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C:\Users\Admin\anaconda3\envs\carlatf13py36\python.exe E:/Courses/Udacity/Workbooks/ND013/SelfDrivingCarEngineer/TrafficLightClassification/tl_classification_training.py:4] Successfully opened dynamic library cudart64_100.dll
Using TensorFlow backend.

E:/Courses/Udacity/Workbooks/ND013/SelfDrivingCarEngineer/TrafficLightClassification/tl_classification_training.py:76: YAMLLoadWarning: calling yaml.load()
Without Loader=... is deprecated, as the default Loader is unsafe. Please read https://msg.pyyaml.org/load for full details.

detection_data = yaml.load(f.read())
[ 100%|██████████| 277/277 [00:00<00:00, 55406.66it/s]
[ 100%|██████████| 159/159 [00:00<00:00, 79496.29it/s]
[ 100%|██████████| 8334/8334 [00:00<00:00, 68867.05it/s]

Images : Total 9008 : Green : 3992 Red : 2826 Yellow : 210 None : 1980
WARNING:tensorflow:From C:\Users\Admin\anaconda3\envs\carlatf13py36\lib\site-packages\tensorflow_core\python\resource_variable_ops.py:1630: calling
BaseResourceVariable.__init__ (from tensorflow.python.ops.resource_variable_ops) with constraint is deprecated and will be removed in a future version.
Instructions for updating:
  If using Keras pass *constraint arguments to layers.

2020-11-28 10:26:03.263312: I tensorflow/stream_executor/platform/default/gpu/gpu_device.cc:1618] Found device 0 with properties:
name: GeForce RTX 2060 major: 7 minor: 5 memoryClockRate(GHz): 1.755
pciBusID: 0000:00:00.0
2020-11-28 10:26:03.294917: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cudart64_100.dll
2020-11-28 10:26:03.300466: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cublas64_100.dll
2020-11-28 10:26:03.304631: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cufft64_100.dll
2020-11-28 10:26:03.307597: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library curand64_100.dll
2020-11-28 10:26:03.312161: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cusolver64_100.dll
2020-11-28 10:26:03.316071: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cusparse64_100.dll
2020-11-28 10:26:03.329326: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cudnn64_7.dll
2020-11-28 10:26:03.329482: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1746] Adding visible gpu devices: 0
2020-11-28 10:26:03.32994: I tensorflow/core/platform/cpu_feature_guard.cc:142] Your CPU supports instructions that this TensorFlow binary was not compiled to
Use: AVX AVX2
2020-11-28 10:26:03.367307: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1618] Found device 0 with properties:
name: GeForce RTX 2060 major: 7 minor: 5 memoryClockRate(GHz): 1.755
pciBusID: 0000:00:00.0
2020-11-28 10:26:03.367427: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cudart64_100.dll
2020-11-28 10:26:03.367506: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cublas64_100.dll
2020-11-28 10:26:03.367578: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cufft64_100.dll
2020-11-28 10:26:03.367649: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library curand64_100.dll
2020-11-28 10:26:03.367716: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cusolver64_100.dll
2020-11-28 10:26:03.367786: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cusparse64_100.dll
2020-11-28 10:26:03.367854: I tensorflow/stream_executor/platform/default/gpu/gpu_device.cc:1746] Adding visible gpu devices: 0
2020-11-28 10:26:03.367942: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1159] Device interconnect StreamExecutor with strength 1 edge matrix:
2020-11-28 10:26:03.771689: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1165] 0
2020-11-28 10:26:03.771791: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1178] 0: N
2020-11-28 10:26:03.771843: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1304] Created TensorFlow device (/job:localhost/relica:0/task:0/device:GPU:0
with 4724 MB memory) -> physical GPU (device: 0, name: GeForce RTX 2060, pci bus id: 0000:0c:00.0, compute capability: 7.5)
WARNING:tensorflow:From C:\Users\Admin\anaconda3\envs\carlatf13py36\lib\site-packages\keras\backend\tensorflow_backend.py:4070: The name tf.nn.max_pool is
deprecated. Please use tf.nn.max_pool2d instead.

Model: "model_1"

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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 (Conv2D)	(None, 112, 112, 64) 9472			conv1_pad[0][0]
bn1_conv1 (BatchNormalization)	(None, 112, 112, 64) 256			conv1[0][0]
activation_1 (Activation)	(None, 112, 112, 64) 0			bn1_conv1[0][0]
pool1_pad (ZeroPadding2D)	(None, 114, 114, 64) 0			activation_1[0][0]
max_pooling2d_1 (MaxPooling2D)	(None, 56, 56, 64) 0			pool1_pad[0][0]
res2a_branch2a (Conv2D)	(None, 56, 56, 64) 4160			max_pooling2d_1[0][0]
bn2a_branch2a (BatchNormalization)	(None, 56, 56, 64) 256			res2a_branch2a[0][0]
activation_2 (Activation)	(None, 56, 56, 64) 0			bn2a_branch2a[0][0]
res2a_branch2b (Conv2D)	(None, 56, 56, 64) 36928			activation_2[0][0]
bn2a_branch2b (BatchNormalization)	(None, 56, 56, 64) 256			res2a_branch2b[0][0]
activation_3 (Activation)	(None, 56, 56, 64) 0			bn2a_branch2b[0][0]
res2a_branch2c (Conv2D)	(None, 56, 56, 256) 16640			activation_3[0][0]
res2a_branch1 (Conv2D)	(None, 56, 56, 256) 16640			max_pooling2d_1[0][0]
bn2a_branch2c (BatchNormalization)	(None, 56, 56, 256) 1024			res2a_branch2c[0][0]
bn2a_branch1 (BatchNormalization)	(None, 56, 56, 256) 1024			res2a_branch1[0][0]
add_1 (Add)	(None, 56, 56, 256) 0			bn2a_branch2c[0][0] bn2a_branch1[0][0]
activation_4 (Activation)	(None, 56, 56, 256) 0			add_1[0][0]
res2b_branch2a (Conv2D)	(None, 56, 56, 64) 16448			activation_4[0][0]
bn2b_branch2a (BatchNormalization)	(None, 56, 56, 64) 256			res2b_branch2a[0][0]
activation_5 (Activation)	(None, 56, 56, 64) 0			bn2b_branch2a[0][0]
res2b_branch2b (Conv2D)	(None, 56, 56, 64) 36928			activation_5[0][0]
bn2b_branch2b (BatchNormalization)	(None, 56, 56, 64) 256			res2b_branch2b[0][0]

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activation_6 (Activation)      (None, 56, 56, 64)  0      bn2b_branch2b[0][0]  
res2b_branch2c (Conv2D)      (None, 56, 56, 256)  16640   activation_6[0][0]  
bn2b_branch2c (BatchNormalizati (None, 56, 56, 256)  1024    res2b_branch2c[0][0]  
add_2 (Add)                  (None, 56, 56, 256)  0      bn2b_branch2c[0][0]  
                                activation_4[0][0]  
activation_7 (Activation)    (None, 56, 56, 256)  0      add_2[0][0]  
res2c_branch2a (Conv2D)      (None, 56, 56, 64)  16448   activation_7[0][0]  
bn2c_branch2a (BatchNormalizati (None, 56, 56, 64)  256    res2c_branch2a[0][0]  
activation_8 (Activation)    (None, 56, 56, 64)  0      bn2c_branch2a[0][0]  
res2c_branch2b (Conv2D)      (None, 56, 56, 64)  36928   activation_8[0][0]  
bn2c_branch2b (BatchNormalizati (None, 56, 56, 64)  256    res2c_branch2b[0][0]  
activation_9 (Activation)    (None, 56, 56, 64)  0      bn2c_branch2b[0][0]  
res2c_branch2c (Conv2D)      (None, 56, 56, 256)  16640   activation_9[0][0]  
bn2c_branch2c (BatchNormalizati (None, 56, 56, 256)  1024    res2c_branch2c[0][0]  
add_3 (Add)                  (None, 56, 56, 256)  0      bn2c_branch2c[0][0]  
                                activation_7[0][0]  
activation_10 (Activation)   (None, 56, 56, 256)  0      add_3[0][0]  
res3a_branch2a (Conv2D)      (None, 28, 28, 128)  32896   activation_10[0][0]  
bn3a_branch2a (BatchNormalizati (None, 28, 28, 128)  512    res3a_branch2a[0][0]  
activation_11 (Activation)   (None, 28, 28, 128)  0      bn3a_branch2a[0][0]  
res3a_branch2b (Conv2D)      (None, 28, 28, 128)  147584  activation_11[0][0]  
bn3a_branch2b (BatchNormalizati (None, 28, 28, 128)  512    res3a_branch2b[0][0]  
activation_12 (Activation)   (None, 28, 28, 128)  0      bn3a_branch2b[0][0]  
res3a_branch2c (Conv2D)      (None, 28, 28, 512)  66048   activation_12[0][0]  
res3a_branch1 (Conv2D)      (None, 28, 28, 512)  131584  activation_10[0][0]  
bn3a_branch2c (BatchNormalizati (None, 28, 28, 512)  2048   res3a_branch2c[0][0]
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bn3a_branch1 (BatchNormalizatio (None, 28, 28, 512) 2048 res3a_branch1[0][0]
add_4 (Add) (None, 28, 28, 512) 0 bn3a_branch2c[0][0]
bn3a_branch1[0][0]

activation_13 (Activation) (None, 28, 28, 512) 0 add_4[0][0]

res3b_branch2a (Conv2D) (None, 28, 28, 128) 65664 activation_13[0][0]
bn3b_branch2a (BatchNormalizati (None, 28, 28, 128) 512 res3b_branch2a[0][0]
activation_14 (Activation) (None, 28, 28, 128) 0 bn3b_branch2a[0][0]
bn3b_branch2b (Conv2D) (None, 28, 28, 128) 147584 activation_14[0][0]
bn3b_branch2b (BatchNormalizati (None, 28, 28, 128) 512 res3b_branch2b[0][0]
activation_15 (Activation) (None, 28, 28, 128) 0 bn3b_branch2b[0][0]
res3b_branch2c (Conv2D) (None, 28, 28, 512) 66048 activation_15[0][0]
bn3b_branch2c (BatchNormalizati (None, 28, 28, 512) 2048 res3b_branch2c[0][0]
add_5 (Add) (None, 28, 28, 512) 0 bn3b_branch2c[0][0]
activation_13[0][0]

activation_16 (Activation) (None, 28, 28, 512) 0 add_5[0][0]
res3c_branch2a (Conv2D) (None, 28, 28, 128) 65664 activation_16[0][0]
bn3c_branch2a (BatchNormalizati (None, 28, 28, 128) 512 res3c_branch2a[0][0]
activation_17 (Activation) (None, 28, 28, 128) 0 bn3c_branch2a[0][0]
bn3c_branch2b (Conv2D) (None, 28, 28, 128) 147584 activation_17[0][0]
bn3c_branch2b (BatchNormalizati (None, 28, 28, 128) 512 res3c_branch2b[0][0]
activation_18 (Activation) (None, 28, 28, 128) 0 bn3c_branch2b[0][0]
res3c_branch2c (Conv2D) (None, 28, 28, 512) 66048 activation_18[0][0]
bn3c_branch2c (BatchNormalizati (None, 28, 28, 512) 2048 res3c_branch2c[0][0]
add_6 (Add) (None, 28, 28, 512) 0 bn3c_branch2c[0][0]
activation_16[0][0]

activation_19 (Activation) (None, 28, 28, 512) 0 add_6[0][0]

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res3d_branch2a (Conv2D)          (None, 28, 28, 128)  65664   activation_19[0][0]
bn3d_branch2a (BatchNormalizati (None, 28, 28, 128)  512    res3d_branch2a[0][0]
activation_20 (Activation)        (None, 28, 28, 128)  0      bn3d_branch2a[0][0]
res3d_branch2b (Conv2D)          (None, 28, 28, 128)  147584  activation_20[0][0]
bn3d_branch2b (BatchNormalizati (None, 28, 28, 128)  512    res3d_branch2b[0][0]
activation_21 (Activation)        (None, 28, 28, 128)  0      bn3d_branch2b[0][0]
res3d_branch2c (Conv2D)          (None, 28, 28, 512)  66048   activation_21[0][0]
bn3d_branch2c (BatchNormalizati (None, 28, 28, 512)  2048   res3d_branch2c[0][0]
add_7 (Add)                     (None, 28, 28, 512)  0      bn3d_branch2c[0][0]
activation_22 (Activation)        (None, 28, 28, 512)  0      add_7[0][0]
res4a_branch2a (Conv2D)          (None, 14, 14, 256)  131328  activation_22[0][0]
bn4a_branch2a (BatchNormalizati (None, 14, 14, 256)  1024   res4a_branch2a[0][0]
activation_23 (Activation)        (None, 14, 14, 256)  0      bn4a_branch2a[0][0]
res4a_branch2b (Conv2D)          (None, 14, 14, 256)  590080  activation_23[0][0]
bn4a_branch2b (BatchNormalizati (None, 14, 14, 256)  1024   res4a_branch2b[0][0]
activation_24 (Activation)        (None, 14, 14, 256)  0      bn4a_branch2b[0][0]
res4a_branch2c (Conv2D)          (None, 14, 14, 1024)  263168  activation_24[0][0]
res4a_branch1 (Conv2D)          (None, 14, 14, 1024)  525312  activation_22[0][0]
bn4a_branch2c (BatchNormalizati (None, 14, 14, 1024)  4096   res4a_branch2c[0][0]
bn4a_branch1 (BatchNormalizatio (None, 14, 14, 1024)  4096   res4a_branch1[0][0]
add_8 (Add)                     (None, 14, 14, 1024)  0      bn4a_branch2c[0][0]
activation_25 (Activation)        (None, 14, 14, 1024)  0      add_8[0][0]
res4b_branch2a (Conv2D)          (None, 14, 14, 256)  262400  activation_25[0][0]
bn4b_branch2a (BatchNormalizati (None, 14, 14, 256)  1024   res4b_branch2a[0][0]

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activation_26 (Activation)      (None, 14, 14, 256) 0      bn4b_branch2a[0][0]

res4b_branch2b (Conv2D)        (None, 14, 14, 256) 590080      activation_26[0][0]
bn4b_branch2b (BatchNormalizati (None, 14, 14, 256) 1024      res4b_branch2b[0][0]
activation_27 (Activation)      (None, 14, 14, 256) 0      bn4b_branch2b[0][0]

res4b_branch2c (Conv2D)        (None, 14, 14, 1024) 263168      activation_27[0][0]
bn4b_branch2c (BatchNormalizati (None, 14, 14, 1024) 4096      res4b_branch2c[0][0]
activation_28 (Activation)      (None, 14, 14, 1024) 0      add_9[0][0]
add_9 (Add)                   (None, 14, 14, 1024) 0      bn4b_branch2c[0][0]
activation_25[0][0]

activation_28 (Activation)      (None, 14, 14, 1024) 0      add_9[0][0]
res4c_branch2a (Conv2D)        (None, 14, 14, 256) 262400      activation_28[0][0]
bn4c_branch2a (BatchNormalizati (None, 14, 14, 256) 1024      res4c_branch2a[0][0]
activation_29 (Activation)      (None, 14, 14, 256) 0      bn4c_branch2a[0][0]
activation_29[0][0]

res4c_branch2b (Conv2D)        (None, 14, 14, 256) 590080      activation_29[0][0]
bn4c_branch2b (BatchNormalizati (None, 14, 14, 256) 1024      res4c_branch2b[0][0]
activation_30 (Activation)      (None, 14, 14, 256) 0      bn4c_branch2b[0][0]
activation_29[0][0]

res4c_branch2c (Conv2D)        (None, 14, 14, 1024) 263168      activation_30[0][0]
bn4c_branch2c (BatchNormalizati (None, 14, 14, 1024) 4096      res4c_branch2c[0][0]
activation_30[0][0]

add_10 (Add)                   (None, 14, 14, 1024) 0      bn4c_branch2c[0][0]
activation_28[0][0]

activation_31 (Activation)      (None, 14, 14, 1024) 0      add_10[0][0]
res4d_branch2a (Conv2D)        (None, 14, 14, 256) 262400      activation_31[0][0]
bn4d_branch2a (BatchNormalizati (None, 14, 14, 256) 1024      res4d_branch2a[0][0]
activation_32 (Activation)      (None, 14, 14, 256) 0      bn4d_branch2a[0][0]
activation_31[0][0]

res4d_branch2b (Conv2D)        (None, 14, 14, 256) 590080      activation_32[0][0]
bn4d_branch2b (BatchNormalizati (None, 14, 14, 256) 1024      res4d_branch2b[0][0]
activation_33 (Activation)      (None, 14, 14, 256) 0      bn4d_branch2b[0][0]
activation_32[0][0]

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res4d_branch2c (Conv2D)           (None, 14, 14, 1024) 263168      activation_33[0][0]
bn4d_branch2c (BatchNormalizati (None, 14, 14, 1024) 4096      res4d_branch2c[0][0]
add_11 (Add)                      (None, 14, 14, 1024) 0       bn4d_branch2c[0][0]
activation_34 (Activation)        (None, 14, 14, 1024) 0       activation_31[0][0]
res4e_branch2a (Conv2D)           (None, 14, 14, 256) 262400      activation_34[0][0]
bn4e_branch2a (BatchNormalizati (None, 14, 14, 256) 1024      res4e_branch2a[0][0]
activation_35 (Activation)        (None, 14, 14, 256) 0       bn4e_branch2a[0][0]
res4e_branch2b (Conv2D)           (None, 14, 14, 256) 590080      activation_35[0][0]
bn4e_branch2b (BatchNormalizati (None, 14, 14, 256) 1024      res4e_branch2b[0][0]
activation_36 (Activation)        (None, 14, 14, 256) 0       bn4e_branch2b[0][0]
res4e_branch2c (Conv2D)           (None, 14, 14, 1024) 263168      activation_36[0][0]
bn4e_branch2c (BatchNormalizati (None, 14, 14, 1024) 4096      res4e_branch2c[0][0]
add_12 (Add)                      (None, 14, 14, 1024) 0       bn4e_branch2c[0][0]
activation_37 (Activation)        (None, 14, 14, 1024) 0       activation_34[0][0]
res4f_branch2a (Conv2D)           (None, 14, 14, 256) 262400      activation_37[0][0]
bn4f_branch2a (BatchNormalizati (None, 14, 14, 256) 1024      res4f_branch2a[0][0]
activation_38 (Activation)        (None, 14, 14, 256) 0       bn4f_branch2a[0][0]
res4f_branch2b (Conv2D)           (None, 14, 14, 256) 590080      activation_38[0][0]
bn4f_branch2b (BatchNormalizati (None, 14, 14, 256) 1024      res4f_branch2b[0][0]
activation_39 (Activation)        (None, 14, 14, 256) 0       bn4f_branch2b[0][0]
res4f_branch2c (Conv2D)           (None, 14, 14, 1024) 263168      activation_39[0][0]
bn4f_branch2c (BatchNormalizati (None, 14, 14, 1024) 4096      res4f_branch2c[0][0]
add_13 (Add)                      (None, 14, 14, 1024) 0       bn4f_branch2c[0][0]
activation_40 (Activation)        (None, 14, 14, 1024) 0       activation_37[0][0]
add_13[0][0]                      (None, 14, 14, 1024) 0       add_13[0][0]

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res5a_branch2a (Conv2D)      (None, 7, 7, 512)  524800  activation_40[0][0]
bn5a_branch2a (BatchNormalizati (None, 7, 7, 512)  2048  res5a_branch2a[0][0]
activation_41 (Activation)    (None, 7, 7, 512)  0      bn5a_branch2a[0][0]
bn5a_branch2b (Conv2D)      (None, 7, 7, 512)  2359808 activation_41[0][0]
bn5a_branch2b (BatchNormalizati (None, 7, 7, 512)  2048  res5a_branch2b[0][0]
activation_42 (Activation)    (None, 7, 7, 512)  0      bn5a_branch2b[0][0]
res5a_branch2c (Conv2D)      (None, 7, 7, 2048) 1050624  activation_42[0][0]
res5a_branch1 (Conv2D)      (None, 7, 7, 2048) 2099200  activation_40[0][0]
bn5a_branch2c (BatchNormalizati (None, 7, 7, 2048) 8192  res5a_branch2c[0][0]
bn5a_branch1 (BatchNormalizatio (None, 7, 7, 2048) 8192  res5a_branch1[0][0]
add_14 (Add)                (None, 7, 7, 2048) 0      bn5a_branch2c[0][0]
                                         bn5a_branch1[0][0]
activation_43 (Activation)    (None, 7, 7, 2048) 0      add_14[0][0]
res5b_branch2a (Conv2D)      (None, 7, 7, 512)  1049088 activation_43[0][0]
bn5b_branch2a (BatchNormalizati (None, 7, 7, 512) 2048  res5b_branch2a[0][0]
activation_44 (Activation)    (None, 7, 7, 512) 0      bn5b_branch2a[0][0]
bn5b_branch2b (Conv2D)      (None, 7, 7, 512)  2359808 activation_44[0][0]
bn5b_branch2b (BatchNormalizati (None, 7, 7, 512) 2048  res5b_branch2b[0][0]
activation_45 (Activation)    (None, 7, 7, 512) 0      bn5b_branch2b[0][0]
res5b_branch2c (Conv2D)      (None, 7, 7, 2048) 1050624  activation_45[0][0]
bn5b_branch2c (BatchNormalizati (None, 7, 7, 2048) 8192  res5b_branch2c[0][0]
add_15 (Add)                (None, 7, 7, 2048) 0      bn5b_branch2c[0][0]
                                         activation_43[0][0]
activation_46 (Activation)    (None, 7, 7, 2048) 0      add_15[0][0]
res5c_branch2a (Conv2D)      (None, 7, 7, 512)  1049088 activation_46[0][0]
bn5c_branch2a (BatchNormalizati (None, 7, 7, 512) 2048  res5c_branch2a[0][0]
                                         activation_43[0][0]

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activation_47 (Activation)      (None, 7, 7, 512)      0          bn5c_branch2a[0][0]
res5c_branch2b (Conv2D)        (None, 7, 7, 512)      2359808    activation_47[0][0]
bn5c_branch2b (BatchNormalizati (None, 7, 7, 512)      2048      res5c_branch2b[0][0]
activation_48 (Activation)      (None, 7, 7, 512)      0          bn5c_branch2b[0][0]
res5c_branch2c (Conv2D)        (None, 7, 7, 2048)      1050624    activation_48[0][0]
bn5c_branch2c (BatchNormalizati (None, 7, 7, 2048)      8192      res5c_branch2c[0][0]
add_16 (Add)                  (None, 7, 7, 2048)      0          bn5c_branch2c[0][0]
activation_49 (Activation)      (None, 7, 7, 2048)      0          activation_46[0][0]
avg_pool (GlobalAveragePooling2 (None, 2048)            0          activation_49[0][0]
fc1000 (Dense)                (None, 1000)          2049000    avg_pool[0][0]
start_customization (Dropout)  (None, 1000)          0          fc1000[0][0]
dense_1 (Dense)                (None, 1024)          1025024    start_customization[0][0]
dropout_1 (Dropout)            (None, 1024)          0          dense_1[0][0]
dense_2 (Dense)                (None, 4)            4100      dropout_1[0][0]
=====
Total params: 26,665,836
Trainable params: 26,612,716
Non-trainable params: 53,120
=====

WARNING:tensorflow:From C:\Users\Admin\anaconda3\envs\carlatf13py36\lib\site-packages\tensorflow_core\python\math_grad.py:1424: where (from tensorflow.python.ops.array_ops) is deprecated and will be removed in a future version.
Instructions for updating:
Use tf.where in 2.0, which has the same broadcast rule as np.where
WARNING:tensorflow:From C:\Users\Admin\anaconda3\envs\carlatf13py36\lib\site-packages\tensorflow_backend\keras\backend\tensorflow_backend.py:422: The name tf.global_variables is deprecated. Please use tf.compat.v1.global_variables instead.

