Fri Jul 23 06:09:22 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 34C 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 [==============================] - 136s 2s/step - loss: 59.0886 - accuracy: 0.2426 - val\_loss: 20.2533 - val\_accuracy: 0.3009

Epoch 00001: val\_loss improved from inf to 20.25328, saving model to model\_ResNet50-01-0.301-20.253.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 [==============================] - 103s 2s/step - loss: 25.0424 - accuracy: 0.3138 - val\_loss: 16.9358 - val\_accuracy: 0.2788

Epoch 00002: val\_loss improved from 20.25328 to 16.93576, saving model to model\_ResNet50-02-0.279-16.936.h5

Epoch 3/50

46/46 [==============================] - 102s 2s/step - loss: 12.2548 - accuracy: 0.3942 - val\_loss: 8.8000 - val\_accuracy: 0.3581

Epoch 00003: val\_loss improved from 16.93576 to 8.79999, saving model to model\_ResNet50-03-0.358-8.800.h5

Epoch 4/50

46/46 [==============================] - 102s 2s/step - loss: 9.4517 - accuracy: 0.4113 - val\_loss: 11.2760 - val\_accuracy: 0.3716

Epoch 00004: val\_loss did not improve from 8.79999

Epoch 5/50

46/46 [==============================] - 102s 2s/step - loss: 11.0639 - accuracy: 0.4208 - val\_loss: 7.0918 - val\_accuracy: 0.4978

Epoch 00005: val\_loss improved from 8.79999 to 7.09184, saving model to model\_ResNet50-05-0.498-7.092.h5

Epoch 6/50

46/46 [==============================] - 103s 2s/step - loss: 10.2333 - accuracy: 0.4247 - val\_loss: 19.1451 - val\_accuracy: 0.3294

Epoch 00006: val\_loss did not improve from 7.09184

Epoch 7/50

46/46 [==============================] - 102s 2s/step - loss: 10.1569 - accuracy: 0.4201 - val\_loss: 8.9443 - val\_accuracy: 0.5579

Epoch 00007: val\_loss did not improve from 7.09184

Epoch 8/50

46/46 [==============================] - 101s 2s/step - loss: 6.8902 - accuracy: 0.4787 - val\_loss: 10.1025 - val\_accuracy: 0.5260

Epoch 00008: val\_loss did not improve from 7.09184

Epoch 9/50

46/46 [==============================] - 103s 2s/step - loss: 6.8406 - accuracy: 0.4952 - val\_loss: 2.4992 - val\_accuracy: 0.6398

Epoch 00009: val\_loss improved from 7.09184 to 2.49919, saving model to model\_ResNet50-09-0.640-2.499.h5

Epoch 10/50

46/46 [==============================] - 103s 2s/step - loss: 3.4755 - accuracy: 0.5903 - val\_loss: 4.2513 - val\_accuracy: 0.5038

Epoch 00010: val\_loss did not improve from 2.49919

Epoch 11/50

46/46 [==============================] - 101s 2s/step - loss: 5.3666 - accuracy: 0.5200 - val\_loss: 12.9769 - val\_accuracy: 0.3327

Epoch 00011: val\_loss did not improve from 2.49919

Epoch 12/50

46/46 [==============================] - 103s 2s/step - loss: 10.3305 - accuracy: 0.4597 - val\_loss: 17.5443 - val\_accuracy: 0.3343

Epoch 00012: val\_loss did not improve from 2.49919

Epoch 13/50

46/46 [==============================] - 102s 2s/step - loss: 10.4670 - accuracy: 0.4425 - val\_loss: 11.4772 - val\_accuracy: 0.5727

Epoch 00013: val\_loss did not improve from 2.49919

Epoch 14/50

46/46 [==============================] - 102s 2s/step - loss: 6.5019 - accuracy: 0.5417 - val\_loss: 7.3174 - val\_accuracy: 0.4706

Epoch 00014: val\_loss did not improve from 2.49919

Epoch 15/50

46/46 [==============================] - 103s 2s/step - loss: 5.7542 - accuracy: 0.5483 - val\_loss: 3.0541 - val\_accuracy: 0.6445

