conv4_bloc
)		
conv4_block4_3_bn (BatchNormal k4_3_conv[0][0]') ization)	(None, 13, 13, 1024	4096	['conv4_bloc
)		
conv4_block4_add (Add) k3_out[0][0]',	(None, 13, 13, 1024	0	['conv4_bloc
)		'conv4_bloc
k4_3_bn[0][0]')			
conv4_block4_out (Activation) k4_add[0][0]')	(None, 13, 13, 1024	0	['conv4_bloc
)		
conv4_block5_1_conv (Conv2D) k4_out[0][0]')	(None, 13, 13, 256)	262400	['conv4_bloc
conv4_block5_1_bn (BatchNormal k5_1_conv[0][0]') ization)	(None, 13, 13, 256)	1024	['conv4_bloc

conv4_block5_1_relu (Activation)	(None, 13, 13, 256)	0	['conv4_block5_1_bn[0][0]']
conv4_block5_2_conv (Conv2D)	(None, 13, 13, 256)	590080	['conv4_block5_1_relu[0][0]']
conv4_block5_2_bn (BatchNormalization)	(None, 13, 13, 256)	1024	['conv4_block5_2_conv[0][0]']
conv4_block5_2_relu (Activation)	(None, 13, 13, 256)	0	['conv4_block5_2_bn[0][0]']
conv4_block5_3_conv (Conv2D)	(None, 13, 13, 1024)	263168	['conv4_block5_2_relu[0][0]']
conv4_block5_3_bn (BatchNormalization)	(None, 13, 13, 1024)	4096	['conv4_block5_3_conv[0][0]']
conv4_block5_add (Add)	(None, 13, 13, 1024)	0	['conv4_block4_out[0][0]', ['conv4_block5_3_bn[0][0]']
conv4_block5_out (Activation)	(None, 13, 13, 1024)	0	['conv4_block5_add[0][0]']
conv4_block6_1_conv (Conv2D)	(None, 13, 13, 256)	262400	['conv4_block5_out[0][0]']
conv4_block6_1_bn (BatchNormalization)	(None, 13, 13, 256)	1024	['conv4_block6_1_conv[0][0]']
conv4_block6_1_relu (Activation)	(None, 13, 13, 256)	0	['conv4_block6_1_bn[0][0]']

conv4_block6_2_conv (Conv2D)	(None, 13, 13, 256)	590080	['conv4_bloc
k6_1_relu[0][0]']			
conv4_block6_2_bn (BatchNormal	(None, 13, 13, 256)	1024	['conv4_bloc
k6_2_conv[0][0]']			
ization)			
conv4_block6_2_relu (Activatio	(None, 13, 13, 256)	0	['conv4_bloc
k6_2_bn[0][0]']			
n)			
conv4_block6_3_conv (Conv2D)	(None, 13, 13, 1024	263168	['conv4_bloc
k6_2_relu[0][0]'])		
conv4_block6_3_bn (BatchNormal	(None, 13, 13, 1024	4096	['conv4_bloc
k6_3_conv[0][0]'])		
ization)			
conv4_block6_add (Add)	(None, 13, 13, 1024	0	['conv4_bloc
k5_out[0][0]',)		'conv4_bloc
k6_3_bn[0][0]']			
conv4_block6_out (Activation)	(None, 13, 13, 1024	0	['conv4_bloc
k6_add[0][0]'])		
conv5_block1_1_conv (Conv2D)	(None, 7, 7, 512)	524800	['conv4_bloc
k6_out[0][0]']			
conv5_block1_1_bn (BatchNormal	(None, 7, 7, 512)	2048	['conv5_bloc
k1_1_conv[0][0]']			
ization)			
conv5_block1_1_relu (Activatio	(None, 7, 7, 512)	0	['conv5_bloc
k1_1_bn[0][0]']			
n)			
conv5_block1_2_conv (Conv2D)	(None, 7, 7, 512)	2359808	['conv5_bloc
k1_1_relu[0][0]']			
conv5_block1_2_bn (BatchNormal	(None, 7, 7, 512)	2048	['conv5_bloc
k1_2_conv[0][0]']			

ization)				
conv5_block1_2_relu (Activation)	(None, 7, 7, 512)	0		['conv5_block1_2_bn[0][0]']
conv5_block1_0_conv (Conv2D)	(None, 7, 7, 2048)	2099200		['conv4_block6_out[0][0]']
conv5_block1_3_conv (Conv2D)	(None, 7, 7, 2048)	1050624		['conv5_block1_2_relu[0][0]']
conv5_block1_0_bn (BatchNormalization)	(None, 7, 7, 2048)	8192		['conv5_block1_0_conv[0][0]']
conv5_block1_3_bn (BatchNormalization)	(None, 7, 7, 2048)	8192		['conv5_block1_3_conv[0][0]']
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 (BatchNormalization)	(None, 7, 7, 512)	2048		['conv5_block2_1_conv[0][0]']
conv5_block2_1_relu (Activation)	(None, 7, 7, 512)	0		['conv5_block2_1_bn[0][0]']
conv5_block2_2_conv (Conv2D)	(None, 7, 7, 512)	2359808		['conv5_block2_1_relu[0][0]']
conv5_block2_2_bn (BatchNormalization)	(None, 7, 7, 512)	2048		['conv5_block2_2_conv[0][0]']

