Fri Jul 23 06:57:07 2021

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| NVIDIA-SMI 470.42.01 Driver Version: 460.32.03 CUDA Version: 11.2 |

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| GPU Name Persistence-M| Bus-Id Disp.A | Volatile Uncorr. ECC |

| Fan Temp Perf Pwr:Usage/Cap| Memory-Usage | GPU-Util Compute M. |

| | | MIG M. |

|===============================+======================+======================|

| 0 Tesla T4 Off | 00000000:00:04.0 Off | 0 |

| N/A 36C P8 9W / 70W | 0MiB / 15109MiB | 0% Default |

| | | N/A |

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| Processes: |

| GPU GI CI PID Type Process name GPU Memory |

| ID ID Usage |

|=============================================================================|

| No running processes found |

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Model: "model"

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Layer (type) Output Shape Param # Connected to

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input\_1 (InputLayer) [(None, 224, 224, 3) 0

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conv1\_pad (ZeroPadding2D) (None, 230, 230, 3) 0 input\_1[0][0]

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conv1\_conv (Conv2D) (None, 112, 112, 64) 9472 conv1\_pad[0][0]

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conv1\_bn (BatchNormalization) (None, 112, 112, 64) 256 conv1\_conv[0][0]

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conv1\_relu (Activation) (None, 112, 112, 64) 0 conv1\_bn[0][0]

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pool1\_pad (ZeroPadding2D) (None, 114, 114, 64) 0 conv1\_relu[0][0]

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pool1\_pool (MaxPooling2D) (None, 56, 56, 64) 0 pool1\_pad[0][0]

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conv2\_block1\_1\_conv (Conv2D) (None, 56, 56, 64) 4160 pool1\_pool[0][0]

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conv2\_block1\_1\_bn (BatchNormali (None, 56, 56, 64) 256 conv2\_block1\_1\_conv[0][0]

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conv2\_block1\_1\_relu (Activation (None, 56, 56, 64) 0 conv2\_block1\_1\_bn[0][0]

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conv2\_block1\_2\_conv (Conv2D) (None, 56, 56, 64) 36928 conv2\_block1\_1\_relu[0][0]

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conv2\_block1\_2\_bn (BatchNormali (None, 56, 56, 64) 256 conv2\_block1\_2\_conv[0][0]

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conv2\_block1\_2\_relu (Activation (None, 56, 56, 64) 0 conv2\_block1\_2\_bn[0][0]

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conv2\_block1\_0\_conv (Conv2D) (None, 56, 56, 256) 16640 pool1\_pool[0][0]

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conv2\_block1\_3\_conv (Conv2D) (None, 56, 56, 256) 16640 conv2\_block1\_2\_relu[0][0]

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conv2\_block1\_0\_bn (BatchNormali (None, 56, 56, 256) 1024 conv2\_block1\_0\_conv[0][0]

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conv2\_block1\_3\_bn (BatchNormali (None, 56, 56, 256) 1024 conv2\_block1\_3\_conv[0][0]

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conv2\_block1\_add (Add) (None, 56, 56, 256) 0 conv2\_block1\_0\_bn[0][0]

conv2\_block1\_3\_bn[0][0]

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conv2\_block1\_out (Activation) (None, 56, 56, 256) 0 conv2\_block1\_add[0][0]

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conv2\_block2\_1\_conv (Conv2D) (None, 56, 56, 64) 16448 conv2\_block1\_out[0][0]

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conv2\_block2\_1\_bn (BatchNormali (None, 56, 56, 64) 256 conv2\_block2\_1\_conv[0][0]

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conv2\_block2\_1\_relu (Activation (None, 56, 56, 64) 0 conv2\_block2\_1\_bn[0][0]

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conv2\_block2\_2\_conv (Conv2D) (None, 56, 56, 64) 36928 conv2\_block2\_1\_relu[0][0]

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conv2\_block2\_2\_bn (BatchNormali (None, 56, 56, 64) 256 conv2\_block2\_2\_conv[0][0]

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conv2\_block2\_2\_relu (Activation (None, 56, 56, 64) 0 conv2\_block2\_2\_bn[0][0]

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conv2\_block2\_3\_conv (Conv2D) (None, 56, 56, 256) 16640 conv2\_block2\_2\_relu[0][0]

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conv2\_block2\_3\_bn (BatchNormali (None, 56, 56, 256) 1024 conv2\_block2\_3\_conv[0][0]

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conv2\_block2\_add (Add) (None, 56, 56, 256) 0 conv2\_block1\_out[0][0]

conv2\_block2\_3\_bn[0][0]

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conv2\_block2\_out (Activation) (None, 56, 56, 256) 0 conv2\_block2\_add[0][0]

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conv2\_block3\_1\_conv (Conv2D) (None, 56, 56, 64) 16448 conv2\_block2\_out[0][0]

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conv2\_block3\_1\_bn (BatchNormali (None, 56, 56, 64) 256 conv2\_block3\_1\_conv[0][0]

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conv2\_block3\_1\_relu (Activation (None, 56, 56, 64) 0 conv2\_block3\_1\_bn[0][0]

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conv2\_block3\_2\_conv (Conv2D) (None, 56, 56, 64) 36928 conv2\_block3\_1\_relu[0][0]

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conv2\_block3\_2\_bn (BatchNormali (None, 56, 56, 64) 256 conv2\_block3\_2\_conv[0][0]

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conv2\_block3\_2\_relu (Activation (None, 56, 56, 64) 0 conv2\_block3\_2\_bn[0][0]

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conv2\_block3\_3\_conv (Conv2D) (None, 56, 56, 256) 16640 conv2\_block3\_2\_relu[0][0]

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conv2\_block3\_3\_bn (BatchNormali (None, 56, 56, 256) 1024 conv2\_block3\_3\_conv[0][0]

