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1 "/Users/Yibo/COMP7030/Onto Project 2021 Fall/
  Database/test/venv/bin/python" "/Users/Yibo/
  COMP5300 (Computing for Health and Medicine)/Final
  project/tf inception v3/main.py"
2 Found 4400 images belonging to 4 classes.
3 Found 800 images belonging to 4 classes.
4 Found 400 images belonging to 4 classes.
5 4400
6 800
7 400
8 2022-04-20 20:12:08.279240: I tensorflow/core/
  platform/cpu_feature_guard.cc:151] This TensorFlow
  binary is optimized with oneAPI Deep Neural Network
  Library (oneDNN) to use the following CPU
  instructions in performance-critical operations:
  AVX2 FMA
9 To enable them in other operations, rebuild
  TensorFlow with the appropriate compiler flags.
10 Downloading data from https://storage.googleapis.
  com/tensorflow/keras-applications/inception_v3/
  inception_v3_weights_tf_dim_ordering_tf_kernels_not
  op.h5
11 87916544/87910968
   [=====] - 2s 0us/step
12 87924736/87910968
   [=====] - 2s 0us/step
13 Model: "sequential"
14 -----
   -----
15 Layer (type)                Output Shape
                                Param #
16 =====
   =====
17 inception_v3 (Functional)    (None, 5, 5, 2048
   )                21802784
18
19 global_average_pooling2d (G (None, 2048
   )                0
20 GlobalAveragePooling2D
   )
21
22 dense (Dense)               (None, 4

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22 )                8196
23
24 =====
25 Total params: 21,810,980
26 Trainable params: 1,943,556
27 Non-trainable params: 19,867,424
28 -----
29 Epoch 1/30
30 68/68 [=====] - 115s 2s/
   step - loss: 0.5873 - accuracy: 0.7661 - val_loss:
   0.8888 - val_accuracy: 0.6185
31 Epoch 2/30
32 68/68 [=====] - 114s 2s/
   step - loss: 0.4110 - accuracy: 0.8485 - val_loss:
   0.4953 - val_accuracy: 0.7826
33 Epoch 3/30
34 68/68 [=====] - 114s 2s/
   step - loss: 0.3641 - accuracy: 0.8646 - val_loss:
   0.6122 - val_accuracy: 0.7266
35 Epoch 4/30
36 68/68 [=====] - 117s 2s/
   step - loss: 0.3369 - accuracy: 0.8743 - val_loss:
   0.4235 - val_accuracy: 0.8190
37 Epoch 5/30
38 68/68 [=====] - 116s 2s/
   step - loss: 0.3159 - accuracy: 0.8782 - val_loss:
   0.3830 - val_accuracy: 0.8516
39 Epoch 6/30
40 68/68 [=====] - 119s 2s/
   step - loss: 0.3108 - accuracy: 0.8798 - val_loss:
   0.3759 - val_accuracy: 0.8555
41 Epoch 7/30
42 68/68 [=====] - 128s 2s/
   step - loss: 0.2937 - accuracy: 0.8932 - val_loss:
   0.4496 - val_accuracy: 0.8164
43 Epoch 8/30
44 68/68 [=====] - 121s 2s/
   step - loss: 0.2828 - accuracy: 0.8916 - val_loss:
   0.4215 - val_accuracy: 0.8281
45 Epoch 9/30
46 68/68 [=====] - 120s 2s/

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46 step - loss: 0.2898 - accuracy: 0.8898 - val_loss:
    0.3718 - val_accuracy: 0.8555
47 Epoch 10/30
48 68/68 [=====] - 120s 2s/
    step - loss: 0.2708 - accuracy: 0.8964 - val_loss:
    0.3841 - val_accuracy: 0.8516
49 Epoch 11/30
50 68/68 [=====] - 120s 2s/
    step - loss: 0.2703 - accuracy: 0.8964 - val_loss:
    0.3928 - val_accuracy: 0.8307
51 Epoch 12/30
52 68/68 [=====] - 120s 2s/
    step - loss: 0.2683 - accuracy: 0.8992 - val_loss:
    0.3461 - val_accuracy: 0.8594
53 Epoch 13/30
54 68/68 [=====] - 121s 2s/
    step - loss: 0.2484 - accuracy: 0.9142 - val_loss:
    0.3088 - val_accuracy: 0.8880
55 Epoch 14/30
56 68/68 [=====] - 121s 2s/
    step - loss: 0.2489 - accuracy: 0.9059 - val_loss:
