

Model: "Modified U-Net"

Layer (type)	Output Shape	Param #	Connected to
input_1 (InputLayer)	[(None, 512, 512, 3)]	0	
conv2d (Conv2D)	(None, 512, 512, 32)	896	input_1[0][0]
leaky_re_lu (LeakyReLU)	(None, 512, 512, 32)	0	conv2d[0][0]
batch_normalization (BatchNormaliza	(None, 512, 512, 32)	128	leaky_re_lu[0][0]
dropout (Dropout)	(None, 512, 512, 32)	0	batch_normalization[0][0]
conv2d_1 (Conv2D)	(None, 512, 512, 32)	9248	dropout[0][0]
leaky_re_lu_1 (LeakyReLU)	(None, 512, 512, 32)	0	conv2d_1[0][0]
batch_normalization_1 (BatchNor	(None, 512, 512, 32)	128	leaky_re_lu_1[0][0]
max_pooling2d (MaxPooling2D)	(None, 256, 256, 32)	0	batch_normalization_1[0][0]
conv2d_2 (Conv2D)	(None, 256, 256, 64)	18496	max_pooling2d[0][0]
leaky_re_lu_2 (LeakyReLU)	(None, 256, 256, 64)	0	conv2d_2[0][0]
batch_normalization_2 (BatchNor	(None, 256, 256, 64)	256	leaky_re_lu_2[0][0]
dropout_1 (Dropout)	(None, 256, 256, 64)	0	batch_normalization_2[0][0]
conv2d_3 (Conv2D)	(None, 256, 256, 64)	36928	dropout_1[0][0]
leaky_re_lu_3 (LeakyReLU)	(None, 256, 256, 64)	0	conv2d_3[0][0]
batch_normalization_3 (BatchNor	(None, 256, 256, 64)	256	leaky_re_lu_3[0][0]
max_pooling2d_1 (MaxPooling2D)	(None, 128, 128, 64)	0	batch_normalization_3[0][0]
conv2d_4 (Conv2D)	(None, 128, 128, 128)	73856	max_pooling2d_1[0][0]
leaky_re_lu_4 (LeakyReLU)	(None, 128, 128, 128)	0	conv2d_4[0][0]
batch_normalization_4 (BatchNor	(None, 128, 128, 128)	512	leaky_re_lu_4[0][0]
dropout_2 (Dropout)	(None, 128, 128, 128)	0	batch_normalization_4[0][0]
conv2d_5 (Conv2D)	(None, 128, 128, 128)	147584	dropout_2[0][0]
leaky_re_lu_5 (LeakyReLU)	(None, 128, 128, 128)	0	conv2d_5[0][0]
batch_normalization_5 (BatchNor	(None, 128, 128, 128)	512	leaky_re_lu_5[0][0]
max_pooling2d_2 (MaxPooling2D)	(None, 64, 64, 128)	0	batch_normalization_5[0][0]
conv2d_6 (Conv2D)	(None, 64, 64, 256)	295168	max_pooling2d_2[0][0]
leaky_re_lu_6 (LeakyReLU)	(None, 64, 64, 256)	0	conv2d_6[0][0]
batch_normalization_6 (BatchNor	(None, 64, 64, 256)	1024	leaky_re_lu_6[0][0]

