

```

import zipfile
import os

zip_file = '/teamspace/uploads/Images.zip' # Path to the zip file
unzip_dir = 'tempfile' # New directory where you want to extract
files

# Create the directory if it doesn't exist
os.makedirs(unzip_dir, exist_ok=True)

# Unzip the file
with zipfile.ZipFile(zip_file, 'r') as zip_ref:
    zip_ref.extractall(unzip_dir)

print("Files unzipped successfully!")

```

Files unzipped successfully!

nstall Required Libraries

*# Install Required Libraries*

```

pip install tensorflow scikit-learn matplotlib -U
git+https://github.com/qubvel/efficientnet

```

```

Collecting git+https://github.com/qubvel/efficientnet
  Cloning https://github.com/qubvel/efficientnet to /tmp/pip-req-
build-eta2b8t1
  Running command git clone --filter=blob:none --quiet
https://github.com/qubvel/efficientnet /tmp/pip-req-build-eta2b8t1

```

```

  Resolved https://github.com/qubvel/efficientnet to commit
f7f3e736c113b872caf53dae9fbbda996a8eb87d
  Preparing metadata (setup.py) ...
anylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (4.1 kB)
Requirement already satisfied: scikit-learn in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(1.3.2)
Collecting scikit-learn
  Downloading scikit_learn-1.6.1-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (18 kB)
Requirement already satisfied: matplotlib in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(3.8.2)
Collecting matplotlib
  Downloading matplotlib-3.10.0-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (11 kB)
Requirement already satisfied: absl-py>=1.0.0 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages

```

```
(from tensorflow) (2.1.0)
Collecting astunparse>=1.6.0 (from tensorflow)
  Downloading astunparse-1.6.3-py2.py3-none-any.whl.metadata (4.4 kB)
Collecting flatbuffers>=24.3.25 (from tensorflow)
  Downloading flatbuffers-25.1.24-py2.py3-none-any.whl.metadata (875
bytes)
Collecting gast!=0.5.0,!0.5.1,!0.5.2,>=0.2.1 (from tensorflow)
  Downloading gast-0.6.0-py3-none-any.whl.metadata (1.3 kB)
Collecting google-pasta>=0.1.1 (from tensorflow)
  Downloading google_pasta-0.2.0-py3-none-any.whl.metadata (814 bytes)
Collecting libclang>=13.0.0 (from tensorflow)
  Downloading libclang-18.1.1-py2.py3-none-
manylinux2010_x86_64.whl.metadata (5.2 kB)
Collecting opt_einsum>=2.3.2 (from tensorflow)
  Downloading opt_einsum-3.4.0-py3-none-any.whl.metadata (6.3 kB)
Requirement already satisfied: packaging in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from tensorflow) (24.2)
Requirement already satisfied: protobuf!=4.21.0,!4.21.1,!4.21.2,!
=4.21.3,!4.21.4,!4.21.5,<6.0.0dev,>=3.20.3 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from tensorflow) (4.23.4)
Requirement already satisfied: requests<3,>=2.21.0 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from tensorflow) (2.32.3)
Requirement already satisfied: setuptools in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from tensorflow) (75.1.0)
Requirement already satisfied: six>=1.12.0 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from tensorflow) (1.17.0)
Requirement already satisfied: termcolor>=1.1.0 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from tensorflow) (2.5.0)
Requirement already satisfied: typing-extensions>=3.6.6 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from tensorflow) (4.12.2)
Collecting wrapt>=1.11.0 (from tensorflow)
  Downloading wrapt-1.17.2-cp310-cp310-
manylinux_2_5_x86_64.manylinux1_x86_64.manylinux_2_17_x86_64.manylinux
2014_x86_64.whl.metadata (6.4 kB)
Requirement already satisfied: grpcio<2.0,>=1.24.3 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from tensorflow) (1.69.0)
Collecting tensorboard<2.19,>=2.18 (from tensorflow)
  Downloading tensorboard-2.18.0-py3-none-any.whl.metadata (1.6 kB)
Collecting keras>=3.5.0 (from tensorflow)
  Downloading keras-3.8.0-py3-none-any.whl.metadata (5.8 kB)
Requirement already satisfied: numpy<2.1.0,>=1.26.0 in
```

```
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from tensorflow) (1.26.4)
Collecting h5py>=3.11.0 (from tensorflow)
  Downloading h5py-3.12.1-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (2.5 kB)
Collecting ml-dtypes<0.5.0,>=0.4.0 (from tensorflow)
  Downloading ml_dtypes-0.4.1-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (20 kB)
Collecting tensorflow-io-gcs-filesystem>=0.23.1 (from tensorflow)
  Downloading tensorflow_io_gcs_filesystem-0.37.1-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (14 kB)
Requirement already satisfied: scipy>=1.6.0 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from scikit-learn) (1.11.4)
Requirement already satisfied: joblib>=1.2.0 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from scikit-learn) (1.4.2)
Requirement already satisfied: threadpoolctl>=3.1.0 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from scikit-learn) (3.5.0)
Requirement already satisfied: contourpy>=1.0.1 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from matplotlib) (1.3.1)
Requirement already satisfied: cycler>=0.10 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from matplotlib) (0.12.1)
Requirement already satisfied: fonttools>=4.22.0 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from matplotlib) (4.55.4)
Requirement already satisfied: kiwisolver>=1.3.1 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from matplotlib) (1.4.8)
Requirement already satisfied: pillow>=8 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from matplotlib) (11.1.0)
Requirement already satisfied: pyparsing>=2.3.1 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from matplotlib) (3.2.1)
Requirement already satisfied: python-dateutil>=2.7 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from matplotlib) (2.9.0.post0)
Collecting keras_applications<=1.0.8,>=1.0.7 (from
efficientnet==1.1.1)
  Downloading Keras_Applications-1.0.8-py3-none-any.whl.metadata (1.7
kB)
Collecting scikit-image (from efficientnet==1.1.1)
  Downloading scikit_image-0.25.1-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (14 kB)
Requirement already satisfied: wheel<1.0,>=0.23.0 in
```

```
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from astunparse>=1.6.0->tensorflow) (0.44.0)
Requirement already satisfied: rich in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from keras>=3.5.0->tensorflow) (13.9.4)
Collecting namex (from keras>=3.5.0->tensorflow)
  Downloading namex-0.0.8-py3-none-any.whl.metadata (246 bytes)
Collecting optree (from keras>=3.5.0->tensorflow)
  Downloading optree-0.14.0-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (47 kB)
Requirement already satisfied: charset-normalizer<4,>=2 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from requests<3,>=2.21.0->tensorflow) (3.4.1)
Requirement already satisfied: idna<4,>=2.5 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from requests<3,>=2.21.0->tensorflow) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from requests<3,>=2.21.0->tensorflow) (2.3.0)
Requirement already satisfied: certifi>=2017.4.17 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from requests<3,>=2.21.0->tensorflow) (2024.12.14)
Requirement already satisfied: markdown>=2.6.8 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from tensorboard<2.19,>=2.18->tensorflow) (3.7)
Requirement already satisfied: tensorboard-data-server<0.8.0,>=0.7.0