    0.3011 - val_accuracy: 0.8828
57 Epoch 15/30
58 68/68 [=====] - 121s 2s/
    step - loss: 0.2496 - accuracy: 0.9054 - val_loss:
    0.3388 - val_accuracy: 0.8594
59 Epoch 16/30
60 68/68 [=====] - 121s 2s/
    step - loss: 0.2408 - accuracy: 0.9084 - val_loss:
    0.3841 - val_accuracy: 0.8555
61 Epoch 17/30
62 68/68 [=====] - 120s 2s/
    step - loss: 0.2362 - accuracy: 0.9119 - val_loss:
    0.4432 - val_accuracy: 0.8411
63 Epoch 18/30
64 68/68 [=====] - 122s 2s/
    step - loss: 0.2302 - accuracy: 0.9121 - val_loss:
    0.3867 - val_accuracy: 0.8529
65 Epoch 19/30
66 68/68 [=====] - 121s 2s/
    step - loss: 0.2263 - accuracy: 0.9165 - val_loss:
    0.3142 - val_accuracy: 0.8815
67 Epoch 20/30
68 68/68 [=====] - 121s 2s/
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68 step - loss: 0.2460 - accuracy: 0.9087 - val_loss
   : 0.3877 - val_accuracy: 0.8451
69 Epoch 21/30
70 68/68 [=====] - 121s 2s/
   step - loss: 0.2296 - accuracy: 0.9151 - val_loss
   : 0.4453 - val_accuracy: 0.8242
71 Epoch 22/30
72 68/68 [=====] - 124s 2s/
   step - loss: 0.2178 - accuracy: 0.9184 - val_loss
   : 0.3651 - val_accuracy: 0.8529
73 Epoch 23/30
74 68/68 [=====] - 123s 2s/
   step - loss: 0.2073 - accuracy: 0.9193 - val_loss
   : 0.3333 - val_accuracy: 0.8724
75 Epoch 24/30
76 68/68 [=====] - 124s 2s/
   step - loss: 0.2127 - accuracy: 0.9223 - val_loss
   : 0.3094 - val_accuracy: 0.8685
77 Epoch 25/30
78 68/68 [=====] - 123s 2s/
   step - loss: 0.2231 - accuracy: 0.9135 - val_loss
   : 0.4173 - val_accuracy: 0.8320
79 Epoch 26/30
80 68/68 [=====] - 122s 2s/
   step - loss: 0.2146 - accuracy: 0.9188 - val_loss
   : 0.4073 - val_accuracy: 0.8268
81 Epoch 27/30
82 68/68 [=====] - 126s 2s/
   step - loss: 0.1988 - accuracy: 0.9276 - val_loss
   : 0.3162 - val_accuracy: 0.8789
83 Epoch 28/30
84 68/68 [=====] - 129s 2s/
   step - loss: 0.2115 - accuracy: 0.9200 - val_loss
   : 0.3789 - val_accuracy: 0.8568
85 Epoch 29/30
86 68/68 [=====] - 124s 2s/
   step - loss: 0.2107 - accuracy: 0.9214 - val_loss
   : 0.3204 - val_accuracy: 0.8685
87 Epoch 30/30
88 68/68 [=====] - 122s 2s/
   step - loss: 0.2032 - accuracy: 0.9260 - val_loss
   : 0.3030 - val_accuracy: 0.8789
89 /Users/Yibo/COMP5300 (Computing for Health and
   Medicine)/Final project/tf inception v3/main.py:90
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89 : UserWarning: `Model.predict_generator` is
    deprecated and will be removed in a future version
    . Please use `Model.predict`, which supports
    generators.
90 test_prediction = model.predict_generator(
    test_dataset, test_steps_per_epoch+1)
91 {'covid': {'precision': 0.9493670886075949, '
    recall': 0.75, 'f1-score': 0.8379888268156425, '
    support': 100}, 'lung_opacity': {'precision': 0.
    8067226890756303, 'recall': 0.96, 'f1-score': 0.
    8767123287671232, 'support': 100}, 'normal': {'
    precision': 0.7716535433070866, 'recall': 0.98, '
    f1-score': 0.8634361233480176, 'support': 100}, '
    viral_pneumonia': {'precision': 0.96, 'recall': 0.
    72, 'f1-score': 0.8228571428571428, 'support': 100
    }, 'accuracy': 0.8525, 'macro avg': {'precision':
    0.8719358302475779, 'recall': 0.8525, 'f1-score':
    0.8502486054469816, 'support': 400}, 'weighted avg
    ': {'precision': 0.871935830247578, 'recall': 0.
    8525, 'f1-score': 0.8502486054469816, 'support':
    400}}
92
93 Process finished with exit code 0
94
```