Epoch 1/10
2020-11-28 10:26:16.324463: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cublas64_100.dll
2020-11-28 10:26:16.520394: I tensorflow/stream_executor/platform/default/dso_loader.cc:44] Successfully opened dynamic library cudnn64_7.dll
2020-11-28 10:26:17.396207: W tensorflow/stream_executor/cuda/redzone_allocator.cc:312] Internal: Invoking ptxas not supported on Windows
Relying on driver to perform ptx compilation. This message will be only logged once.
- 157s - loss: 0.5111 - accuracy: 0.7500 - mean_squared_error: 0.1690
Epoch 2/10
- 151s - loss: 0.4856 - accuracy: 0.7519 - mean_squared_error: 0.1671 - val_loss: 0.5702 - val_accuracy: 0.7500 - val_mean_squared_error: 0.1650
Epoch 3/10

```

```
- 148s - loss: 0.4581 - accuracy: 0.7678 - mean_squared_error: 0.1628 - val_loss: 0.5892 - val_accuracy: 0.7966 - val_mean_squared_error: 0.1596
Epoch 4/10
- 147s - loss: 0.4141 - accuracy: 0.8002 - mean_squared_error: 0.1561 - val_loss: 0.5105 - val_accuracy: 0.9109 - val_mean_squared_error: 0.1519
Epoch 5/10
- 146s - loss: 0.3755 - accuracy: 0.8318 - mean_squared_error: 0.1480 - val_loss: 0.4807 - val_accuracy: 0.9441 - val_mean_squared_error: 0.1440
Epoch 6/10
- 146s - loss: 0.3572 - accuracy: 0.8390 - mean_squared_error: 0.1407 - val_loss: 0.6576 - val_accuracy: 0.9724 - val_mean_squared_error: 0.1374
Epoch 7/10
- 146s - loss: 0.3395 - accuracy: 0.8480 - mean_squared_error: 0.1344 - val_loss: 0.3518 - val_accuracy: 0.9770 - val_mean_squared_error: 0.1316
Epoch 8/10
- 146s - loss: 0.3384 - accuracy: 0.8430 - mean_squared_error: 0.1293 - val_loss: 0.1184 - val_accuracy: 0.9804 - val_mean_squared_error: 0.1271
Epoch 9/10
- 146s - loss: 0.2956 - accuracy: 0.8680 - mean_squared_error: 0.1245 - val_loss: 0.0845 - val_accuracy: 0.9768 - val_mean_squared_error: 0.1220
Epoch 10/10
- 147s - loss: 0.2657 - accuracy: 0.8883 - mean_squared_error: 0.1195 - val_loss: 0.0878 - val_accuracy: 0.9799 - val_mean_squared_error: 0.1169
Epoch 1/10
- 161s - loss: 0.2455 - accuracy: 0.8926 - mean_squared_error: 0.1146 - val_loss: 0.0613 - val_accuracy: 0.9839 - val_mean_squared_error: 0.1122
Epoch 2/10
- 148s - loss: 0.2337 - accuracy: 0.8955 - mean_squared_error: 0.1101 - val_loss: 0.0528 - val_accuracy: 0.9736 - val_mean_squared_error: 0.1082
Epoch 3/10
- 148s - loss: 0.2336 - accuracy: 0.8947 - mean_squared_error: 0.1065 - val_loss: 0.0507 - val_accuracy: 0.9861 - val_mean_squared_error: 0.1047
Epoch 4/10
- 148s - loss: 0.2142 - accuracy: 0.9006 - mean_squared_error: 0.1030 - val_loss: 0.0501 - val_accuracy: 0.9857 - val_mean_squared_error: 0.1013
Epoch 5/10
- 148s - loss: 0.2005 - accuracy: 0.9060 - mean_squared_error: 0.0998 - val_loss: 0.0372 - val_accuracy: 0.9882 - val_mean_squared_error: 0.0982
Epoch 6/10
- 147s - loss: 0.2022 - accuracy: 0.9054 - mean_squared_error: 0.0967 - val_loss: 0.0361 - val_accuracy: 0.9865 - val_mean_squared_error: 0.0954
Epoch 7/10
- 147s - loss: 0.1853 - accuracy: 0.9117 - mean_squared_error: 0.0940 - val_loss: 0.0273 - val_accuracy: 0.9885 - val_mean_squared_error: 0.0927
Epoch 8/10
- 147s - loss: 0.1788 - accuracy: 0.9134 - mean_squared_error: 0.0914 - val_loss: 0.0227 - val_accuracy: 0.9908 - val_mean_squared_error: 0.0902
Epoch 9/10
- 147s - loss: 0.1772 - accuracy: 0.9135 - mean_squared_error: 0.0890 - val_loss: 0.0202 - val_accuracy: 0.9899 - val_mean_squared_error: 0.0879
Epoch 10/10
- 147s - loss: 0.1730 - accuracy: 0.9150 - mean_squared_error: 0.0869 - val_loss: 0.0167 - val_accuracy: 0.9901 - val_mean_squared_error: 0.0859
Epoch 1/10
- 147s - loss: 0.1763 - accuracy: 0.9130 - mean_squared_error: 0.0849 - val_loss: 0.0158 - val_accuracy: 0.9910 - val_mean_squared_error: 0.0840
Epoch 2/10
- 147s - loss: 0.1714 - accuracy: 0.9152 - mean_squared_error: 0.0831 - val_loss: 0.0144 - val_accuracy: 0.9896 - val_mean_squared_error: 0.0823
Epoch 3/10
- 147s - loss: 0.1751 - accuracy: 0.9123 - mean_squared_error: 0.0815 - val_loss: 0.0130 - val_accuracy: 0.9890 - val_mean_squared_error: 0.0808
Epoch 4/10
- 147s - loss: 0.1700 - accuracy: 0.9142 - mean_squared_error: 0.0801 - val_loss: 0.0119 - val_accuracy: 0.9903 - val_mean_squared_error: 0.0794
Epoch 5/10
- 163s - loss: 0.1729 - accuracy: 0.9138 - mean_squared_error: 0.0787 - val_loss: 0.0116 - val_accuracy: 0.9915 - val_mean_squared_error: 0.0781
Epoch 6/10
- 168s - loss: 0.1710 - accuracy: 0.9135 - mean_squared_error: 0.0774 - val_loss: 0.0112 - val_accuracy: 0.9918 - val_mean_squared_error: 0.0768
Epoch 7/10
- 148s - loss: 0.1650 - accuracy: 0.9165 - mean_squared_error: 0.0762 - val_loss: 0.0098 - val_accuracy: 0.9915 - val_mean_squared_error: 0.0756
Epoch 8/10
```

File : ll_classification_training

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- 149s - loss: 0.1702 - accuracy: 0.9135 - mean_squared_error: 0.0751 - val_loss: 0.0093 - val_accuracy: 0.9915 - val_mean_squared_error: 0.0746
Epoch 9/10
- 151s - loss: 0.1702 - accuracy: 0.9130 - mean_squared_error: 0.0741 - val_loss: 0.0091 - val_accuracy: 0.9914 - val_mean_squared_error: 0.0736
Epoch 10/10
- 148s - loss: 0.1653 - accuracy: 0.9153 - mean_squared_error: 0.0731 - val_loss: 0.0089 - val_accuracy: 0.9915 - val_mean_squared_error: 0.0726
Epoch 1/10
- 147s - loss: 0.1633 - accuracy: 0.9163 - mean_squared_error: 0.0722 - val_loss: 0.0089 - val_accuracy: 0.9915 - val_mean_squared_error: 0.0717
Epoch 2/10
- 147s - loss: 0.1681 - accuracy: 0.9138 - mean_squared_error: 0.0713 - val_loss: 0.0089 - val_accuracy: 0.9915 - val_mean_squared_error: 0.0709
Epoch 3/10
- 147s - loss: 0.1638 - accuracy: 0.9167 - mean_squared_error: 0.0705 - val_loss: 0.0080 - val_accuracy: 0.9915 - val_mean_squared_error: 0.0701
Epoch 4/10
- 149s - loss: 0.1632 - accuracy: 0.9161 - mean_squared_error: 0.0697 - val_loss: 0.0085 - val_accuracy: 0.9913 - val_mean_squared_error: 0.0693
Epoch 5/10
- 155s - loss: 0.1694 - accuracy: 0.9147 - mean_squared_error: 0.0690 - val_loss: 0.0072 - val_accuracy: 0.9915 - val_mean_squared_error: 0.0686
Epoch 6/10
- 152s - loss: 0.1673 - accuracy: 0.9167 - mean_squared_error: 0.0683 - val_loss: 0.0077 - val_accuracy: 0.9943 - val_mean_squared_error: 0.0680
Epoch 7/10
- 148s - loss: 0.1633 - accuracy: 0.9182 - mean_squared_error: 0.0677 - val_loss: 0.0072 - val_accuracy: 0.9946 - val_mean_squared_error: 0.0673
Epoch 8/10
- 149s - loss: 0.1556 - accuracy: 0.9269 - mean_squared_error: 0.0670 - val_loss: 0.0068 - val_accuracy: 0.9947 - val_mean_squared_error: 0.0666
Epoch 9/10
- 151s - loss: 0.1447 - accuracy: 0.9338 - mean_squared_error: 0.0663 - val_loss: 0.0058 - val_accuracy: 0.9946 - val_mean_squared_error: 0.0659
Epoch 10/10
- 152s - loss: 0.1454 - accuracy: 0.9350 - mean_squared_error: 0.0655 - val_loss: 0.0055 - val_accuracy: 0.9945 - val_mean_squared_error: 0.0652
Epoch 1/10
- 150s - loss: 0.1385 - accuracy: 0.9369 - mean_squared_error: 0.0648 - val_loss: 0.0053 - val_accuracy: 0.9949 - val_mean_squared_error: 0.0645
Epoch 2/10
- 147s - loss: 0.1413 - accuracy: 0.9364 - mean_squared_error: 0.0641 - val_loss: 0.0049 - val_accuracy: 0.9950 - val_mean_squared_error: 0.0638
Epoch 3/10
- 147s - loss: 0.1409 - accuracy: 0.9354 - mean_squared_error: 0.0635 - val_loss: 0.0051 - val_accuracy: 0.9957 - val_mean_squared_error: 0.0632
Epoch 4/10
- 148s - loss: 0.1361 - accuracy: 0.9369 - mean_squared_error: 0.0628 - val_loss: 0.0049 - val_accuracy: 0.9956 - val_mean_squared_error: 0.0625
Epoch 5/10
- 147s - loss: 0.1358 - accuracy: 0.9378 - mean_squared_error: 0.0622 - val_loss: 0.0047 - val_accuracy: 0.9956 - val_mean_squared_error: 0.0619
Epoch 6/10
- 146s - loss: 0.1369 - accuracy: 0.9375 - mean_squared_error: 0.0616 - val_loss: 0.0045 - val_accuracy: 0.9953 - val_mean_squared_error: 0.0614
Epoch 7/10
- 146s - loss: 0.1404 - accuracy: 0.9348 - mean_squared_error: 0.0611 - val_loss: 0.0046 - val_accuracy: 0.9950 - val_mean_squared_error: 0.0608
Epoch 8/10
- 146s - loss: 0.1421 - accuracy: 0.9351 - mean_squared_error: 0.0606 - val_loss: 0.0045 - val_accuracy: 0.9954 - val_mean_squared_error: 0.0603
Epoch 9/10
- 146s - loss: 0.1370 - accuracy: 0.9353 - mean_squared_error: 0.0601 - val_loss: 0.0046 - val_accuracy: 0.9951 - val_mean_squared_error: 0.0599
Epoch 10/10
- 146s - loss: 0.1371 - accuracy: 0.9342 - mean_squared_error: 0.0596 - val_loss: 0.0045 - val_accuracy: 0.9950 - val_mean_squared_error: 0.0594
WARNING: tensorflow: From C:\Users\Admin\Anaconda3\envs\carlatf13py36\lib\site-packages\keras\backend\tensorflow_backend.py:4074: The name tf.nn.avg_pool is
deprecated. Please use tf.nn.avg_pool2d instead.
```

Model: "model_2"

File : l_classification_training	Layer (type)	Output Shape	Param #	Connected to
input_2 (InputLayer)	(None, 224, 224, 3) 0			
conv2d_1 (Conv2D)	(None, 111, 111, 32) 864	input_2[0][0]		
batch_normalization_1 (BatchNor	(None, 111, 111, 32) 96	conv2d_1[0][0]		
activation_50 (Activation)	(None, 111, 111, 32) 0	batch_normalization_1[0][0]		
conv2d_2 (Conv2D)	(None, 109, 109, 32) 9216	activation_50[0][0]		
batch_normalization_2 (BatchNor	(None, 109, 109, 32) 96	conv2d_2[0][0]		
activation_51 (Activation)	(None, 109, 109, 32) 0	batch_normalization_2[0][0]		
conv2d_3 (Conv2D)	(None, 109, 109, 64) 18432	activation_51[0][0]		
batch_normalization_3 (BatchNor	(None, 109, 109, 64) 192	conv2d_3[0][0]		
activation_52 (Activation)	(None, 109, 109, 64) 0	batch_normalization_2[0][0]		
max_pooling2d_2 (MaxPooling2D)	(None, 54, 54, 64) 0	activation_52[0][0]		
conv2d_4 (Conv2D)	(None, 54, 54, 80) 5120	max_pooling2d_2[0][0]		
batch_normalization_4 (BatchNor	(None, 54, 54, 80) 240	conv2d_4[0][0]		
activation_53 (Activation)	(None, 54, 54, 80) 0	batch_normalization_3[0][0]		
conv2d_5 (Conv2D)	(None, 52, 52, 192) 138240	activation_53[0][0]		
batch_normalization_5 (BatchNor	(None, 52, 52, 192) 576	conv2d_5[0][0]		
activation_54 (Activation)	(None, 52, 52, 192) 0	batch_normalization_4[0][0]		
max_pooling2d_3 (MaxPooling2D)	(None, 25, 25, 192) 0	activation_54[0][0]		
conv2d_9 (Conv2D)	(None, 25, 25, 64) 12288	max_pooling2d_3[0][0]		
batch_normalization_9 (BatchNor	(None, 25, 25, 64) 192	conv2d_9[0][0]		
activation_58 (Activation)	(None, 25, 25, 64) 0	batch_normalization_9[0][0]		
conv2d_7 (Conv2D)	(None, 25, 25, 48) 9216	max_pooling2d_3[0][0]		
conv2d_10 (Conv2D)	(None, 25, 25, 96) 55296	activation_58[0][0]		
batch_normalization_7 (BatchNor	(None, 25, 25, 48) 144	conv2d_7[0][0]		

```

batch_normalization_10 (BatchNo (None, 25, 25, 96) 288 conv2d_10[0][0]
activation_56 (Activation) (None, 25, 25, 48) 0 batch_normalization_7[0][0]
activation_59 (Activation) (None, 25, 25, 96) 0 batch_normalization_10[0][0]
average_pooling2d_1 (AveragePoo (None, 25, 25, 192) 0 max_pooling2d_3[0][0]
conv2d_6 (Conv2D) (None, 25, 25, 64) 12288 max_pooling2d_3[0][0]
conv2d_8 (Conv2D) (None, 25, 25, 64) 76800 activation_56[0][0]
conv2d_11 (Conv2D) (None, 25, 25, 96) 82944 activation_59[0][0]
conv2d_12 (Conv2D) (None, 25, 25, 32) 6144 average_pooling2d_1[0][0]
batch_normalization_6 (BatchNor (None, 25, 25, 64) 192 conv2d_6[0][0]
batch_normalization_8 (BatchNor (None, 25, 25, 64) 192 conv2d_8[0][0]
batch_normalization_11 (BatchNo (None, 25, 25, 96) 288 conv2d_11[0][0]
batch_normalization_12 (BatchNo (None, 25, 25, 32) 96 conv2d_12[0][0]
activation_55 (Activation) (None, 25, 25, 64) 0 batch_normalization_6[0][0]
activation_57 (Activation) (None, 25, 25, 64) 0 batch_normalization_8[0][0]
activation_60 (Activation) (None, 25, 25, 96) 0 batch_normalization_11[0][0]
activation_61 (Activation) (None, 25, 25, 32) 0 batch_normalization_12[0][0]
mixed0 (Concatenate) (None, 25, 25, 256) 0 activation_55[0][0]
mixed0 (Conv2D) (None, 25, 25, 64) 16384 mixed0[0][0]
batch_normalization_16 (BatchNo (None, 25, 25, 64) 192 conv2d_16[0][0]
activation_65 (Activation) (None, 25, 25, 64) 0 batch_normalization_16[0][0]
conv2d_14 (Conv2D) (None, 25, 25, 48) 12288 mixed0[0][0]
conv2d_17 (Conv2D) (None, 25, 25, 96) 55296 activation_65[0][0]
batch_normalization_14 (BatchNo (None, 25, 25, 48) 144 conv2d_14[0][0]
batch_normalization_17 (BatchNo (None, 25, 25, 96) 288 conv2d_17[0][0]

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activation_63 (Activation)      (None, 25, 25, 48)  0          batch_normalization_14[0][0]
activation_66 (Activation)      (None, 25, 25, 96)  0          batch_normalization_17[0][0]
average_pooling2d_2 (AveragePool) (None, 25, 25, 256) 0          mixed0[0][0]
conv2d_13 (Conv2D)            (None, 25, 25, 64)  16384    mixed0[0][0]
conv2d_15 (Conv2D)            (None, 25, 25, 64)  76800    activation_63[0][0]
conv2d_18 (Conv2D)            (None, 25, 25, 96)  82944    activation_66[0][0]
conv2d_19 (Conv2D)            (None, 25, 25, 64)  16384    average_pooling2d_2[0][0]
batch_normalization_13 (BatchNo) (None, 25, 25, 64)  192       conv2d_13[0][0]
batch_normalization_15 (BatchNo) (None, 25, 25, 64)  192       conv2d_15[0][0]
batch_normalization_18 (BatchNo) (None, 25, 25, 96)  288       conv2d_18[0][0]
batch_normalization_19 (BatchNo) (None, 25, 25, 64)  192       conv2d_19[0][0]
activation_62 (Activation)     (None, 25, 25, 64)  0          batch_normalization_13[0][0]
activation_64 (Activation)     (None, 25, 25, 64)  0          batch_normalization_15[0][0]
activation_67 (Activation)     (None, 25, 25, 96)  0          batch_normalization_18[0][0]
activation_68 (Activation)     (None, 25, 25, 64)  0          batch_normalization_19[0][0]
mixed1 (Concatenate)          (None, 25, 25, 288) 0          activation_62[0][0]
mixed0 (Concatenate)          (None, 25, 25, 288) 0          activation_64[0][0]
mixed0 (Concatenate)          (None, 25, 25, 288) 0          activation_67[0][0]
mixed0 (Concatenate)          (None, 25, 25, 288) 0          activation_68[0][0]
conv2d_23 (Conv2D)            (None, 25, 25, 64)  18432    mixed1[0][0]
batch_normalization_23 (BatchNo) (None, 25, 25, 64)  192       conv2d_23[0][0]
activation_72 (Activation)     (None, 25, 25, 64)  0          batch_normalization_23[0][0]
conv2d_21 (Conv2D)            (None, 25, 25, 48)  13824    mixed1[0][0]
conv2d_24 (Conv2D)            (None, 25, 25, 96)  55296    activation_72[0][0]
batch_normalization_21 (BatchNo) (None, 25, 25, 48)  144       conv2d_21[0][0]
batch_normalization_24 (BatchNo) (None, 25, 25, 96)  288       conv2d_24[0][0]
```