dropout_3 (Dropout)	(None, 64, 64, 256)	0	batch_normalization_6[0][0]
conv2d_7 (Conv2D)	(None, 64, 64, 256)	590080	dropout_3[0][0]
leaky_re_lu_7 (LeakyReLU)	(None, 64, 64, 256)	0	conv2d_7[0][0]
batch_normalization_7 (BatchNor	(None, 64, 64, 256)	1024	leaky_re_lu_7[0][0]
max_pooling2d_3 (MaxPooling2D)	(None, 32, 32, 256)	0	batch_normalization_7[0][0]
conv2d_8 (Conv2D)	(None, 32, 32, 512)	1180160	max_pooling2d_3[0][0]
leaky_re_lu_8 (LeakyReLU)	(None, 32, 32, 512)	0	conv2d_8[0][0]
batch_normalization_8 (BatchNor	(None, 32, 32, 512)	2048	leaky_re_lu_8[0][0]
dropout_4 (Dropout)	(None, 32, 32, 512)	0	batch_normalization_8[0][0]
conv2d_9 (Conv2D)	(None, 32, 32, 512)	2359808	dropout_4[0][0]
leaky_re_lu_9 (LeakyReLU)	(None, 32, 32, 512)	0	conv2d_9[0][0]
batch_normalization_9 (BatchNor	(None, 32, 32, 512)	2048	leaky_re_lu_9[0][0]
conv2d_transpose (Conv2DTranspo	(None, 64, 64, 256)	524544	batch_normalization_9[0][0]
concatenate (Concatenate)	(None, 64, 64, 512)	0	conv2d_transpose[0][0] batch_normalization_7[0][0]
conv2d_10 (Conv2D)	(None, 64, 64, 256)	1179904	concatenate[0][0]
leaky_re_lu_10 (LeakyReLU)	(None, 64, 64, 256)	0	conv2d_10[0][0]
batch_normalization_10 (BatchNo	(None, 64, 64, 256)	1024	leaky_re_lu_10[0][0]
dropout_5 (Dropout)	(None, 64, 64, 256)	0	batch_normalization_10[0][0]
conv2d_11 (Conv2D)	(None, 64, 64, 256)	590080	dropout_5[0][0]
leaky_re_lu_11 (LeakyReLU)	(None, 64, 64, 256)	0	conv2d_11[0][0]
batch_normalization_11 (BatchNo	(None, 64, 64, 256)	1024	leaky_re_lu_11[0][0]
conv2d_transpose_1 (Conv2DTrans	(None, 128, 128, 64)	65600	batch_normalization_11[0][0]
concatenate_1 (Concatenate)	(None, 128, 128, 192)	0	conv2d_transpose_1[0][0] batch_normalization_5[0][0]
conv2d_12 (Conv2D)	(None, 128, 128, 128)	221312	concatenate_1[0][0]
leaky_re_lu_12 (LeakyReLU)	(None, 128, 128, 128)	0	conv2d_12[0][0]
batch_normalization_12 (BatchNo	(None, 128, 128, 128)	512	leaky_re_lu_12[0][0]
dropout_6 (Dropout)	(None, 128, 128, 128)	0	batch_normalization_12[0][0]
conv2d_13 (Conv2D)	(None, 128, 128, 128)	147584	dropout_6[0][0]

leaky_re_lu_13 (LeakyReLU)	(None, 128, 128, 128) 0	conv2d_13[0][0]
batch_normalization_13 (Batch Normalization)	(None, 128, 128, 128) 512	leaky_re_lu_13[0][0]
conv2d_transpose_2 (Conv2DTranspose)	(None, 256, 256, 32) 16416	batch_normalization_13[0][0]
concatenate_2 (Concatenate)	(None, 256, 256, 96) 0	conv2d_transpose_2[0][0] batch_normalization_3[0][0]
conv2d_14 (Conv2D)	(None, 256, 256, 64) 55360	concatenate_2[0][0]
leaky_re_lu_14 (LeakyReLU)	(None, 256, 256, 64) 0	conv2d_14[0][0]
batch_normalization_14 (Batch Normalization)	(None, 256, 256, 64) 256	leaky_re_lu_14[0][0]
dropout_7 (Dropout)	(None, 256, 256, 64) 0	batch_normalization_14[0][0]
conv2d_15 (Conv2D)	(None, 256, 256, 64) 36928	dropout_7[0][0]
leaky_re_lu_15 (LeakyReLU)	(None, 256, 256, 64) 0	conv2d_15[0][0]
batch_normalization_15 (Batch Normalization)	(None, 256, 256, 64) 256	leaky_re_lu_15[0][0]
conv2d_transpose_3 (Conv2DTranspose)	(None, 512, 512, 16) 4112	batch_normalization_15[0][0]
concatenate_3 (Concatenate)	(None, 512, 512, 48) 0	conv2d_transpose_3[0][0] batch_normalization_1[0][0]
conv2d_16 (Conv2D)	(None, 512, 512, 32) 13856	concatenate_3[0][0]
leaky_re_lu_16 (LeakyReLU)	(None, 512, 512, 32) 0	conv2d_16[0][0]
batch_normalization_16 (Batch Normalization)	(None, 512, 512, 32) 128	leaky_re_lu_16[0][0]
dropout_8 (Dropout)	(None, 512, 512, 32) 0	batch_normalization_16[0][0]
conv2d_17 (Conv2D)	(None, 512, 512, 32) 9248	dropout_8[0][0]
leaky_re_lu_17 (LeakyReLU)	(None, 512, 512, 32) 0	conv2d_17[0][0]
batch_normalization_17 (Batch Normalization)	(None, 512, 512, 32) 128	leaky_re_lu_17[0][0]
conv2d_18 (Conv2D)	(None, 512, 512, 1) 33	batch_normalization_17[0][0]
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Total params: 7,588,977		
Trainable params: 7,583,089		
Non-trainable params: 5,888		