Model: "model_1 (U-Net with res34 backbone "

Layer (type)	Output Shape	Param #	Connected to
data (InputLayer)	[(None, None, None,	0	
bn_data (BatchNormalization)	(None, None, None, 3	9	data[0][0]
zero_padding2d (ZeroPadding2D)	(None, None, None, 3	0	bn_data[0][0]
conv0 (Conv2D)	(None, None, None, 6	9408	zero_padding2d[0][0]
bn0 (BatchNormalization)	(None, None, None, 6	256	conv0[0][0]
relu0 (Activation)	(None, None, None, 6	0	bn0[0][0]
zero_padding2d_1 (ZeroPadding2D	(None, None, None, 6	0	relu0[0][0]
pooling0 (MaxPooling2D)	(None, None, None, 6	0	zero_padding2d_1[0][0]
stage1_unit1_bn1 (BatchNormaliz	(None, None, None, 6	256	pooling0[0][0]
stage1_unit1_relu1 (Activation)	(None, None, None, 6	0	stage1_unit1_bn1[0][0]
zero_padding2d_2 (ZeroPadding2D	(None, None, None, 6	0	stage1_unit1_relu1[0][0]
stage1_unit1_conv1 (Conv2D)	(None, None, None, 6	36864	zero_padding2d_2[0][0]
stage1_unit1_bn2 (BatchNormaliz	(None, None, None, 6	256	stage1_unit1_conv1[0][0]
stage1_unit1_relu2 (Activation)	(None, None, None, 6	0	stage1_unit1_bn2[0][0]
zero_padding2d_3 (ZeroPadding2D	(None, None, None, 6	0	stage1_unit1_relu2[0][0]
stage1_unit1_conv2 (Conv2D)	(None, None, None, 6	36864	zero_padding2d_3[0][0]
stage1_unit1_sc (Conv2D)	(None, None, None, 6	4096	stage1_unit1_relu1[0][0]
add (Add)	(None, None, None, 6	0	stage1_unit1_conv2[0][0] stage1_unit1_sc[0][0]
stage1_unit2_bn1 (BatchNormaliz	(None, None, None, 6	256	add[0][0]
stage1_unit2_relu1 (Activation)	(None, None, None, 6	0	stage1_unit2_bn1[0][0]
zero_padding2d_4 (ZeroPadding2D	(None, None, None, 6	0	stage1_unit2_relu1[0][0]
stage1_unit2_conv1 (Conv2D)	(None, None, None, 6	36864	zero_padding2d_4[0][0]
stage1_unit2_bn2 (BatchNormaliz	(None, None, None, 6	256	stage1_unit2_conv1[0][0]
stage1_unit2_relu2 (Activation)	(None, None, None, 6	0	stage1_unit2_bn2[0][0]
zero_padding2d_5 (ZeroPadding2D	(None, None, None, 6	0	stage1_unit2_relu2[0][0]
stage1_unit2_conv2 (Conv2D)	(None, None, None, 6	36864	zero_padding2d_5[0][0]
add_1 (Add)	(None, None, None, 6	0	stage1_unit2_conv2[0][0] add[0][0]
stage1_unit3_bn1 (BatchNormaliz	(None, None, None, 6	256	add_1[0][0]
stage1_unit3_relu1 (Activation)	(None, None, None, 6	0	stage1_unit3_bn1[0][0]
zero_padding2d_6 (ZeroPadding2D	(None, None, None, 6	0	stage1_unit3_relu1[0][0]
stage1_unit3_conv1 (Conv2D)	(None, None, None, 6	36864	zero_padding2d_6[0][0]
stage1_unit3_bn2 (BatchNormaliz	(None, None, None, 6	256	stage1_unit3_conv1[0][0]

Layer (type)	Output Shape	Param #	Connected to
stage1_unit3_relu2 (Activation)	(None, None, None, 6	0	stage1_unit3_bn2[0][0]
zero_padding2d_7 (ZeroPadding2D	(None, None, None, 6	0	stage1_unit3_relu2[0][0]
stage1_unit3_conv2 (Conv2D)	(None, None, None, 6	36864	zero_padding2d_7[0][0]
add_2 (Add)	(None, None, None, 6	0	stage1_unit3_conv2[0][0] add_1[0][0]
stage2_unit1_bn1 (BatchNormaliz	(None, None, None, 6	256	add_2[0][0]
stage2_unit1_relu1 (Activation)	(None, None, None, 6	0	stage2_unit1_bn1[0][0]
zero_padding2d_8 (ZeroPadding2D	(None, None, None, 6	0	stage2_unit1_relu1[0][0]
stage2_unit1_conv1 (Conv2D)	(None, None, None, 1	73728	zero_padding2d_8[0][0]
stage2_unit1_bn2 (BatchNormaliz	(None, None, None, 1	512	stage2_unit1_conv1[0][0]
stage2_unit1_relu2 (Activation)	(None, None, None, 1	0	stage2_unit1_bn2[0][0]
zero_padding2d_9 (ZeroPadding2D	(None, None, None, 1	0	stage2_unit1_relu2[0][0]
stage2_unit1_conv2 (Conv2D)	(None, None, None, 1	147456	zero_padding2d_9[0][0]
stage2_unit1_sc (Conv2D)	(None, None, None, 1	8192	stage2_unit1_relu1[0][0]
add_3 (Add)	(None, None, None, 1	0	stage2_unit1_conv2[0][0] stage2_unit1_sc[0][0]
stage2_unit2_bn1 (BatchNormaliz	(None, None, None, 1	512	add_3[0][0]
stage2_unit2_relu1 (Activation)	(None, None, None, 1	0	stage2_unit2_bn1[0][0]
zero_padding2d_10 (ZeroPadding2	(None, None, None, 1	0	stage2_unit2_relu1[0][0]
stage2_unit2_conv1 (Conv2D)	(None, None, None, 1	147456	zero_padding2d_10[0][0]
stage2_unit2_bn2 (BatchNormaliz	(None, None, None, 1	512	stage2_unit2_conv1[0][0]
stage2_unit2_relu2 (Activation)	(None, None, None, 1	0	stage2_unit2_bn2[0][0]
zero_padding2d_11 (ZeroPadding2	(None, None, None, 1	0	stage2_unit2_relu2[0][0]
stage2_unit2_conv2 (Conv2D)	(None, None, None, 1	147456	zero_padding2d_11[0][0]
add_4 (Add)	(None, None, None, 1	0	stage2_unit2_conv2[0][0] add_3[0][0]
stage2_unit3_bn1 (BatchNormaliz	(None, None, None, 1	512	add_4[0][0]
stage2_unit3_relu1 (Activation)	(None, None, None, 1	0	stage2_unit3_bn1[0][0]
zero_padding2d_12 (ZeroPadding2	(None, None, None, 1	0	stage2_unit3_relu1[0][0]
stage2_unit3_conv1 (Conv2D)	(None, None, None, 1	147456	zero_padding2d_12[0][0]
stage2_unit3_bn2 (BatchNormaliz	(None, None, None, 1	512	stage2_unit3_conv1[0][0]
stage2_unit3_relu2 (Activation)	(None, None, None, 1	0	stage2_unit3_bn2[0][0]
zero_padding2d_13 (ZeroPadding2	(None, None, None, 1	0	stage2_unit3_relu2[0][0]
stage2_unit3_conv2 (Conv2D)	(None, None, None, 1	147456	zero_padding2d_13[0][0]
add_5 (Add)	(None, None, None, 1	0	stage2_unit3_conv2[0][0] add_4[0][0]
stage2_unit4_bn1 (BatchNormaliz	(None, None, None, 1	512	add_5[0][0]
stage2_unit4_relu1 (Activation)	(None, None, None, 1	0	stage2_unit4_bn1[0][0]