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File : ll_classification_training
activation_70 (Activation)      (None, 25, 25, 48)  0      batch_normalization_21[0][0]
activation_73 (Activation)      (None, 25, 25, 96)  0      batch_normalization_24[0][0]
average_pooling2d_3 (AveragePoo (None, 25, 25, 288)  0      mixed1[0][0]
conv2d_20 (Conv2D)            (None, 25, 25, 64)  18432  mixed1[0][0]
conv2d_22 (Conv2D)            (None, 25, 25, 64)  76800  activation_70[0][0]
conv2d_25 (Conv2D)            (None, 25, 25, 96)  82944  activation_73[0][0]
conv2d_26 (Conv2D)            (None, 25, 25, 64)  18432  average_pooling2d_3[0][0]
batch_normalization_20 (BatchNo (None, 25, 25, 64)  192   conv2d_20[0][0]
batch_normalization_22 (BatchNo (None, 25, 25, 64)  192   conv2d_22[0][0]
batch_normalization_25 (BatchNo (None, 25, 25, 96)  288   conv2d_25[0][0]
batch_normalization_26 (BatchNo (None, 25, 25, 64)  192   conv2d_26[0][0]
activation_69 (Activation)    (None, 25, 25, 64)  0      batch_normalization_20[0][0]
activation_71 (Activation)    (None, 25, 25, 64)  0      batch_normalization_22[0][0]
activation_74 (Activation)    (None, 25, 25, 96)  0      batch_normalization_25[0][0]
activation_75 (Activation)    (None, 25, 25, 64)  0      batch_normalization_26[0][0]
mixed2 (Concatenate)          (None, 25, 25, 288)  0      activation_69[0][0]
                                         activation_71[0][0]
                                         activation_74[0][0]
                                         activation_75[0][0]
conv2d_28 (Conv2D)            (None, 25, 25, 64)  18432  mixed2[0][0]
batch_normalization_28 (BatchNo (None, 25, 25, 64)  192   conv2d_28[0][0]
activation_77 (Activation)    (None, 25, 25, 64)  0      batch_normalization_28[0][0]
conv2d_29 (Conv2D)            (None, 25, 25, 96)  55296  activation_77[0][0]
batch_normalization_29 (BatchNo (None, 25, 25, 96)  288   conv2d_29[0][0]
activation_78 (Activation)    (None, 25, 25, 96)  0      batch_normalization_29[0][0]
conv2d_27 (Conv2D)            (None, 12, 12, 384)  995328  mixed2[0][0]
conv2d_30 (Conv2D)            (None, 12, 12, 96)  82944  activation_78[0][0]

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batch_normalization_27 (BatchNo (None, 12, 12, 384) 1152 conv2d_27[0][0]
batch_normalization_30 (BatchNo (None, 12, 12, 96) 288 conv2d_30[0][0]
activation_76 (Activation) (None, 12, 12, 384) 0 batch_normalization_27[0][0]
activation_79 (Activation) (None, 12, 12, 96) 0 batch_normalization_30[0][0]
max_pooling2d_4 (MaxPooling2D) (None, 12, 12, 288) 0 mixed2[0][0]
mixed3 (Concatenate) (None, 12, 12, 768) 0 activation_76[0][0]
activation_79[0][0]
activation_80 (Activation) (None, 12, 12, 768) 98304 mixed3[0][0]
conv2d_35 (Conv2D) (None, 12, 12, 128) 384 conv2d_35[0][0]
batch_normalization_35 (BatchNo (None, 12, 12, 128) 384 conv2d_35[0][0]
activation_84 (Activation) (None, 12, 12, 128) 0 batch_normalization_35[0][0]
conv2d_36 (Conv2D) (None, 12, 12, 128) 114688 activation_84[0][0]
batch_normalization_36 (BatchNo (None, 12, 12, 128) 384 conv2d_36[0][0]
activation_85 (Activation) (None, 12, 12, 128) 0 batch_normalization_36[0][0]
conv2d_32 (Conv2D) (None, 12, 12, 128) 98304 mixed3[0][0]
conv2d_37 (Conv2D) (None, 12, 12, 128) 114688 activation_85[0][0]
batch_normalization_32 (BatchNo (None, 12, 12, 128) 384 conv2d_32[0][0]
batch_normalization_37 (BatchNo (None, 12, 12, 128) 384 conv2d_37[0][0]
activation_81 (Activation) (None, 12, 12, 128) 0 batch_normalization_32[0][0]
activation_86 (Activation) (None, 12, 12, 128) 0 batch_normalization_37[0][0]
conv2d_33 (Conv2D) (None, 12, 12, 128) 114688 activation_81[0][0]
conv2d_38 (Conv2D) (None, 12, 12, 128) 114688 activation_86[0][0]
batch_normalization_33 (BatchNo (None, 12, 12, 128) 384 conv2d_33[0][0]
batch_normalization_38 (BatchNo (None, 12, 12, 128) 384 conv2d_38[0][0]
activation_82 (Activation) (None, 12, 12, 128) 0 batch_normalization_33[0][0]
activation_87 (Activation) (None, 12, 12, 128) 0 batch_normalization_38[0][0]
```

```
average_pooling2d_4 (AveragePoo (None, 12, 12, 768) 0 mixed3[0][0]
conv2d_31 (Conv2D) (None, 12, 12, 192) 147456 mixed3[0][0]
batch_normalization_34 (Conv2D) (None, 12, 12, 192) 172032 activation_82[0][0]
batch_normalization_39 (Conv2D) (None, 12, 12, 192) 172032 activation_87[0][0]
batch_normalization_40 (Conv2D) (None, 12, 12, 192) 147456 average_pooling2d_4[0][0]
batch_normalization_31 (BatchNo (None, 12, 12, 192) 576 conv2d_31[0][0]
batch_normalization_34 (BatchNo (None, 12, 12, 192) 576 conv2d_34[0][0]
batch_normalization_39 (BatchNo (None, 12, 12, 192) 576 conv2d_39[0][0]
batch_normalization_40 (BatchNo (None, 12, 12, 192) 576 conv2d_40[0][0]
activation_80 (Activation) (None, 12, 12, 192) 0 batch_normalization_31[0][0]
activation_83 (Activation) (None, 12, 12, 192) 0 batch_normalization_34[0][0]
activation_88 (Activation) (None, 12, 12, 192) 0 batch_normalization_39[0][0]
activation_89 (Activation) (None, 12, 12, 192) 0 batch_normalization_40[0][0]
mixed4 (Concatenate) (None, 12, 12, 768) 0 activation_80[0][0]
activation_83[0][0]
activation_88[0][0]
activation_89[0][0]
conv2d_45 (Conv2D) (None, 12, 12, 160) 122880 mixed4[0][0]
batch_normalization_45 (BatchNo (None, 12, 12, 160) 480 conv2d_45[0][0]
activation_94 (Activation) (None, 12, 12, 160) 0 batch_normalization_45[0][0]
conv2d_46 (Conv2D) (None, 12, 12, 160) 179200 activation_94[0][0]
batch_normalization_46 (BatchNo (None, 12, 12, 160) 480 conv2d_46[0][0]
activation_95 (Activation) (None, 12, 12, 160) 0 batch_normalization_46[0][0]
conv2d_42 (Conv2D) (None, 12, 12, 160) 122880 mixed4[0][0]
conv2d_47 (Conv2D) (None, 12, 12, 160) 179200 activation_95[0][0]
batch_normalization_42 (BatchNo (None, 12, 12, 160) 480 conv2d_42[0][0]
```

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batch_normalization_47 (BatchNo (None, 12, 12, 160) 480 conv2d_47[0][0]
activation_91 (Activation) (None, 12, 12, 160) 0 batch_normalization_42[0][0]
activation_96 (Activation) (None, 12, 12, 160) 0 batch_normalization_47[0][0]
conv2d_43 (Conv2D) (None, 12, 12, 160) 179200 activation_91[0][0]
conv2d_48 (Conv2D) (None, 12, 12, 160) 179200 activation_96[0][0]
batch_normalization_43 (BatchNo (None, 12, 12, 160) 480 conv2d_43[0][0]
batch_normalization_48 (BatchNo (None, 12, 12, 160) 480 conv2d_48[0][0]
activation_92 (Activation) (None, 12, 12, 160) 0 batch_normalization_43[0][0]
activation_97 (Activation) (None, 12, 12, 160) 0 batch_normalization_48[0][0]
average_pooling2d_5 (AveragePoo (None, 12, 12, 768) 0 mixed4[0][0]
conv2d_41 (Conv2D) (None, 12, 12, 192) 147456 mixed4[0][0]
conv2d_44 (Conv2D) (None, 12, 12, 192) 215040 activation_92[0][0]
conv2d_49 (Conv2D) (None, 12, 12, 192) 215040 activation_97[0][0]
conv2d_50 (Conv2D) (None, 12, 12, 192) 147456 average_pooling2d_5[0][0]
batch_normalization_41 (BatchNo (None, 12, 12, 192) 576 conv2d_41[0][0]
batch_normalization_44 (BatchNo (None, 12, 12, 192) 576 conv2d_44[0][0]
batch_normalization_49 (BatchNo (None, 12, 12, 192) 576 conv2d_49[0][0]
batch_normalization_50 (BatchNo (None, 12, 12, 192) 576 conv2d_50[0][0]
activation_90 (Activation) (None, 12, 12, 192) 0 batch_normalization_41[0][0]
activation_93 (Activation) (None, 12, 12, 192) 0 batch_normalization_44[0][0]
activation_98 (Activation) (None, 12, 12, 192) 0 batch_normalization_49[0][0]
activation_99 (Activation) (None, 12, 12, 192) 0 batch_normalization_50[0][0]
mixed5 (Concatenate) (None, 12, 12, 768) 0 activation_90[0][0]
activation_93[0][0] activation_98[0][0]
activation_99[0][0]
conv2d_55 (Conv2D) (None, 12, 12, 160) 122880 mixed5[0][0]

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batch_normalization_55 (BatchNo (None, 12, 12, 160) 480 conv2d_55[0][0]
activation_104 (Activation) (None, 12, 12, 160) 0 batch_normalization_55[0][0]
conv2d_56 (Conv2D) (None, 12, 12, 160) 179200 activation_104[0][0]
batch_normalization_56 (BatchNo (None, 12, 12, 160) 480 conv2d_56[0][0]
activation_105 (Activation) (None, 12, 12, 160) 0 batch_normalization_56[0][0]
conv2d_52 (Conv2D) (None, 12, 12, 160) 122880 mixed5[0][0]
conv2d_57 (Conv2D) (None, 12, 12, 160) 179200 activation_105[0][0]
batch_normalization_52 (BatchNo (None, 12, 12, 160) 480 conv2d_52[0][0]
batch_normalization_57 (BatchNo (None, 12, 12, 160) 480 conv2d_57[0][0]
activation_101 (Activation) (None, 12, 12, 160) 0 batch_normalization_52[0][0]
activation_106 (Activation) (None, 12, 12, 160) 0 batch_normalization_57[0][0]
conv2d_53 (Conv2D) (None, 12, 12, 160) 179200 activation_101[0][0]
conv2d_58 (Conv2D) (None, 12, 12, 160) 179200 activation_106[0][0]
batch_normalization_53 (BatchNo (None, 12, 12, 160) 480 conv2d_53[0][0]
batch_normalization_58 (BatchNo (None, 12, 12, 160) 480 conv2d_58[0][0]
activation_102 (Activation) (None, 12, 12, 160) 0 batch_normalization_53[0][0]
activation_107 (Activation) (None, 12, 12, 160) 0 batch_normalization_58[0][0]
average_pooling2d_6 (AveragePoo (None, 12, 12, 768) 0 mixed5[0][0]
conv2d_51 (Conv2D) (None, 12, 12, 192) 147456 mixed5[0][0]
conv2d_54 (Conv2D) (None, 12, 12, 192) 215040 activation_102[0][0]
conv2d_59 (Conv2D) (None, 12, 12, 192) 215040 activation_107[0][0]
conv2d_60 (Conv2D) (None, 12, 12, 192) 147456 average_pooling2d_6[0][0]
batch_normalization_51 (BatchNo (None, 12, 12, 192) 576 conv2d_51[0][0]
batch_normalization_54 (BatchNo (None, 12, 12, 192) 576 conv2d_54[0][0]
batch_normalization_59 (BatchNo (None, 12, 12, 192) 576 conv2d_59[0][0]
```

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batch_normalization_60 (BatchNo (None, 12, 12, 192) 576 conv2d_60[0][0]
activation_100 (Activation) (None, 12, 12, 192) 0 batch_normalization_51[0][0]
activation_103 (Activation) (None, 12, 12, 192) 0 batch_normalization_54[0][0]
activation_108 (Activation) (None, 12, 12, 192) 0 batch_normalization_59[0][0]
activation_109 (Activation) (None, 12, 12, 192) 0 batch_normalization_60[0][0]
mixed6 (Concatenate) (None, 12, 12, 768) 0 activation_100[0][0]
activation_103[0][0]
activation_108[0][0]
activation_109[0][0]
conv2d_65 (Conv2D) (None, 12, 12, 192) 147456 mixed6[0][0]
batch_normalization_65 (BatchNo (None, 12, 12, 192) 576 conv2d_65[0][0]
activation_114 (Activation) (None, 12, 12, 192) 0 batch_normalization_65[0][0]
conv2d_66 (Conv2D) (None, 12, 12, 192) 258048 activation_114[0][0]
batch_normalization_66 (BatchNo (None, 12, 12, 192) 576 conv2d_66[0][0]
activation_115 (Activation) (None, 12, 12, 192) 0 batch_normalization_66[0][0]
conv2d_62 (Conv2D) (None, 12, 12, 192) 147456 mixed6[0][0]
conv2d_67 (Conv2D) (None, 12, 12, 192) 258048 activation_115[0][0]
batch_normalization_62 (BatchNo (None, 12, 12, 192) 576 conv2d_62[0][0]
batch_normalization_67 (BatchNo (None, 12, 12, 192) 576 conv2d_67[0][0]
activation_111 (Activation) (None, 12, 12, 192) 0 batch_normalization_67[0][0]
activation_116 (Activation) (None, 12, 12, 192) 0 batch_normalization_62[0][0]
conv2d_63 (Conv2D) (None, 12, 12, 192) 258048 activation_111[0][0]
conv2d_68 (Conv2D) (None, 12, 12, 192) 258048 activation_116[0][0]
batch_normalization_63 (BatchNo (None, 12, 12, 192) 576 conv2d_63[0][0]
batch_normalization_68 (BatchNo (None, 12, 12, 192) 576 conv2d_68[0][0]
activation_112 (Activation) (None, 12, 12, 192) 0 batch_normalization_63[0][0]
```

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File : ll_classification_training
activation_117 (Activation)      (None, 12, 12, 192) 0      batch_normalization_68[0][0]
average_pooling2d_7 (AveragePool (None, 12, 12, 768) 0      mixed6[0][0]
conv2d_61 (Conv2D)              (None, 12, 12, 192) 147456    mixed6[0][0]
conv2d_64 (Conv2D)              (None, 12, 12, 192) 258048      activation_112[0][0]
conv2d_69 (Conv2D)              (None, 12, 12, 192) 258048      activation_117[0][0]
conv2d_70 (Conv2D)              (None, 12, 12, 192) 147456      average_pooling2d_7[0][0]
batch_normalization_61 (BatchNo (None, 12, 12, 192) 576      conv2d_61[0][0]
batch_normalization_64 (BatchNo (None, 12, 12, 192) 576      conv2d_64[0][0]
batch_normalization_69 (BatchNo (None, 12, 12, 192) 576      conv2d_69[0][0]
batch_normalization_70 (BatchNo (None, 12, 12, 192) 576      conv2d_70[0][0]
activation_110 (Activation)    (None, 12, 12, 192) 0      batch_normalization_61[0][0]
activation_113 (Activation)    (None, 12, 12, 192) 0      batch_normalization_64[0][0]
activation_118 (Activation)    (None, 12, 12, 192) 0      batch_normalization_69[0][0]
activation_119 (Activation)    (None, 12, 12, 192) 0      batch_normalization_70[0][0]
mixed7 (Concatenate)          (None, 12, 12, 768) 0      activation_110[0][0]
                                         activation_113[0][0]
                                         activation_118[0][0]
                                         activation_119[0][0]
conv2d_73 (Conv2D)              (None, 12, 12, 192) 147456    mixed7[0][0]
batch_normalization_73 (BatchNo (None, 12, 12, 192) 576      conv2d_73[0][0]
activation_122 (Activation)    (None, 12, 12, 192) 0      batch_normalization_73[0][0]
conv2d_74 (Conv2D)              (None, 12, 12, 192) 258048      activation_122[0][0]
batch_normalization_74 (BatchNo (None, 12, 12, 192) 576      conv2d_74[0][0]
activation_123 (Activation)    (None, 12, 12, 192) 0      batch_normalization_74[0][0]
conv2d_71 (Conv2D)              (None, 12, 12, 192) 147456    mixed7[0][0]
conv2d_75 (Conv2D)              (None, 12, 12, 192) 258048      activation_123[0][0]
batch_normalization_71 (BatchNo (None, 12, 12, 192) 576      conv2d_71[0][0]

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batch_normalization_75 (BatchNo (None, 12, 12, 192) 576 conv2d_75[0][0]
activation_120 (Activation) (None, 12, 12, 192) 0 batch_normalization_71[0][0]
activation_124 (Activation) (None, 12, 12, 192) 0 batch_normalization_75[0][0]
conv2d_72 (Conv2D) (None, 5, 5, 320) 552960 activation_120[0][0]
conv2d_76 (Conv2D) (None, 5, 5, 192) 331776 activation_124[0][0]
batch_normalization_72 (BatchNo (None, 5, 5, 320) 960 conv2d_72[0][0]
batch_normalization_76 (BatchNo (None, 5, 5, 192) 576 conv2d_76[0][0]
activation_121 (Activation) (None, 5, 5, 320) 0 batch_normalization_72[0][0]
activation_125 (Activation) (None, 5, 5, 192) 0 batch_normalization_76[0][0]
max_pooling2d_5 (MaxPooling2D) (None, 5, 5, 768) 0 mixed7[0][0]
mixed8 (Concatenate) (None, 5, 5, 1280) 0 activation_121[0][0]
activation_125[0][0]
max_pooling2d_5[0][0]
conv2d_81 (Conv2D) (None, 5, 5, 448) 573440 mixed8[0][0]
batch_normalization_81 (BatchNo (None, 5, 5, 448) 1344 conv2d_81[0][0]
activation_130 (Activation) (None, 5, 5, 448) 0 batch_normalization_81[0][0]
conv2d_78 (Conv2D) (None, 5, 5, 384) 491520 mixed8[0][0]
conv2d_82 (Conv2D) (None, 5, 5, 384) 1548288 activation_130[0][0]
batch_normalization_78 (BatchNo (None, 5, 5, 384) 1152 conv2d_78[0][0]
batch_normalization_82 (BatchNo (None, 5, 5, 384) 1152 conv2d_82[0][0]
activation_127 (Activation) (None, 5, 5, 384) 0 batch_normalization_78[0][0]
activation_131 (Activation) (None, 5, 5, 384) 0 batch_normalization_82[0][0]
conv2d_79 (Conv2D) (None, 5, 5, 384) 442368 activation_127[0][0]
conv2d_80 (Conv2D) (None, 5, 5, 384) 442368 activation_127[0][0]
conv2d_83 (Conv2D) (None, 5, 5, 384) 442368 activation_131[0][0]
conv2d_84 (Conv2D) (None, 5, 5, 384) 442368 activation_131[0][0]
```

