

## **Original Model**

### **Parameters**

Model: "model"

Layer (type) to	Output Shape	Param #	Connected
=====			
input_1 (InputLayer)	[(None, 128, 128, 3)]	0	
lambda (Lambda) input_1[0][0]	(None, 128, 128, 3)	0	
conv2d (Conv2D) lambda[0][0]	(None, 128, 128, 16)	448	
dropout (Dropout) conv2d[0][0]	(None, 128, 128, 16)	0	
conv2d_1 (Conv2D) dropout[0][0]	(None, 128, 128, 16)	2320	
max_pooling2d (MaxPooling2D) conv2d_1[0][0]	(None, 64, 64, 16)	0	
conv2d_2 (Conv2D) max_pooling2d[0][0]	(None, 64, 64, 32)	4640	
dropout_1 (Dropout) conv2d_2[0][0]	(None, 64, 64, 32)	0	
conv2d_3 (Conv2D) dropout_1[0][0]	(None, 64, 64, 32)	9248	
max_pooling2d_1 (MaxPooling2D) conv2d_3[0][0]	(None, 32, 32, 32)	0	
conv2d_4 (Conv2D) max_pooling2d_1[0][0]	(None, 32, 32, 64)	18496	

dropout_2 (Dropout) conv2d_4[0][0]	(None, 32, 32, 64)	0
conv2d_5 (Conv2D) dropout_2[0][0]	(None, 32, 32, 64)	36928
max_pooling2d_2 (MaxPooling2D) conv2d_5[0][0]	(None, 16, 16, 64)	0
conv2d_6 (Conv2D) max_pooling2d_2[0][0]	(None, 16, 16, 128)	73856
dropout_3 (Dropout) conv2d_6[0][0]	(None, 16, 16, 128)	0
conv2d_7 (Conv2D) dropout_3[0][0]	(None, 16, 16, 128)	147584
max_pooling2d_3 (MaxPooling2D) conv2d_7[0][0]	(None, 8, 8, 128)	0
conv2d_8 (Conv2D) max_pooling2d_3[0][0]	(None, 8, 8, 256)	295168
dropout_4 (Dropout) conv2d_8[0][0]	(None, 8, 8, 256)	0
conv2d_9 (Conv2D) dropout_4[0][0]	(None, 8, 8, 256)	590080
conv2d_transpose (Conv2DTranspo conv2d_9[0][0]	(None, 16, 16, 128)	131200
concatenate (Concatenate) conv2d_transpose[0][0]	(None, 16, 16, 256)	0
conv2d_7[0][0]		
conv2d_10 (Conv2D) concatenate[0][0]	(None, 16, 16, 128)	295040

dropout_5 (Dropout) conv2d_10[0][0]	(None, 16, 16, 128)	0
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conv2d_11 (Conv2D) dropout_5[0][0]	(None, 16, 16, 128)	147584
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conv2d_transpose_1 (Conv2DTrans conv2d_11[0][0]	(None, 32, 32, 64)	32832
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concatenate_1 (Concatenate) conv2d_transpose_1[0][0]	(None, 32, 32, 128)	0
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conv2d_5[0][0]		
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conv2d_12 (Conv2D) concatenate_1[0][0]	(None, 32, 32, 64)	73792
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dropout_6 (Dropout) conv2d_12[0][0]	(None, 32, 32, 64)	0
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conv2d_13 (Conv2D) dropout_6[0][0]	(None, 32, 32, 64)	36928
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conv2d_transpose_2 (Conv2DTrans conv2d_13[0][0]	(None, 64, 64, 32)	8224
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concatenate_2 (Concatenate) conv2d_transpose_2[0][0]	(None, 64, 64, 64)	0
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conv2d_3[0][0]		
<hr/>		
conv2d_14 (Conv2D) concatenate_2[0][0]	(None, 64, 64, 32)	18464
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dropout_7 (Dropout) conv2d_14[0][0]	(None, 64, 64, 32)	0
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conv2d_15 (Conv2D) dropout_7[0][0]	(None, 64, 64, 32)	9248
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conv2d_transpose_3 (Conv2DTrans conv2d_15[0][0]	(None, 128, 128, 16)	2064

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concatenate_3 (Concatenate)	(None, 128, 128, 32)	0
conv2d_transpose_3[0][0]		
 conv2d_1[0][0]		

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conv2d_16 (Conv2D)	(None, 128, 128, 16)	4624
concatenate_3[0][0]		

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dropout_8 (Dropout)	(None, 128, 128, 16)	0
conv2d_16[0][0]		

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conv2d_17 (Conv2D)	(None, 128, 128, 16)	2320
dropout_8[0][0]		