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conv2\_block3\_add (Add) (None, 56, 56, 256) 0 conv2\_block2\_out[0][0]

conv2\_block3\_3\_bn[0][0]

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conv2\_block3\_out (Activation) (None, 56, 56, 256) 0 conv2\_block3\_add[0][0]

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conv3\_block1\_1\_conv (Conv2D) (None, 28, 28, 128) 32896 conv2\_block3\_out[0][0]

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conv3\_block1\_1\_bn (BatchNormali (None, 28, 28, 128) 512 conv3\_block1\_1\_conv[0][0]

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conv3\_block1\_1\_relu (Activation (None, 28, 28, 128) 0 conv3\_block1\_1\_bn[0][0]

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conv3\_block1\_2\_conv (Conv2D) (None, 28, 28, 128) 147584 conv3\_block1\_1\_relu[0][0]

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conv3\_block1\_2\_bn (BatchNormali (None, 28, 28, 128) 512 conv3\_block1\_2\_conv[0][0]

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conv3\_block1\_2\_relu (Activation (None, 28, 28, 128) 0 conv3\_block1\_2\_bn[0][0]

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conv3\_block1\_0\_conv (Conv2D) (None, 28, 28, 512) 131584 conv2\_block3\_out[0][0]

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conv3\_block1\_3\_conv (Conv2D) (None, 28, 28, 512) 66048 conv3\_block1\_2\_relu[0][0]

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conv3\_block1\_0\_bn (BatchNormali (None, 28, 28, 512) 2048 conv3\_block1\_0\_conv[0][0]

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conv3\_block1\_3\_bn (BatchNormali (None, 28, 28, 512) 2048 conv3\_block1\_3\_conv[0][0]

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conv3\_block1\_add (Add) (None, 28, 28, 512) 0 conv3\_block1\_0\_bn[0][0]

conv3\_block1\_3\_bn[0][0]

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conv3\_block1\_out (Activation) (None, 28, 28, 512) 0 conv3\_block1\_add[0][0]

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conv3\_block2\_1\_conv (Conv2D) (None, 28, 28, 128) 65664 conv3\_block1\_out[0][0]

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conv3\_block2\_1\_bn (BatchNormali (None, 28, 28, 128) 512 conv3\_block2\_1\_conv[0][0]

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conv3\_block2\_1\_relu (Activation (None, 28, 28, 128) 0 conv3\_block2\_1\_bn[0][0]

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conv3\_block2\_2\_conv (Conv2D) (None, 28, 28, 128) 147584 conv3\_block2\_1\_relu[0][0]

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conv3\_block2\_2\_bn (BatchNormali (None, 28, 28, 128) 512 conv3\_block2\_2\_conv[0][0]

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conv3\_block2\_2\_relu (Activation (None, 28, 28, 128) 0 conv3\_block2\_2\_bn[0][0]

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conv3\_block2\_3\_conv (Conv2D) (None, 28, 28, 512) 66048 conv3\_block2\_2\_relu[0][0]

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conv3\_block2\_3\_bn (BatchNormali (None, 28, 28, 512) 2048 conv3\_block2\_3\_conv[0][0]

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conv3\_block2\_add (Add) (None, 28, 28, 512) 0 conv3\_block1\_out[0][0]

conv3\_block2\_3\_bn[0][0]

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conv3\_block2\_out (Activation) (None, 28, 28, 512) 0 conv3\_block2\_add[0][0]

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conv3\_block3\_1\_conv (Conv2D) (None, 28, 28, 128) 65664 conv3\_block2\_out[0][0]

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conv3\_block3\_1\_bn (BatchNormali (None, 28, 28, 128) 512 conv3\_block3\_1\_conv[0][0]

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conv3\_block3\_1\_relu (Activation (None, 28, 28, 128) 0 conv3\_block3\_1\_bn[0][0]

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conv3\_block3\_2\_conv (Conv2D) (None, 28, 28, 128) 147584 conv3\_block3\_1\_relu[0][0]

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conv3\_block3\_2\_bn (BatchNormali (None, 28, 28, 128) 512 conv3\_block3\_2\_conv[0][0]

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conv3\_block3\_2\_relu (Activation (None, 28, 28, 128) 0 conv3\_block3\_2\_bn[0][0]

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conv3\_block3\_3\_conv (Conv2D) (None, 28, 28, 512) 66048 conv3\_block3\_2\_relu[0][0]

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conv3\_block3\_3\_bn (BatchNormali (None, 28, 28, 512) 2048 conv3\_block3\_3\_conv[0][0]

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conv3\_block3\_add (Add) (None, 28, 28, 512) 0 conv3\_block2\_out[0][0]

conv3\_block3\_3\_bn[0][0]

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conv3\_block3\_out (Activation) (None, 28, 28, 512) 0 conv3\_block3\_add[0][0]

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conv3\_block4\_1\_conv (Conv2D) (None, 28, 28, 128) 65664 conv3\_block3\_out[0][0]

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conv3\_block4\_1\_bn (BatchNormali (None, 28, 28, 128) 512 conv3\_block4\_1\_conv[0][0]

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conv3\_block4\_1\_relu (Activation (None, 28, 28, 128) 0 conv3\_block4\_1\_bn[0][0]

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conv3\_block4\_2\_conv (Conv2D) (None, 28, 28, 128) 147584 conv3\_block4\_1\_relu[0][0]

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conv3\_block4\_2\_bn (BatchNormali (None, 28, 28, 128) 512 conv3\_block4\_2\_conv[0][0]

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conv3\_block4\_2\_relu (Activation (None, 28, 28, 128) 0 conv3\_block4\_2\_bn[0][0]

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conv3\_block4\_3\_conv (Conv2D) (None, 28, 28, 512) 66048 conv3\_block4\_2\_relu[0][0]