Layer (type)	Output Shape	Param #	Connected to
zero_padding2d_14 (ZeroPadding2	(None, None, None, 1	0	stage2_unit4_relu1[0][0]
stage2_unit4_conv1 (Conv2D)	(None, None, None, 1	147456	zero_padding2d_14[0][0]
stage2_unit4_bn2 (BatchNormaliz	(None, None, None, 1	512	stage2_unit4_conv1[0][0]
stage2_unit4_relu2 (Activation)	(None, None, None, 1	0	stage2_unit4_bn2[0][0]
zero_padding2d_15 (ZeroPadding2	(None, None, None, 1	0	stage2_unit4_relu2[0][0]
stage2_unit4_conv2 (Conv2D)	(None, None, None, 1	147456	zero_padding2d_15[0][0]
add_6 (Add)	(None, None, None, 1	0	stage2_unit4_conv2[0][0]
			add_5[0][0]
stage3_unit1_bn1 (BatchNormaliz	(None, None, None, 1	512	add_6[0][0]
stage3_unit1_relu1 (Activation)	(None, None, None, 1	0	stage3_unit1_bn1[0][0]
zero_padding2d_16 (ZeroPadding2	(None, None, None, 1	0	stage3_unit1_relu1[0][0]
stage3_unit1_conv1 (Conv2D)	(None, None, None, 2	294912	zero_padding2d_16[0][0]
stage3_unit1_bn2 (BatchNormaliz	(None, None, None, 2	1024	stage3_unit1_conv1[0][0]
stage3_unit1_relu2 (Activation)	(None, None, None, 2	0	stage3_unit1_bn2[0][0]
zero_padding2d_17 (ZeroPadding2	(None, None, None, 2	0	stage3_unit1_relu2[0][0]
stage3_unit1_conv2 (Conv2D)	(None, None, None, 2	589824	zero_padding2d_17[0][0]
stage3_unit1_sc (Conv2D)	(None, None, None, 2	32768	stage3_unit1_relu1[0][0]
add_7 (Add)	(None, None, None, 2	0	stage3_unit1_conv2[0][0]
			stage3_unit1_sc[0][0]
stage3_unit2_bn1 (BatchNormaliz	(None, None, None, 2	1024	add_7[0][0]
stage3_unit2_relu1 (Activation)	(None, None, None, 2	0	stage3_unit2_bn1[0][0]
zero_padding2d_18 (ZeroPadding2	(None, None, None, 2	0	stage3_unit2_relu1[0][0]
stage3_unit2_conv1 (Conv2D)	(None, None, None, 2	589824	zero_padding2d_18[0][0]
stage3_unit2_bn2 (BatchNormaliz	(None, None, None, 2	1024	stage3_unit2_conv1[0][0]
stage3_unit2_relu2 (Activation)	(None, None, None, 2	0	stage3_unit2_bn2[0][0]
zero_padding2d_19 (ZeroPadding2	(None, None, None, 2	0	stage3_unit2_relu2[0][0]
stage3_unit2_conv2 (Conv2D)	(None, None, None, 2	589824	zero_padding2d_19[0][0]
add_8 (Add)	(None, None, None, 2	0	stage3_unit2_conv2[0][0]
			add_7[0][0]
stage3_unit3_bn1 (BatchNormaliz	(None, None, None, 2	1024	add_8[0][0]
stage3_unit3_relu1 (Activation)	(None, None, None, 2	0	stage3_unit3_bn1[0][0]
zero_padding2d_20 (ZeroPadding2	(None, None, None, 2	0	stage3_unit3_relu1[0][0]
stage3_unit3_conv1 (Conv2D)	(None, None, None, 2	589824	zero_padding2d_20[0][0]
stage3_unit3_bn2 (BatchNormaliz	(None, None, None, 2	1024	stage3_unit3_conv1[0][0]
stage3_unit3_relu2 (Activation)	(None, None, None, 2	0	stage3_unit3_bn2[0][0]
zero_padding2d_21 (ZeroPadding2	(None, None, None, 2	0	stage3_unit3_relu2[0][0]
stage3_unit3_conv2 (Conv2D)	(None, None, None, 2	589824	zero_padding2d_21[0][0]

add_9 (Add)	(None, None, None, 2 0	stage3_unit3_conv2[0][0]
		add_8[0][0]
stage3_unit4_bn1 (BatchNormaliz	(None, None, None, 2 1024	add_9[0][0]
stage3_unit4_relu1 (Activation)	(None, None, None, 2 0	stage3_unit4_bn1[0][0]
zero_padding2d_22 (ZeroPadding2	(None, None, None, 2 0	stage3_unit4_relu1[0][0]
stage3_unit4_conv1 (Conv2D)	(None, None, None, 2 589824	zero_padding2d_22[0][0]
stage3_unit4_bn2 (BatchNormaliz	(None, None, None, 2 1024	stage3_unit4_conv1[0][0]
stage3_unit4_relu2 (Activation)	(None, None, None, 2 0	stage3_unit4_bn2[0][0]
zero_padding2d_23 (ZeroPadding2	(None, None, None, 2 0	stage3_unit4_relu2[0][0]
stage3_unit4_conv2 (Conv2D)	(None, None, None, 2 589824	zero_padding2d_23[0][0]
add_10 (Add)	(None, None, None, 2 0	stage3_unit4_conv2[0][0]
		add_9[0][0]
stage3_unit5_bn1 (BatchNormaliz	(None, None, None, 2 1024	add_10[0][0]
stage3_unit5_relu1 (Activation)	(None, None, None, 2 0	stage3_unit5_bn1[0][0]
zero_padding2d_24 (ZeroPadding2	(None, None, None, 2 0	stage3_unit5_relu1[0][0]
stage3_unit5_conv1 (Conv2D)	(None, None, None, 2 589824	zero_padding2d_24[0][0]
stage3_unit5_bn2 (BatchNormaliz	(None, None, None, 2 1024	stage3_unit5_conv1[0][0]
stage3_unit5_relu2 (Activation)	(None, None, None, 2 0	stage3_unit5_bn2[0][0]
zero_padding2d_25 (ZeroPadding2	(None, None, None, 2 0	stage3_unit5_relu2[0][0]
stage3_unit5_conv2 (Conv2D)	(None, None, None, 2 589824	zero_padding2d_25[0][0]
add_11 (Add)	(None, None, None, 2 0	stage3_unit5_conv2[0][0]
		add_10[0][0]
stage3_unit6_bn1 (BatchNormaliz	(None, None, None, 2 1024	add_11[0][0]
stage3_unit6_relu1 (Activation)	(None, None, None, 2 0	stage3_unit6_bn1[0][0]
zero_padding2d_26 (ZeroPadding2	(None, None, None, 2 0	stage3_unit6_relu1[0][0]
stage3_unit6_conv1 (Conv2D)	(None, None, None, 2 589824	zero_padding2d_26[0][0]
stage3_unit6_bn2 (BatchNormaliz	(None, None, None, 2 1024	stage3_unit6_conv1[0][0]
stage3_unit6_relu2 (Activation)	(None, None, None, 2 0	stage3_unit6_bn2[0][0]
zero_padding2d_27 (ZeroPadding2	(None, None, None, 2 0	stage3_unit6_relu2[0][0]
stage3_unit6_conv2 (Conv2D)	(None, None, None, 2 589824	zero_padding2d_27[0][0]
add_12 (Add)	(None, None, None, 2 0	stage3_unit6_conv2[0][0]
		add_11[0][0]
stage4_unit1_bn1 (BatchNormaliz	(None, None, None, 2 1024	add_12[0][0]
stage4_unit1_relu1 (Activation)	(None, None, None, 2 0	stage4_unit1_bn1[0][0]
zero_padding2d_28 (ZeroPadding2	(None, None, None, 2 0	stage4_unit1_relu1[0][0]
stage4_unit1_conv1 (Conv2D)	(None, None, None, 5 1179648	zero_padding2d_28[0][0]
stage4_unit1_bn2 (BatchNormaliz	(None, None, None, 5 2048	stage4_unit1_conv1[0][0]
stage4_unit1_relu2 (Activation)	(None, None, None, 5 0	stage4_unit1_bn2[0][0]