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average_pooling2d_8 (AveragePoo (None, 5, 5, 1280) 0 mixed8[0][0]
conv2d_77 (Conv2D) (None, 5, 320) 409600 mixed8[0][0]
batch_normalization_79 (BatchNo (None, 5, 5, 384) 1152 conv2d_79[0][0]
batch_normalization_80 (BatchNo (None, 5, 5, 384) 1152 conv2d_80[0][0]
batch_normalization_83 (BatchNo (None, 5, 5, 384) 1152 conv2d_83[0][0]
batch_normalization_84 (BatchNo (None, 5, 5, 384) 1152 conv2d_84[0][0]
conv2d_85 (Conv2D) (None, 5, 5, 192) 245760 average_pooling2d_8[0][0]
batch_normalization_77 (BatchNo (None, 5, 5, 320) 960 conv2d_77[0][0]
activation_128 (Activation) (None, 5, 384) 0 batch_normalization_79[0][0]
activation_129 (Activation) (None, 5, 384) 0 batch_normalization_80[0][0]
activation_132 (Activation) (None, 5, 384) 0 batch_normalization_83[0][0]
activation_133 (Activation) (None, 5, 384) 0 batch_normalization_84[0][0]
batch_normalization_85 (BatchNo (None, 5, 5, 192) 576 conv2d_85[0][0]
activation_126 (Activation) (None, 5, 5, 320) 0 batch_normalization_77[0][0]
mixed9_0 (Concatenate) (None, 5, 5, 768) 0 activation_128[0][0]
activation_130 (Concatenate) (None, 5, 5, 768) 0 activation_132[0][0]
activation_131 (Concatenate) (None, 5, 5, 192) 0 batch_normalization_85[0][0]
mixed9 (Concatenate) (None, 5, 5, 2048) 0 activation_126[0][0]
activation_132 (Activation) (None, 5, 5, 448) 1344 conv2d_90[0][0]
batch_normalization_90 (BatchNo (None, 5, 5, 448) 1344 conv2d_90[0][0]
activation_139 (Activation) (None, 5, 5, 448) 0 batch_normalization_90[0][0]
conv2d_87 (Conv2D) (None, 5, 5, 384) 786432 mixed9[0][0]
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File : ll_classification_training
conv2d_91 (Conv2D)           (None, 5, 5, 384) 1548288 activation_139[0][0]
batch_normalization_87 (BatchNo (None, 5, 5, 384) 1152 conv2d_87[0][0]
batch_normalization_91 (BatchNo (None, 5, 5, 384) 1152 conv2d_91[0][0]
activation_136 (Activation) (None, 5, 5, 384) 0 batch_normalization_87[0][0]
activation_140 (Activation) (None, 5, 5, 384) 0 batch_normalization_91[0][0]
conv2d_88 (Conv2D)           (None, 5, 5, 384) 442368 activation_136[0][0]
conv2d_89 (Conv2D)           (None, 5, 5, 384) 442368 activation_136[0][0]
conv2d_92 (Conv2D)           (None, 5, 5, 384) 442368 activation_140[0][0]
conv2d_93 (Conv2D)           (None, 5, 5, 384) 442368 activation_140[0][0]
average_pooling2d_9 (AveragePoo (None, 5, 5, 2048) 0 mixed9[0][0]
conv2d_86 (Conv2D)           (None, 5, 5, 320) 655360 mixed9[0][0]
batch_normalization_88 (BatchNo (None, 5, 5, 384) 1152 conv2d_88[0][0]
batch_normalization_89 (BatchNo (None, 5, 5, 384) 1152 conv2d_89[0][0]
batch_normalization_92 (BatchNo (None, 5, 5, 384) 1152 conv2d_92[0][0]
batch_normalization_93 (BatchNo (None, 5, 5, 384) 1152 conv2d_93[0][0]
conv2d_94 (Conv2D)           (None, 5, 5, 192) 393216 average_pooling2d_9[0][0]
batch_normalization_86 (BatchNo (None, 5, 5, 320) 960 conv2d_86[0][0]
activation_137 (Activation) (None, 5, 5, 384) 0 batch_normalization_88[0][0]
activation_138 (Activation) (None, 5, 5, 384) 0 batch_normalization_89[0][0]
activation_141 (Activation) (None, 5, 5, 384) 0 batch_normalization_92[0][0]
activation_142 (Activation) (None, 5, 5, 384) 0 batch_normalization_93[0][0]
batch_normalization_94 (BatchNo (None, 5, 5, 192) 576 conv2d_94[0][0]
activation_135 (Activation) (None, 5, 5, 320) 0 batch_normalization_86[0][0]
mixed9_1 (Concatenate)      (None, 5, 5, 768) 0 activation_137[0][0]
activation_138[0][0]
concatenate_2 (Concatenate) (None, 5, 5, 768) 0 activation_141[0][0]

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activation_143 (Activation) (None, 5, 192) 0 batch_normalization_94[0][0]
mixed10 (Concatenate) (None, 5, 2048) 0 activation_135[0][0]
mixed9_1[0][0]
concatenate_2[0][0]
activation_143[0][0]

avg_pool (GlobalAveragePooling2) (None, 2048) 0 mixed10[0][0]
predictions (Dense) (None, 1000) 2049000 avg_pool[0][0]
dropout_2 (Dropout) (None, 1000) 0 predictions[0][0]
dense_3 (Dense) (None, 1024) 1025024 dropout_2[0][0]
dropout_3 (Dropout) (None, 1024) 0 dense_3[0][0]
dense_4 (Dense) (None, 4) 4100 dropout_3[0][0]
=====

Total params: 24,880,908
Trainable params: 1,029,124
Non-trainable params: 23,851,784
=====

Epoch 1/10
- 147s - loss: 0.4692 - accuracy: 0.7594 - mean_squared_error: 0.1626 - val_loss: 0.6413 - val_accuracy: 0.7130 - val_mean_squared_error: 0.1603
Epoch 2/10
- 140s - loss: 0.4376 - accuracy: 0.7846 - mean_squared_error: 0.1588 - val_loss: 1.0177 - val_accuracy: 0.6471 - val_mean_squared_error: 0.1598
Epoch 3/10
- 140s - loss: 0.4241 - accuracy: 0.7932 - mean_squared_error: 0.1604 - val_loss: 1.8426 - val_accuracy: 0.6521 - val_mean_squared_error: 0.1615
Epoch 4/10
- 140s - loss: 0.4169 - accuracy: 0.8019 - mean_squared_error: 0.1624 - val_loss: 3.2779 - val_accuracy: 0.6502 - val_mean_squared_error: 0.1636
Epoch 5/10
- 140s - loss: 0.4132 - accuracy: 0.8054 - mean_squared_error: 0.1648 - val_loss: 4.6490 - val_accuracy: 0.6500 - val_mean_squared_error: 0.1652
Epoch 6/10
- 140s - loss: 0.4126 - accuracy: 0.8075 - mean_squared_error: 0.1657 - val_loss: 4.6806 - val_accuracy: 0.6505 - val_mean_squared_error: 0.1659
Epoch 7/10
- 140s - loss: 0.4114 - accuracy: 0.8083 - mean_squared_error: 0.1662 - val_loss: 5.0105 - val_accuracy: 0.6491 - val_mean_squared_error: 0.1665
Epoch 8/10
- 142s - loss: 0.4134 - accuracy: 0.8095 - mean_squared_error: 0.1669 - val_loss: 5.0374 - val_accuracy: 0.6518 - val_mean_squared_error: 0.1669
Epoch 9/10
- 140s - loss: 0.4098 - accuracy: 0.8103 - mean_squared_error: 0.1669 - val_loss: 5.1848 - val_accuracy: 0.6526 - val_mean_squared_error: 0.1669
Epoch 10/10
- 140s - loss: 0.4164 - accuracy: 0.8149 - mean_squared_error: 0.1670 - val_loss: 5.5562 - val_accuracy: 0.6508 - val_mean_squared_error: 0.1670
Epoch 1/10
- 141s - loss: 0.4166 - accuracy: 0.8126 - mean_squared_error: 0.1672 - val_loss: 5.3076 - val_accuracy: 0.6523 - val_mean_squared_error: 0.1670
Epoch 2/10
- 140s - loss: 0.4174 - accuracy: 0.8113 - mean_squared_error: 0.1671 - val_loss: 4.4545 - val_accuracy: 0.6525 - val_mean_squared_error: 0.1670
Epoch 3/10