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conv3\_block4\_3\_bn (BatchNormali (None, 28, 28, 512) 2048 conv3\_block4\_3\_conv[0][0]

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conv3\_block4\_add (Add) (None, 28, 28, 512) 0 conv3\_block3\_out[0][0]

conv3\_block4\_3\_bn[0][0]

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conv3\_block4\_out (Activation) (None, 28, 28, 512) 0 conv3\_block4\_add[0][0]

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conv4\_block1\_1\_conv (Conv2D) (None, 14, 14, 256) 131328 conv3\_block4\_out[0][0]

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conv4\_block1\_1\_bn (BatchNormali (None, 14, 14, 256) 1024 conv4\_block1\_1\_conv[0][0]

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conv4\_block1\_1\_relu (Activation (None, 14, 14, 256) 0 conv4\_block1\_1\_bn[0][0]

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conv4\_block1\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 conv4\_block1\_1\_relu[0][0]

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conv4\_block1\_2\_bn (BatchNormali (None, 14, 14, 256) 1024 conv4\_block1\_2\_conv[0][0]

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conv4\_block1\_2\_relu (Activation (None, 14, 14, 256) 0 conv4\_block1\_2\_bn[0][0]

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conv4\_block1\_0\_conv (Conv2D) (None, 14, 14, 1024) 525312 conv3\_block4\_out[0][0]

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conv4\_block1\_3\_conv (Conv2D) (None, 14, 14, 1024) 263168 conv4\_block1\_2\_relu[0][0]

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conv4\_block1\_0\_bn (BatchNormali (None, 14, 14, 1024) 4096 conv4\_block1\_0\_conv[0][0]

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conv4\_block1\_3\_bn (BatchNormali (None, 14, 14, 1024) 4096 conv4\_block1\_3\_conv[0][0]

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conv4\_block1\_add (Add) (None, 14, 14, 1024) 0 conv4\_block1\_0\_bn[0][0]

conv4\_block1\_3\_bn[0][0]

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conv4\_block1\_out (Activation) (None, 14, 14, 1024) 0 conv4\_block1\_add[0][0]

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conv4\_block2\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 conv4\_block1\_out[0][0]

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conv4\_block2\_1\_bn (BatchNormali (None, 14, 14, 256) 1024 conv4\_block2\_1\_conv[0][0]

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conv4\_block2\_1\_relu (Activation (None, 14, 14, 256) 0 conv4\_block2\_1\_bn[0][0]

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conv4\_block2\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 conv4\_block2\_1\_relu[0][0]

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conv4\_block2\_2\_bn (BatchNormali (None, 14, 14, 256) 1024 conv4\_block2\_2\_conv[0][0]

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conv4\_block2\_2\_relu (Activation (None, 14, 14, 256) 0 conv4\_block2\_2\_bn[0][0]

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conv4\_block2\_3\_conv (Conv2D) (None, 14, 14, 1024) 263168 conv4\_block2\_2\_relu[0][0]

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conv4\_block2\_3\_bn (BatchNormali (None, 14, 14, 1024) 4096 conv4\_block2\_3\_conv[0][0]

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conv4\_block2\_add (Add) (None, 14, 14, 1024) 0 conv4\_block1\_out[0][0]

conv4\_block2\_3\_bn[0][0]

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conv4\_block2\_out (Activation) (None, 14, 14, 1024) 0 conv4\_block2\_add[0][0]

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conv4\_block3\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 conv4\_block2\_out[0][0]

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conv4\_block3\_1\_bn (BatchNormali (None, 14, 14, 256) 1024 conv4\_block3\_1\_conv[0][0]

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conv4\_block3\_1\_relu (Activation (None, 14, 14, 256) 0 conv4\_block3\_1\_bn[0][0]

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conv4\_block3\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 conv4\_block3\_1\_relu[0][0]

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conv4\_block3\_2\_bn (BatchNormali (None, 14, 14, 256) 1024 conv4\_block3\_2\_conv[0][0]

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conv4\_block3\_2\_relu (Activation (None, 14, 14, 256) 0 conv4\_block3\_2\_bn[0][0]

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conv4\_block3\_3\_conv (Conv2D) (None, 14, 14, 1024) 263168 conv4\_block3\_2\_relu[0][0]

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conv4\_block3\_3\_bn (BatchNormali (None, 14, 14, 1024) 4096 conv4\_block3\_3\_conv[0][0]

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conv4\_block3\_add (Add) (None, 14, 14, 1024) 0 conv4\_block2\_out[0][0]

conv4\_block3\_3\_bn[0][0]

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conv4\_block3\_out (Activation) (None, 14, 14, 1024) 0 conv4\_block3\_add[0][0]

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conv4\_block4\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 conv4\_block3\_out[0][0]

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conv4\_block4\_1\_bn (BatchNormali (None, 14, 14, 256) 1024 conv4\_block4\_1\_conv[0][0]

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conv4\_block4\_1\_relu (Activation (None, 14, 14, 256) 0 conv4\_block4\_1\_bn[0][0]

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conv4\_block4\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 conv4\_block4\_1\_relu[0][0]

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conv4\_block4\_2\_bn (BatchNormali (None, 14, 14, 256) 1024 conv4\_block4\_2\_conv[0][0]

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conv4\_block4\_2\_relu (Activation (None, 14, 14, 256) 0 conv4\_block4\_2\_bn[0][0]

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conv4\_block4\_3\_conv (Conv2D) (None, 14, 14, 1024) 263168 conv4\_block4\_2\_relu[0][0]

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conv4\_block4\_3\_bn (BatchNormali (None, 14, 14, 1024) 4096 conv4\_block4\_3\_conv[0][0]

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conv4\_block4\_add (Add) (None, 14, 14, 1024) 0 conv4\_block3\_out[0][0]

conv4\_block4\_3\_bn[0][0]