zero_padding2d_29 (ZeroPadding2	(None, None, None, 5 0	stage4_unit1_relu2[0][0]
stage4_unit1_conv2 (Conv2D)	(None, None, None, 5 2359296	zero_padding2d_29[0][0]
stage4_unit1_sc (Conv2D)	(None, None, None, 5 131072	stage4_unit1_relu1[0][0]
add_13 (Add)	(None, None, None, 5 0	stage4_unit1_conv2[0][0]
		stage4_unit1_sc[0][0]
stage4_unit2_bn1 (BatchNormaliz	(None, None, None, 5 2048	add_13[0][0]
stage4_unit2_relu1 (Activation)	(None, None, None, 5 0	stage4_unit2_bn1[0][0]
zero_padding2d_30 (ZeroPadding2	(None, None, None, 5 0	stage4_unit2_relu1[0][0]
stage4_unit2_conv1 (Conv2D)	(None, None, None, 5 2359296	zero_padding2d_30[0][0]
stage4_unit2_bn2 (BatchNormaliz	(None, None, None, 5 2048	stage4_unit2_conv1[0][0]
stage4_unit2_relu2 (Activation)	(None, None, None, 5 0	stage4_unit2_bn2[0][0]
zero_padding2d_31 (ZeroPadding2	(None, None, None, 5 0	stage4_unit2_relu2[0][0]
stage4_unit2_conv2 (Conv2D)	(None, None, None, 5 2359296	zero_padding2d_31[0][0]
add_14 (Add)	(None, None, None, 5 0	stage4_unit2_conv2[0][0]
		add_13[0][0]
stage4_unit3_bn1 (BatchNormaliz	(None, None, None, 5 2048	add_14[0][0]
stage4_unit3_relu1 (Activation)	(None, None, None, 5 0	stage4_unit3_bn1[0][0]
zero_padding2d_32 (ZeroPadding2	(None, None, None, 5 0	stage4_unit3_relu1[0][0]
stage4_unit3_conv1 (Conv2D)	(None, None, None, 5 2359296	zero_padding2d_32[0][0]
stage4_unit3_bn2 (BatchNormaliz	(None, None, None, 5 2048	stage4_unit3_conv1[0][0]
stage4_unit3_relu2 (Activation)	(None, None, None, 5 0	stage4_unit3_bn2[0][0]
zero_padding2d_33 (ZeroPadding2	(None, None, None, 5 0	stage4_unit3_relu2[0][0]
stage4_unit3_conv2 (Conv2D)	(None, None, None, 5 2359296	zero_padding2d_33[0][0]
add_15 (Add)	(None, None, None, 5 0	stage4_unit3_conv2[0][0]
		add_14[0][0]
bn1 (BatchNormalization)	(None, None, None, 5 2048	add_15[0][0]
relu1 (Activation)	(None, None, None, 5 0	bn1[0][0]
decoder_stage0_upsampling (UpSa	(None, None, None, 5 0	relu1[0][0]
decoder_stage0_concat (Concaten	(None, None, None, 7 0	decoder_stage0_upsampling[0][0]
		stage4_unit1_relu1[0][0]
decoder_stage0a_conv (Conv2D)	(None, None, None, 2 1769472	decoder_stage0_concat[0][0]
decoder_stage0a_bn (BatchNormal	(None, None, None, 2 1024	decoder_stage0a_conv[0][0]
decoder_stage0a_relu (Activatio	(None, None, None, 2 0	decoder_stage0a_bn[0][0]
decoder_stage0b_conv (Conv2D)	(None, None, None, 2 589824	decoder_stage0a_relu[0][0]
decoder_stage0b_bn (BatchNormal	(None, None, None, 2 1024	decoder_stage0b_conv[0][0]
decoder_stage0b_relu (Activatio	(None, None, None, 2 0	decoder_stage0b_bn[0][0]
decoder_stage1_upsampling (UpSa	(None, None, None, 2 0	decoder_stage0b_relu[0][0]
decoder_stage1_concat (Concaten	(None, None, None, 3 0	decoder_stage1_upsampling[0][0]
		stage3_unit1_relu1[0][0]

Layer	Output Shape	Param #	Connected to
decoder_stage1a_conv (Conv2D)	(None, None, None, 1	442368	decoder_stage1_concat[0][0]
decoder_stage1a_bn (BatchNormal	(None, None, None, 1	512	decoder_stage1a_conv[0][0]
decoder_stage1a_relu (Activatio	(None, None, None, 1	0	decoder_stage1a_bn[0][0]
decoder_stage1b_conv (Conv2D)	(None, None, None, 1	147456	decoder_stage1a_relu[0][0]
decoder_stage1b_bn (BatchNormal	(None, None, None, 1	512	decoder_stage1b_conv[0][0]
decoder_stage1b_relu (Activatio	(None, None, None, 1	0	decoder_stage1b_bn[0][0]
decoder_stage2_upsampling (UpSa	(None, None, None, 1	0	decoder_stage1b_relu[0][0]
decoder_stage2_concat (Concaten	(None, None, None, 1	0	decoder_stage2_upsampling[0][0] stage2_unit1_relu1[0][0]
decoder_stage2a_conv (Conv2D)	(None, None, None, 6	110592	decoder_stage2_concat[0][0]
decoder_stage2a_bn (BatchNormal	(None, None, None, 6	256	decoder_stage2a_conv[0][0]
decoder_stage2a_relu (Activatio	(None, None, None, 6	0	decoder_stage2a_bn[0][0]
decoder_stage2b_conv (Conv2D)	(None, None, None, 6	36864	decoder_stage2a_relu[0][0]
decoder_stage2b_bn (BatchNormal	(None, None, None, 6	256	decoder_stage2b_conv[0][0]
decoder_stage2b_relu (Activatio	(None, None, None, 6	0	decoder_stage2b_bn[0][0]
decoder_stage3_upsampling (UpSa	(None, None, None, 6	0	decoder_stage2b_relu[0][0]
decoder_stage3_concat (Concaten	(None, None, None, 1	0	decoder_stage3_upsampling[0][0] relu0[0][0]
decoder_stage3a_conv (Conv2D)	(None, None, None, 3	36864	decoder_stage3_concat[0][0]
decoder_stage3a_bn (BatchNormal	(None, None, None, 3	128	decoder_stage3a_conv[0][0]
decoder_stage3a_relu (Activatio	(None, None, None, 3	0	decoder_stage3a_bn[0][0]
decoder_stage3b_conv (Conv2D)	(None, None, None, 3	9216	decoder_stage3a_relu[0][0]
decoder_stage3b_bn (BatchNormal	(None, None, None, 3	128	decoder_stage3b_conv[0][0]
decoder_stage3b_relu (Activatio	(None, None, None, 3	0	decoder_stage3b_bn[0][0]
decoder_stage4_upsampling (UpSa	(None, None, None, 3	0	decoder_stage3b_relu[0][0]
decoder_stage4a_conv (Conv2D)	(None, None, None, 1	4608	decoder_stage4_upsampling[0][0]
decoder_stage4a_bn (BatchNormal	(None, None, None, 1	64	decoder_stage4a_conv[0][0]
decoder_stage4a_relu (Activatio	(None, None, None, 1	0	decoder_stage4a_bn[0][0]
decoder_stage4b_conv (Conv2D)	(None, None, None, 1	2304	decoder_stage4a_relu[0][0]
decoder_stage4b_bn (BatchNormal	(None, None, None, 1	64	decoder_stage4b_conv[0][0]
decoder_stage4b_relu (Activatio	(None, None, None, 1	0	decoder_stage4b_bn[0][0]
final_conv (Conv2D)	(None, None, None, 2	290	decoder_stage4b_relu[0][0]
sigmoid (Activation)	(None, None, None, 2	0	final_conv[0][0]

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Total params: 24,456,299
Trainable params: 24,438,949
Non-trainable params: 17,350

Model: "model-2 (U-Net with InceptionV3 backbone)"