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- 140s - loss: 0.4165 - accuracy: 0.8125 - mean_squared_error: 0.1670 - val_loss: 4.3975 - val_accuracy: 0.6515 - val_mean_squared_error: 0.1668
Epoch 4/10
- 140s - loss: 0.4155 - accuracy: 0.8148 - mean_squared_error: 0.1667 - val_loss: 4.4100 - val_accuracy: 0.6575 - val_mean_squared_error: 0.1666
Epoch 5/10
- 140s - loss: 0.4205 - accuracy: 0.8136 - mean_squared_error: 0.1666 - val_loss: 3.9589 - val_accuracy: 0.6383 - val_mean_squared_error: 0.1665
Epoch 6/10
- 140s - loss: 0.4247 - accuracy: 0.8153 - mean_squared_error: 0.1666 - val_loss: 2.4914 - val_accuracy: 0.6532 - val_mean_squared_error: 0.1664
Epoch 7/10
- 140s - loss: 0.4187 - accuracy: 0.8154 - mean_squared_error: 0.1662 - val_loss: 2.7513 - val_accuracy: 0.6386 - val_mean_squared_error: 0.1661
Epoch 8/10
- 140s - loss: 0.4210 - accuracy: 0.8158 - mean_squared_error: 0.1661 - val_loss: 2.5344 - val_accuracy: 0.6386 - val_mean_squared_error: 0.1661
Epoch 9/10
- 140s - loss: 0.4256 - accuracy: 0.8152 - mean_squared_error: 0.1661 - val_loss: 3.0364 - val_accuracy: 0.6380 - val_mean_squared_error: 0.1661
Epoch 10/10
- 140s - loss: 0.4205 - accuracy: 0.8169 - mean_squared_error: 0.1662 - val_loss: 3.5757 - val_accuracy: 0.6379 - val_mean_squared_error: 0.1662
Epoch 1/10
- 141s - loss: 0.4192 - accuracy: 0.8164 - mean_squared_error: 0.1662 - val_loss: 3.3392 - val_accuracy: 0.6373 - val_mean_squared_error: 0.1662
Epoch 2/10
- 140s - loss: 0.4238 - accuracy: 0.8190 - mean_squared_error: 0.1663 - val_loss: 2.6087 - val_accuracy: 0.6378 - val_mean_squared_error: 0.1662
Epoch 3/10
- 140s - loss: 0.4229 - accuracy: 0.8191 - mean_squared_error: 0.1662 - val_loss: 2.7828 - val_accuracy: 0.6401 - val_mean_squared_error: 0.1661
Epoch 4/10
- 140s - loss: 0.4256 - accuracy: 0.8160 - mean_squared_error: 0.1661 - val_loss: 3.1794 - val_accuracy: 0.6405 - val_mean_squared_error: 0.1661
Epoch 5/10
- 140s - loss: 0.4240 - accuracy: 0.8192 - mean_squared_error: 0.1661 - val_loss: 3.1994 - val_accuracy: 0.6502 - val_mean_squared_error: 0.1660
Epoch 6/10
- 140s - loss: 0.4263 - accuracy: 0.8202 - mean_squared_error: 0.1660 - val_loss: 2.9224 - val_accuracy: 0.6382 - val_mean_squared_error: 0.1659
Epoch 7/10
- 140s - loss: 0.4259 - accuracy: 0.8187 - mean_squared_error: 0.1659 - val_loss: 3.9658 - val_accuracy: 0.6490 - val_mean_squared_error: 0.1659
Epoch 8/10
- 140s - loss: 0.4241 - accuracy: 0.8202 - mean_squared_error: 0.1660 - val_loss: 3.4064 - val_accuracy: 0.6493 - val_mean_squared_error: 0.1660
Epoch 9/10
- 140s - loss: 0.4258 - accuracy: 0.8217 - mean_squared_error: 0.1661 - val_loss: 2.7586 - val_accuracy: 0.6489 - val_mean_squared_error: 0.1661
Epoch 10/10
- 140s - loss: 0.4277 - accuracy: 0.8196 - mean_squared_error: 0.1662 - val_loss: 2.4357 - val_accuracy: 0.6494 - val_mean_squared_error: 0.1662
Epoch 1/10
- 141s - loss: 0.4281 - accuracy: 0.8203 - mean_squared_error: 0.1663 - val_loss: 1.8020 - val_accuracy: 0.6505 - val_mean_squared_error: 0.1662
Epoch 2/10
- 140s - loss: 0.4275 - accuracy: 0.8204 - mean_squared_error: 0.1662 - val_loss: 2.0874 - val_accuracy: 0.6497 - val_mean_squared_error: 0.1662
Epoch 3/10
- 140s - loss: 0.4254 - accuracy: 0.8222 - mean_squared_error: 0.1662 - val_loss: 1.9044 - val_accuracy: 0.6496 - val_mean_squared_error: 0.1661
Epoch 4/10
- 140s - loss: 0.4257 - accuracy: 0.8226 - mean_squared_error: 0.1661 - val_loss: 2.0341 - val_accuracy: 0.6500 - val_mean_squared_error: 0.1661
Epoch 5/10
- 140s - loss: 0.4276 - accuracy: 0.8208 - mean_squared_error: 0.1661 - val_loss: 2.1813 - val_accuracy: 0.6496 - val_mean_squared_error: 0.1660
Epoch 6/10
- 140s - loss: 0.4282 - accuracy: 0.8227 - mean_squared_error: 0.1660 - val_loss: 2.5168 - val_accuracy: 0.6498 - val_mean_squared_error: 0.1660
Epoch 7/10
- 140s - loss: 0.4379 - accuracy: 0.8241 - mean_squared_error: 0.1661 - val_loss: 2.3128 - val_accuracy: 0.6494 - val_mean_squared_error: 0.1661
Epoch 8/10
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- 141s - loss: 0.4278 - accuracy: 0.8185 - mean_squared_error: 0.1661 - val_loss: 2.2878 - val_accuracy: 0.6491 - val_mean_squared_error: 0.1661
Epoch 9/10
- 140s - loss: 0.4370 - accuracy: 0.8208 - mean_squared_error: 0.1661 - val_loss: 3.0938 - val_accuracy: 0.6483 - val_mean_squared_error: 0.1661
Epoch 10/10
- 140s - loss: 0.4391 - accuracy: 0.8239 - mean_squared_error: 0.1662 - val_loss: 3.9814 - val_accuracy: 0.6484 - val_mean_squared_error: 0.1662
Epoch 1/10
- 141s - loss: 0.4326 - accuracy: 0.8235 - mean_squared_error: 0.1662 - val_loss: 3.4941 - val_accuracy: 0.6483 - val_mean_squared_error: 0.1662
Epoch 2/10
- 140s - loss: 0.4333 - accuracy: 0.8216 - mean_squared_error: 0.1662 - val_loss: 2.5234 - val_accuracy: 0.6487 - val_mean_squared_error: 0.1662
Epoch 3/10
- 140s - loss: 0.4284 - accuracy: 0.8240 - mean_squared_error: 0.1661 - val_loss: 3.5380 - val_accuracy: 0.6376 - val_mean_squared_error: 0.1661
Epoch 4/10
- 140s - loss: 0.4308 - accuracy: 0.8243 - mean_squared_error: 0.1660 - val_loss: 3.5034 - val_accuracy: 0.6373 - val_mean_squared_error: 0.1660
Epoch 5/10
- 140s - loss: 0.4338 - accuracy: 0.8229 - mean_squared_error: 0.1660 - val_loss: 4.3640 - val_accuracy: 0.6386 - val_mean_squared_error: 0.1660
Epoch 6/10
- 140s - loss: 0.4336 - accuracy: 0.8241 - mean_squared_error: 0.1660 - val_loss: 3.4134 - val_accuracy: 0.6389 - val_mean_squared_error: 0.1660
Epoch 7/10
- 140s - loss: 0.4315 - accuracy: 0.8207 - mean_squared_error: 0.1660 - val_loss: 3.2445 - val_accuracy: 0.6410 - val_mean_squared_error: 0.1660
Epoch 8/10
- 140s - loss: 0.4343 - accuracy: 0.8200 - mean_squared_error: 0.1660 - val_loss: 2.6279 - val_accuracy: 0.6405 - val_mean_squared_error: 0.1660
Epoch 9/10
- 140s - loss: 0.4340 - accuracy: 0.8244 - mean_squared_error: 0.1661 - val_loss: 2.0779 - val_accuracy: 0.6501 - val_mean_squared_error: 0.1660
Epoch 10/10
- 140s - loss: 0.4386 - accuracy: 0.8243 - mean_squared_error: 0.1660 - val_loss: 3.0027 - val_accuracy: 0.6392 - val_mean_squared_error: 0.1660
Model: "model_3"

```

Layer (type)	Output Shape	Param #	Connected to
input_3 (InputLayer)	(None, 224, 224, 3)	0	
conv2d_95 (Conv2D)	(None, 111, 111, 32) 864	input_3[0][0]	
batch_normalization_95 (BatchNorm)	(None, 111, 111, 32) 96	conv2d_95[0][0]	
activation_144 (Activation)	(None, 111, 111, 32) 0	batch_normalization_95[0][0]	
conv2d_96 (Conv2D)	(None, 109, 109, 32) 9216	activation_144[0][0]	
batch_normalization_96 (BatchNorm)	(None, 109, 109, 32) 96	conv2d_96[0][0]	
activation_145 (Activation)	(None, 109, 109, 32) 0	batch_normalization_96[0][0]	
conv2d_97 (Conv2D)	(None, 109, 109, 64) 18432	activation_145[0][0]	
batch_normalization_97 (BatchNorm)	(None, 109, 109, 64) 192	conv2d_97[0][0]	
activation_146 (Activation)	(None, 109, 109, 64) 0	batch_normalization_97[0][0]	
max_pooling2d_6 (MaxPooling2D)	(None, 54, 54, 64) 0	activation_146[0][0]	

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conv2d_98 (Conv2D)           (None, 54, 80) 5120  max_pooling2d_6[0][0]
batch_normalization_98 (BatchNo (None, 54, 80) 240   conv2d_98[0][0]
activation_147 (Activation) (None, 54, 80) 0      batch_normalization_98[0][0]
conv2d_99 (Conv2D)           (None, 52, 192) 138240  activation_147[0][0]
batch_normalization_99 (BatchNo (None, 52, 192) 576   conv2d_99[0][0]
activation_148 (Activation) (None, 52, 52, 192) 0      batch_normalization_99[0][0]
max_pooling2d_7 (MaxPooling2D) (None, 25, 25, 192) 0      activation_148[0][0]
conv2d_103 (Conv2D)           (None, 25, 25, 64) 12288  max_pooling2d_7[0][0]
batch_normalization_103 (BatchN (None, 25, 25, 64) 192   conv2d_103[0][0]
activation_152 (Activation) (None, 25, 25, 64) 0      batch_normalization_103[0][0]
conv2d_101 (Conv2D)           (None, 25, 25, 48) 9216   max_pooling2d_7[0][0]
conv2d_104 (Conv2D)           (None, 25, 25, 96) 55296  activation_152[0][0]
batch_normalization_101 (BatchN (None, 25, 25, 48) 144   conv2d_101[0][0]
batch_normalization_104 (BatchN (None, 25, 25, 96) 288   conv2d_104[0][0]
activation_150 (Activation) (None, 25, 25, 48) 0      batch_normalization_101[0][0]
activation_153 (Activation) (None, 25, 25, 96) 0      batch_normalization_104[0][0]
average_pooling2d_10 (AveragePo (None, 25, 25, 192) 0      max_pooling2d_7[0][0]
conv2d_100 (Conv2D)           (None, 25, 25, 64) 12288  max_pooling2d_7[0][0]
conv2d_102 (Conv2D)           (None, 25, 25, 64) 76800  activation_150[0][0]
conv2d_105 (Conv2D)           (None, 25, 25, 96) 82944  activation_153[0][0]
conv2d_106 (Conv2D)           (None, 25, 25, 32) 6144   average_pooling2d_10[0][0]
batch_normalization_100 (BatchN (None, 25, 25, 64) 192   conv2d_100[0][0]
batch_normalization_102 (BatchN (None, 25, 25, 64) 192   conv2d_102[0][0]
batch_normalization_105 (BatchN (None, 25, 25, 96) 288   conv2d_105[0][0]
batch_normalization_106 (BatchN (None, 25, 25, 32) 96    conv2d_106[0][0]
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activation_149 (Activation)	(None, 25, 25, 64)	0	batch_normalization_100[0][0]
activation_151 (Activation)	(None, 25, 25, 64)	0	batch_normalization_102[0][0]
activation_154 (Activation)	(None, 25, 25, 96)	0	batch_normalization_105[0][0]
activation_155 (Activation)	(None, 25, 25, 32)	0	batch_normalization_106[0][0]
mixed0 (Concatenate)	(None, 25, 25, 256)	0	activation_149[0][0]
			activation_151[0][0]
			activation_154[0][0]
			activation_155[0][0]
conv2d_110 (Conv2D)	(None, 25, 25, 64)	16384	mixed0[0][0]
batch_normalization_110 (BatchN)	(None, 25, 25, 64)	192	conv2d_110[0][0]
activation_159 (Activation)	(None, 25, 25, 64)	0	batch_normalization_110[0][0]
conv2d_108 (Conv2D)	(None, 25, 25, 48)	12288	mixed0[0][0]
conv2d_111 (Conv2D)	(None, 25, 25, 96)	55296	activation_159[0][0]
batch_normalization_108 (BatchN)	(None, 25, 25, 48)	144	conv2d_108[0][0]
batch_normalization_111 (BatchN)	(None, 25, 25, 96)	288	conv2d_111[0][0]
activation_157 (Activation)	(None, 25, 25, 48)	0	batch_normalization_108[0][0]
activation_160 (Activation)	(None, 25, 25, 96)	0	batch_normalization_111[0][0]
average_pooling2d_11 (AveragePo)	(None, 25, 25, 256)	0	mixed0[0][0]
conv2d_107 (Conv2D)	(None, 25, 25, 64)	16384	activation_157[0][0]
conv2d_109 (Conv2D)	(None, 25, 25, 64)	76800	activation_157[0][0]
conv2d_112 (Conv2D)	(None, 25, 25, 96)	82944	activation_160[0][0]
conv2d_113 (Conv2D)	(None, 25, 25, 64)	16384	average_pooling2d_11[0][0]
batch_normalization_107 (BatchN)	(None, 25, 25, 64)	192	conv2d_107[0][0]
batch_normalization_109 (BatchN)	(None, 25, 25, 64)	192	conv2d_109[0][0]
batch_normalization_112 (BatchN)	(None, 25, 25, 96)	288	conv2d_112[0][0]
batch_normalization_113 (BatchN)	(None, 25, 25, 64)	192	conv2d_113[0][0]

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activation_156 (Activation) (None, 25, 25, 64) 0 batch_normalization_107[0][0]
activation_158 (Activation) (None, 25, 25, 64) 0 batch_normalization_109[0][0]
activation_161 (Activation) (None, 25, 25, 96) 0 batch_normalization_112[0][0]
activation_162 (Activation) (None, 25, 25, 64) 0 batch_normalization_113[0][0]
mixed1 (Concatenate) (None, 25, 25, 288) 0 activation_156[0][0]
activation_158[0][0]
activation_161[0][0]
activation_162[0][0]

conv2d_117 (Conv2D) (None, 25, 25, 64) 18432 mixed1[0][0]
batch_normalization_117 (BatchN (None, 25, 25, 64) 192 conv2d_117[0][0]
activation_166 (Activation) (None, 25, 25, 64) 0 batch_normalization_117[0][0]
conv2d_115 (Conv2D) (None, 25, 25, 48) 13824 mixed1[0][0]
conv2d_118 (Conv2D) (None, 25, 25, 96) 55296 activation_166[0][0]
batch_normalization_115 (BatchN (None, 25, 25, 48) 144 conv2d_115[0][0]
batch_normalization_118 (BatchN (None, 25, 25, 96) 288 conv2d_118[0][0]
activation_164 (Activation) (None, 25, 25, 48) 0 batch_normalization_115[0][0]
activation_167 (Activation) (None, 25, 25, 96) 0 batch_normalization_118[0][0]
average_pooling2d_12 (AveragePo (None, 25, 25, 288) 0 mixed1[0][0]
conv2d_114 (Conv2D) (None, 25, 25, 64) 18432 mixed1[0][0]
conv2d_116 (Conv2D) (None, 25, 25, 64) 76800 activation_164[0][0]
conv2d_119 (Conv2D) (None, 25, 25, 96) 82944 activation_167[0][0]
conv2d_120 (Conv2D) (None, 25, 25, 64) 18432 average_pooling2d_12[0][0]
batch_normalization_114 (BatchN (None, 25, 25, 64) 192 conv2d_114[0][0]
batch_normalization_116 (BatchN (None, 25, 25, 64) 192 conv2d_116[0][0]
batch_normalization_119 (BatchN (None, 25, 25, 96) 288 conv2d_119[0][0]
batch_normalization_120 (BatchN (None, 25, 25, 64) 192 conv2d_120[0][0]
activation_163 (Activation) (None, 25, 25, 64) 0 batch_normalization_114[0][0]

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activation_165 (Activation) (None, 25, 25, 64) 0 batch_normalization_116[0][0]
activation_168 (Activation) (None, 25, 25, 96) 0 batch_normalization_119[0][0]
activation_169 (Activation) (None, 25, 25, 64) 0 batch_normalization_120[0][0]
mixed2 (Concatenate) (None, 25, 25, 288) 0 activation_163[0][0]
activation_165[0][0]
activation_168[0][0]
activation_169[0][0]
activation_162 (Conv2D) (None, 25, 25, 64) 18432 mixed2[0][0]
batch_normalization_122 (BatchN (None, 25, 25, 64) 192 conv2d_122[0][0]
activation_171 (Activation) (None, 25, 25, 64) 0 batch_normalization_122[0][0]
conv2d_123 (Conv2D) (None, 25, 25, 96) 55296 activation_171[0][0]
batch_normalization_123 (BatchN (None, 25, 25, 96) 288 conv2d_123[0][0]
activation_172 (Activation) (None, 25, 25, 96) 0 batch_normalization_123[0][0]
conv2d_121 (Conv2D) (None, 12, 12, 384) 995328 mixed2[0][0]
conv2d_124 (Conv2D) (None, 12, 12, 96) 82944 activation_172[0][0]
batch_normalization_121 (BatchN (None, 12, 12, 384) 1152 conv2d_121[0][0]
batch_normalization_124 (BatchN (None, 12, 12, 96) 288 conv2d_124[0][0]
activation_170 (Activation) (None, 12, 12, 384) 0 batch_normalization_121[0][0]
activation_173 (Activation) (None, 12, 12, 96) 0 batch_normalization_124[0][0]
max_pooling2d_8 (MaxPooling2D) (None, 12, 12, 288) 0 mixed2[0][0]
mixed3 (Concatenate) (None, 12, 12, 768) 0 activation_170[0][0]
activation_173[0][0]
max_pooling2d_8[0][0]
conv2d_129 (Conv2D) (None, 12, 12, 128) 98304 mixed3[0][0]
batch_normalization_129 (BatchN (None, 12, 12, 128) 384 conv2d_129[0][0]
activation_178 (Activation) (None, 12, 12, 128) 0 batch_normalization_129[0][0]
conv2d_130 (Conv2D) (None, 12, 12, 128) 114688 activation_178[0][0]
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batch_normalization_130 (BatchN (None, 12, 12, 128) 384 conv2d_130[0][0]
activation_179 (Activation) (None, 12, 12, 128) 0 batch_normalization_130[0][0]
conv2d_126 (Conv2D) (None, 12, 12, 128) 98304 mixed3[0][0]
conv2d_131 (Conv2D) (None, 12, 12, 128) 114688 activation_179[0][0]
batch_normalization_126 (BatchN (None, 12, 12, 128) 384 conv2d_126[0][0]
batch_normalization_131 (BatchN (None, 12, 12, 128) 384 conv2d_131[0][0]
activation_175 (Activation) (None, 12, 12, 128) 0 batch_normalization_126[0][0]
activation_180 (Activation) (None, 12, 12, 128) 0 batch_normalization_131[0][0]
conv2d_127 (Conv2D) (None, 12, 12, 128) 114688 activation_175[0][0]
conv2d_132 (Conv2D) (None, 12, 12, 128) 114688 activation_180[0][0]
batch_normalization_127 (BatchN (None, 12, 12, 128) 384 conv2d_127[0][0]
batch_normalization_132 (BatchN (None, 12, 12, 128) 384 conv2d_132[0][0]
activation_176 (Activation) (None, 12, 12, 128) 0 batch_normalization_127[0][0]
activation_181 (Activation) (None, 12, 12, 128) 0 conv2d_132[0][0]
average_pooling2d_13 (AveragePo (None, 12, 12, 768) 0 mixed3[0][0]
conv2d_125 (Conv2D) (None, 12, 12, 192) 147456 mixed3[0][0]
conv2d_128 (Conv2D) (None, 12, 12, 192) 172032 activation_176[0][0]
conv2d_133 (Conv2D) (None, 12, 12, 192) 172032 activation_181[0][0]
conv2d_134 (Conv2D) (None, 12, 12, 192) 147456 average_pooling2d_13[0][0]
batch_normalization_125 (BatchN (None, 12, 12, 192) 576 conv2d_125[0][0]
batch_normalization_128 (BatchN (None, 12, 12, 192) 576 conv2d_128[0][0]
batch_normalization_133 (BatchN (None, 12, 12, 192) 576 conv2d_133[0][0]
batch_normalization_134 (BatchN (None, 12, 12, 192) 576 conv2d_134[0][0]
activation_174 (Activation) (None, 12, 12, 192) 0 batch_normalization_125[0][0]
activation_177 (Activation) (None, 12, 12, 192) 0 batch_normalization_128[0][0]

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activation_182 (Activation)      (None, 12, 12, 192) 0      batch_normalization_133[0][0]
activation_183 (Activation)      (None, 12, 12, 192) 0      batch_normalization_134[0][0]
mixed4 (Concatenate)           (None, 12, 12, 768) 0      activation_174[0][0]
                                         activation_177[0][0]
                                         activation_182[0][0]
                                         activation_183[0][0]

conv2d_139 (Conv2D)           (None, 12, 12, 160) 122880    mixed4[0][0]
batch_normalization_139 (BatchN (None, 12, 12, 160) 480      conv2d_139[0][0]
activation_188 (Activation)      (None, 12, 12, 160) 0      batch_normalization_139[0][0]
conv2d_140 (Conv2D)           (None, 12, 12, 160) 179200    activation_188[0][0]
batch_normalization_140 (BatchN (None, 12, 12, 160) 480      conv2d_140[0][0]
activation_189 (Activation)      (None, 12, 12, 160) 0      batch_normalization_140[0][0]
conv2d_136 (Conv2D)           (None, 12, 12, 160) 122880    mixed4[0][0]
conv2d_141 (Conv2D)           (None, 12, 12, 160) 179200    activation_189[0][0]
batch_normalization_136 (BatchN (None, 12, 12, 160) 480      conv2d_136[0][0]
batch_normalization_141 (BatchN (None, 12, 12, 160) 480      conv2d_141[0][0]
activation_185 (Activation)      (None, 12, 12, 160) 0      batch_normalization_136[0][0]
activation_190 (Activation)      (None, 12, 12, 160) 0      batch_normalization_141[0][0]
conv2d_137 (Conv2D)           (None, 12, 12, 160) 179200    activation_185[0][0]
conv2d_142 (Conv2D)           (None, 12, 12, 160) 179200    activation_190[0][0]
batch_normalization_137 (BatchN (None, 12, 12, 160) 480      conv2d_137[0][0]
batch_normalization_142 (BatchN (None, 12, 12, 160) 480      conv2d_142[0][0]
activation_186 (Activation)      (None, 12, 12, 160) 0      batch_normalization_137[0][0]
activation_191 (Activation)      (None, 12, 12, 160) 0      batch_normalization_142[0][0]
average_pooling2d_14 (AveragePo (None, 12, 12, 768) 0      mixed4[0][0]
conv2d_135 (Conv2D)           (None, 12, 12, 192) 147456    mixed4[0][0]
conv2d_138 (Conv2D)           (None, 12, 12, 192) 215040    activation_186[0][0]

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conv2d_143 (Conv2D)          (None, 12, 12, 192)  215040   activation_191[0][0]
conv2d_144 (Conv2D)          (None, 12, 12, 192)  147456   average_pooling2d_14[0][0]
batch_normalization_135 (BatchN (None, 12, 12, 192)  576    conv2d_135[0][0]
batch_normalization_138 (BatchN (None, 12, 12, 192)  576    conv2d_138[0][0]
batch_normalization_143 (BatchN (None, 12, 12, 192)  576    conv2d_143[0][0]
batch_normalization_144 (BatchN (None, 12, 12, 192)  576    conv2d_144[0][0]
activation_184 (Activation)  (None, 12, 12, 192)  0      batch_normalization_135[0][0]
activation_187 (Activation)  (None, 12, 12, 192)  0      batch_normalization_138[0][0]
activation_192 (Activation)  (None, 12, 12, 192)  0      batch_normalization_143[0][0]
activation_193 (Activation)  (None, 12, 12, 192)  0      batch_normalization_144[0][0]
mixed5 (Concatenate)        (None, 12, 12, 768)  0      activation_184[0][0]
mixed5 (Concatenate)        (None, 12, 12, 768)  0      activation_187[0][0]
mixed5 (Concatenate)        (None, 12, 12, 768)  0      activation_192[0][0]
mixed5 (Concatenate)        (None, 12, 12, 768)  0      activation_193[0][0]
conv2d_149 (Conv2D)          (None, 12, 12, 160)  122880   mixed5[0][0]
batch_normalization_149 (BatchN (None, 12, 12, 160)  480    conv2d_149[0][0]
activation_198 (Activation)  (None, 12, 12, 160)  0      batch_normalization_149[0][0]
conv2d_150 (Conv2D)          (None, 12, 12, 160)  179200   activation_198[0][0]
batch_normalization_150 (BatchN (None, 12, 12, 160)  480    conv2d_150[0][0]
activation_199 (Activation)  (None, 12, 12, 160)  0      batch_normalization_150[0][0]
conv2d_146 (Conv2D)          (None, 12, 12, 160)  122880   mixed5[0][0]
conv2d_151 (Conv2D)          (None, 12, 12, 160)  179200   activation_199[0][0]
batch_normalization_146 (BatchN (None, 12, 12, 160)  480    conv2d_146[0][0]
batch_normalization_151 (BatchN (None, 12, 12, 160)  480    conv2d_151[0][0]
activation_195 (Activation)  (None, 12, 12, 160)  0      batch_normalization_146[0][0]
activation_200 (Activation)  (None, 12, 12, 160)  0      batch_normalization_151[0][0]
```

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conv2d_147 (Conv2D)           (None, 12, 12, 160) 179200  activation_195[0][0]
conv2d_152 (Conv2D)           (None, 12, 12, 160) 179200  activation_200[0][0]
batch_normalization_147 (BatchN (None, 12, 12, 160) 480 conv2d_147[0][0]
batch_normalization_152 (BatchN (None, 12, 12, 160) 480 conv2d_152[0][0]
activation_196 (Activation)   (None, 12, 12, 160) 0      batch_normalization_147[0][0]
activation_201 (Activation)   (None, 12, 12, 160) 0      batch_normalization_152[0][0]
average_pooling2d_15 (AveragePo (None, 12, 12, 768) 0      mixed5[0][0]
conv2d_145 (Conv2D)           (None, 12, 12, 192) 147456  mixed5[0][0]
conv2d_148 (Conv2D)           (None, 12, 12, 192) 215040  activation_196[0][0]
conv2d_153 (Conv2D)           (None, 12, 12, 192) 215040  activation_201[0][0]
conv2d_154 (Conv2D)           (None, 12, 12, 192) 147456  average_pooling2d_15[0][0]
batch_normalization_145 (BatchN (None, 12, 12, 192) 576 conv2d_145[0][0]
batch_normalization_148 (BatchN (None, 12, 12, 192) 576 conv2d_148[0][0]
batch_normalization_153 (BatchN (None, 12, 12, 192) 576 conv2d_153[0][0]
batch_normalization_154 (BatchN (None, 12, 12, 192) 576 conv2d_154[0][0]
activation_194 (Activation)   (None, 12, 12, 192) 0      batch_normalization_145[0][0]
activation_197 (Activation)   (None, 12, 12, 192) 0      batch_normalization_148[0][0]
activation_202 (Activation)   (None, 12, 12, 192) 0      batch_normalization_153[0][0]
activation_203 (Activation)   (None, 12, 12, 192) 0      batch_normalization_154[0][0]
mixed6 (Concatenate)          (None, 12, 12, 768) 0      activation_194[0][0]
mixed6 (Conv2D)               (None, 12, 12, 192) 147456  mixed6[0][0]
batch_normalization_159 (BatchN (None, 12, 12, 192) 576 conv2d_159[0][0]
activation_208 (Activation)   (None, 12, 12, 192) 0      batch_normalization_159[0][0]
conv2d_160 (Conv2D)           (None, 12, 12, 192) 258048  activation_208[0][0]

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batch_normalization_160 (BatchN (None, 12, 12, 192) 576 conv2d_160[0][0]
activation_209 (Activation) (None, 12, 12, 192) 0 batch_normalization_160[0][0]
conv2d_156 (Conv2D) (None, 12, 12, 192) 147456 mixed6[0][0]
conv2d_161 (Conv2D) (None, 12, 12, 192) 258048 activation_209[0][0]
batch_normalization_156 (BatchN (None, 12, 12, 192) 576 conv2d_156[0][0]
batch_normalization_161 (BatchN (None, 12, 12, 192) 576 conv2d_161[0][0]
activation_205 (Activation) (None, 12, 12, 192) 0 batch_normalization_156[0][0]
activation_210 (Activation) (None, 12, 12, 192) 0 batch_normalization_161[0][0]
conv2d_157 (Conv2D) (None, 12, 12, 192) 258048 activation_205[0][0]
conv2d_162 (Conv2D) (None, 12, 12, 192) 258048 activation_210[0][0]
batch_normalization_157 (BatchN (None, 12, 12, 192) 576 conv2d_157[0][0]
batch_normalization_162 (BatchN (None, 12, 12, 192) 576 conv2d_162[0][0]
activation_206 (Activation) (None, 12, 12, 192) 0 batch_normalization_157[0][0]
activation_211 (Activation) (None, 12, 12, 192) 0 batch_normalization_162[0][0]
average_pooling2d_16 (AveragePo (None, 12, 12, 768) 0 mixed6[0][0]
conv2d_155 (Conv2D) (None, 12, 12, 192) 147456 mixed6[0][0]
conv2d_158 (Conv2D) (None, 12, 12, 192) 258048 activation_206[0][0]
conv2d_163 (Conv2D) (None, 12, 12, 192) 258048 activation_211[0][0]
conv2d_164 (Conv2D) (None, 12, 12, 192) 147456 average_pooling2d_16[0][0]
batch_normalization_155 (BatchN (None, 12, 12, 192) 576 conv2d_155[0][0]
batch_normalization_158 (BatchN (None, 12, 12, 192) 576 conv2d_158[0][0]
batch_normalization_163 (BatchN (None, 12, 12, 192) 576 conv2d_163[0][0]
batch_normalization_164 (BatchN (None, 12, 12, 192) 576 conv2d_164[0][0]
activation_204 (Activation) (None, 12, 12, 192) 0 batch_normalization_155[0][0]
activation_207 (Activation) (None, 12, 12, 192) 0 batch_normalization_158[0][0]
```

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activation_212 (Activation)      (None, 12, 12, 192) 0          batch_normalization_163[0][0]
activation_213 (Activation)      (None, 12, 12, 192) 0          batch_normalization_164[0][0]
mixed7 (Concatenate)           (None, 12, 12, 768) 0          activation_204[0][0]
                                         activation_207[0][0]
                                         activation_212[0][0]
                                         activation_213[0][0]
conv2d_167 (Conv2D)            (None, 12, 12, 192) 147456    mixed7[0][0]
batch_normalization_167 (BatchN) (None, 12, 12, 192) 576       conv2d_167[0][0]
activation_216 (Activation)      (None, 12, 12, 192) 0          batch_normalization_167[0][0]
conv2d_168 (Conv2D)            (None, 12, 12, 192) 258048    activation_216[0][0]
batch_normalization_168 (BatchN) (None, 12, 12, 192) 576       conv2d_168[0][0]
activation_217 (Activation)      (None, 12, 12, 192) 0          batch_normalization_167[0][0]
conv2d_165 (Conv2D)            (None, 12, 12, 192) 147456    mixed7[0][0]
conv2d_169 (Conv2D)            (None, 12, 12, 192) 258048    activation_217[0][0]
batch_normalization_165 (BatchN) (None, 12, 12, 192) 576       conv2d_165[0][0]
batch_normalization_169 (BatchN) (None, 12, 12, 192) 576       conv2d_169[0][0]
activation_214 (Activation)      (None, 12, 12, 192) 0          batch_normalization_168[0][0]
activation_218 (Activation)      (None, 12, 12, 192) 0          batch_normalization_169[0][0]
conv2d_166 (Conv2D)            (None, 5, 5, 320) 552960    activation_214[0][0]
conv2d_170 (Conv2D)            (None, 5, 5, 192) 331776    activation_218[0][0]
batch_normalization_166 (BatchN) (None, 5, 5, 320) 960       conv2d_166[0][0]
batch_normalization_170 (BatchN) (None, 5, 5, 192) 576       conv2d_170[0][0]
activation_215 (Activation)      (None, 5, 5, 320) 0          batch_normalization_166[0][0]
activation_219 (Activation)      (None, 5, 5, 192) 0          batch_normalization_170[0][0]
max_pooling2d_9 (MaxPooling2D) (None, 5, 5, 768) 0          mixed7[0][0]
                                         activation_215[0][0]
                                         activation_219[0][0]
mixed8 (Concatenate)           (None, 5, 5, 1280) 0          activation_215[0][0]
                                         activation_219[0][0]
```

max_pooling2d_9[0][0]

conv2d_175 (Conv2D)	(None, 5, 5, 448)	573440	mixed8[0][0]
batch_normalization_175 (BatchN)	(None, 5, 5, 448)	1344	conv2d_175[0][0]
activation_224 (Activation)	(None, 5, 5, 448)	0	batch_normalization_175[0][0]
conv2d_172 (Conv2D)	(None, 5, 5, 384)	491520	mixed8[0][0]
conv2d_176 (Conv2D)	(None, 5, 5, 384)	1548288	activation_224[0][0]
batch_normalization_172 (BatchN)	(None, 5, 5, 384)	1152	conv2d_172[0][0]
batch_normalization_176 (BatchN)	(None, 5, 5, 384)	1152	conv2d_176[0][0]
activation_221 (Activation)	(None, 5, 5, 384)	0	batch_normalization_172[0][0]
activation_225 (Activation)	(None, 5, 5, 384)	0	batch_normalization_176[0][0]
conv2d_173 (Conv2D)	(None, 5, 5, 384)	442368	activation_221[0][0]
conv2d_174 (Conv2D)	(None, 5, 5, 384)	442368	activation_221[0][0]
conv2d_177 (Conv2D)	(None, 5, 5, 384)	442368	activation_225[0][0]
conv2d_178 (Conv2D)	(None, 5, 5, 384)	442368	activation_225[0][0]
average_pooling2d_17 (AveragePo)	(None, 5, 5, 1280)	0	mixed8[0][0]
conv2d_171 (Conv2D)	(None, 5, 5, 320)	409600	mixed8[0][0]
batch_normalization_173 (BatchN)	(None, 5, 5, 384)	1152	conv2d_173[0][0]
batch_normalization_174 (BatchN)	(None, 5, 5, 384)	1152	conv2d_174[0][0]
batch_normalization_177 (BatchN)	(None, 5, 5, 384)	1152	conv2d_177[0][0]
batch_normalization_178 (BatchN)	(None, 5, 5, 384)	1152	conv2d_178[0][0]
conv2d_179 (Conv2D)	(None, 5, 5, 192)	245760	average_pooling2d_17[0][0]
batch_normalization_171 (BatchN)	(None, 5, 5, 320)	960	conv2d_171[0][0]
activation_222 (Activation)	(None, 5, 5, 384)	0	batch_normalization_173[0][0]
activation_223 (Activation)	(None, 5, 5, 384)	0	batch_normalization_174[0][0]
activation_226 (Activation)	(None, 5, 5, 384)	0	batch_normalization_177[0][0]