Epoch 00015: val\_loss did not improve from 2.49919

Epoch 16/50

46/46 [==============================] - 101s 2s/step - loss: 3.1340 - accuracy: 0.6433 - val\_loss: 3.2742 - val\_accuracy: 0.6515

Epoch 00016: val\_loss did not improve from 2.49919

Epoch 17/50

46/46 [==============================] - 101s 2s/step - loss: 2.3820 - accuracy: 0.6568 - val\_loss: 2.0104 - val\_accuracy: 0.6916

Epoch 00017: val\_loss improved from 2.49919 to 2.01039, saving model to model\_ResNet50-17-0.692-2.010.h5

Epoch 18/50

46/46 [==============================] - 102s 2s/step - loss: 4.9211 - accuracy: 0.5609 - val\_loss: 5.1311 - val\_accuracy: 0.6116

Epoch 00018: val\_loss did not improve from 2.01039

Epoch 19/50

46/46 [==============================] - 103s 2s/step - loss: 9.9061 - accuracy: 0.4811 - val\_loss: 6.8651 - val\_accuracy: 0.6173

Epoch 00019: val\_loss did not improve from 2.01039

Epoch 20/50

46/46 [==============================] - 103s 2s/step - loss: 8.4208 - accuracy: 0.5118 - val\_loss: 11.8638 - val\_accuracy: 0.5750

Epoch 00020: val\_loss did not improve from 2.01039

Epoch 21/50

46/46 [==============================] - 101s 2s/step - loss: 7.4862 - accuracy: 0.5264 - val\_loss: 4.4355 - val\_accuracy: 0.5079

Epoch 00021: val\_loss did not improve from 2.01039

Epoch 22/50

46/46 [==============================] - 103s 2s/step - loss: 2.5990 - accuracy: 0.6561 - val\_loss: 3.1495 - val\_accuracy: 0.6445

Epoch 00022: val\_loss did not improve from 2.01039

Epoch 23/50

46/46 [==============================] - 103s 2s/step - loss: 2.8225 - accuracy: 0.6551 - val\_loss: 1.6833 - val\_accuracy: 0.7409

Epoch 00023: val\_loss improved from 2.01039 to 1.68332, saving model to model\_ResNet50-23-0.741-1.683.h5

Epoch 24/50

46/46 [==============================] - 102s 2s/step - loss: 4.1284 - accuracy: 0.6274 - val\_loss: 7.7529 - val\_accuracy: 0.6035

Epoch 00024: val\_loss did not improve from 1.68332

Epoch 25/50

46/46 [==============================] - 103s 2s/step - loss: 5.9445 - accuracy: 0.5708 - val\_loss: 4.3588 - val\_accuracy: 0.5828

Epoch 00025: val\_loss did not improve from 1.68332

Epoch 26/50

46/46 [==============================] - 102s 2s/step - loss: 7.2903 - accuracy: 0.5383 - val\_loss: 4.9724 - val\_accuracy: 0.6813

Epoch 00026: val\_loss did not improve from 1.68332

Epoch 27/50

46/46 [==============================] - 103s 2s/step - loss: 4.0768 - accuracy: 0.6224 - val\_loss: 6.3249 - val\_accuracy: 0.7061

Epoch 00027: val\_loss did not improve from 1.68332

Epoch 28/50

46/46 [==============================] - 103s 2s/step - loss: 3.3235 - accuracy: 0.6655 - val\_loss: 3.2094 - val\_accuracy: 0.6043

Epoch 00028: val\_loss did not improve from 1.68332

Epoch 29/50

46/46 [==============================] - 103s 2s/step - loss: 7.9921 - accuracy: 0.5283 - val\_loss: 6.9851 - val\_accuracy: 0.5040

Epoch 00029: val\_loss did not improve from 1.68332

Epoch 30/50

46/46 [==============================] - 102s 2s/step - loss: 7.4974 - accuracy: 0.5658 - val\_loss: 3.6105 - val\_accuracy: 0.6686