Layer (type)	Output Shape	Param #	Connected to
input_1 (InputLayer)	[(None, None, None,	0	
conv2d (Conv2D)	(None, None, None, 3	864	input_1[0][0]
batch_normalization (BatchNorma	(None, None, None, 3	96	conv2d[0][0]
activation (Activation)	(None, None, None, 3	0	batch_normalization[0][0]
conv2d_1 (Conv2D)	(None, None, None, 3	9216	activation[0][0]
batch_normalization_1 (BatchNor	(None, None, None, 3	96	conv2d_1[0][0]
activation_1 (Activation)	(None, None, None, 3	0	batch_normalization_1[0][0]
conv2d_2 (Conv2D)	(None, None, None, 6	18432	activation_1[0][0]
batch_normalization_2 (BatchNor	(None, None, None, 6	192	conv2d_2[0][0]
activation_2 (Activation)	(None, None, None, 6	0	batch_normalization_2[0][0]
max_pooling2d (MaxPooling2D)	(None, None, None, 6	0	activation_2[0][0]
conv2d_3 (Conv2D)	(None, None, None, 8	5120	max_pooling2d[0][0]
batch_normalization_3 (BatchNor	(None, None, None, 8	240	conv2d_3[0][0]
activation_3 (Activation)	(None, None, None, 8	0	batch_normalization_3[0][0]
conv2d_4 (Conv2D)	(None, None, None, 1	138240	activation_3[0][0]
batch_normalization_4 (BatchNor	(None, None, None, 1	576	conv2d_4[0][0]
activation_4 (Activation)	(None, None, None, 1	0	batch_normalization_4[0][0]
max_pooling2d_1 (MaxPooling2D)	(None, None, None, 1	0	activation_4[0][0]
conv2d_8 (Conv2D)	(None, None, None, 6	12288	max_pooling2d_1[0][0]
batch_normalization_8 (BatchNor	(None, None, None, 6	192	conv2d_8[0][0]
activation_8 (Activation)	(None, None, None, 6	0	batch_normalization_8[0][0]
conv2d_6 (Conv2D)	(None, None, None, 4	9216	max_pooling2d_1[0][0]
conv2d_9 (Conv2D)	(None, None, None, 9	55296	activation_8[0][0]
batch_normalization_6 (BatchNor	(None, None, None, 4	144	conv2d_6[0][0]
batch_normalization_9 (BatchNor	(None, None, None, 9	288	conv2d_9[0][0]
activation_6 (Activation)	(None, None, None, 4	0	batch_normalization_6[0][0]
activation_9 (Activation)	(None, None, None, 9	0	batch_normalization_9[0][0]
average_pooling2d (AveragePooli	(None, None, None, 1	0	max_pooling2d_1[0][0]
conv2d_5 (Conv2D)	(None, None, None, 6	12288	max_pooling2d_1[0][0]
conv2d_7 (Conv2D)	(None, None, None, 6	76800	activation_6[0][0]
conv2d_10 (Conv2D)	(None, None, None, 9	82944	activation_9[0][0]
conv2d_11 (Conv2D)	(None, None, None, 3	6144	average_pooling2d[0][0]
batch_normalization_5 (BatchNor	(None, None, None, 6	192	conv2d_5[0][0]
batch_normalization_7 (BatchNor	(None, None, None, 6	192	conv2d_7[0][0]

Layer (type)	Output Shape	Param #	Connected to
batch_normalization_10 (BatchNo	(None, None, None, 9	288	conv2d_10[0][0]
batch_normalization_11 (BatchNo	(None, None, None, 3	96	conv2d_11[0][0]
activation_5 (Activation)	(None, None, None, 6	0	batch_normalization_5[0][0]
activation_7 (Activation)	(None, None, None, 6	0	batch_normalization_7[0][0]
activation_10 (Activation)	(None, None, None, 9	0	batch_normalization_10[0][0]
activation_11 (Activation)	(None, None, None, 3	0	batch_normalization_11[0][0]
mixed0 (Concatenate)	(None, None, None, 2	0	activation_5[0][0] activation_7[0][0] activation_10[0][0] activation_11[0][0]
conv2d_15 (Conv2D)	(None, None, None, 6	16384	mixed0[0][0]
batch_normalization_15 (BatchNo	(None, None, None, 6	192	conv2d_15[0][0]
activation_15 (Activation)	(None, None, None, 6	0	batch_normalization_15[0][0]
conv2d_13 (Conv2D)	(None, None, None, 4	12288	mixed0[0][0]
conv2d_16 (Conv2D)	(None, None, None, 9	55296	activation_15[0][0]
batch_normalization_13 (BatchNo	(None, None, None, 4	144	conv2d_13[0][0]
batch_normalization_16 (BatchNo	(None, None, None, 9	288	conv2d_16[0][0]
activation_13 (Activation)	(None, None, None, 4	0	batch_normalization_13[0][0]
activation_16 (Activation)	(None, None, None, 9	0	batch_normalization_16[0][0]
average_pooling2d_1 (AveragePoo	(None, None, None, 2	0	mixed0[0][0]
conv2d_12 (Conv2D)	(None, None, None, 6	16384	mixed0[0][0]
conv2d_14 (Conv2D)	(None, None, None, 6	76800	activation_13[0][0]
conv2d_17 (Conv2D)	(None, None, None, 9	82944	activation_16[0][0]
conv2d_18 (Conv2D)	(None, None, None, 6	16384	average_pooling2d_1[0][0]
batch_normalization_12 (BatchNo	(None, None, None, 6	192	conv2d_12[0][0]
batch_normalization_14 (BatchNo	(None, None, None, 6	192	conv2d_14[0][0]
batch_normalization_17 (BatchNo	(None, None, None, 9	288	conv2d_17[0][0]
batch_normalization_18 (BatchNo	(None, None, None, 6	192	conv2d_18[0][0]
activation_12 (Activation)	(None, None, None, 6	0	batch_normalization_12[0][0]
activation_14 (Activation)	(None, None, None, 6	0	batch_normalization_14[0][0]
activation_17 (Activation)	(None, None, None, 9	0	batch_normalization_17[0][0]
activation_18 (Activation)	(None, None, None, 6	0	batch_normalization_18[0][0]
mixed1 (Concatenate)	(None, None, None, 2	0	activation_12[0][0] activation_14[0][0] activation_17[0][0] activation_18[0][0]
conv2d_22 (Conv2D)	(None, None, None, 6	18432	mixed1[0][0]
batch_normalization_22 (BatchNo	(None, None, None, 6	192	conv2d_22[0][0]
activation_22 (Activation)	(None, None, None, 6	0	batch_normalization_22[0][0]

Layer (type)	Output Shape	Param #	Connected to
conv2d_20 (Conv2D)	(None, None, None, 4	13824	mixed1[0][0]
conv2d_23 (Conv2D)	(None, None, None, 9	55296	activation_22[0][0]
batch_normalization_20 (BatchNo	(None, None, None, 4	144	conv2d_20[0][0]
batch_normalization_23 (BatchNo	(None, None, None, 9	288	conv2d_23[0][0]
activation_20 (Activation)	(None, None, None, 4	0	batch_normalization_20[0][0]
activation_23 (Activation)	(None, None, None, 9	0	batch_normalization_23[0][0]
average_pooling2d_2 (AveragePoo	(None, None, None, 2	0	mixed1[0][0]
conv2d_19 (Conv2D)	(None, None, None, 6	18432	mixed1[0][0]
conv2d_21 (Conv2D)	(None, None, None, 6	76800	activation_20[0][0]
conv2d_24 (Conv2D)	(None, None, None, 9	82944	activation_23[0][0]
conv2d_25 (Conv2D)	(None, None, None, 6	18432	average_pooling2d_2[0][0]
batch_normalization_19 (BatchNo	(None, None, None, 6	192	conv2d_19[0][0]
batch_normalization_21 (BatchNo	(None, None, None, 6	192	conv2d_21[0][0]
batch_normalization_24 (BatchNo	(None, None, None, 9	288	conv2d_24[0][0]
batch_normalization_25 (BatchNo	(None, None, None, 6	192	conv2d_25[0][0]
activation_19 (Activation)	(None, None, None, 6	0	batch_normalization_19[0][0]
activation_21 (Activation)	(None, None, None, 6	0	batch_normalization_21[0][0]
activation_24 (Activation)	(None, None, None, 9	0	batch_normalization_24[0][0]
activation_25 (Activation)	(None, None, None, 6	0	batch_normalization_25[0][0]
mixed2 (Concatenate)	(None, None, None, 2	0	activation_19[0][0] activation_21[0][0] activation_24[0][0] activation_25[0][0]
conv2d_27 (Conv2D)	(None, None, None, 6	18432	mixed2[0][0]
batch_normalization_27 (BatchNo	(None, None, None, 6	192	conv2d_27[0][0]
activation_27 (Activation)	(None, None, None, 6	0	batch_normalization_27[0][0]
conv2d_28 (Conv2D)	(None, None, None, 9	55296	activation_27[0][0]
batch_normalization_28 (BatchNo	(None, None, None, 9	288	conv2d_28[0][0]
activation_28 (Activation)	(None, None, None, 9	0	batch_normalization_28[0][0]
conv2d_26 (Conv2D)	(None, None, None, 3	995328	mixed2[0][0]
conv2d_29 (Conv2D)	(None, None, None, 9	82944	activation_28[0][0]
batch_normalization_26 (BatchNo	(None, None, None, 3	1152	conv2d_26[0][0]
batch_normalization_29 (BatchNo	(None, None, None, 9	288	conv2d_29[0][0]
activation_26 (Activation)	(None, None, None, 3	0	batch_normalization_26[0][0]
activation_29 (Activation)	(None, None, None, 9	0	batch_normalization_29[0][0]
max_pooling2d_2 (MaxPooling2D)	(None, None, None, 2	0	mixed2[0][0]
mixed3 (Concatenate)	(None, None, None, 7	0	activation_26[0][0] activation_29[0][0] max_pooling2d_2[0][0]