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conv4\_block4\_out (Activation) (None, 14, 14, 1024) 0 conv4\_block4\_add[0][0]

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conv4\_block5\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 conv4\_block4\_out[0][0]

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conv4\_block5\_1\_bn (BatchNormali (None, 14, 14, 256) 1024 conv4\_block5\_1\_conv[0][0]

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conv4\_block5\_1\_relu (Activation (None, 14, 14, 256) 0 conv4\_block5\_1\_bn[0][0]

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conv4\_block5\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 conv4\_block5\_1\_relu[0][0]

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conv4\_block5\_2\_bn (BatchNormali (None, 14, 14, 256) 1024 conv4\_block5\_2\_conv[0][0]

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conv4\_block5\_2\_relu (Activation (None, 14, 14, 256) 0 conv4\_block5\_2\_bn[0][0]

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conv4\_block5\_3\_conv (Conv2D) (None, 14, 14, 1024) 263168 conv4\_block5\_2\_relu[0][0]

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conv4\_block5\_3\_bn (BatchNormali (None, 14, 14, 1024) 4096 conv4\_block5\_3\_conv[0][0]

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conv4\_block5\_add (Add) (None, 14, 14, 1024) 0 conv4\_block4\_out[0][0]

conv4\_block5\_3\_bn[0][0]

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conv4\_block5\_out (Activation) (None, 14, 14, 1024) 0 conv4\_block5\_add[0][0]

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conv4\_block6\_1\_conv (Conv2D) (None, 14, 14, 256) 262400 conv4\_block5\_out[0][0]

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conv4\_block6\_1\_bn (BatchNormali (None, 14, 14, 256) 1024 conv4\_block6\_1\_conv[0][0]

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conv4\_block6\_1\_relu (Activation (None, 14, 14, 256) 0 conv4\_block6\_1\_bn[0][0]

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conv4\_block6\_2\_conv (Conv2D) (None, 14, 14, 256) 590080 conv4\_block6\_1\_relu[0][0]

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conv4\_block6\_2\_bn (BatchNormali (None, 14, 14, 256) 1024 conv4\_block6\_2\_conv[0][0]

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conv4\_block6\_2\_relu (Activation (None, 14, 14, 256) 0 conv4\_block6\_2\_bn[0][0]

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conv4\_block6\_3\_conv (Conv2D) (None, 14, 14, 1024) 263168 conv4\_block6\_2\_relu[0][0]

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conv4\_block6\_3\_bn (BatchNormali (None, 14, 14, 1024) 4096 conv4\_block6\_3\_conv[0][0]

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conv4\_block6\_add (Add) (None, 14, 14, 1024) 0 conv4\_block5\_out[0][0]

conv4\_block6\_3\_bn[0][0]

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conv4\_block6\_out (Activation) (None, 14, 14, 1024) 0 conv4\_block6\_add[0][0]

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conv5\_block1\_1\_conv (Conv2D) (None, 7, 7, 512) 524800 conv4\_block6\_out[0][0]

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conv5\_block1\_1\_bn (BatchNormali (None, 7, 7, 512) 2048 conv5\_block1\_1\_conv[0][0]

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conv5\_block1\_1\_relu (Activation (None, 7, 7, 512) 0 conv5\_block1\_1\_bn[0][0]

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conv5\_block1\_2\_conv (Conv2D) (None, 7, 7, 512) 2359808 conv5\_block1\_1\_relu[0][0]

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conv5\_block1\_2\_bn (BatchNormali (None, 7, 7, 512) 2048 conv5\_block1\_2\_conv[0][0]

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conv5\_block1\_2\_relu (Activation (None, 7, 7, 512) 0 conv5\_block1\_2\_bn[0][0]

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conv5\_block1\_0\_conv (Conv2D) (None, 7, 7, 2048) 2099200 conv4\_block6\_out[0][0]

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conv5\_block1\_3\_conv (Conv2D) (None, 7, 7, 2048) 1050624 conv5\_block1\_2\_relu[0][0]

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conv5\_block1\_0\_bn (BatchNormali (None, 7, 7, 2048) 8192 conv5\_block1\_0\_conv[0][0]

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conv5\_block1\_3\_bn (BatchNormali (None, 7, 7, 2048) 8192 conv5\_block1\_3\_conv[0][0]

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conv5\_block1\_add (Add) (None, 7, 7, 2048) 0 conv5\_block1\_0\_bn[0][0]

conv5\_block1\_3\_bn[0][0]

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conv5\_block1\_out (Activation) (None, 7, 7, 2048) 0 conv5\_block1\_add[0][0]

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conv5\_block2\_1\_conv (Conv2D) (None, 7, 7, 512) 1049088 conv5\_block1\_out[0][0]

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conv5\_block2\_1\_bn (BatchNormali (None, 7, 7, 512) 2048 conv5\_block2\_1\_conv[0][0]

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conv5\_block2\_1\_relu (Activation (None, 7, 7, 512) 0 conv5\_block2\_1\_bn[0][0]

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conv5\_block2\_2\_conv (Conv2D) (None, 7, 7, 512) 2359808 conv5\_block2\_1\_relu[0][0]

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conv5\_block2\_2\_bn (BatchNormali (None, 7, 7, 512) 2048 conv5\_block2\_2\_conv[0][0]

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conv5\_block2\_2\_relu (Activation (None, 7, 7, 512) 0 conv5\_block2\_2\_bn[0][0]

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conv5\_block2\_3\_conv (Conv2D) (None, 7, 7, 2048) 1050624 conv5\_block2\_2\_relu[0][0]

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conv5\_block2\_3\_bn (BatchNormali (None, 7, 7, 2048) 8192 conv5\_block2\_3\_conv[0][0]