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conv2d_18 (Conv2D)	(None, 128, 128, 1)	17
conv2d_17[0][0]		

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 =====  
 Total params: 1,941,105  
 Trainable params: 1,941,105  
 Non-trainable params: 0

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## **Outcome**

Epoch 1/30  
 7/7 [=====] - 36s 417ms/step - loss: 0.6747 - accuracy: 0.6370 - val\_loss: 0.6013 - val\_accuracy: 0.7627

Epoch 2/30  
 7/7 [=====] - 0s 38ms/step - loss: 0.6312 - accuracy: 0.7964 - val\_loss: 0.5911 - val\_accuracy: 0.7627

Epoch 3/30  
 7/7 [=====] - 0s 39ms/step - loss: 0.6087 - accuracy: 0.7964 - val\_loss: 0.5766 - val\_accuracy: 0.7627

Epoch 4/30  
 7/7 [=====] - 0s 62ms/step - loss: 0.5670 - accuracy: 0.7964 - val\_loss: 0.5527 - val\_accuracy: 0.7627

Epoch 5/30  
 7/7 [=====] - 0s 38ms/step - loss: 0.4806 - accuracy: 0.7964 - val\_loss: 0.4798 - val\_accuracy: 0.7627

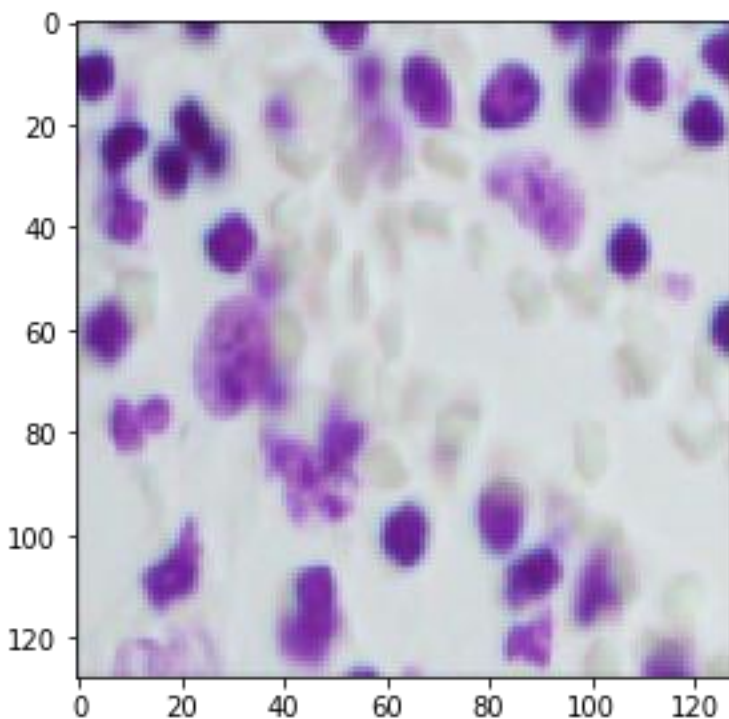
Epoch 6/30  
 7/7 [=====] - 0s 39ms/step - loss: 0.4533 - accuracy: 0.7964 - val\_loss: 0.5181 - val\_accuracy: 0.7627

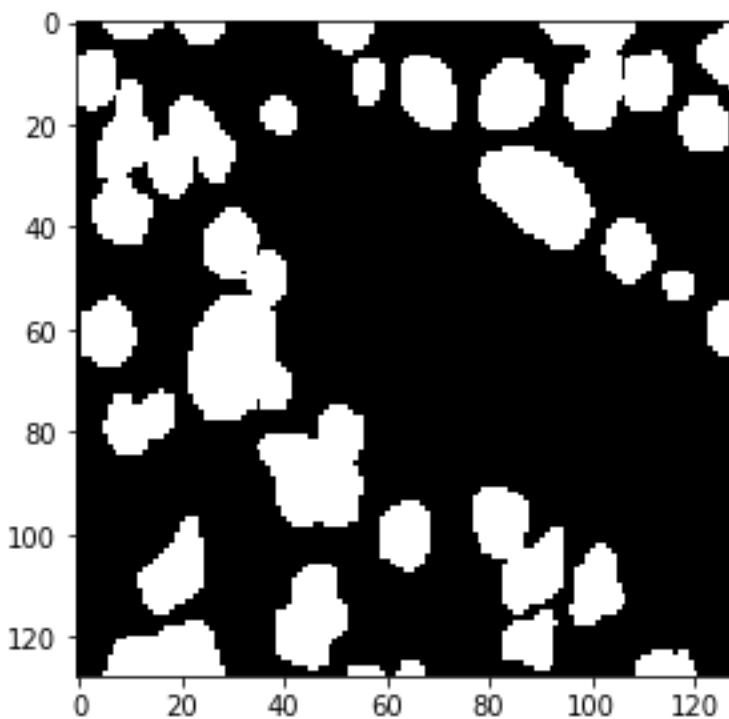
Epoch 7/30  
 7/7 [=====] - 0s 38ms/step - loss: 0.4287 - accuracy: 0.7964 - val\_loss: 0.4270 - val\_accuracy: 0.7627