Layer (type)	Output Shape	Param #	Connected to
conv2d_34 (Conv2D)	(None, None, None, 1	98304	mixed3[0][0]
batch_normalization_34 (BatchNo	(None, None, None, 1	384	conv2d_34[0][0]
activation_34 (Activation)	(None, None, None, 1	0	batch_normalization_34[0][0]
conv2d_35 (Conv2D)	(None, None, None, 1	114688	activation_34[0][0]
batch_normalization_35 (BatchNo	(None, None, None, 1	384	conv2d_35[0][0]
activation_35 (Activation)	(None, None, None, 1	0	batch_normalization_35[0][0]
conv2d_31 (Conv2D)	(None, None, None, 1	98304	mixed3[0][0]
conv2d_36 (Conv2D)	(None, None, None, 1	114688	activation_35[0][0]
batch_normalization_31 (BatchNo	(None, None, None, 1	384	conv2d_31[0][0]
batch_normalization_36 (BatchNo	(None, None, None, 1	384	conv2d_36[0][0]
activation_31 (Activation)	(None, None, None, 1	0	batch_normalization_31[0][0]
activation_36 (Activation)	(None, None, None, 1	0	batch_normalization_36[0][0]
conv2d_32 (Conv2D)	(None, None, None, 1	114688	activation_31[0][0]
conv2d_37 (Conv2D)	(None, None, None, 1	114688	activation_36[0][0]
batch_normalization_32 (BatchNo	(None, None, None, 1	384	conv2d_32[0][0]
batch_normalization_37 (BatchNo	(None, None, None, 1	384	conv2d_37[0][0]
activation_32 (Activation)	(None, None, None, 1	0	batch_normalization_32[0][0]
activation_37 (Activation)	(None, None, None, 1	0	batch_normalization_37[0][0]
average_pooling2d_3 (AveragePoo	(None, None, None, 7	0	mixed3[0][0]
conv2d_30 (Conv2D)	(None, None, None, 1	147456	mixed3[0][0]
conv2d_33 (Conv2D)	(None, None, None, 1	172032	activation_32[0][0]
conv2d_38 (Conv2D)	(None, None, None, 1	172032	activation_37[0][0]
conv2d_39 (Conv2D)	(None, None, None, 1	147456	average_pooling2d_3[0][0]
batch_normalization_30 (BatchNo	(None, None, None, 1	576	conv2d_30[0][0]
batch_normalization_33 (BatchNo	(None, None, None, 1	576	conv2d_33[0][0]
batch_normalization_38 (BatchNo	(None, None, None, 1	576	conv2d_38[0][0]
batch_normalization_39 (BatchNo	(None, None, None, 1	576	conv2d_39[0][0]
activation_30 (Activation)	(None, None, None, 1	0	batch_normalization_30[0][0]
activation_33 (Activation)	(None, None, None, 1	0	batch_normalization_33[0][0]
activation_38 (Activation)	(None, None, None, 1	0	batch_normalization_38[0][0]
activation_39 (Activation)	(None, None, None, 1	0	batch_normalization_39[0][0]
mixed4 (Concatenate)	(None, None, None, 7	0	activation_30[0][0] activation_33[0][0] activation_38[0][0] activation_39[0][0]
conv2d_44 (Conv2D)	(None, None, None, 1	122880	mixed4[0][0]
batch_normalization_44 (BatchNo	(None, None, None, 1	480	conv2d_44[0][0]

Layer (type)	Output Shape	Param #	Connected to
activation_44 (Activation)	(None, None, None, 1	0	batch_normalization_44[0][0]
conv2d_45 (Conv2D)	(None, None, None, 1	179200	activation_44[0][0]
batch_normalization_45 (BatchNo	(None, None, None, 1	480	conv2d_45[0][0]
activation_45 (Activation)	(None, None, None, 1	0	batch_normalization_45[0][0]
conv2d_41 (Conv2D)	(None, None, None, 1	122880	mixed4[0][0]
conv2d_46 (Conv2D)	(None, None, None, 1	179200	activation_45[0][0]
batch_normalization_41 (BatchNo	(None, None, None, 1	480	conv2d_41[0][0]
batch_normalization_46 (BatchNo	(None, None, None, 1	480	conv2d_46[0][0]
activation_41 (Activation)	(None, None, None, 1	0	batch_normalization_41[0][0]
activation_46 (Activation)	(None, None, None, 1	0	batch_normalization_46[0][0]
conv2d_42 (Conv2D)	(None, None, None, 1	179200	activation_41[0][0]
conv2d_47 (Conv2D)	(None, None, None, 1	179200	activation_46[0][0]
batch_normalization_42 (BatchNo	(None, None, None, 1	480	conv2d_42[0][0]
batch_normalization_47 (BatchNo	(None, None, None, 1	480	conv2d_47[0][0]
activation_42 (Activation)	(None, None, None, 1	0	batch_normalization_42[0][0]
activation_47 (Activation)	(None, None, None, 1	0	batch_normalization_47[0][0]
average_pooling2d_4 (AveragePoo	(None, None, None, 7	0	mixed4[0][0]
conv2d_40 (Conv2D)	(None, None, None, 1	147456	mixed4[0][0]
conv2d_43 (Conv2D)	(None, None, None, 1	215040	activation_42[0][0]
conv2d_48 (Conv2D)	(None, None, None, 1	215040	activation_47[0][0]
conv2d_49 (Conv2D)	(None, None, None, 1	147456	average_pooling2d_4[0][0]
batch_normalization_40 (BatchNo	(None, None, None, 1	576	conv2d_40[0][0]
batch_normalization_43 (BatchNo	(None, None, None, 1	576	conv2d_43[0][0]
batch_normalization_48 (BatchNo	(None, None, None, 1	576	conv2d_48[0][0]
batch_normalization_49 (BatchNo	(None, None, None, 1	576	conv2d_49[0][0]
activation_40 (Activation)	(None, None, None, 1	0	batch_normalization_40[0][0]
activation_43 (Activation)	(None, None, None, 1	0	batch_normalization_43[0][0]
activation_48 (Activation)	(None, None, None, 1	0	batch_normalization_48[0][0]
activation_49 (Activation)	(None, None, None, 1	0	batch_normalization_49[0][0]
mixed5 (Concatenate)	(None, None, None, 7	0	activation_40[0][0]
			activation_43[0][0]
			activation_48[0][0]
			activation_49[0][0]
conv2d_54 (Conv2D)	(None, None, None, 1	122880	mixed5[0][0]
batch_normalization_54 (BatchNo	(None, None, None, 1	480	conv2d_54[0][0]
activation_54 (Activation)	(None, None, None, 1	0	batch_normalization_54[0][0]
conv2d_55 (Conv2D)	(None, None, None, 1	179200	activation_54[0][0]
batch_normalization_55 (BatchNo	(None, None, None, 1	480	conv2d_55[0][0]

