

Model: "UNET"

Layer (type)	Output Shape	Param #	Connected to
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input_1 (InputLayer)	(None, 512, 512, 3)	0	
conv2d (Conv2D)	(None, 512, 512, 64)	1792	input_1[0][0]
batch_normalization (BatchNorma	(None, 512, 512, 64)	256	conv2d[0][0]
activation (Activation)	(None, 512, 512, 64)	0	batch_normalization[0][0]
conv2d_1 (Conv2D)	(None, 512, 512, 64)	36928	activation[0][0]
batch_normalization_1 (BatchNor	(None, 512, 512, 64)	256	conv2d_1[0][0]
activation_1 (Activation)	(None, 512, 512, 64)	0	batch_normalization_1[0][0]
max_pooling2d (MaxPooling2D)	(None, 256, 256, 64)	0	activation_1[0][0]
conv2d_2 (Conv2D)	(None, 256, 256, 128)	73856	max_pooling2d[0][0]
batch_normalization_2 (BatchNor	(None, 256, 256, 128)	512	conv2d_2[0][0]
activation_2 (Activation)	(None, 256, 256, 128)	0	batch_normalization_2[0][0]
conv2d_3 (Conv2D)	(None, 256, 256, 128)	147584	activation_2[0][0]
batch_normalization_3 (BatchNor	(None, 256, 256, 128)	512	conv2d_3[0][0]
activation_3 (Activation)	(None, 256, 256, 128)	0	batch_normalization_3[0][0]
max_pooling2d_1 (MaxPooling2D)	(None, 128, 128, 128)	0	activation_3[0][0]
conv2d_4 (Conv2D)	(None, 128, 128, 256)	295168	max_pooling2d_1[0][0]
batch_normalization_4 (BatchNor	(None, 128, 128, 256)	1024	conv2d_4[0][0]
activation_4 (Activation)	(None, 128, 128, 256)	0	batch_normalization_4[0][0]
conv2d_5 (Conv2D)	(None, 128, 128, 256)	590080	activation_4[0][0]
batch_normalization_5 (BatchNor	(None, 128, 128, 256)	1024	conv2d_5[0][0]
activation_5 (Activation)	(None, 128, 128, 256)	0	batch_normalization_5[0][0]
max_pooling2d_2 (MaxPooling2D)	(None, 64, 64, 256)	0	activation_5[0][0]
conv2d_6 (Conv2D)	(None, 64, 64, 512)	1180160	max_pooling2d_2[0][0]
batch_normalization_6 (BatchNor	(None, 64, 64, 512)	2048	conv2d_6[0][0]
activation_6 (Activation)	(None, 64, 64, 512)	0	batch_normalization_6[0][0]
conv2d_7 (Conv2D)	(None, 64, 64, 512)	2359808	activation_6[0][0]
batch_normalization_7 (BatchNor	(None, 64, 64, 512)	2048	conv2d_7[0][0]
activation_7 (Activation)	(None, 64, 64, 512)	0	batch_normalization_7[0][0]
max_pooling2d_3 (MaxPooling2D)	(None, 32, 32, 512)	0	activation_7[0][0]
conv2d_8 (Conv2D)	(None, 32, 32, 1024)	4719616	max_pooling2d_3[0][0]
batch_normalization_8 (BatchNor	(None, 32, 32, 1024)	4096	conv2d_8[0][0]
activation_8 (Activation)	(None, 32, 32, 1024)	0	batch_normalization_8[0][0]
conv2d_9 (Conv2D)	(None, 32, 32, 1024)	9438208	activation_8[0][0]

batch_normalization_9 (BatchNor	(None, 32, 32, 1024)	4096	conv2d_9[0][0]
activation_9 (Activation)	(None, 32, 32, 1024)	0	batch_normalization_9[0][0]
conv2d_transpose (Conv2DTranspo	(None, 64, 64, 512)	2097664	activation_9[0][0]
concatenate (Concatenate)	(None, 64, 64, 1024)	0	conv2d_transpose[0][0] activation_7[0][0]
conv2d_10 (Conv2D)	(None, 64, 64, 512)	4719104	concatenate[0][0]
batch_normalization_10 (BatchNo	(None, 64, 64, 512)	2048	conv2d_10[0][0]
activation_10 (Activation)	(None, 64, 64, 512)	0	batch_normalization_10[0][0]
conv2d_11 (Conv2D)	(None, 64, 64, 512)	2359808	activation_10[0][0]
batch_normalization_11 (BatchNo	(None, 64, 64, 512)	2048	conv2d_11[0][0]
activation_11 (Activation)	(None, 64, 64, 512)	0	batch_normalization_11[0][0]
conv2d_transpose_1 (Conv2DTrans	(None, 128, 128, 256	524544	activation_11[0][0]
concatenate_1 (Concatenate)	(None, 128, 128, 512	0	conv2d_transpose_1[0][0] activation_5[0][0]
conv2d_12 (Conv2D)	(None, 128, 128, 256	1179904	concatenate_1[0][0]
batch_normalization_12 (BatchNo	(None, 128, 128, 256	1024	conv2d_12[0][0]
activation_12 (Activation)	(None, 128, 128, 256	0	batch_normalization_12[0][0]
conv2d_13 (Conv2D)	(None, 128, 128, 256	590080	activation_12[0][0]
batch_normalization_13 (BatchNo	(None, 128, 128, 256	1024	conv2d_13[0][0]
activation_13 (Activation)	(None, 128, 128, 256	0	batch_normalization_13[0][0]
conv2d_transpose_2 (Conv2DTrans	(None, 256, 256, 128	131200	activation_13[0][0]
concatenate_2 (Concatenate)	(None, 256, 256, 256	0	conv2d_transpose_2[0][0] activation_3[0][0]
conv2d_14 (Conv2D)	(None, 256, 256, 128	295040	concatenate_2[0][0]
batch_normalization_14 (BatchNo	(None, 256, 256, 128	512	conv2d_14[0][0]
activation_14 (Activation)	(None, 256, 256, 128	0	batch_normalization_14[0][0]
conv2d_15 (Conv2D)	(None, 256, 256, 128	147584	activation_14[0][0]
batch_normalization_15 (BatchNo	(None, 256, 256, 128	512	conv2d_15[0][0]
activation_15 (Activation)	(None, 256, 256, 128	0	batch_normalization_15[0][0]
conv2d_transpose_3 (Conv2DTrans	(None, 512, 512, 64)	32832	activation_15[0][0]
concatenate_3 (Concatenate)	(None, 512, 512, 128	0	conv2d_transpose_3[0][0] activation_1[0][0]
conv2d_16 (Conv2D)	(None, 512, 512, 64)	73792	concatenate_3[0][0]
batch_normalization_16 (BatchNo	(None, 512, 512, 64)	256	conv2d_16[0][0]
activation_16 (Activation)	(None, 512, 512, 64)	0	batch_normalization_16[0][0]
conv2d_17 (Conv2D)	(None, 512, 512, 64)	36928	activation_16[0][0]
batch_normalization_17 (BatchNo	(None, 512, 512, 64)	256	conv2d_17[0][0]

activation_17 (Activation)	(None, 512, 512, 64) 0	batch_normalization_17[0][0]
conv2d_18 (Conv2D)	(None, 512, 512, 1) 65	activation_17[0][0]

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Total params: 31,055,297
Trainable params: 31,043,521
Non-trainable params: 11,776