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ization)

conv5_block2_2_relu (Activation) (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 (Activation) (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 (Activation) (None, 7, 7, 512) 0 ['conv5_block3_2_bn[0][0]']
n)

```

```

conv5_block3_3_conv (Conv2D)      (None, 7, 7, 2048)    1050624    ['conv5_bloc
k3_2_relu[0][0]']

conv5_block3_3_bn (BatchNormal      (None, 7, 7, 2048)    8192        ['conv5_bloc
k3_3_conv[0][0]']
ization)

conv5_block3_add (Add)              (None, 7, 7, 2048)    0           ['conv5_bloc
k2_out[0][0]',
                                     'conv5_bloc
k3_3_bn[0][0]']

conv5_block3_out (Activation)        (None, 7, 7, 2048)    0           ['conv5_bloc
k3_add[0][0]']

flatten_5 (Flatten)                 (None, 100352)        0           ['conv5_bloc
k3_out[0][0]']

dense_42 (Dense)                    (None, 512)           51380736    ['flatten_5[
0][0]']

dense_43 (Dense)                    (None, 6)             3078        ['dense_42[0
][0]']

```

```

=====
Total params: 74,971,526
Trainable params: 51,383,814
Non-trainable params: 23,587,712

```

CNN

Model: "sequential_2"

Layer (type)	Output Shape	Param #
=====		
conv2d_6 (Conv2D)	(None, 198, 198, 32)	320
max_pooling2d_7 (MaxPooling2D)	(None, 99, 99, 32)	0

conv2d_7 (Conv2D)	(None, 97, 97, 64)	18496
max_pooling2d_8 (MaxPooling 2D)	(None, 48, 48, 64)	0
conv2d_8 (Conv2D)	(None, 46, 46, 64)	36928
max_pooling2d_9 (MaxPooling 2D)	(None, 23, 23, 64)	0
flatten_2 (Flatten)	(None, 33856)	0
dense_22 (Dense)	(None, 64)	2166848
dense_23 (Dense)	(None, 6)	390

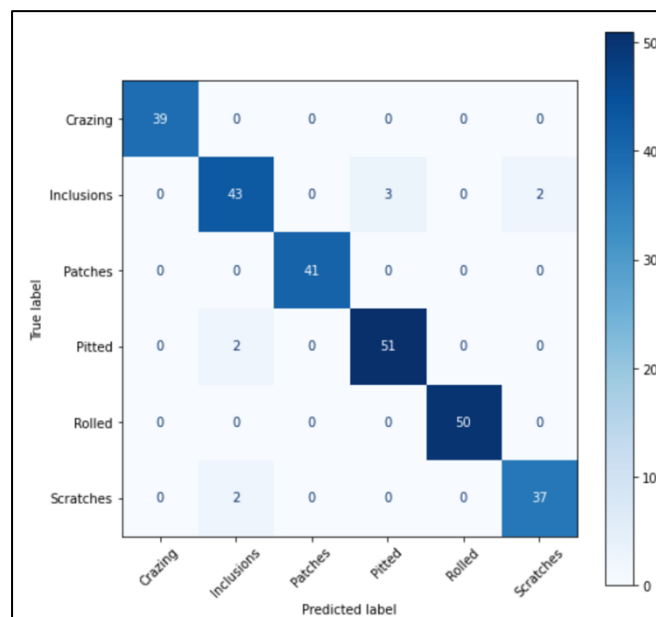
```

=====
Total params: 2,222,982
Trainable params: 2,222,982
Non-trainable params: 0
=====

```

CNN Metrics

Confusion matrix:



Classification Report

Classification report				
	precision	recall	f1-score	support
Crazing	1.00	1.00	1.00	39
Inclusions	0.91	0.90	0.91	48
Patches	1.00	1.00	1.00	41
Pitted	0.94	0.96	0.95	53
Rolled	1.00	1.00	1.00	50
Scratches	0.95	0.95	0.95	39
accuracy			0.97	270
macro avg	0.97	0.97	0.97	270
weighted avg	0.97	0.97	0.97	270