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conv5\_block2\_add (Add) (None, 7, 7, 2048) 0 conv5\_block1\_out[0][0]

conv5\_block2\_3\_bn[0][0]

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conv5\_block2\_out (Activation) (None, 7, 7, 2048) 0 conv5\_block2\_add[0][0]

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conv5\_block3\_1\_conv (Conv2D) (None, 7, 7, 512) 1049088 conv5\_block2\_out[0][0]

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conv5\_block3\_1\_bn (BatchNormali (None, 7, 7, 512) 2048 conv5\_block3\_1\_conv[0][0]

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conv5\_block3\_1\_relu (Activation (None, 7, 7, 512) 0 conv5\_block3\_1\_bn[0][0]

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conv5\_block3\_2\_conv (Conv2D) (None, 7, 7, 512) 2359808 conv5\_block3\_1\_relu[0][0]

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conv5\_block3\_2\_bn (BatchNormali (None, 7, 7, 512) 2048 conv5\_block3\_2\_conv[0][0]

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conv5\_block3\_2\_relu (Activation (None, 7, 7, 512) 0 conv5\_block3\_2\_bn[0][0]

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

conv5\_block3\_3\_conv (Conv2D) (None, 7, 7, 2048) 1050624 conv5\_block3\_2\_relu[0][0]

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conv5\_block3\_3\_bn (BatchNormali (None, 7, 7, 2048) 8192 conv5\_block3\_3\_conv[0][0]

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conv5\_block3\_add (Add) (None, 7, 7, 2048) 0 conv5\_block2\_out[0][0]

conv5\_block3\_3\_bn[0][0]

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conv5\_block3\_out (Activation) (None, 7, 7, 2048) 0 conv5\_block3\_add[0][0]

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flatten (Flatten) (None, 100352) 0 conv5\_block3\_out[0][0]

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dense (Dense) (None, 6) 602118 flatten[0][0]

==================================================================================================

Total params: 24,189,830

Trainable params: 602,118

Non-trainable params: 23,587,712

Found 5787 images belonging to 6 classes.

Found 3859 images belonging to 6 classes.

/usr/local/lib/python3.7/dist-packages/tensorflow/python/keras/engine/training.py:1940: UserWarning: `Model.fit\_generator` is deprecated and will be removed in a future version. Please use `Model.fit`, which supports generators.

warnings.warn('`Model.fit\_generator` is deprecated and '

Epoch 1/50

46/46 [==============================] - 142s 2s/step - loss: 5.1029 - accuracy: 0.2685 - val\_loss: 1.8241 - val\_accuracy: 0.4413

Epoch 00001: val\_loss improved from inf to 1.82413, saving model to model\_ResNet50-01-0.441-1.824.h5

/usr/local/lib/python3.7/dist-packages/tensorflow/python/keras/utils/generic\_utils.py:497: CustomMaskWarning: Custom mask layers require a config and must override get\_config. When loading, the custom mask layer must be passed to the custom\_objects argument.

category=CustomMaskWarning)

Epoch 2/50

46/46 [==============================] - 105s 2s/step - loss: 1.4167 - accuracy: 0.4605 - val\_loss: 1.4751 - val\_accuracy: 0.3110

Epoch 00002: val\_loss improved from 1.82413 to 1.47511, saving model to model\_ResNet50-02-0.311-1.475.h5

Epoch 3/50

46/46 [==============================] - 106s 2s/step - loss: 1.2913 - accuracy: 0.4980 - val\_loss: 1.1472 - val\_accuracy: 0.5693

Epoch 00003: val\_loss improved from 1.47511 to 1.14725, saving model to model\_ResNet50-03-0.569-1.147.h5

Epoch 4/50

46/46 [==============================] - 106s 2s/step - loss: 1.2123 - accuracy: 0.5346 - val\_loss: 1.2059 - val\_accuracy: 0.5051

Epoch 00004: val\_loss did not improve from 1.14725

Epoch 5/50

46/46 [==============================] - 106s 2s/step - loss: 1.1540 - accuracy: 0.5571 - val\_loss: 1.2312 - val\_accuracy: 0.5727

Epoch 00005: val\_loss did not improve from 1.14725

Epoch 6/50

46/46 [==============================] - 106s 2s/step - loss: 1.2177 - accuracy: 0.5448 - val\_loss: 1.1867 - val\_accuracy: 0.5452

Epoch 00006: val\_loss did not improve from 1.14725

Epoch 7/50

46/46 [==============================] - 105s 2s/step - loss: 1.2377 - accuracy: 0.5613 - val\_loss: 0.9947 - val\_accuracy: 0.6421

Epoch 00007: val\_loss improved from 1.14725 to 0.99467, saving model to model\_ResNet50-07-0.642-0.995.h5

Epoch 8/50

46/46 [==============================] - 106s 2s/step - loss: 1.0424 - accuracy: 0.5996 - val\_loss: 1.2301 - val\_accuracy: 0.5330

Epoch 00008: val\_loss did not improve from 0.99467

Epoch 9/50

46/46 [==============================] - 106s 2s/step - loss: 1.0831 - accuracy: 0.5896 - val\_loss: 0.9749 - val\_accuracy: 0.6414

Epoch 00009: val\_loss improved from 0.99467 to 0.97492, saving model to model\_ResNet50-09-0.641-0.975.h5

Epoch 10/50

46/46 [==============================] - 106s 2s/step - loss: 0.9891 - accuracy: 0.6183 - val\_loss: 1.0089 - val\_accuracy: 0.6341

Epoch 00010: val\_loss did not improve from 0.97492

Epoch 11/50

46/46 [==============================] - 104s 2s/step - loss: 1.1590 - accuracy: 0.5715 - val\_loss: 1.0699 - val\_accuracy: 0.6367