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File : ll_classification_training
activation_227 (Activation) (None, 5, 5, 384) 0 batch_normalization_178[0][0]
batch_normalization_179 (BatchN (None, 5, 192) 576 conv2d_179[0][0]
activation_220 (Activation) (None, 5, 5, 320) 0 batch_normalization_171[0][0]
mixed9_0 (Concatenate) (None, 5, 5, 768) 0 activation_222[0][0]
concatenate_3 (Concatenate) (None, 5, 5, 768) 0 activation_223[0][0]
activation_228 (Activation) (None, 5, 5, 192) 0 batch_normalization_179[0][0]
mixed9 (Concatenate) (None, 5, 5, 2048) 0 activation_226[0][0]
activation_227[0][0]
conv2d_184 (Conv2D) (None, 5, 5, 448) 917504 mixed9[0][0]
batch_normalization_184 (BatchN (None, 5, 5, 448) 1344 conv2d_184[0][0]
activation_233 (Activation) (None, 5, 5, 448) 0 batch_normalization_184[0][0]
conv2d_181 (Conv2D) (None, 5, 5, 384) 786432 mixed9[0][0]
conv2d_185 (Conv2D) (None, 5, 5, 384) 1548288 activation_233[0][0]
batch_normalization_181 (BatchN (None, 5, 5, 384) 1152 conv2d_181[0][0]
batch_normalization_185 (BatchN (None, 5, 5, 384) 1152 conv2d_185[0][0]
activation_230 (Activation) (None, 5, 5, 384) 0 batch_normalization_181[0][0]
activation_234 (Activation) (None, 5, 5, 384) 0 batch_normalization_185[0][0]
conv2d_182 (Conv2D) (None, 5, 5, 384) 442368 activation_230[0][0]
conv2d_183 (Conv2D) (None, 5, 5, 384) 442368 activation_230[0][0]
conv2d_186 (Conv2D) (None, 5, 5, 384) 442368 activation_234[0][0]
conv2d_187 (Conv2D) (None, 5, 5, 384) 442368 activation_234[0][0]
average_pooling2d_18 (AveragePo (None, 5, 5, 2048) 0 mixed9[0][0]
conv2d_180 (Conv2D) (None, 5, 320) 655360 mixed9[0][0]
batch_normalization_182 (BatchN (None, 5, 384) 1152 conv2d_182[0][0]

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batch_normalization_183 (BatchN (None, 5, 5, 384) 1152 conv2d_183[0][0]
batch_normalization_186 (BatchN (None, 5, 5, 384) 1152 conv2d_186[0][0]
batch_normalization_187 (BatchN (None, 5, 5, 384) 1152 conv2d_187[0][0]
conv2d_188 (Conv2D) (None, 5, 5, 192) 393216 average_pooling2d_18[0][0]
batch_normalization_180 (BatchN (None, 5, 5, 320) 960 conv2d_180[0][0]
activation_231 (Activation) (None, 5, 5, 384) 0 batch_normalization_182[0][0]
activation_232 (Activation) (None, 5, 5, 384) 0 batch_normalization_183[0][0]
activation_235 (Activation) (None, 5, 5, 384) 0 batch_normalization_186[0][0]
activation_236 (Activation) (None, 5, 5, 384) 0 batch_normalization_187[0][0]
batch_normalization_188 (BatchN (None, 5, 5, 192) 576 conv2d_188[0][0]
activation_229 (Activation) (None, 5, 5, 320) 0 batch_normalization_180[0][0]
mixed9_1 (Concatenate) (None, 5, 5, 768) 0 activation_231[0][0]
activation_230 (Concatenate) (None, 5, 5, 768) 0 activation_232[0][0]
activation_237 (Activation) (None, 5, 5, 192) 0 batch_normalization_188[0][0]
mixed10 (Concatenate) (None, 5, 5, 2048) 0 activation_229[0][0]
mixed9_1[0][0]
concatenate_4[0][0]
activation_237[0][0]
global_average_pooling2d_1 (Glo (None, 2048) 0 mixed10[0][0]
dense_5 (Dense) (None, 1024) 2098176 global_average_pooling2d_1[0][0]
dense_6 (Dense) (None, 4) 4100 dense_5[0][0]
=====
Total params: 23,905,060
Trainable params: 23,870,628
Non-trainable params: 34,432
=====
Epoch 1/10
- 166s - loss: 0.6439 - accuracy: 0.7493 - mean_squared_error: 0.1832 - val_loss: 0.5884 - val_accuracy: 0.7517 - val_mean_squared_error: 0.1644
Epoch 2/10
- 153s - loss: 0.4120 - accuracy: 0.8053 - mean_squared_error: 0.1557 - val_loss: 0.4815 - val_accuracy: 0.6949 - val_mean_squared_error: 0.1520

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Epoch 3/10
- 153s - loss: 0.3562 - accuracy: 0.8501 - mean_squared_error: 0.1480 - val_loss: 0.1370 - val_accuracy: 0.7820 - val_mean_squared_error: 0.1421
Epoch 4/10
- 153s - loss: 0.2761 - accuracy: 0.8982 - mean_squared_error: 0.1359 - val_loss: 0.2971 - val_accuracy: 0.9105 - val_mean_squared_error: 0.1274
Epoch 5/10
- 153s - loss: 0.2323 - accuracy: 0.9244 - mean_squared_error: 0.1203 - val_loss: 0.0634 - val_accuracy: 0.9138 - val_mean_squared_error: 0.1139
Epoch 6/10
- 153s - loss: 0.2089 - accuracy: 0.9316 - mean_squared_error: 0.1090 - val_loss: 0.3137 - val_accuracy: 0.8765 - val_mean_squared_error: 0.1049
Epoch 7/10
- 153s - loss: 0.1814 - accuracy: 0.9441 - mean_squared_error: 0.1013 - val_loss: 0.0432 - val_accuracy: 0.9570 - val_mean_squared_error: 0.0968
Epoch 8/10
- 153s - loss: 0.1643 - accuracy: 0.9535 - mean_squared_error: 0.0928 - val_loss: 0.0311 - val_accuracy: 0.9301 - val_mean_squared_error: 0.0894
Epoch 9/10
- 154s - loss: 0.1342 - accuracy: 0.9615 - mean_squared_error: 0.0863 - val_loss: 0.1898 - val_accuracy: 0.9201 - val_mean_squared_error: 0.0834
Epoch 10/10
- 153s - loss: 0.1228 - accuracy: 0.9681 - mean_squared_error: 0.0809 - val_loss: 0.2757 - val_accuracy: 0.8647 - val_mean_squared_error: 0.0789
Epoch 1/10
- 153s - loss: 0.1173 - accuracy: 0.9709 - mean_squared_error: 0.0771 - val_loss: 0.0016 - val_accuracy: 0.8868 - val_mean_squared_error: 0.0754
Epoch 2/10
- 153s - loss: 0.1047 - accuracy: 0.9753 - mean_squared_error: 0.0737 - val_loss: 0.0120 - val_accuracy: 0.9489 - val_mean_squared_error: 0.0716
Epoch 3/10
- 153s - loss: 0.0882 - accuracy: 0.9783 - mean_squared_error: 0.0697 - val_loss: 0.0267 - val_accuracy: 0.9109 - val_mean_squared_error: 0.0681
Epoch 4/10
- 153s - loss: 0.0873 - accuracy: 0.9817 - mean_squared_error: 0.0667 - val_loss: 0.0102 - val_accuracy: 0.9305 - val_mean_squared_error: 0.0651
Epoch 5/10
- 153s - loss: 0.0904 - accuracy: 0.9812 - mean_squared_error: 0.0638 - val_loss: 0.1966 - val_accuracy: 0.9464 - val_mean_squared_error: 0.0623
Epoch 6/10
- 153s - loss: 0.0837 - accuracy: 0.9835 - mean_squared_error: 0.0610 - val_loss: 5.0366e-06 - val_accuracy: 0.9696 - val_mean_squared_error: 0.0596
Epoch 7/10
- 153s - loss: 0.0947 - accuracy: 0.9835 - mean_squared_error: 0.0583 - val_loss: 0.0022 - val_accuracy: 0.9456 - val_mean_squared_error: 0.0571
Epoch 8/10
- 154s - loss: 0.0800 - accuracy: 0.9865 - mean_squared_error: 0.0561 - val_loss: 0.0296 - val_accuracy: 0.9388 - val_mean_squared_error: 0.0551
Epoch 9/10
- 153s - loss: 0.0850 - accuracy: 0.9834 - mean_squared_error: 0.0542 - val_loss: 0.0019 - val_accuracy: 0.9735 - val_mean_squared_error: 0.0532
Epoch 10/10
- 153s - loss: 0.0693 - accuracy: 0.9883 - mean_squared_error: 0.0522 - val_loss: 0.4531 - val_accuracy: 0.9571 - val_mean_squared_error: 0.0513
Epoch 1/10
- 153s - loss: 0.0673 - accuracy: 0.9873 - mean_squared_error: 0.0504 - val_loss: 4.6243e-04 - val_accuracy: 0.9616 - val_mean_squared_error: 0.0496
Epoch 2/10
- 153s - loss: 0.0614 - accuracy: 0.9888 - mean_squared_error: 0.0488 - val_loss: 1.4157e-05 - val_accuracy: 0.9621 - val_mean_squared_error: 0.0480
Epoch 3/10
- 153s - loss: 0.0659 - accuracy: 0.9894 - mean_squared_error: 0.0472 - val_loss: 0.0445 - val_accuracy: 0.9606 - val_mean_squared_error: 0.0465
Epoch 4/10
- 153s - loss: 0.0669 - accuracy: 0.9897 - mean_squared_error: 0.0459 - val_loss: 0.0000e+00 - val_accuracy: 0.9691 - val_mean_squared_error: 0.0452
Epoch 5/10
- 153s - loss: 0.0656 - accuracy: 0.9897 - mean_squared_error: 0.0445 - val_loss: 0.0668 - val_accuracy: 0.9703 - val_mean_squared_error: 0.0439
Epoch 6/10
- 153s - loss: 0.0507 - accuracy: 0.9912 - mean_squared_error: 0.0432 - val_loss: 8.9407e-08 - val_accuracy: 0.9813 - val_mean_squared_error: 0.0426
Epoch 7/10
- 153s - loss: 0.0669 - accuracy: 0.9915 - mean_squared_error: 0.0419 - val_loss: 0.0000e+00 - val_accuracy: 0.9840 - val_mean_squared_error: 0.0413