Epoch 00030: val\_loss did not improve from 1.68332

Epoch 31/50

46/46 [==============================] - 102s 2s/step - loss: 4.2198 - accuracy: 0.6159 - val\_loss: 6.3591 - val\_accuracy: 0.5566

Epoch 00031: val\_loss did not improve from 1.68332

Epoch 32/50

46/46 [==============================] - 101s 2s/step - loss: 4.0150 - accuracy: 0.6375 - val\_loss: 2.3975 - val\_accuracy: 0.7010

Epoch 00032: val\_loss did not improve from 1.68332

Epoch 33/50

46/46 [==============================] - 103s 2s/step - loss: 2.5839 - accuracy: 0.6815 - val\_loss: 2.1460 - val\_accuracy: 0.7219

Epoch 00033: val\_loss did not improve from 1.68332

Epoch 34/50

46/46 [==============================] - 102s 2s/step - loss: 1.9536 - accuracy: 0.7171 - val\_loss: 1.7572 - val\_accuracy: 0.7466

Epoch 00034: val\_loss did not improve from 1.68332

Epoch 35/50

46/46 [==============================] - 103s 2s/step - loss: 2.1296 - accuracy: 0.7176 - val\_loss: 1.9631 - val\_accuracy: 0.7334

Epoch 00035: val\_loss did not improve from 1.68332

Epoch 36/50

46/46 [==============================] - 102s 2s/step - loss: 2.7889 - accuracy: 0.6611 - val\_loss: 5.2271 - val\_accuracy: 0.5297

Epoch 00036: val\_loss did not improve from 1.68332

Epoch 37/50

46/46 [==============================] - 103s 2s/step - loss: 6.4850 - accuracy: 0.5901 - val\_loss: 20.3599 - val\_accuracy: 0.4418

Epoch 00037: val\_loss did not improve from 1.68332

Epoch 38/50

46/46 [==============================] - 102s 2s/step - loss: 9.3758 - accuracy: 0.5505 - val\_loss: 4.4715 - val\_accuracy: 0.5678

Epoch 00038: val\_loss did not improve from 1.68332

Epoch 39/50

46/46 [==============================] - 101s 2s/step - loss: 1.7129 - accuracy: 0.7437 - val\_loss: 3.2661 - val\_accuracy: 0.6662

Epoch 00039: val\_loss did not improve from 1.68332

Epoch 40/50

46/46 [==============================] - 103s 2s/step - loss: 2.1216 - accuracy: 0.7164 - val\_loss: 2.2713 - val\_accuracy: 0.7510

Epoch 00040: val\_loss did not improve from 1.68332

Epoch 41/50

46/46 [==============================] - 103s 2s/step - loss: 2.3624 - accuracy: 0.7066 - val\_loss: 3.4577 - val\_accuracy: 0.5818

Epoch 00041: val\_loss did not improve from 1.68332

Epoch 42/50

46/46 [==============================] - 103s 2s/step - loss: 4.8880 - accuracy: 0.6219 - val\_loss: 5.8086 - val\_accuracy: 0.5201

Epoch 00042: val\_loss did not improve from 1.68332

Epoch 43/50

46/46 [==============================] - 103s 2s/step - loss: 3.5071 - accuracy: 0.6604 - val\_loss: 3.4089 - val\_accuracy: 0.6074

Epoch 00043: val\_loss did not improve from 1.68332

Epoch 44/50

46/46 [==============================] - 102s 2s/step - loss: 3.7350 - accuracy: 0.6577 - val\_loss: 6.5301 - val\_accuracy: 0.5152

Epoch 00044: val\_loss did not improve from 1.68332

Epoch 45/50

46/46 [==============================] - 103s 2s/step - loss: 3.7193 - accuracy: 0.6475 - val\_loss: 2.4083 - val\_accuracy: 0.7028

Epoch 00045: val\_loss did not improve from 1.68332

Epoch 46/50

46/46 [==============================] - 101s 2s/step - loss: 1.6405 - accuracy: 0.7436 - val\_loss: 2.0463 - val\_accuracy: 0.7243