Epoch 00011: val\_loss did not improve from 0.97492

Epoch 12/50

46/46 [==============================] - 105s 2s/step - loss: 0.9152 - accuracy: 0.6622 - val\_loss: 0.9317 - val\_accuracy: 0.6675

Epoch 00012: val\_loss improved from 0.97492 to 0.93171, saving model to model\_ResNet50-12-0.668-0.932.h5

Epoch 13/50

46/46 [==============================] - 104s 2s/step - loss: 0.8829 - accuracy: 0.6793 - val\_loss: 0.8667 - val\_accuracy: 0.7222

Epoch 00013: val\_loss improved from 0.93171 to 0.86667, saving model to model\_ResNet50-13-0.722-0.867.h5

Epoch 14/50

46/46 [==============================] - 104s 2s/step - loss: 0.9385 - accuracy: 0.6456 - val\_loss: 0.8720 - val\_accuracy: 0.7012

Epoch 00014: val\_loss did not improve from 0.86667

Epoch 15/50

46/46 [==============================] - 104s 2s/step - loss: 0.9123 - accuracy: 0.6579 - val\_loss: 0.9632 - val\_accuracy: 0.6411

Epoch 00015: val\_loss did not improve from 0.86667

Epoch 16/50

46/46 [==============================] - 103s 2s/step - loss: 0.9787 - accuracy: 0.6369 - val\_loss: 0.9947 - val\_accuracy: 0.6699

Epoch 00016: val\_loss did not improve from 0.86667

Epoch 17/50

46/46 [==============================] - 104s 2s/step - loss: 1.1892 - accuracy: 0.6333 - val\_loss: 0.9154 - val\_accuracy: 0.6807

Epoch 00017: val\_loss did not improve from 0.86667

Epoch 18/50

46/46 [==============================] - 104s 2s/step - loss: 0.9331 - accuracy: 0.6556 - val\_loss: 0.9492 - val\_accuracy: 0.6528

Epoch 00018: val\_loss did not improve from 0.86667

Epoch 19/50

46/46 [==============================] - 103s 2s/step - loss: 0.9219 - accuracy: 0.6558 - val\_loss: 0.9017 - val\_accuracy: 0.7010

Epoch 00019: val\_loss did not improve from 0.86667

Epoch 20/50

46/46 [==============================] - 104s 2s/step - loss: 0.8869 - accuracy: 0.6611 - val\_loss: 0.8223 - val\_accuracy: 0.7222

Epoch 00020: val\_loss improved from 0.86667 to 0.82233, saving model to model\_ResNet50-20-0.722-0.822.h5

Epoch 21/50

46/46 [==============================] - 103s 2s/step - loss: 0.8334 - accuracy: 0.6907 - val\_loss: 0.9535 - val\_accuracy: 0.6439

Epoch 00021: val\_loss did not improve from 0.82233

Epoch 22/50

46/46 [==============================] - 104s 2s/step - loss: 0.8601 - accuracy: 0.6826 - val\_loss: 0.7664 - val\_accuracy: 0.7419

Epoch 00022: val\_loss improved from 0.82233 to 0.76644, saving model to model\_ResNet50-22-0.742-0.766.h5

Epoch 23/50

46/46 [==============================] - 103s 2s/step - loss: 0.8013 - accuracy: 0.7033 - val\_loss: 0.7669 - val\_accuracy: 0.7556

Epoch 00023: val\_loss did not improve from 0.76644

Epoch 24/50

46/46 [==============================] - 104s 2s/step - loss: 0.7842 - accuracy: 0.7062 - val\_loss: 0.8400 - val\_accuracy: 0.7095

Epoch 00024: val\_loss did not improve from 0.76644

Epoch 25/50

46/46 [==============================] - 103s 2s/step - loss: 0.7456 - accuracy: 0.7308 - val\_loss: 0.8399 - val\_accuracy: 0.7168

Epoch 00025: val\_loss did not improve from 0.76644

Epoch 26/50

46/46 [==============================] - 103s 2s/step - loss: 0.7444 - accuracy: 0.7308 - val\_loss: 0.7687 - val\_accuracy: 0.7256

Epoch 00026: val\_loss did not improve from 0.76644

Epoch 27/50

46/46 [==============================] - 103s 2s/step - loss: 0.7163 - accuracy: 0.7375 - val\_loss: 0.8705 - val\_accuracy: 0.7188

Epoch 00027: val\_loss did not improve from 0.76644

Epoch 28/50

46/46 [==============================] - 104s 2s/step - loss: 0.7364 - accuracy: 0.7386 - val\_loss: 0.7748 - val\_accuracy: 0.7292

Epoch 00028: val\_loss did not improve from 0.76644

Epoch 29/50

46/46 [==============================] - 103s 2s/step - loss: 0.7340 - accuracy: 0.7328 - val\_loss: 0.6887 - val\_accuracy: 0.7810

Epoch 00029: val\_loss improved from 0.76644 to 0.68867, saving model to model\_ResNet50-29-0.781-0.689.h5

Epoch 30/50

46/46 [==============================] - 103s 2s/step - loss: 0.7070 - accuracy: 0.7353 - val\_loss: 0.7468 - val\_accuracy: 0.7313

Epoch 00030: val\_loss did not improve from 0.68867

Epoch 31/50

46/46 [==============================] - 104s 2s/step - loss: 0.7482 - accuracy: 0.7273 - val\_loss: 0.7844 - val\_accuracy: 0.7315

Epoch 00031: val\_loss did not improve from 0.68867

Epoch 32/50

46/46 [==============================] - 103s 2s/step - loss: 0.8500 - accuracy: 0.6883 - val\_loss: 0.7265 - val\_accuracy: 0.7613

Epoch 00032: val\_loss did not improve from 0.68867

Epoch 33/50

46/46 [==============================] - 102s 2s/step - loss: 0.6607 - accuracy: 0.7643 - val\_loss: 0.7404 - val\_accuracy: 0.7183