Layer (type)	Output Shape	Param #	Connected to
activation_55 (Activation)	(None, None, None, 1	0	batch_normalization_55[0][0]
conv2d_51 (Conv2D)	(None, None, None, 1	122880	mixed5[0][0]
conv2d_56 (Conv2D)	(None, None, None, 1	179200	activation_55[0][0]
batch_normalization_51 (BatchNo	(None, None, None, 1	480	conv2d_51[0][0]
batch_normalization_56 (BatchNo	(None, None, None, 1	480	conv2d_56[0][0]
activation_51 (Activation)	(None, None, None, 1	0	batch_normalization_51[0][0]
activation_56 (Activation)	(None, None, None, 1	0	batch_normalization_56[0][0]
conv2d_52 (Conv2D)	(None, None, None, 1	179200	activation_51[0][0]
conv2d_57 (Conv2D)	(None, None, None, 1	179200	activation_56[0][0]
batch_normalization_52 (BatchNo	(None, None, None, 1	480	conv2d_52[0][0]
batch_normalization_57 (BatchNo	(None, None, None, 1	480	conv2d_57[0][0]
activation_52 (Activation)	(None, None, None, 1	0	batch_normalization_52[0][0]
activation_57 (Activation)	(None, None, None, 1	0	batch_normalization_57[0][0]
average_pooling2d_5 (AveragePoo	(None, None, None, 7	0	mixed5[0][0]
conv2d_50 (Conv2D)	(None, None, None, 1	147456	mixed5[0][0]
conv2d_53 (Conv2D)	(None, None, None, 1	215040	activation_52[0][0]
conv2d_58 (Conv2D)	(None, None, None, 1	215040	activation_57[0][0]
conv2d_59 (Conv2D)	(None, None, None, 1	147456	average_pooling2d_5[0][0]
batch_normalization_50 (BatchNo	(None, None, None, 1	576	conv2d_50[0][0]
batch_normalization_53 (BatchNo	(None, None, None, 1	576	conv2d_53[0][0]
batch_normalization_58 (BatchNo	(None, None, None, 1	576	conv2d_58[0][0]
batch_normalization_59 (BatchNo	(None, None, None, 1	576	conv2d_59[0][0]
activation_50 (Activation)	(None, None, None, 1	0	batch_normalization_50[0][0]
activation_53 (Activation)	(None, None, None, 1	0	batch_normalization_53[0][0]
activation_58 (Activation)	(None, None, None, 1	0	batch_normalization_58[0][0]
activation_59 (Activation)	(None, None, None, 1	0	batch_normalization_59[0][0]
mixed6 (Concatenate)	(None, None, None, 7	0	activation_50[0][0]
			activation_53[0][0]
			activation_58[0][0]
			activation_59[0][0]
conv2d_64 (Conv2D)	(None, None, None, 1	147456	mixed6[0][0]
batch_normalization_64 (BatchNo	(None, None, None, 1	576	conv2d_64[0][0]
activation_64 (Activation)	(None, None, None, 1	0	batch_normalization_64[0][0]
conv2d_65 (Conv2D)	(None, None, None, 1	258048	activation_64[0][0]
batch_normalization_65 (BatchNo	(None, None, None, 1	576	conv2d_65[0][0]
activation_65 (Activation)	(None, None, None, 1	0	batch_normalization_65[0][0]
conv2d_61 (Conv2D)	(None, None, None, 1	147456	mixed6[0][0]

Layer (type)	Output Shape	Param #	Connected to
conv2d_66 (Conv2D)	(None, None, None, 1	258048	activation_65[0][0]
batch_normalization_61 (BatchNo	(None, None, None, 1	576	conv2d_61[0][0]
batch_normalization_66 (BatchNo	(None, None, None, 1	576	conv2d_66[0][0]
activation_61 (Activation)	(None, None, None, 1	0	batch_normalization_61[0][0]
activation_66 (Activation)	(None, None, None, 1	0	batch_normalization_66[0][0]
conv2d_62 (Conv2D)	(None, None, None, 1	258048	activation_61[0][0]
conv2d_67 (Conv2D)	(None, None, None, 1	258048	activation_66[0][0]
batch_normalization_62 (BatchNo	(None, None, None, 1	576	conv2d_62[0][0]
batch_normalization_67 (BatchNo	(None, None, None, 1	576	conv2d_67[0][0]
activation_62 (Activation)	(None, None, None, 1	0	batch_normalization_62[0][0]
activation_67 (Activation)	(None, None, None, 1	0	batch_normalization_67[0][0]
average_pooling2d_6 (AveragePoo	(None, None, None, 7	0	mixed6[0][0]
conv2d_60 (Conv2D)	(None, None, None, 1	147456	mixed6[0][0]
conv2d_63 (Conv2D)	(None, None, None, 1	258048	activation_62[0][0]
conv2d_68 (Conv2D)	(None, None, None, 1	258048	activation_67[0][0]
conv2d_69 (Conv2D)	(None, None, None, 1	147456	average_pooling2d_6[0][0]
batch_normalization_60 (BatchNo	(None, None, None, 1	576	conv2d_60[0][0]
batch_normalization_63 (BatchNo	(None, None, None, 1	576	conv2d_63[0][0]
batch_normalization_68 (BatchNo	(None, None, None, 1	576	conv2d_68[0][0]
batch_normalization_69 (BatchNo	(None, None, None, 1	576	conv2d_69[0][0]
activation_60 (Activation)	(None, None, None, 1	0	batch_normalization_60[0][0]
activation_63 (Activation)	(None, None, None, 1	0	batch_normalization_63[0][0]
activation_68 (Activation)	(None, None, None, 1	0	batch_normalization_68[0][0]
activation_69 (Activation)	(None, None, None, 1	0	batch_normalization_69[0][0]
mixed7 (Concatenate)	(None, None, None, 7	0	activation_60[0][0] activation_63[0][0] activation_68[0][0] activation_69[0][0]
conv2d_72 (Conv2D)	(None, None, None, 1	147456	mixed7[0][0]
batch_normalization_72 (BatchNo	(None, None, None, 1	576	conv2d_72[0][0]
activation_72 (Activation)	(None, None, None, 1	0	batch_normalization_72[0][0]
conv2d_73 (Conv2D)	(None, None, None, 1	258048	activation_72[0][0]
batch_normalization_73 (BatchNo	(None, None, None, 1	576	conv2d_73[0][0]
activation_73 (Activation)	(None, None, None, 1	0	batch_normalization_73[0][0]
conv2d_70 (Conv2D)	(None, None, None, 1	147456	mixed7[0][0]
conv2d_74 (Conv2D)	(None, None, None, 1	258048	activation_73[0][0]
batch_normalization_70 (BatchNo	(None, None, None, 1	576	conv2d_70[0][0]
batch_normalization_74 (BatchNo	(None, None, None, 1	576	conv2d_74[0][0]

Layer (type)	Output Shape	Param #	Connected to
activation_70 (Activation)	(None, None, None, 1	0	batch_normalization_70[0][0]
activation_74 (Activation)	(None, None, None, 1	0	batch_normalization_74[0][0]
conv2d_71 (Conv2D)	(None, None, None, 3	552960	activation_70[0][0]
conv2d_75 (Conv2D)	(None, None, None, 1	331776	activation_74[0][0]
batch_normalization_71 (BatchNo	(None, None, None, 3	960	conv2d_71[0][0]
batch_normalization_75 (BatchNo	(None, None, None, 1	576	conv2d_75[0][0]
activation_71 (Activation)	(None, None, None, 3	0	batch_normalization_71[0][0]
activation_75 (Activation)	(None, None, None, 1	0	batch_normalization_75[0][0]
max_pooling2d_3 (MaxPooling2D)	(None, None, None, 7	0	mixed7[0][0]
mixed8 (Concatenate)	(None, None, None, 1	0	activation_71[0][0] activation_75[0][0] max_pooling2d_3[0][0]
conv2d_80 (Conv2D)	(None, None, None, 4	573440	mixed8[0][0]
batch_normalization_80 (BatchNo	(None, None, None, 4	1344	conv2d_80[0][0]
activation_80 (Activation)	(None, None, None, 4	0	batch_normalization_80[0][0]
conv2d_77 (Conv2D)	(None, None, None, 3	491520	mixed8[0][0]
conv2d_81 (Conv2D)	(None, None, None, 3	1548288	activation_80[0][0]
batch_normalization_77 (BatchNo	(None, None, None, 3	1152	conv2d_77[0][0]
batch_normalization_81 (BatchNo	(None, None, None, 3	1152	conv2d_81[0][0]
activation_77 (Activation)	(None, None, None, 3	0	batch_normalization_77[0][0]
activation_81 (Activation)	(None, None, None, 3	0	batch_normalization_81[0][0]
conv2d_78 (Conv2D)	(None, None, None, 3	442368	activation_77[0][0]
conv2d_79 (Conv2D)	(None, None, None, 3	442368	activation_77[0][0]
conv2d_82 (Conv2D)	(None, None, None, 3	442368	activation_81[0][0]
conv2d_83 (Conv2D)	(None, None, None, 3	442368	activation_81[0][0]
average_pooling2d_7 (AveragePoo	(None, None, None, 1	0	mixed8[0][0]
conv2d_76 (Conv2D)	(None, None, None, 3	409600	mixed8[0][0]
batch_normalization_78 (BatchNo	(None, None, None, 3	1152	conv2d_78[0][0]
batch_normalization_79 (BatchNo	(None, None, None, 3	1152	conv2d_79[0][0]
batch_normalization_82 (BatchNo	(None, None, None, 3	1152	conv2d_82[0][0]
batch_normalization_83 (BatchNo	(None, None, None, 3	1152	conv2d_83[0][0]
conv2d_84 (Conv2D)	(None, None, None, 1	245760	average_pooling2d_7[0][0]
batch_normalization_76 (BatchNo	(None, None, None, 3	960	conv2d_76[0][0]
activation_78 (Activation)	(None, None, None, 3	0	batch_normalization_78[0][0]
activation_79 (Activation)	(None, None, None, 3	0	batch_normalization_79[0][0]
activation_82 (Activation)	(None, None, None, 3	0	batch_normalization_82[0][0]
activation_83 (Activation)	(None, None, None, 3	0	batch_normalization_83[0][0]