Epoch 00046: val\_loss did not improve from 1.68332

Epoch 47/50

46/46 [==============================] - 102s 2s/step - loss: 2.1099 - accuracy: 0.7349 - val\_loss: 3.8926 - val\_accuracy: 0.7440

Epoch 00047: val\_loss did not improve from 1.68332

Epoch 48/50

46/46 [==============================] - 102s 2s/step - loss: 2.2289 - accuracy: 0.7173 - val\_loss: 2.4161 - val\_accuracy: 0.7251

Epoch 00048: val\_loss did not improve from 1.68332

Epoch 49/50

46/46 [==============================] - 101s 2s/step - loss: 9.2922 - accuracy: 0.5478 - val\_loss: 16.5216 - val\_accuracy: 0.3711

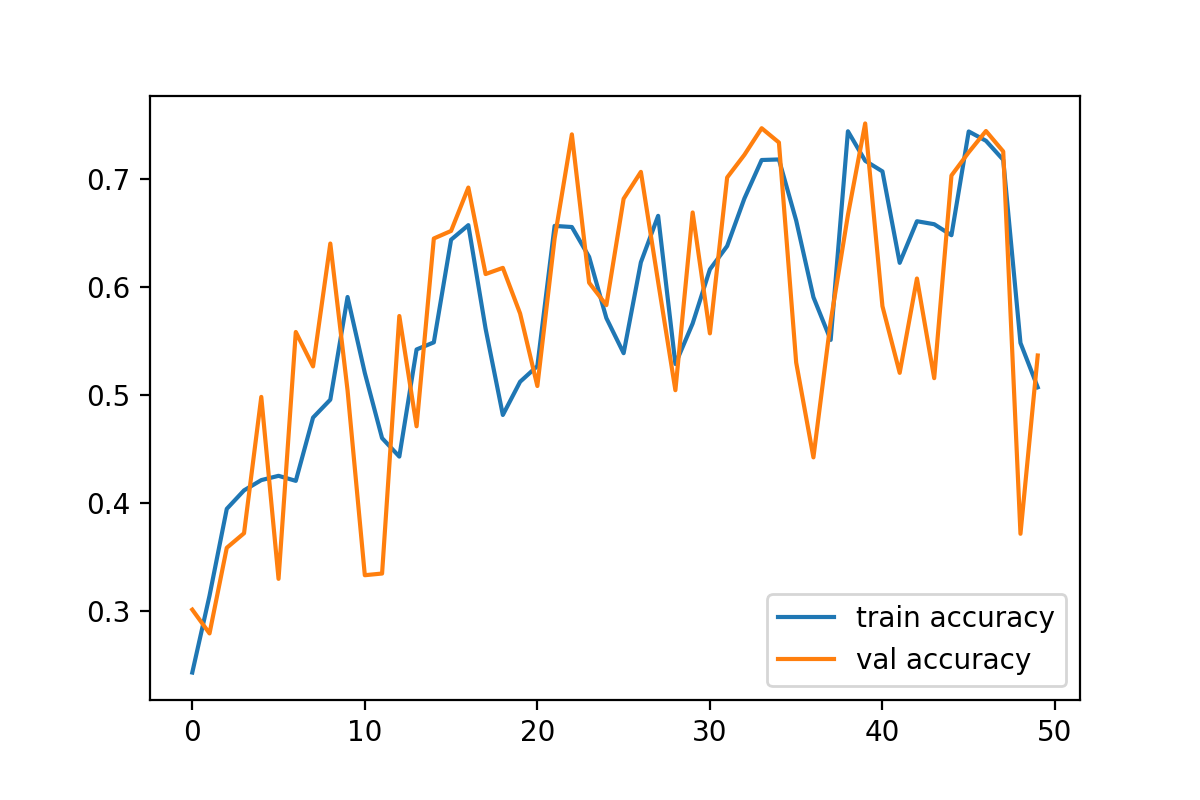
Epoch 00049: val\_loss did not improve from 1.68332