Epoch 00033: val\_loss did not improve from 0.68867

Epoch 34/50

46/46 [==============================] - 104s 2s/step - loss: 0.7291 - accuracy: 0.7287 - val\_loss: 0.7233 - val\_accuracy: 0.7432

Epoch 00034: val\_loss did not improve from 0.68867

Epoch 35/50

46/46 [==============================] - 103s 2s/step - loss: 0.7085 - accuracy: 0.7420 - val\_loss: 0.7220 - val\_accuracy: 0.7484

Epoch 00035: val\_loss did not improve from 0.68867

Epoch 36/50

46/46 [==============================] - 103s 2s/step - loss: 0.7237 - accuracy: 0.7410 - val\_loss: 0.6955 - val\_accuracy: 0.7471

Epoch 00036: val\_loss did not improve from 0.68867

Epoch 37/50

46/46 [==============================] - 104s 2s/step - loss: 0.6997 - accuracy: 0.7365 - val\_loss: 0.7310 - val\_accuracy: 0.7422

Epoch 00037: val\_loss did not improve from 0.68867

Epoch 38/50

46/46 [==============================] - 102s 2s/step - loss: 0.6319 - accuracy: 0.7729 - val\_loss: 0.6492 - val\_accuracy: 0.7686

Epoch 00038: val\_loss improved from 0.68867 to 0.64919, saving model to model\_ResNet50-38-0.769-0.649.h5

Epoch 39/50

46/46 [==============================] - 105s 2s/step - loss: 0.6952 - accuracy: 0.7368 - val\_loss: 0.6905 - val\_accuracy: 0.7657

Epoch 00039: val\_loss did not improve from 0.64919

Epoch 40/50

46/46 [==============================] - 104s 2s/step - loss: 0.6873 - accuracy: 0.7415 - val\_loss: 0.9727 - val\_accuracy: 0.7199

Epoch 00040: val\_loss did not improve from 0.64919

Epoch 41/50

46/46 [==============================] - 105s 2s/step - loss: 0.7293 - accuracy: 0.7372 - val\_loss: 0.9546 - val\_accuracy: 0.6261

Epoch 00041: val\_loss did not improve from 0.64919

Epoch 42/50

46/46 [==============================] - 105s 2s/step - loss: 0.6936 - accuracy: 0.7472 - val\_loss: 0.6820 - val\_accuracy: 0.7637

Epoch 00042: val\_loss did not improve from 0.64919

Epoch 43/50

46/46 [==============================] - 105s 2s/step - loss: 0.6277 - accuracy: 0.7726 - val\_loss: 0.6043 - val\_accuracy: 0.8051

Epoch 00043: val\_loss improved from 0.64919 to 0.60427, saving model to model\_ResNet50-43-0.805-0.604.h5

Epoch 44/50

46/46 [==============================] - 106s 2s/step - loss: 0.6488 - accuracy: 0.7529 - val\_loss: 0.6756 - val\_accuracy: 0.7891

Epoch 00044: val\_loss did not improve from 0.60427

Epoch 45/50

46/46 [==============================] - 103s 2s/step - loss: 0.6264 - accuracy: 0.7660 - val\_loss: 0.6776 - val\_accuracy: 0.7639

Epoch 00045: val\_loss did not improve from 0.60427

Epoch 46/50

46/46 [==============================] - 105s 2s/step - loss: 0.5710 - accuracy: 0.8051 - val\_loss: 0.6648 - val\_accuracy: 0.7652

Epoch 00046: val\_loss did not improve from 0.60427

Epoch 47/50

46/46 [==============================] - 104s 2s/step - loss: 0.6258 - accuracy: 0.7729 - val\_loss: 0.6749 - val\_accuracy: 0.7756

Epoch 00047: val\_loss did not improve from 0.60427

Epoch 48/50

46/46 [==============================] - 103s 2s/step - loss: 0.5793 - accuracy: 0.7907 - val\_loss: 0.7699 - val\_accuracy: 0.7209

Epoch 00048: val\_loss did not improve from 0.60427

Epoch 49/50

46/46 [==============================] - 104s 2s/step - loss: 0.7242 - accuracy: 0.7192 - val\_loss: 0.7608 - val\_accuracy: 0.7007