Layer (type)	Output Shape	Param #	Connected to
batch_normalization_84 (BatchNo	(None, None, None, 1	576	conv2d_84[0][0]
activation_76 (Activation)	(None, None, None, 3	0	batch_normalization_76[0][0]
mixed9_0 (Concatenate)	(None, None, None, 7	0	activation_78[0][0] activation_79[0][0]
concatenate (Concatenate)	(None, None, None, 7	0	activation_82[0][0] activation_83[0][0]
activation_84 (Activation)	(None, None, None, 1	0	batch_normalization_84[0][0]
mixed9 (Concatenate)	(None, None, None, 2	0	activation_76[0][0] mixed9_0[0][0] concatenate[0][0] activation_84[0][0]
conv2d_89 (Conv2D)	(None, None, None, 4	917504	mixed9[0][0]
batch_normalization_89 (BatchNo	(None, None, None, 4	1344	conv2d_89[0][0]
activation_89 (Activation)	(None, None, None, 4	0	batch_normalization_89[0][0]
conv2d_86 (Conv2D)	(None, None, None, 3	786432	mixed9[0][0]
conv2d_90 (Conv2D)	(None, None, None, 3	1548288	activation_89[0][0]
batch_normalization_86 (BatchNo	(None, None, None, 3	1152	conv2d_86[0][0]
batch_normalization_90 (BatchNo	(None, None, None, 3	1152	conv2d_90[0][0]
activation_86 (Activation)	(None, None, None, 3	0	batch_normalization_86[0][0]
activation_90 (Activation)	(None, None, None, 3	0	batch_normalization_90[0][0]
conv2d_87 (Conv2D)	(None, None, None, 3	442368	activation_86[0][0]
conv2d_88 (Conv2D)	(None, None, None, 3	442368	activation_86[0][0]
conv2d_91 (Conv2D)	(None, None, None, 3	442368	activation_90[0][0]
conv2d_92 (Conv2D)	(None, None, None, 3	442368	activation_90[0][0]
average_pooling2d_8 (AveragePoo	(None, None, None, 2	0	mixed9[0][0]
conv2d_85 (Conv2D)	(None, None, None, 3	655360	mixed9[0][0]
batch_normalization_87 (BatchNo	(None, None, None, 3	1152	conv2d_87[0][0]
batch_normalization_88 (BatchNo	(None, None, None, 3	1152	conv2d_88[0][0]
batch_normalization_91 (BatchNo	(None, None, None, 3	1152	conv2d_91[0][0]
batch_normalization_92 (BatchNo	(None, None, None, 3	1152	conv2d_92[0][0]
conv2d_93 (Conv2D)	(None, None, None, 1	393216	average_pooling2d_8[0][0]
batch_normalization_85 (BatchNo	(None, None, None, 3	960	conv2d_85[0][0]
activation_87 (Activation)	(None, None, None, 3	0	batch_normalization_87[0][0]
activation_88 (Activation)	(None, None, None, 3	0	batch_normalization_88[0][0]
activation_91 (Activation)	(None, None, None, 3	0	batch_normalization_91[0][0]
activation_92 (Activation)	(None, None, None, 3	0	batch_normalization_92[0][0]
batch_normalization_93 (BatchNo	(None, None, None, 1	576	conv2d_93[0][0]
activation_85 (Activation)	(None, None, None, 3	0	batch_normalization_85[0][0]

Layer (type)	Output Shape	Param #	Connected to
mixed9_1 (Concatenate)	(None, None, None, 7	0	activation_87[0][0] activation_88[0][0]
concatenate_1 (Concatenate)	(None, None, None, 7	0	activation_91[0][0] activation_92[0][0]
activation_93 (Activation)	(None, None, None, 1	0	batch_normalization_93[0][0]
mixed10 (Concatenate)	(None, None, None, 2	0	activation_85[0][0] mixed9_1[0][0] concatenate_1[0][0] activation_93[0][0]
decoder_stage0_upsampling (UpSa	(None, None, None, 2	0	mixed10[0][0]
decoder_stage0_concat (Concaten	(None, None, None, 2	0	decoder_stage0_upsampling[0][0] mixed7[0][0]
decoder_stage0a_conv (Conv2D)	(None, None, None, 2	6488064	decoder_stage0_concat[0][0]
decoder_stage0a_bn (BatchNormal	(None, None, None, 2	1024	decoder_stage0a_conv[0][0]
decoder_stage0a_relu (Activatio	(None, None, None, 2	0	decoder_stage0a_bn[0][0]
decoder_stage0b_conv (Conv2D)	(None, None, None, 2	589824	decoder_stage0a_relu[0][0]
decoder_stage0b_bn (BatchNormal	(None, None, None, 2	1024	decoder_stage0b_conv[0][0]
decoder_stage0b_relu (Activatio	(None, None, None, 2	0	decoder_stage0b_bn[0][0]
decoder_stage1_upsampling (UpSa	(None, None, None, 2	0	decoder_stage0b_relu[0][0]
decoder_stage1_concat (Concaten	(None, None, None, 5	0	decoder_stage1_upsampling[0][0] mixed2[0][0]
decoder_stage1a_conv (Conv2D)	(None, None, None, 1	626688	decoder_stage1_concat[0][0]
decoder_stage1a_bn (BatchNormal	(None, None, None, 1	512	decoder_stage1a_conv[0][0]
decoder_stage1a_relu (Activatio	(None, None, None, 1	0	decoder_stage1a_bn[0][0]
decoder_stage1b_conv (Conv2D)	(None, None, None, 1	147456	decoder_stage1a_relu[0][0]
decoder_stage1b_bn (BatchNormal	(None, None, None, 1	512	decoder_stage1b_conv[0][0]
decoder_stage1b_relu (Activatio	(None, None, None, 1	0	decoder_stage1b_bn[0][0]
decoder_stage2_upsampling (UpSa	(None, None, None, 1	0	decoder_stage1b_relu[0][0]
decoder_stage2_concat (Concaten	(None, None, None, 3	0	decoder_stage2_upsampling[0][0] activation_4[0][0]
decoder_stage2a_conv (Conv2D)	(None, None, None, 6	184320	decoder_stage2_concat[0][0]
decoder_stage2a_bn (BatchNormal	(None, None, None, 6	256	decoder_stage2a_conv[0][0]
decoder_stage2a_relu (Activatio	(None, None, None, 6	0	decoder_stage2a_bn[0][0]
decoder_stage2b_conv (Conv2D)	(None, None, None, 6	36864	decoder_stage2a_relu[0][0]
decoder_stage2b_bn (BatchNormal	(None, None, None, 6	256	decoder_stage2b_conv[0][0]
decoder_stage2b_relu (Activatio	(None, None, None, 6	0	decoder_stage2b_bn[0][0]
decoder_stage3_upsampling (UpSa	(None, None, None, 6	0	decoder_stage2b_relu[0][0]
decoder_stage3_concat (Concaten	(None, None, None, 1	0	decoder_stage3_upsampling[0][0] activation_2[0][0]
decoder_stage3a_conv (Conv2D)	(None, None, None, 3	36864	decoder_stage3_concat[0][0]
decoder_stage3a_bn (BatchNormal	(None, None, None, 3	128	decoder_stage3a_conv[0][0]

```
decoder_stage3a_relu (Activatio (None, None, None, 3 0          decoder_stage3a_bn[0][0]
_____
decoder_stage3b_conv (Conv2D)   (None, None, None, 3 9216       decoder_stage3a_relu[0][0]
_____
decoder_stage3b_bn (BatchNormal (None, None, None, 3 128        decoder_stage3b_conv[0][0]
_____
decoder_stage3b_relu (Activatio (None, None, None, 3 0          decoder_stage3b_bn[0][0]
_____
decoder_stage4_upsampling (UpSa (None, None, None, 3 0          decoder_stage3b_relu[0][0]
_____
decoder_stage4a_conv (Conv2D)   (None, None, None, 1 4608       decoder_stage4_upsampling[0][0]
_____
decoder_stage4a_bn (BatchNormal (None, None, None, 1 64         decoder_stage4a_conv[0][0]
_____
decoder_stage4a_relu (Activatio (None, None, None, 1 0          decoder_stage4a_bn[0][0]
_____
decoder_stage4b_conv (Conv2D)   (None, None, None, 1 2304       decoder_stage4a_relu[0][0]
_____
decoder_stage4b_bn (BatchNormal (None, None, None, 1 64         decoder_stage4b_conv[0][0]
_____
decoder_stage4b_relu (Activatio (None, None, None, 1 0          decoder_stage4b_bn[0][0]
_____
final_conv (Conv2D)             (None, None, None, 2 290        decoder_stage4b_relu[0][0]
_____
sigmoid (Activation)            (None, None, None, 2 0          final_conv[0][0]
=======================================================================================
Total params: 29,933,250
Trainable params: 29,896,834
Non-trainable params: 36,416
_____
```