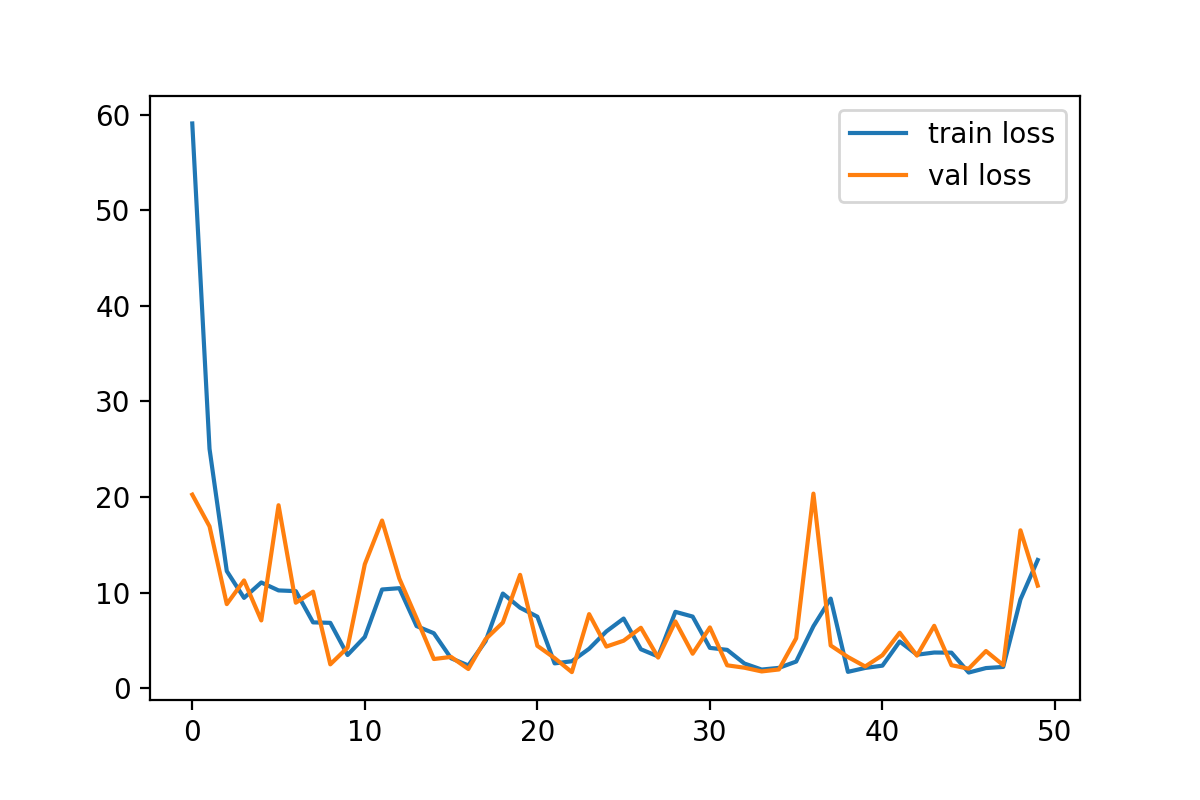
Epoch 50/50

46/46 [==============================] - 103s 2s/step - loss: 13.4176 - accuracy: 0.5067 - val\_loss: 10.7298 - val\_accuracy: 0.5361

Epoch 00050: val\_loss did not improve from 1.68332

Time: 5229.909104585648





[[ 0 0 0 268 19 51]

[ 0 0 0 334 10 55]

[ 0 0 0 309 20 112]

[ 0 1 0 579 62 204]

[ 0 0 0 363 24 180]

[ 0 0 0 148 73 82]]

Accuracy: 0.236697

Error rate: 0.763303

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 0.29 0.68 0.41 846

4 0.12 0.04 0.06 567

5 0.12 0.27 0.17 303

accuracy 0.24 2894

macro avg 0.09 0.17 0.11 2894

weighted avg 0.12 0.24 0.15 2894

Cohens kappa: -0.005670