Epoch 8/30

7/7 [=====] - 0s 38ms/step - loss: 0.3830 -  
accuracy: 0.7964 - val\_loss: 0.3909 - val\_accuracy: 0.7627  
Epoch 9/30  
7/7 [=====] - 0s 38ms/step - loss: 0.3358 -  
accuracy: 0.7978 - val\_loss: 0.3800 - val\_accuracy: 0.7645  
Epoch 10/30  
7/7 [=====] - 0s 38ms/step - loss: 0.3086 -  
accuracy: 0.8019 - val\_loss: 0.3387 - val\_accuracy: 0.7752  
Epoch 11/30  
7/7 [=====] - 0s 39ms/step - loss: 0.2775 -  
accuracy: 0.8271 - val\_loss: 0.3047 - val\_accuracy: 0.8312  
Epoch 12/30  
7/7 [=====] - 0s 40ms/step - loss: 0.2410 -  
accuracy: 0.8890 - val\_loss: 0.2561 - val\_accuracy: 0.9061  
Epoch 13/30  
7/7 [=====] - 0s 38ms/step - loss: 0.2163 -  
accuracy: 0.9172 - val\_loss: 0.2169 - val\_accuracy: 0.9281  
Epoch 14/30  
7/7 [=====] - 0s 38ms/step - loss: 0.2179 -  
accuracy: 0.9199 - val\_loss: 0.2070 - val\_accuracy: 0.9309  
Epoch 15/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1875 -  
accuracy: 0.9312 - val\_loss: 0.2314 - val\_accuracy: 0.9099  
Epoch 16/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1815 -  
accuracy: 0.9324 - val\_loss: 0.2124 - val\_accuracy: 0.9300  
Epoch 17/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1812 -  
accuracy: 0.9390 - val\_loss: 0.1789 - val\_accuracy: 0.9354  
Epoch 18/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1651 -  
accuracy: 0.9396 - val\_loss: 0.1795 - val\_accuracy: 0.9334  
Epoch 19/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1562 -  
accuracy: 0.9431 - val\_loss: 0.1438 - val\_accuracy: 0.9498  
Epoch 20/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1477 -  
accuracy: 0.9479 - val\_loss: 0.1770 - val\_accuracy: 0.9354  
Epoch 21/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1403 -  
accuracy: 0.9488 - val\_loss: 0.1449 - val\_accuracy: 0.9478  
Epoch 22/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1420 -  
accuracy: 0.9506 - val\_loss: 0.1481 - val\_accuracy: 0.9437  
Epoch 23/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1318 -  
accuracy: 0.9519 - val\_loss: 0.1321 - val\_accuracy: 0.9525  
Epoch 24/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1294 -  
accuracy: 0.9529 - val\_loss: 0.1340 - val\_accuracy: 0.9492  
Epoch 25/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1254 -  
accuracy: 0.9549 - val\_loss: 0.1214 - val\_accuracy: 0.9541  
Epoch 26/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1195 -  
accuracy: 0.9556 - val\_loss: 0.1184 - val\_accuracy: 0.9544  
Epoch 27/30

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7/7 [=====] - 0s 38ms/step - loss: 0.1185 -  
accuracy: 0.9569 - val_loss: 0.1183 - val_accuracy: 0.9539  
Epoch 28/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1139 -  
accuracy: 0.9572 - val_loss: 0.1189 - val_accuracy: 0.9560  
Epoch 29/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1143 -  
accuracy: 0.9572 - val_loss: 0.1128 - val_accuracy: 0.9565  
Epoch 30/30  
7/7 [=====] - 0s 38ms/step - loss: 0.1116 -  
accuracy: 0.9578 - val_loss: 0.1116 - val_accuracy: 0.9580  
4/4 [=====] - 1s 11ms/step  
1/1 [=====] - 0s 15ms/step  
3/3 [=====] - 0s 141ms/step
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/usr/local/lib/python3.7/dist-packages/skimage/io/_plugins/matplotlib_plugin.py:150: UserWarning: Low image data range; displaying image with stretched contrast.  
  lo, hi, cmap = _get_display_range(image)
```