Model: "model-3 (U-Net with Vgg19 backbone)"

Layer (type)	Output Shape	Param #	Connected to
input_1 (InputLayer)	[(None, None, None, 0		
block1_conv1 (Conv2D)	(None, None, None, 6	1792	input_1[0][0]
block1_conv2 (Conv2D)	(None, None, None, 6	36928	block1_conv1[0][0]
block1_pool (MaxPooling2D)	(None, None, None, 6	0	block1_conv2[0][0]
block2_conv1 (Conv2D)	(None, None, None, 1	73856	block1_pool[0][0]
block2_conv2 (Conv2D)	(None, None, None, 1	147584	block2_conv1[0][0]
block2_pool (MaxPooling2D)	(None, None, None, 1	0	block2_conv2[0][0]
block3_conv1 (Conv2D)	(None, None, None, 2	295168	block2_pool[0][0]
block3_conv2 (Conv2D)	(None, None, None, 2	590080	block3_conv1[0][0]
block3_conv3 (Conv2D)	(None, None, None, 2	590080	block3_conv2[0][0]
block3_pool (MaxPooling2D)	(None, None, None, 2	0	block3_conv3[0][0]
block4_conv1 (Conv2D)	(None, None, None, 5	1180160	block3_pool[0][0]
block4_conv2 (Conv2D)	(None, None, None, 5	2359808	block4_conv1[0][0]
block4_conv3 (Conv2D)	(None, None, None, 5	2359808	block4_conv2[0][0]
block4_pool (MaxPooling2D)	(None, None, None, 5	0	block4_conv3[0][0]
block5_conv1 (Conv2D)	(None, None, None, 5	2359808	block4_pool[0][0]
block5_conv2 (Conv2D)	(None, None, None, 5	2359808	block5_conv1[0][0]
block5_conv3 (Conv2D)	(None, None, None, 5	2359808	block5_conv2[0][0]
block5_pool (MaxPooling2D)	(None, None, None, 5	0	block5_conv3[0][0]
center_block1_conv (Conv2D)	(None, None, None, 5	2359296	block5_pool[0][0]
center_block1_bn (BatchNormaliz	(None, None, None, 5	2048	center_block1_conv[0][0]
center_block1_relu (Activation)	(None, None, None, 5	0	center_block1_bn[0][0]
center_block2_conv (Conv2D)	(None, None, None, 5	2359296	center_block1_relu[0][0]
center_block2_bn (BatchNormaliz	(None, None, None, 5	2048	center_block2_conv[0][0]
center_block2_relu (Activation)	(None, None, None, 5	0	center_block2_bn[0][0]
decoder_stage0_upsampling (UpSa	(None, None, None, 5	0	center_block2_relu[0][0]
decoder_stage0_concat (Concaten	(None, None, None, 1	0	decoder_stage0_upsampling[0][0] block5_conv3[0][0]
decoder_stage0a_conv (Conv2D)	(None, None, None, 2	2359296	decoder_stage0_concat[0][0]
decoder_stage0a_bn (BatchNormal	(None, None, None, 2	1024	decoder_stage0a_conv[0][0]
decoder_stage0a_relu (Activatio	(None, None, None, 2	0	decoder_stage0a_bn[0][0]
decoder_stage0b_conv (Conv2D)	(None, None, None, 2	589824	decoder_stage0a_relu[0][0]
decoder_stage0b_bn (BatchNormal	(None, None, None, 2	1024	decoder_stage0b_conv[0][0]
decoder_stage0b_relu (Activatio	(None, None, None, 2	0	decoder_stage0b_bn[0][0]

decoder_stage1_upsampling (UpSa	(None, None, None, 2 0	decoder_stage0b_relu[0][0]
decoder_stage1_concat (Concaten	(None, None, None, 7 0	decoder_stage1_upsampling[0][0]
		block4_conv3[0][0]
decoder_stage1a_conv (Conv2D)	(None, None, None, 1 884736	decoder_stage1_concat[0][0]
decoder_stage1a_bn (BatchNormal	(None, None, None, 1 512	decoder_stage1a_conv[0][0]
decoder_stage1a_relu (Activatio	(None, None, None, 1 0	decoder_stage1a_bn[0][0]
decoder_stage1b_conv (Conv2D)	(None, None, None, 1 147456	decoder_stage1a_relu[0][0]
decoder_stage1b_bn (BatchNormal	(None, None, None, 1 512	decoder_stage1b_conv[0][0]
decoder_stage1b_relu (Activatio	(None, None, None, 1 0	decoder_stage1b_bn[0][0]
decoder_stage2_upsampling (UpSa	(None, None, None, 1 0	decoder_stage1b_relu[0][0]
decoder_stage2_concat (Concaten	(None, None, None, 3 0	decoder_stage2_upsampling[0][0]
		block3_conv3[0][0]
decoder_stage2a_conv (Conv2D)	(None, None, None, 6 221184	decoder_stage2_concat[0][0]
decoder_stage2a_bn (BatchNormal	(None, None, None, 6 256	decoder_stage2a_conv[0][0]
decoder_stage2a_relu (Activatio	(None, None, None, 6 0	decoder_stage2a_bn[0][0]
decoder_stage2b_conv (Conv2D)	(None, None, None, 6 36864	decoder_stage2a_relu[0][0]
decoder_stage2b_bn (BatchNormal	(None, None, None, 6 256	decoder_stage2b_conv[0][0]
decoder_stage2b_relu (Activatio	(None, None, None, 6 0	decoder_stage2b_bn[0][0]
decoder_stage3_upsampling (UpSa	(None, None, None, 6 0	decoder_stage2b_relu[0][0]
decoder_stage3_concat (Concaten	(None, None, None, 1 0	decoder_stage3_upsampling[0][0]
		block2_conv2[0][0]
decoder_stage3a_conv (Conv2D)	(None, None, None, 3 55296	decoder_stage3_concat[0][0]
decoder_stage3a_bn (BatchNormal	(None, None, None, 3 128	decoder_stage3a_conv[0][0]
decoder_stage3a_relu (Activatio	(None, None, None, 3 0	decoder_stage3a_bn[0][0]
decoder_stage3b_conv (Conv2D)	(None, None, None, 3 9216	decoder_stage3a_relu[0][0]
decoder_stage3b_bn (BatchNormal	(None, None, None, 3 128	decoder_stage3b_conv[0][0]
decoder_stage3b_relu (Activatio	(None, None, None, 3 0	decoder_stage3b_bn[0][0]
decoder_stage4_upsampling (UpSa	(None, None, None, 3 0	decoder_stage3b_relu[0][0]
decoder_stage4a_conv (Conv2D)	(None, None, None, 1 4608	decoder_stage4_upsampling[0][0]
decoder_stage4a_bn (BatchNormal	(None, None, None, 1 64	decoder_stage4a_conv[0][0]
decoder_stage4a_relu (Activatio	(None, None, None, 1 0	decoder_stage4a_bn[0][0]
decoder_stage4b_conv (Conv2D)	(None, None, None, 1 2304	decoder_stage4a_relu[0][0]
decoder_stage4b_bn (BatchNormal	(None, None, None, 1 64	decoder_stage4b_conv[0][0]
decoder_stage4b_relu (Activatio	(None, None, None, 1 0	decoder_stage4b_bn[0][0]
final_conv (Conv2D)	(None, None, None, 2 290	decoder_stage4b_relu[0][0]
sigmoid (Activation)	(None, None, None, 2 0	final_conv[0][0]

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Total params: 23,752,418
Trainable params: 23,748,386
Non-trainable params: 4,032