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Epoch 8/10
- 153s - loss: 0.0562 - accuracy: 0.9918 - mean_squared_error: 0.0407 - val_loss: 3.6160e-05 - val_accuracy: 0.9610 - val_mean_squared_error: 0.0402
Epoch 9/10
- 153s - loss: 0.0576 - accuracy: 0.9914 - mean_squared_error: 0.0398 - val_loss: 0.0000e+00 - val_accuracy: 0.9842 - val_mean_squared_error: 0.0392
Epoch 10/10
- 153s - loss: 0.0622 - accuracy: 0.9925 - mean_squared_error: 0.0387 - val_loss: 0.0000e+00 - val_accuracy: 0.9680 - val_mean_squared_error: 0.0383
Epoch 1/10
- 153s - loss: 0.0656 - accuracy: 0.9916 - mean_squared_error: 0.0378 - val_loss: 6.2779e-04 - val_accuracy: 0.9635 - val_mean_squared_error: 0.0374
Epoch 2/10
- 153s - loss: 0.0489 - accuracy: 0.9937 - mean_squared_error: 0.0370 - val_loss: 0.0000e+00 - val_accuracy: 0.9527 - val_mean_squared_error: 0.0366
Epoch 3/10
- 153s - loss: 0.0612 - accuracy: 0.9927 - mean_squared_error: 0.0363 - val_loss: 0.0000e+00 - val_accuracy: 0.9406 - val_mean_squared_error: 0.0360
Epoch 4/10
- 153s - loss: 0.0492 - accuracy: 0.9939 - mean_squared_error: 0.0357 - val_loss: 0.0144 - val_accuracy: 0.9603 - val_mean_squared_error: 0.0354
Epoch 5/10
- 153s - loss: 0.0481 - accuracy: 0.9939 - mean_squared_error: 0.0350 - val_loss: 0.0000e+00 - val_accuracy: 0.9804 - val_mean_squared_error: 0.0346
Epoch 6/10
- 153s - loss: 0.0600 - accuracy: 0.9929 - mean_squared_error: 0.0343 - val_loss: 0.2425 - val_accuracy: 0.9686 - val_mean_squared_error: 0.0339
Epoch 7/10
- 153s - loss: 0.0501 - accuracy: 0.9947 - mean_squared_error: 0.0336 - val_loss: 1.0389 - val_accuracy: 0.9795 - val_mean_squared_error: 0.0333
Epoch 8/10
- 153s - loss: 0.0332 - accuracy: 0.9965 - mean_squared_error: 0.0329 - val_loss: 0.7964 - val_accuracy: 0.9811 - val_mean_squared_error: 0.0326
Epoch 9/10
- 153s - loss: 0.0429 - accuracy: 0.9951 - mean_squared_error: 0.0322 - val_loss: 0.0000e+00 - val_accuracy: 0.9706 - val_mean_squared_error: 0.0319
Epoch 10/10
- 153s - loss: 0.0500 - accuracy: 0.9954 - mean_squared_error: 0.0316 - val_loss: 0.0000e+00 - val_accuracy: 0.9759 - val_mean_squared_error: 0.0314
Epoch 1/10
- 153s - loss: 0.0378 - accuracy: 0.9954 - mean_squared_error: 0.0311 - val_loss: 0.0000e+00 - val_accuracy: 0.9814 - val_mean_squared_error: 0.0308
Epoch 2/10
- 153s - loss: 0.0443 - accuracy: 0.9959 - mean_squared_error: 0.0305 - val_loss: 0.0000e+00 - val_accuracy: 0.9803 - val_mean_squared_error: 0.0302
Epoch 3/10
- 153s - loss: 0.0405 - accuracy: 0.9960 - mean_squared_error: 0.0299 - val_loss: 0.0000e+00 - val_accuracy: 0.9792 - val_mean_squared_error: 0.0297
Epoch 4/10
- 153s - loss: 0.0505 - accuracy: 0.9954 - mean_squared_error: 0.0294 - val_loss: 0.0000e+00 - val_accuracy: 0.9858 - val_mean_squared_error: 0.0291
Epoch 5/10
- 153s - loss: 0.0381 - accuracy: 0.9962 - mean_squared_error: 0.0289 - val_loss: 1.0729e-06 - val_accuracy: 0.9761 - val_mean_squared_error: 0.0286
Epoch 6/10
- 153s - loss: 0.0361 - accuracy: 0.9965 - mean_squared_error: 0.0284 - val_loss: 0.6109 - val_accuracy: 0.9803 - val_mean_squared_error: 0.0282
Epoch 7/10
- 153s - loss: 0.0342 - accuracy: 0.9968 - mean_squared_error: 0.0279 - val_loss: 3.8343 - val_accuracy: 0.9778 - val_mean_squared_error: 0.0277
Epoch 8/10
- 153s - loss: 0.0521 - accuracy: 0.9950 - mean_squared_error: 0.0275 - val_loss: 3.8343 - val_accuracy: 0.9526 - val_mean_squared_error: 0.0273
Epoch 9/10
- 153s - loss: 0.0543 - accuracy: 0.9957 - mean_squared_error: 0.0272 - val_loss: 3.3935 - val_accuracy: 0.9670 - val_mean_squared_error: 0.0270
Epoch 10/10
- 153s - loss: 0.0387 - accuracy: 0.9964 - mean_squared_error: 0.0268 - val_loss: 3.8343 - val_accuracy: 0.9713 - val_mean_squared_error: 0.0267
Model: "model_4"

```

Layer (type)	Output Shape	Param #	Connected to

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File : ll_classification_training
input_4 (InputLayer)          (None, 224, 224, 3) 0
conv2d_189 (Conv2D)          (None, 111, 111, 32) 864  input_4[0][0]
batch_normalization_189 (BatchN (None, 111, 111, 32) 96  conv2d_189[0][0]
activation_238 (Activation)  (None, 111, 111, 32) 0  batch_normalization_189[0][0]
conv2d_190 (Conv2D)          (None, 109, 109, 32) 9216  activation_238[0][0]
batch_normalization_190 (BatchN (None, 109, 109, 32) 96  conv2d_190[0][0]
activation_239 (Activation)  (None, 109, 109, 32) 0  batch_normalization_190[0][0]
conv2d_191 (Conv2D)          (None, 109, 109, 64) 18432  activation_239[0][0]
batch_normalization_191 (BatchN (None, 109, 109, 64) 192  conv2d_191[0][0]
activation_240 (Activation)  (None, 109, 109, 64) 0  batch_normalization_191[0][0]
max_pooling2d_10 (MaxPooling2D) (None, 54, 54, 64) 0  activation_240[0][0]
conv2d_192 (Conv2D)          (None, 54, 54, 80) 5120  max_pooling2d_10[0][0]
batch_normalization_192 (BatchN (None, 54, 54, 80) 240  conv2d_192[0][0]
activation_241 (Activation)  (None, 54, 54, 80) 0  batch_normalization_192[0][0]
conv2d_193 (Conv2D)          (None, 52, 52, 192) 138240  activation_241[0][0]
batch_normalization_193 (BatchN (None, 52, 52, 192) 576  conv2d_193[0][0]
activation_242 (Activation)  (None, 52, 52, 192) 0  batch_normalization_193[0][0]
max_pooling2d_11 (MaxPooling2D) (None, 25, 25, 192) 0  activation_242[0][0]
conv2d_197 (Conv2D)          (None, 25, 25, 64) 12288  max_pooling2d_11[0][0]
batch_normalization_197 (BatchN (None, 25, 25, 64) 192  conv2d_197[0][0]
activation_246 (Activation)  (None, 25, 25, 64) 0  batch_normalization_197[0][0]
conv2d_195 (Conv2D)          (None, 25, 25, 48) 9216  max_pooling2d_11[0][0]
conv2d_198 (Conv2D)          (None, 25, 25, 96) 55296  activation_246[0][0]
batch_normalization_195 (BatchN (None, 25, 25, 48) 144  conv2d_195[0][0]
batch_normalization_198 (BatchN (None, 25, 25, 96) 288  conv2d_198[0][0]

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File : ll_classification_training
activation_244 (Activation)      (None, 25, 25, 48)  0      batch_normalization_195[0][0]
activation_247 (Activation)      (None, 25, 25, 96)  0      batch_normalization_198[0][0]
average_pooling2d_19 (AveragePo (None, 25, 25, 192)  0      max_pooling2d_11[0][0]
conv2d_194 (Conv2D)            (None, 25, 25, 64)  12288  max_pooling2d_11[0][0]
conv2d_196 (Conv2D)            (None, 25, 25, 64)  76800  activation_244[0][0]
conv2d_199 (Conv2D)            (None, 25, 25, 96)  82944  activation_247[0][0]
conv2d_200 (Conv2D)            (None, 25, 25, 32)  6144   average_pooling2d_19[0][0]
batch_normalization_194 (BatchN (None, 25, 25, 64)  192   conv2d_194[0][0]
batch_normalization_196 (BatchN (None, 25, 25, 64)  192   conv2d_196[0][0]
batch_normalization_199 (BatchN (None, 25, 25, 96)  288   conv2d_199[0][0]
batch_normalization_200 (BatchN (None, 25, 25, 32)  96    conv2d_200[0][0]
activation_243 (Activation)    (None, 25, 25, 64)  0      batch_normalization_194[0][0]
activation_245 (Activation)    (None, 25, 25, 64)  0      batch_normalization_196[0][0]
activation_248 (Activation)    (None, 25, 25, 96)  0      batch_normalization_199[0][0]
activation_249 (Activation)    (None, 25, 25, 32)  0      batch_normalization_200[0][0]
mixed0 (Concatenate)          (None, 25, 25, 256)  0      activation_243[0][0]
mixed0 (Concatenate)          (None, 25, 25, 256)  0      activation_245[0][0]
mixed0 (Concatenate)          (None, 25, 25, 256)  0      activation_248[0][0]
mixed0 (Concatenate)          (None, 25, 25, 256)  0      activation_249[0][0]
conv2d_204 (Conv2D)           (None, 25, 25, 64)  16384  mixed0[0][0]
batch_normalization_204 (BatchN (None, 25, 25, 64)  192   conv2d_204[0][0]
activation_253 (Activation)    (None, 25, 25, 64)  0      batch_normalization_204[0][0]
conv2d_202 (Conv2D)           (None, 25, 25, 48)  12288  mixed0[0][0]
conv2d_205 (Conv2D)           (None, 25, 25, 96)  55296  activation_253[0][0]
batch_normalization_202 (BatchN (None, 25, 25, 48)  144   conv2d_202[0][0]
batch_normalization_205 (BatchN (None, 25, 25, 96)  288   conv2d_205[0][0]
activation_251 (Activation)    (None, 25, 25, 48)  0      batch_normalization_202[0][0]

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activation_254 (Activation) (None, 25, 25, 96) 0 batch_normalization_205[0][0]
average_pooling2d_20 (AveragePo (None, 25, 25, 256) 0 mixed0[0][0]
conv2d_201 (Conv2D) (None, 25, 25, 64) 16384 mixed0[0][0]
conv2d_203 (Conv2D) (None, 25, 25, 64) 76800 activation_251[0][0]
conv2d_206 (Conv2D) (None, 25, 25, 96) 82944 activation_254[0][0]
conv2d_207 (Conv2D) (None, 25, 25, 64) 16384 average_pooling2d_20[0][0]
batch_normalization_201 (BatchN (None, 25, 25, 64) 192 conv2d_201[0][0]
batch_normalization_203 (BatchN (None, 25, 25, 64) 192 conv2d_203[0][0]
batch_normalization_206 (BatchN (None, 25, 25, 96) 288 conv2d_206[0][0]
batch_normalization_207 (BatchN (None, 25, 25, 64) 192 conv2d_207[0][0]
activation_250 (Activation) (None, 25, 25, 64) 0 batch_normalization_201[0][0]
activation_252 (Activation) (None, 25, 25, 64) 0 batch_normalization_203[0][0]
activation_255 (Activation) (None, 25, 25, 96) 0 batch_normalization_206[0][0]
activation_256 (Activation) (None, 25, 25, 64) 0 batch_normalization_207[0][0]
mixed1 (Concatenate) (None, 25, 25, 288) 0 activation_250[0][0]
activation_252[0][0]
activation_255[0][0]
activation_256[0][0]
conv2d_211 (Conv2D) (None, 25, 25, 64) 18432 mixed1[0][0]
batch_normalization_211 (BatchN (None, 25, 25, 64) 192 conv2d_211[0][0]
activation_260 (Activation) (None, 25, 25, 64) 0 batch_normalization_211[0][0]
conv2d_209 (Conv2D) (None, 25, 25, 48) 13824 mixed1[0][0]
conv2d_212 (Conv2D) (None, 25, 25, 96) 55296 activation_260[0][0]
batch_normalization_209 (BatchN (None, 25, 25, 48) 144 conv2d_209[0][0]
batch_normalization_212 (BatchN (None, 25, 25, 96) 288 conv2d_212[0][0]
activation_258 (Activation) (None, 25, 25, 48) 0 batch_normalization_209[0][0]
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File : ll_classification_training
activation_261 (Activation)      (None, 25, 25, 96)  0      batch_normalization_212[0][0]
-----  
average_pooling2d_21 (AveragePo (None, 25, 25, 288)  0      mixed1[0][0]
-----  
conv2d_208 (Conv2D)           (None, 25, 25, 64)  18432  mixed1[0][0]
-----  
conv2d_210 (Conv2D)           (None, 25, 25, 64)  76800  activation_258[0][0]
-----  
conv2d_213 (Conv2D)           (None, 25, 25, 96)  82944  activation_261[0][0]
-----  
conv2d_214 (Conv2D)           (None, 25, 25, 64)  18432  average_pooling2d_21[0][0]
-----  
batch_normalization_208 (BatchN (None, 25, 25, 64)  192   conv2d_208[0][0]
-----  
batch_normalization_210 (BatchN (None, 25, 25, 64)  192   conv2d_210[0][0]
-----  
batch_normalization_213 (BatchN (None, 25, 25, 96)  288   conv2d_213[0][0]
-----  
batch_normalization_214 (BatchN (None, 25, 25, 64)  192   conv2d_214[0][0]
-----  
activation_257 (Activation)   (None, 25, 25, 64)  0      batch_normalization_210[0][0]
-----  
activation_259 (Activation)   (None, 25, 25, 64)  0      batch_normalization_213[0][0]
-----  
activation_262 (Activation)   (None, 25, 25, 96)  0      batch_normalization_214[0][0]
-----  
activation_263 (Activation)   (None, 25, 25, 64)  0      batch_normalization_215[0][0]
-----  
mixed2 (Concatenate)          (None, 25, 25, 288)  0      activation_257[0][0]
-----  
mixed2 (Concatenate)          (None, 25, 25, 288)  0      activation_259[0][0]
-----  
mixed2 (Concatenate)          (None, 25, 25, 288)  0      activation_262[0][0]
-----  
mixed2 (Concatenate)          (None, 25, 25, 288)  0      activation_263[0][0]
-----  
conv2d_216 (Conv2D)           (None, 25, 25, 64)  18432  mixed2[0][0]
-----  
batch_normalization_216 (BatchN (None, 25, 25, 64)  192   conv2d_216[0][0]
-----  
activation_265 (Activation)   (None, 25, 25, 64)  0      batch_normalization_217[0][0]
-----  
conv2d_217 (Conv2D)           (None, 25, 25, 96)  55296  activation_265[0][0]
-----  
batch_normalization_217 (BatchN (None, 25, 25, 96)  288   conv2d_217[0][0]
-----  
activation_266 (Activation)   (None, 25, 25, 96)  0      batch_normalization_218[0][0]
-----  
conv2d_215 (Conv2D)           (None, 12, 12, 384)  995328  mixed2[0][0]
-----  
conv2d_218 (Conv2D)           (None, 12, 12, 96)  82944  activation_266[0][0]
-----  
batch_normalization_215 (BatchN (None, 12, 12, 384)  1152   conv2d_215[0][0]
```

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batch_normalization_218 (BatchN (None, 12, 12, 96) 288 conv2d_218[0][0]
activation_264 (Activation) (None, 12, 12, 384) 0 batch_normalization_215[0][0]
activation_267 (Activation) (None, 12, 12, 96) 0 batch_normalization_218[0][0]
max_pooling2d_12 (MaxPooling2D) (None, 12, 288) 0 mixed2[0][0]
mixed3 (Concatenate) (None, 12, 12, 768) 0 activation_264[0][0]
activation_267[0][0]
activation_268 (Activation) (None, 12, 12, 768) 0 max_pooling2d_12[0][0]
conv2d_223 (Conv2D) (None, 12, 128) 98304 mixed3[0][0]
batch_normalization_223 (BatchN (None, 12, 12, 128) 384 conv2d_223[0][0]
activation_272 (Activation) (None, 12, 12, 128) 0 batch_normalization_223[0][0]
conv2d_224 (Conv2D) (None, 12, 12, 128) 114688 activation_272[0][0]
batch_normalization_224 (BatchN (None, 12, 12, 128) 384 conv2d_224[0][0]
activation_273 (Activation) (None, 12, 12, 128) 0 batch_normalization_224[0][0]
conv2d_220 (Conv2D) (None, 12, 12, 128) 98304 mixed3[0][0]
conv2d_225 (Conv2D) (None, 12, 12, 128) 114688 activation_273[0][0]
batch_normalization_220 (BatchN (None, 12, 12, 128) 384 conv2d_220[0][0]
batch_normalization_225 (BatchN (None, 12, 12, 128) 384 conv2d_225[0][0]
activation_269 (Activation) (None, 12, 12, 128) 0 batch_normalization_220[0][0]
activation_274 (Activation) (None, 12, 12, 128) 0 batch_normalization_225[0][0]
conv2d_221 (Conv2D) (None, 12, 12, 128) 114688 activation_269[0][0]
conv2d_226 (Conv2D) (None, 12, 12, 128) 114688 activation_274[0][0]
batch_normalization_221 (BatchN (None, 12, 12, 128) 384 conv2d_221[0][0]
batch_normalization_226 (BatchN (None, 12, 12, 128) 384 conv2d_226[0][0]
activation_270 (Activation) (None, 12, 12, 128) 0 batch_normalization_221[0][0]
activation_275 (Activation) (None, 12, 12, 128) 0 batch_normalization_226[0][0]
average_pooling2d_22 (AveragePo (None, 12, 12, 768) 0 mixed3[0][0]
```

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conv2d_219 (Conv2D)          (None, 12, 12, 192) 147456    mixed3[0][0]
conv2d_222 (Conv2D)          (None, 12, 12, 192) 172032    activation_270[0][0]
conv2d_227 (Conv2D)          (None, 12, 12, 192) 172032    activation_275[0][0]
conv2d_228 (Conv2D)          (None, 12, 12, 192) 147456    average_pooling2d_22[0][0]
batch_normalization_219 (BatchN (None, 12, 12, 192) 576      conv2d_219[0][0]
batch_normalization_222 (BatchN (None, 12, 12, 192) 576      conv2d_222[0][0]
batch_normalization_227 (BatchN (None, 12, 12, 192) 576      conv2d_227[0][0]
batch_normalization_228 (BatchN (None, 12, 12, 192) 576      conv2d_228[0][0]
activation_268 (Activation) (None, 12, 12, 192) 0       batch_normalization_219[0][0]
activation_271 (Activation) (None, 12, 12, 192) 0       batch_normalization_222[0][0]
activation_276 (Activation) (None, 12, 12, 192) 0       batch_normalization_227[0][0]
activation_277 (Activation) (None, 12, 12, 192) 0       batch_normalization_228[0][0]
mixed4 (Concatenate)        (None, 12, 12, 768) 0       activation_268[0][0]
mixed4 (Concatenate)        (None, 12, 12, 768) 0       activation_271[0][0]
mixed4 (Concatenate)        (None, 12, 12, 768) 0       activation_276[0][0]
mixed4 (Concatenate)        (None, 12, 12, 768) 0       activation_277[0][0]
conv2d_233 (Conv2D)          (None, 12, 12, 160) 122880    mixed4[0][0]
batch_normalization_233 (BatchN (None, 12, 12, 160) 480      conv2d_233[0][0]
activation_282 (Activation) (None, 12, 12, 160) 0       batch_normalization_233[0][0]
conv2d_234 (Conv2D)          (None, 12, 12, 160) 179200    activation_282[0][0]
batch_normalization_234 (BatchN (None, 12, 12, 160) 480      conv2d_234[0][0]
activation_283 (Activation) (None, 12, 12, 160) 0       batch_normalization_234[0][0]
conv2d_230 (Conv2D)          (None, 12, 12, 160) 122880    mixed4[0][0]
conv2d_235 (Conv2D)          (None, 12, 12, 160) 179200    activation_283[0][0]
batch_normalization_230 (BatchN (None, 12, 12, 160) 480      conv2d_230[0][0]
batch_normalization_235 (BatchN (None, 12, 12, 160) 480      conv2d_235[0][0]
```

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File : ll_classification_training
activation_279 (Activation)      (None, 12, 12, 160) 0      batch_normalization_230[0][0]
activation_284 (Activation)      (None, 12, 12, 160) 0      batch_normalization_235[0][0]
conv2d_231 (Conv2D)            (None, 12, 12, 160) 179200  activation_279[0][0]
conv2d_236 (Conv2D)            (None, 12, 12, 160) 179200  activation_284[0][0]
batch_normalization_231 (BatchN (None, 12, 12, 160) 480      conv2d_231[0][0]
batch_normalization_236 (BatchN (None, 12, 12, 160) 480      conv2d_236[0][0]
activation_280 (Activation)    (None, 12, 12, 160) 0      batch_normalization_231[0][0]
activation_285 (Activation)    (None, 12, 12, 160) 0      batch_normalization_236[0][0]
average_pooling2d_23 (AveragePo (None, 12, 12, 768) 0      mixed4[0][0]
conv2d_229 (Conv2D)            (None, 12, 12, 192) 147456  mixed4[0][0]
conv2d_232 (Conv2D)            (None, 12, 12, 192) 215040  activation_280[0][0]
conv2d_237 (Conv2D)            (None, 12, 12, 192) 215040  activation_285[0][0]
conv2d_238 (Conv2D)            (None, 12, 12, 192) 147456  average_pooling2d_23[0][0]
batch_normalization_229 (BatchN (None, 12, 12, 192) 576      conv2d_229[0][0]
batch_normalization_232 (BatchN (None, 12, 12, 192) 576      conv2d_232[0][0]
batch_normalization_237 (BatchN (None, 12, 12, 192) 576      conv2d_237[0][0]
batch_normalization_238 (BatchN (None, 12, 12, 192) 576      conv2d_238[0][0]
activation_278 (Activation)    (None, 12, 12, 192) 0      batch_normalization_229[0][0]
activation_281 (Activation)    (None, 12, 12, 192) 0      batch_normalization_232[0][0]
activation_286 (Activation)    (None, 12, 12, 192) 0      batch_normalization_237[0][0]
activation_287 (Activation)    (None, 12, 12, 192) 0      batch_normalization_238[0][0]
mixed5 (Concatenate)          (None, 12, 12, 768) 0      activation_278[0][0]
activation_281[0][0]
activation_286[0][0]
activation_287[0][0]
conv2d_243 (Conv2D)            (None, 12, 12, 160) 122880  mixed5[0][0]
batch_normalization_243 (BatchN (None, 12, 12, 160) 480      conv2d_243[0][0]

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activation_292 (Activation)      (None, 12, 12, 160)  0          batch_normalization_243[0][0]
conv2d_244 (Conv2D)            (None, 12, 12, 160)  179200    activation_292[0][0]
batch_normalization_244 (BatchN (None, 12, 12, 160)  480        conv2d_244[0][0]
activation_293 (Activation)      (None, 12, 12, 160)  0          batch_normalization_244[0][0]
conv2d_240 (Conv2D)            (None, 12, 12, 160)  122880    mixed5[0][0]
conv2d_245 (Conv2D)            (None, 12, 12, 160)  179200    activation_293[0][0]
batch_normalization_240 (BatchN (None, 12, 12, 160)  480        conv2d_240[0][0]
batch_normalization_245 (BatchN (None, 12, 12, 160)  480        conv2d_245[0][0]
activation_289 (Activation)      (None, 12, 12, 160)  0          batch_normalization_240[0][0]
activation_294 (Activation)      (None, 12, 12, 160)  0          batch_normalization_245[0][0]
conv2d_241 (Conv2D)            (None, 12, 12, 160)  179200    activation_289[0][0]
conv2d_246 (Conv2D)            (None, 12, 12, 160)  179200    activation_294[0][0]
batch_normalization_241 (BatchN (None, 12, 12, 160)  480        conv2d_241[0][0]
batch_normalization_246 (BatchN (None, 12, 12, 160)  480        conv2d_246[0][0]
activation_290 (Activation)      (None, 12, 12, 160)  0          batch_normalization_241[0][0]
activation_295 (Activation)      (None, 12, 12, 160)  0          batch_normalization_246[0][0]
average_pooling2d_24 (AveragePo (None, 12, 12, 768)  0          mixed5[0][0]
conv2d_239 (Conv2D)            (None, 12, 12, 192)  147456    mixed5[0][0]
conv2d_242 (Conv2D)            (None, 12, 12, 192)  215040    activation_290[0][0]
conv2d_247 (Conv2D)            (None, 12, 12, 192)  215040    activation_295[0][0]
conv2d_248 (Conv2D)            (None, 12, 12, 192)  147456    average_pooling2d_24[0][0]
batch_normalization_239 (BatchN (None, 12, 12, 192)  576        conv2d_239[0][0]
batch_normalization_242 (BatchN (None, 12, 12, 192)  576        conv2d_242[0][0]
batch_normalization_247 (BatchN (None, 12, 12, 192)  576        conv2d_247[0][0]
batch_normalization_248 (BatchN (None, 12, 12, 192)  576        conv2d_248[0][0]
```

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activation_288 (Activation)      (None, 12, 12, 192) 0          batch_normalization_239[0][0]
activation_291 (Activation)      (None, 12, 12, 192) 0          batch_normalization_242[0][0]
activation_296 (Activation)      (None, 12, 12, 192) 0          batch_normalization_247[0][0]
activation_297 (Activation)      (None, 12, 12, 192) 0          batch_normalization_248[0][0]
mixed6 (Concatenate)           (None, 12, 12, 768) 0          activation_288[0][0]
                                         activation_291[0][0]
                                         activation_296[0][0]
                                         activation_297[0][0]
conv2d_253 (Conv2D)            (None, 12, 12, 192) 147456    mixed6[0][0]
batch_normalization_253 (BatchN) (None, 12, 12, 192) 576      conv2d_253[0][0]
activation_302 (Activation)     (None, 12, 12, 192) 0          batch_normalization_253[0][0]
conv2d_254 (Conv2D)            (None, 12, 12, 192) 258048    activation_302[0][0]
batch_normalization_254 (BatchN) (None, 12, 12, 192) 576      conv2d_254[0][0]
activation_303 (Activation)     (None, 12, 12, 192) 0          batch_normalization_254[0][0]
conv2d_250 (Conv2D)            (None, 12, 12, 192) 147456    mixed6[0][0]
conv2d_255 (Conv2D)            (None, 12, 12, 192) 258048    activation_303[0][0]
batch_normalization_250 (BatchN) (None, 12, 12, 192) 576      conv2d_250[0][0]
batch_normalization_255 (BatchN) (None, 12, 12, 192) 576      conv2d_255[0][0]
activation_299 (Activation)     (None, 12, 12, 192) 0          batch_normalization_250[0][0]
activation_304 (Activation)     (None, 12, 12, 192) 0          batch_normalization_255[0][0]
conv2d_251 (Conv2D)            (None, 12, 12, 192) 258048    activation_299[0][0]
conv2d_256 (Conv2D)            (None, 12, 12, 192) 258048    activation_304[0][0]
batch_normalization_251 (BatchN) (None, 12, 12, 192) 576      conv2d_251[0][0]
batch_normalization_256 (BatchN) (None, 12, 12, 192) 576      conv2d_256[0][0]
activation_300 (Activation)     (None, 12, 12, 192) 0          batch_normalization_251[0][0]
activation_305 (Activation)     (None, 12, 12, 192) 0          batch_normalization_256[0][0]
```

average_pooling2d_25 (AveragePo

(None, 12, 12, 768) 0

mixed6[0][0]

conv2d_249 (Conv2D) (None, 12, 12, 192) 147456 mixed6[0][0]

conv2d_252 (Conv2D) (None, 12, 12, 192) 258048 activation_300[0][0]

conv2d_257 (Conv2D) (None, 12, 12, 192) 258048 activation_305[0][0]

conv2d_258 (Conv2D) (None, 12, 12, 192) 147456 average_pooling2d_25[0][0]

batch_normalization_249 (BatchN (None, 12, 12, 192) 576 conv2d_249[0][0]

batch_normalization_252 (BatchN (None, 12, 12, 192) 576 conv2d_252[0][0]

