

## Practical 10

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Transfer learning:

Model: "resnet50"

| Layer (type)                    | Output Shape              | Param # | Connected to              |
|---------------------------------|---------------------------|---------|---------------------------|
| input_1 (InputLayer)            | [(None, 224, 224, 3) 0    |         |                           |
| conv1_pad (ZeroPadding2D)       | (None, 230, 230, 3) 0     |         | input_1[0][0]             |
| conv1_conv (Conv2D)             | (None, 112, 112, 64) 9472 |         | conv1_pad[0][0]           |
| conv1_bn (BatchNormalization)   | (None, 112, 112, 64) 256  |         | conv1_conv[0][0]          |
| conv1_relu (Activation)         | (None, 112, 112, 64) 0    |         | conv1_bn[0][0]            |
| pool1_pad (ZeroPadding2D)       | (None, 114, 114, 64) 0    |         | conv1_relu[0][0]          |
| pool1_pool (MaxPooling2D)       | (None, 56, 56, 64) 0      |         | pool1_pad[0][0]           |
| conv2_block1_1_conv (Conv2D)    | (None, 56, 56, 64) 4160   |         | pool1_pool[0][0]          |
| conv2_block1_1_bn (BatchNormali | (None, 56, 56, 64) 256    |         | conv2_block1_1_conv[0][0] |
| conv2_block1_1_relu (Activation | (None, 56, 56, 64) 0      |         | conv2_block1_1_bn[0][0]   |
| conv2_block1_2_conv (Conv2D)    | (None, 56, 56, 64) 36928  |         | conv2_block1_1_relu[0][0] |
| conv2_block1_2_bn (BatchNormali | (None, 56, 56, 64) 256    |         | conv2_block1_2_conv[0][0] |
| conv2_block1_2_relu (Activation | (None, 56, 56, 64) 0      |         | conv2_block1_2_bn[0][0]   |
| conv2_block1_0_conv (Conv2D)    | (None, 56, 56, 256) 16640 |         | pool1_pool[0][0]          |
| conv2_block1_3_conv (Conv2D)    | (None, 56, 56, 256) 16640 |         | conv2_block1_2_relu[0][0] |

Bottleneck feature:

loss: 1.2262e-05 - accuracy: 1.0000 - val\_loss: 4.7444 - val\_accuracy: 0.4655