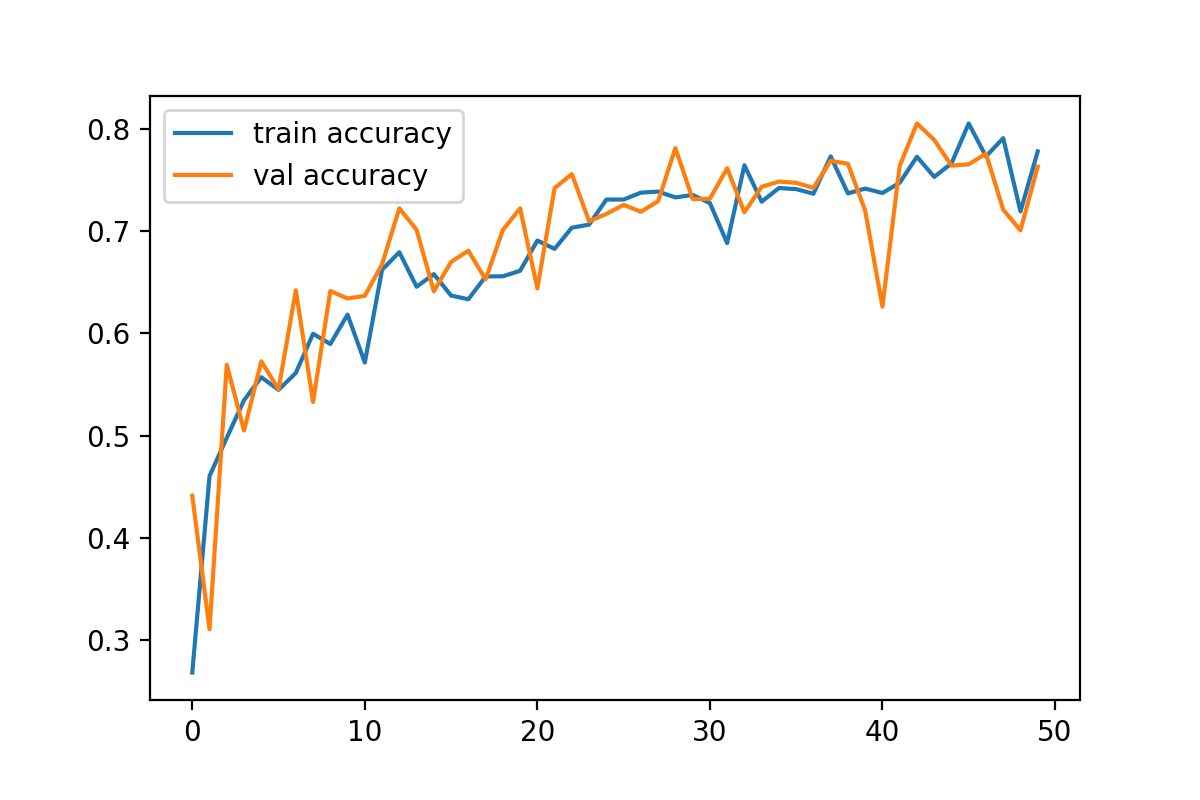
Epoch 00049: val\_loss did not improve from 0.60427

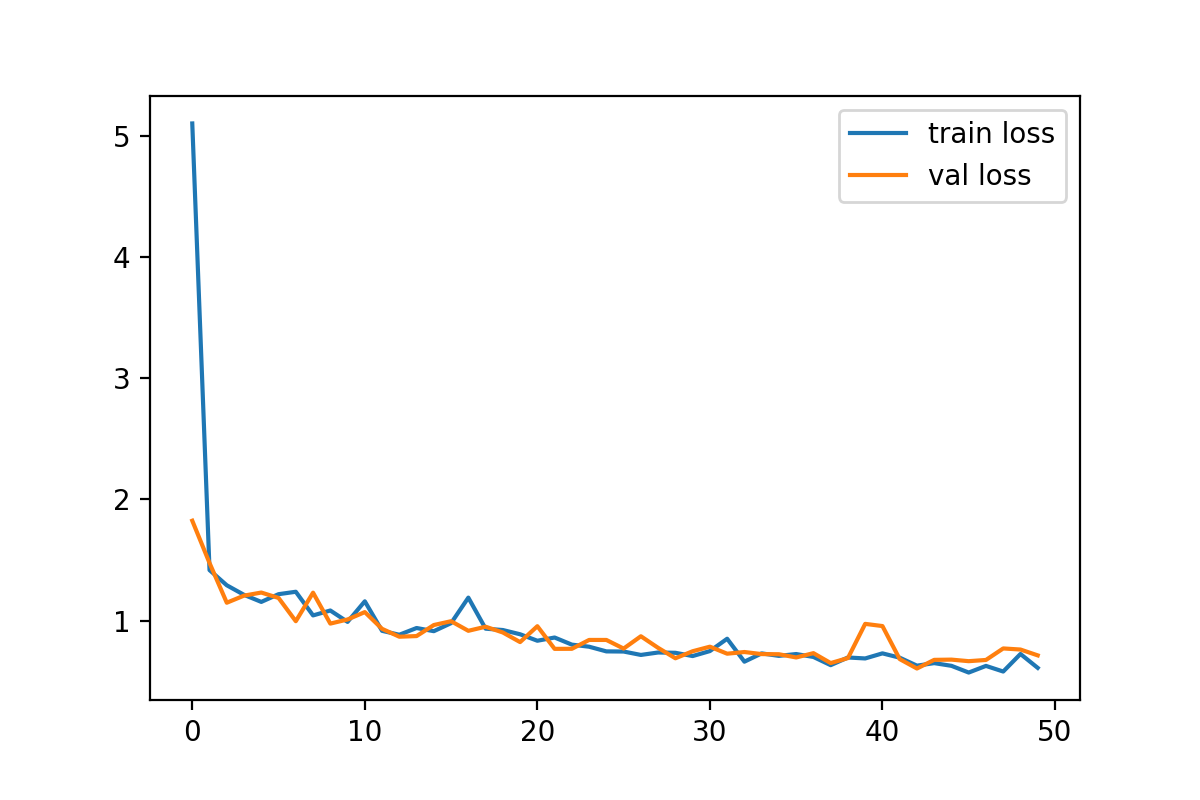
Epoch 50/50

46/46 [==============================] - 104s 2s/step - loss: 0.6096 - accuracy: 0.7778 - val\_loss: 0.7127 - val\_accuracy: 0.7629

Epoch 00050: val\_loss did not improve from 0.60427

Time: 5289.3793132305145





[[ 0 0 0 86 65 187]

[ 0 0 0 116 50 233]

[ 0 0 0 79 67 295]

[ 0 0 1 114 114 617]

[ 0 0 0 100 67 400]

[ 0 0 0 34 121 148]]

Accuracy: 0.113683

Error rate: 0.886317

classification\_report

precision recall f1-score support

0 0.00 0.00 0.00 338

1 0.00 0.00 0.00 399

2 0.00 0.00 0.00 441

3 0.22 0.13 0.17 846

4 0.14 0.12 0.13 567

5 0.08 0.49 0.14 303

accuracy 0.11 2894

macro avg 0.07 0.12 0.07 2894

weighted avg 0.10 0.11 0.09 2894

Cohens kappa: -0.047989