batch_normalization_257 (BatchN (None, 12, 12, 192) 576 conv2d_257[0][0]

batch_normalization_258 (BatchN (None, 12, 12, 192) 576 conv2d_258[0][0]

activation_298 (Activation) (None, 12, 12, 192) 0 batch_normalization_249[0][0]

activation_301 (Activation) (None, 12, 12, 192) 0 batch_normalization_252[0][0]

activation_306 (Activation) (None, 12, 12, 192) 0 batch_normalization_257[0][0]

activation_307 (Activation) (None, 12, 12, 192) 0 batch_normalization_258[0][0]

mixed7 (Concatenate) (None, 12, 12, 768) 0 activation_298[0][0]

activation_301[0][0] activation_306[0][0]

activation_307[0][0] activation_257[0][0]

conv2d_261 (Conv2D) (None, 12, 12, 192) 147456 mixed7[0][0]

batch_normalization_261 (BatchN (None, 12, 12, 192) 576 conv2d_261[0][0]

activation_310 (Activation) (None, 12, 12, 192) 0 batch_normalization_261[0][0]

conv2d_262 (Conv2D) (None, 12, 12, 192) 258048 activation_310[0][0]

batch_normalization_262 (BatchN (None, 12, 12, 192) 576 conv2d_262[0][0]

activation_311 (Activation) (None, 12, 12, 192) 0 batch_normalization_262[0][0]

conv2d_259 (Conv2D) (None, 12, 12, 192) 147456 mixed7[0][0]

conv2d_263 (Conv2D) (None, 12, 12, 192) 258048 activation_311[0][0]

batch_normalization_259 (BatchN (None, 12, 12, 192) 576 conv2d_259[0][0]

batch_normalization_263 (BatchN (None, 12, 12, 192) 576 conv2d_263[0][0]

```
activation_308 (Activation)      (None, 12, 12, 192) 0          batch_normalization_259[0][0]
activation_312 (Activation)      (None, 12, 12, 192) 0          batch_normalization_263[0][0]
conv2d_260 (Conv2D)             (None, 5, 5, 320) 552960      activation_308[0][0]
conv2d_264 (Conv2D)             (None, 5, 5, 192) 331776      activation_312[0][0]
batch_normalization_260 (BatchN) (None, 5, 5, 320) 960       conv2d_260[0][0]
batch_normalization_264 (BatchN) (None, 5, 5, 192) 576       conv2d_264[0][0]
activation_309 (Activation)     (None, 5, 5, 320) 0          batch_normalization_260[0][0]
activation_313 (Activation)     (None, 5, 5, 192) 0          batch_normalization_264[0][0]
max_pooling2d_13 (MaxPooling2D) (None, 5, 5, 768) 0          mixed7[0][0]
mixed8 (Concatenate)           (None, 5, 5, 1280) 0          activation_309[0][0]
                                         activation_313[0][0]
                                         max_pooling2d_13[0][0]
conv2d_269 (Conv2D)             (None, 5, 5, 448) 573440      mixed8[0][0]
batch_normalization_269 (BatchN) (None, 5, 5, 448) 1344       conv2d_269[0][0]
activation_318 (Activation)     (None, 5, 5, 448) 0          batch_normalization_269[0][0]
conv2d_266 (Conv2D)             (None, 5, 5, 384) 491520      mixed8[0][0]
conv2d_270 (Conv2D)             (None, 5, 5, 384) 1548288     activation_318[0][0]
batch_normalization_266 (BatchN) (None, 5, 5, 384) 1152       conv2d_266[0][0]
batch_normalization_270 (BatchN) (None, 5, 5, 384) 1152       conv2d_270[0][0]
activation_315 (Activation)     (None, 5, 5, 384) 0          batch_normalization_266[0][0]
activation_319 (Activation)     (None, 5, 5, 384) 0          batch_normalization_270[0][0]
conv2d_267 (Conv2D)             (None, 5, 5, 384) 442368      activation_315[0][0]
conv2d_268 (Conv2D)             (None, 5, 5, 384) 442368      activation_315[0][0]
conv2d_271 (Conv2D)             (None, 5, 5, 384) 442368      activation_319[0][0]
conv2d_272 (Conv2D)             (None, 5, 5, 384) 442368      activation_319[0][0]
average_pooling2d_26 (AveragePo (None, 5, 5, 1280) 0          mixed8[0][0]
```

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conv2d_265 (Conv2D)          (None, 5, 5, 320)  409600   mixed8[0][0]  
batch_normalization_267 (BatchN (None, 5, 5, 384)  1152    conv2d_267[0][0]  
batch_normalization_268 (BatchN (None, 5, 5, 384)  1152    conv2d_268[0][0]  
batch_normalization_271 (BatchN (None, 5, 5, 384)  1152    conv2d_271[0][0]  
batch_normalization_272 (BatchN (None, 5, 5, 384)  1152    conv2d_272[0][0]  
conv2d_273 (Conv2D)          (None, 5, 5, 192)   245760   average_pooling2d_26[0][0]  
batch_normalization_265 (BatchN (None, 5, 5, 320)  960    conv2d_265[0][0]  
activation_316 (Activation)  (None, 5, 5, 384)   0       batch_normalization_267[0][0]  
activation_317 (Activation)  (None, 5, 5, 384)   0       batch_normalization_268[0][0]  
activation_320 (Activation)  (None, 5, 5, 384)   0       batch_normalization_271[0][0]  
activation_321 (Activation)  (None, 5, 5, 384)   0       batch_normalization_272[0][0]  
batch_normalization_273 (BatchN (None, 5, 5, 192)  576    conv2d_273[0][0]  
activation_314 (Activation)  (None, 5, 5, 320)   0       batch_normalization_265[0][0]  
mixed9_0 (Concatenate)      (None, 5, 5, 768)   0       activation_316[0][0]  
activation_317 (Activation)  (None, 5, 5, 768)   0       activation_317[0][0]  
concatenate_5 (Concatenate) (None, 5, 5, 192)   0       activation_320[0][0]  
activation_321 (Activation)  (None, 5, 5, 192)   0       activation_321[0][0]  
activation_322 (Activation)  (None, 5, 5, 192)   0       batch_normalization_273[0][0]  
mixed9 (Concatenate)        (None, 5, 5, 2048)  0       activation_314[0][0]  
mixed9_0[0][0]               mixed9_0[0][0]  
concatenate_5[0][0]          concatenate_5[0][0]  
activation_322[0][0]          activation_322[0][0]  
conv2d_278 (Conv2D)          (None, 5, 5, 448)  917504   mixed9[0][0]  
batch_normalization_278 (BatchN (None, 5, 5, 448)  1344    conv2d_278[0][0]  
activation_327 (Activation)  (None, 5, 5, 448)  0       batch_normalization_278[0][0]  
conv2d_275 (Conv2D)          (None, 5, 5, 384)  786432   mixed9[0][0]  
conv2d_279 (Conv2D)          (None, 5, 5, 384)  1548288  activation_327[0][0]
```

```

batch_normalization_275 (BatchN (None, 5, 5, 384) 1152 conv2d_275[0][0]
activation_324 (Activation) (None, 5, 5, 384) 0 batch_normalization_275[0][0]
activation_328 (Activation) (None, 5, 5, 384) 0 batch_normalization_279[0][0]
conv2d_276 (Conv2D) (None, 5, 5, 384) 442368 activation_324[0][0]
conv2d_277 (Conv2D) (None, 5, 5, 384) 442368 activation_324[0][0]
conv2d_280 (Conv2D) (None, 5, 5, 384) 442368 activation_328[0][0]
conv2d_281 (Conv2D) (None, 5, 5, 384) 442368 activation_328[0][0]
average_pooling2d_27 (AveragePo (None, 5, 5, 2048) 0 mixed9[0][0]
conv2d_274 (Conv2D) (None, 5, 5, 320) 655360 mixed9[0][0]
batch_normalization_276 (BatchN (None, 5, 5, 384) 1152 conv2d_276[0][0]
batch_normalization_277 (BatchN (None, 5, 5, 384) 1152 conv2d_277[0][0]
batch_normalization_280 (BatchN (None, 5, 5, 384) 1152 conv2d_280[0][0]
batch_normalization_281 (BatchN (None, 5, 5, 384) 1152 conv2d_281[0][0]
conv2d_282 (Conv2D) (None, 5, 5, 192) 393216 average_pooling2d_27[0][0]
batch_normalization_274 (BatchN (None, 5, 5, 320) 960 conv2d_274[0][0]
activation_325 (Activation) (None, 5, 5, 384) 0 batch_normalization_276[0][0]
activation_326 (Activation) (None, 5, 5, 384) 0 batch_normalization_277[0][0]
activation_329 (Activation) (None, 5, 5, 384) 0 batch_normalization_280[0][0]
activation_330 (Activation) (None, 5, 5, 384) 0 batch_normalization_281[0][0]
batch_normalization_282 (BatchN (None, 5, 5, 192) 576 conv2d_282[0][0]
activation_323 (Activation) (None, 5, 5, 320) 0 batch_normalization_274[0][0]
mixed9_1 (Concatenate) (None, 5, 5, 768) 0 activation_325[0][0]
concatenate_6 (Concatenate) (None, 5, 5, 768) 0 activation_329[0][0]
activation_326[0][0] activation_330[0][0]

```

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File : ll_classification_training
activation_331 (Activation)      (None, 5, 5, 192)      0      batch_normalization_282[0][0]
mixed10 (Concatenate)          (None, 5, 2048)      0      activation_323[0][0]
dense_7 (Dense)              (None, 1024)      2098176      global_average_pooling2d_2[0][0]
dense_8 (Dense)              (None, 4)      4100      dense_7[0][0]
=====
Total params: 23,905,060
Trainable params: 2,102,276
Non-trainable params: 21,802,784
=====
Epoch 1/10
- 159s - loss: 0.5273 - accuracy: 0.7843 - mean_squared_error: 0.1837 - val_loss: 0.2452 - val_accuracy: 0.6547 - val_mean_squared_error: 0.1696
Epoch 2/10
- 154s - loss: 0.3412 - accuracy: 0.8452 - mean_squared_error: 0.1669 - val_loss: 3.3930 - val_accuracy: 0.6509 - val_mean_squared_error: 0.1617
Epoch 3/10
- 141s - loss: 0.2941 - accuracy: 0.8714 - mean_squared_error: 0.1586 - val_loss: 3.8343 - val_accuracy: 0.6324 - val_mean_squared_error: 0.1554
Epoch 4/10
- 140s - loss: 0.2584 - accuracy: 0.8908 - mean_squared_error: 0.1532 - val_loss: 3.8343 - val_accuracy: 0.6586 - val_mean_squared_error: 0.1497
Epoch 5/10
- 141s - loss: 0.2289 - accuracy: 0.9075 - mean_squared_error: 0.1469 - val_loss: 3.8343 - val_accuracy: 0.6484 - val_mean_squared_error: 0.1442
Epoch 6/10
- 140s - loss: 0.2021 - accuracy: 0.9224 - mean_squared_error: 0.1418 - val_loss: 3.1711 - val_accuracy: 0.6823 - val_mean_squared_error: 0.1388
Epoch 7/10
- 140s - loss: 0.1742 - accuracy: 0.9335 - mean_squared_error: 0.1362 - val_loss: 2.4805 - val_accuracy: 0.6865 - val_mean_squared_error: 0.1335
Epoch 8/10
- 141s - loss: 0.1522 - accuracy: 0.9444 - mean_squared_error: 0.1311 - val_loss: 3.8343 - val_accuracy: 0.6845 - val_mean_squared_error: 0.1288
Epoch 9/10
- 141s - loss: 0.1356 - accuracy: 0.9525 - mean_squared_error: 0.1267 - val_loss: 3.8343 - val_accuracy: 0.7039 - val_mean_squared_error: 0.1244
Epoch 10/10
- 141s - loss: 0.1214 - accuracy: 0.9573 - mean_squared_error: 0.1224 - val_loss: 3.8343 - val_accuracy: 0.7228 - val_mean_squared_error: 0.1203
Epoch 1/10
- 142s - loss: 0.1166 - accuracy: 0.9601 - mean_squared_error: 0.1183 - val_loss: 3.8343 - val_accuracy: 0.7203 - val_mean_squared_error: 0.1166
Epoch 2/10
- 141s - loss: 0.1056 - accuracy: 0.9650 - mean_squared_error: 0.1149 - val_loss: 3.8343 - val_accuracy: 0.7153 - val_mean_squared_error: 0.1133
Epoch 3/10
- 141s - loss: 0.0979 - accuracy: 0.9681 - mean_squared_error: 0.1119 - val_loss: 3.8343 - val_accuracy: 0.7234 - val_mean_squared_error: 0.1104
Epoch 4/10
- 141s - loss: 0.0842 - accuracy: 0.9731 - mean_squared_error: 0.1090 - val_loss: 3.8343 - val_accuracy: 0.7297 - val_mean_squared_error: 0.1076
Epoch 5/10
- 141s - loss: 0.0863 - accuracy: 0.9714 - mean_squared_error: 0.1064 - val_loss: 3.8343 - val_accuracy: 0.7184 - val_mean_squared_error: 0.1053
Epoch 6/10
- 141s - loss: 0.0694 - accuracy: 0.9771 - mean_squared_error: 0.1042 - val_loss: 5.0373 - val_accuracy: 0.7250 - val_mean_squared_error: 0.1031
Epoch 7/10

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- 141s - loss: 0.0767 - accuracy: 0.9767 - mean_squared_error: 0.1021 - val_loss: 7.6685 - val_accuracy: 0.7234 - val_mean_squared_error: 0.1011
Epoch 8/10
- 141s - loss: 0.0676 - accuracy: 0.9788 - mean_squared_error: 0.1002 - val_loss: 7.6685 - val_accuracy: 0.7270 - val_mean_squared_error: 0.0992
Epoch 9/10
- 141s - loss: 0.0624 - accuracy: 0.9798 - mean_squared_error: 0.0984 - val_loss: 7.6685 - val_accuracy: 0.7173 - val_mean_squared_error: 0.0976
Epoch 10/10
- 141s - loss: 0.0554 - accuracy: 0.9818 - mean_squared_error: 0.0969 - val_loss: 3.8343 - val_accuracy: 0.7050 - val_mean_squared_error: 0.0962
Epoch 1/10
- 142s - loss: 0.0536 - accuracy: 0.9825 - mean_squared_error: 0.0955 - val_loss: 3.8343 - val_accuracy: 0.7150 - val_mean_squared_error: 0.0949
Epoch 2/10
- 145s - loss: 0.0516 - accuracy: 0.9843 - mean_squared_error: 0.0942 - val_loss: 3.8343 - val_accuracy: 0.7223 - val_mean_squared_error: 0.0935
Epoch 3/10
- 164s - loss: 0.0534 - accuracy: 0.9840 - mean_squared_error: 0.0929 - val_loss: 3.8343 - val_accuracy: 0.7198 - val_mean_squared_error: 0.0923
Epoch 4/10
- 142s - loss: 0.0548 - accuracy: 0.9847 - mean_squared_error: 0.0917 - val_loss: 3.8343 - val_accuracy: 0.7292 - val_mean_squared_error: 0.0912
Epoch 5/10
- 147s - loss: 0.0486 - accuracy: 0.9860 - mean_squared_error: 0.0906 - val_loss: 3.8343 - val_accuracy: 0.7053 - val_mean_squared_error: 0.0901
Epoch 6/10
- 145s - loss: 0.0448 - accuracy: 0.9874 - mean_squared_error: 0.0897 - val_loss: 7.6685 - val_accuracy: 0.7270 - val_mean_squared_error: 0.0892
Epoch 7/10
- 146s - loss: 0.0511 - accuracy: 0.9853 - mean_squared_error: 0.0887 - val_loss: 7.6685 - val_accuracy: 0.7134 - val_mean_squared_error: 0.0883
Epoch 8/10
- 143s - loss: 0.0413 - accuracy: 0.9875 - mean_squared_error: 0.0879 - val_loss: 7.6685 - val_accuracy: 0.7223 - val_mean_squared_error: 0.0874
Epoch 9/10
- 143s - loss: 0.0408 - accuracy: 0.9887 - mean_squared_error: 0.0870 - val_loss: 3.8343 - val_accuracy: 0.7098 - val_mean_squared_error: 0.0866
Epoch 10/10
- 143s - loss: 0.0373 - accuracy: 0.9887 - mean_squared_error: 0.0863 - val_loss: 3.8343 - val_accuracy: 0.7295 - val_mean_squared_error: 0.0858
Epoch 1/10
- 144s - loss: 0.0407 - accuracy: 0.9888 - mean_squared_error: 0.0854 - val_loss: 7.6685 - val_accuracy: 0.7220 - val_mean_squared_error: 0.0850
Epoch 2/10
- 142s - loss: 0.0351 - accuracy: 0.9905 - mean_squared_error: 0.0847 - val_loss: 3.8343 - val_accuracy: 0.7325 - val_mean_squared_error: 0.0843
Epoch 3/10
- 142s - loss: 0.0406 - accuracy: 0.9892 - mean_squared_error: 0.0839 - val_loss: 3.8343 - val_accuracy: 0.7236 - val_mean_squared_error: 0.0836
Epoch 4/10
- 142s - loss: 0.0433 - accuracy: 0.9880 - mean_squared_error: 0.0833 - val_loss: 7.6685 - val_accuracy: 0.7170 - val_mean_squared_error: 0.0830
Epoch 5/10
- 142s - loss: 0.0448 - accuracy: 0.9886 - mean_squared_error: 0.0827 - val_loss: 7.6685 - val_accuracy: 0.7303 - val_mean_squared_error: 0.0824
Epoch 6/10
- 142s - loss: 0.0381 - accuracy: 0.9900 - mean_squared_error: 0.0821 - val_loss: 7.6685 - val_accuracy: 0.7292 - val_mean_squared_error: 0.0818
Epoch 7/10
- 142s - loss: 0.0391 - accuracy: 0.9898 - mean_squared_error: 0.0815 - val_loss: 7.6685 - val_accuracy: 0.7289 - val_mean_squared_error: 0.0812
Epoch 8/10
- 142s - loss: 0.0272 - accuracy: 0.9923 - mean_squared_error: 0.0809 - val_loss: 7.6685 - val_accuracy: 0.7286 - val_mean_squared_error: 0.0807
Epoch 9/10
- 142s - loss: 0.0387 - accuracy: 0.9911 - mean_squared_error: 0.0804 - val_loss: 7.6685 - val_accuracy: 0.7270 - val_mean_squared_error: 0.0801
Epoch 10/10
- 142s - loss: 0.0292 - accuracy: 0.9923 - mean_squared_error: 0.0799 - val_loss: 7.6685 - val_accuracy: 0.7295 - val_mean_squared_error: 0.0796
Epoch 1/10
- 142s - loss: 0.0354 - accuracy: 0.9905 - mean_squared_error: 0.0794 - val_loss: 3.8343 - val_accuracy: 0.7253 - val_mean_squared_error: 0.0791
Epoch 2/10
```

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File : ll_classification_training
- 142s - loss: 0.0348 - accuracy: 0.9907 - mean_squared_error: 0.00789 - val_loss: 7.6685 - val_accuracy: 0.7311 - val_mean_squared_error: 0.00787
Epoch 3/10
- 142s - loss: 0.0334 - accuracy: 0.9915 - mean_squared_error: 0.00785 - val_loss: 3.8343 - val_accuracy: 0.7062 - val_mean_squared_error: 0.00783
Epoch 4/10
- 142s - loss: 0.0350 - accuracy: 0.9912 - mean_squared_error: 0.00781 - val_loss: 7.6685 - val_accuracy: 0.7236 - val_mean_squared_error: 0.00779
Epoch 5/10
- 142s - loss: 0.0253 - accuracy: 0.9941 - mean_squared_error: 0.00777 - val_loss: 3.8343 - val_accuracy: 0.7272 - val_mean_squared_error: 0.00775
Epoch 6/10
- 142s - loss: 0.0344 - accuracy: 0.9910 - mean_squared_error: 0.00773 - val_loss: 7.6685 - val_accuracy: 0.7289 - val_mean_squared_error: 0.00771
Epoch 7/10
- 145s - loss: 0.0288 - accuracy: 0.9929 - mean_squared_error: 0.00769 - val_loss: 3.8343 - val_accuracy: 0.7103 - val_mean_squared_error: 0.00768
Epoch 8/10
- 150s - loss: 0.0277 - accuracy: 0.9926 - mean_squared_error: 0.00767 - val_loss: 7.6685 - val_accuracy: 0.7272 - val_mean_squared_error: 0.00765
Epoch 9/10
- 147s - loss: 0.0253 - accuracy: 0.9926 - mean_squared_error: 0.00763 - val_loss: 3.8343 - val_accuracy: 0.7336 - val_mean_squared_error: 0.00761
Epoch 10/10
- 147s - loss: 0.0359 - accuracy: 0.9915 - mean_squared_error: 0.00759 - val_loss: 3.8343 - val_accuracy: 0.7297 - val_mean_squared_error: 0.00758

Process finished with exit code 0
```