in /system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-
packages (from tensorboard<2.19,>=2.18->tensorflow) (0.7.2)
Requirement already satisfied: werkzeug>=1.0.1 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from tensorboard<2.19,>=2.18->tensorflow) (3.1.3)
Requirement already satisfied: networkx>=3.0 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from scikit-image->efficientnet==1.1.1) (3.4.2)
Collecting imageio!=2.35.0,>=2.33 (from scikit-image-
>efficientnet==1.1.1)
  Downloading imageio-2.37.0-py3-none-any.whl.metadata (5.2 kB)
Collecting tifffile>=2022.8.12 (from scikit-image-
>efficientnet==1.1.1)
  Downloading tifffile-2025.1.10-py3-none-any.whl.metadata (31 kB)
Collecting lazy-loader>=0.4 (from scikit-image->efficientnet==1.1.1)
  Downloading lazy_loader-0.4-py3-none-any.whl.metadata (7.6 kB)
Requirement already satisfied: MarkupSafe>=2.1.1 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from werkzeug>=1.0.1->tensorboard<2.19,>=2.18->tensorflow) (3.0.2)
Requirement already satisfied: markdown-it-py>=2.2.0 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from rich->keras>=3.5.0->tensorflow) (3.0.0)
Requirement already satisfied: pygments<3.0.0,>=2.13.0 in
```

```
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from rich->keras>=3.5.0->tensorflow) (2.19.1)
Requirement already satisfied: mdurl~=0.1 in
/system/conda/miniconda3/envs/cloudspace/lib/python3.10/site-packages
(from markdown-it-py>=2.2.0->rich->keras>=3.5.0->tensorflow) (0.1.2)
Downloading tensorflow-2.18.0-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl (615.3 MB)
----- 615.3/615.3 MB 153.4 MB/s eta
0:00:0000:0100:01
anylinux_2_17_x86_64.manylinux2014_x86_64.whl (13.5 MB)
----- 13.5/13.5 MB 184.3 MB/s eta
0:00:00
atplotlib-3.10.0-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl (8.6 MB)
----- 8.6/8.6 MB 203.1 MB/s eta
0:00:00
anylinux_2_17_x86_64.manylinux2014_x86_64.whl (5.3 MB)
----- 5.3/5.3 MB 194.8 MB/s eta
0:00:00
----- 1.3/1.3 MB 153.8 MB/s eta
0:00:00
anylinux2010_x86_64.whl (24.5 MB)
----- 24.5/24.5 MB 207.3 MB/s eta
0:00:00
l_dtypes-0.4.1-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl (2.2 MB)
----- 2.2/2.2 MB 175.2 MB/s eta
0:00:00
-3.4.0-py3-none-any.whl (71 kB)
Downloading tensorboard-2.18.0-py3-none-any.whl (5.5 MB)
----- 5.5/5.5 MB 165.3 MB/s eta
0:00:00
-0.37.1-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl
(5.1 MB)
----- 5.1/5.1 MB 167.9 MB/s eta
0:00:00
anylinux_2_5_x86_64.manylinux1_x86_64.manylinux_2_17_x86_64.manylinux2
014_x86_64.whl (82 kB)
Downloading scikit_image-0.25.1-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl (14.8 MB)
----- 14.8/14.8 MB 183.1 MB/s eta
0:00:00
ageio-2.37.0-py3-none-any.whl (315 kB)
Downloading lazy_loader-0.4-py3-none-any.whl (12 kB)
Downloading tifffile-2025.1.10-py3-none-any.whl (227 kB)
Downloading namex-0.0.8-py3-none-any.whl (5.8 kB)
Downloading optree-0.14.0-cp310-cp310-
manylinux_2_17_x86_64.manylinux2014_x86_64.whl (391 kB)
Building wheels for collected packages: efficientnet
```

```
Building wheel for efficientnet (setup.py) ... e=efficientnet-1.1.1-  
py3-none-any.whl size=18425  
sha256=3d2781204b06c6f43f5bc2299c888f0a8385d504f328a8300d3fda8c82f125d  
6
```

```
Stored in directory:  
/tmp/pip-ephem-wheel-cache-ksy7i_5g/wheels/bb/0f/38/154505705a0899276d  
49f521ee621a61bc2a8767026220f751
```

```
Successfully built efficientnet
```

```
Installing collected packages: namex, libclang, flatbuffers, wrapt,  
tiff file, tensorflow-io-gcs-filesystem, optree, opt-einsum, ml-dtypes,  
lazy-loader, imageio, h5py, google-pasta, gast, astunparse,  
tensorboard, scikit-learn, scikit-image, matplotlib,  
keras_applications, keras, efficientnet, tensorflow
```

```
Attempting uninstall: tensorboard
```

```
Found existing installation: tensorboard 2.15.1
```

```
Uninstalling tensorboard-2.15.1:
```

```
Successfully uninstalled tensorboard-2.15.1
```

```
Attempting uninstall: scikit-learn
```

```
Found existing installation: scikit-learn 1.3.2
```

```
Uninstalling scikit-learn-1.3.2:
```

```
Successfully uninstalled scikit-learn-1.3.2
```

```
Attempting uninstall: matplotlib
```

```
Found existing installation: matplotlib 3.8.2
```

```
Uninstalling matplotlib-3.8.2:
```

```
Successfully uninstalled matplotlib-3.8.2
```

```
Successfully installed astunparse-1.6.3 efficientnet-1.1.1  
flatbuffers-25.1.24 gast-0.6.0 google-pasta-0.2.0 h5py-3.12.1 imageio-  
2.37.0 keras-3.8.0 keras_applications-1.0.8 lazy-loader-0.4 libclang-  
18.1.1 matplotlib-3.10.0 ml-dtypes-0.4.1 namex-0.0.8 opt-einsum-3.4.0  
optree-0.14.0 scikit-image-0.25.1 scikit-learn-1.6.1 tensorboard-  
2.18.0 tensorflow-2.18.0 tensorflow-io-gcs-filesystem-0.37.1 tiff file-  
2025.1.10 wrapt-1.17.2
```

```
[notice] A new release of pip is available: 24.3.1 -> 25.0
```

```
[notice] To update, run: pip install --upgrade pip
```

```
Note: you may need to restart the kernel to use updated packages.
```

```
# Import Libraries
```

```
import tensorflow as tf  
from tensorflow import keras  
from tensorflow.keras import layers
```

```
2025-01-27 09:14:21.776952: E
```

```
external/local_xla/xla/stream_executor/cuda/cuda_fft.cc:477] Unable to  
register cuFFT factory: Attempting to register factory for plugin  
cuFFT when one has already been registered
```

```
WARNING: All log messages before absl::InitializeLog() is called are  
written to STDERR
```

```
E0000 00:00:1737969261.812801 5181 cuda_dnn.cc:8310] Unable to
```

```
register cuDNN factory: Attempting to register factory for plugin
cuDNN when one has already been registered
E0000 00:00:1737969261.822765    5181 cuda_blas.cc:1418] Unable to
register cuBLAS factory: Attempting to register factory for plugin
cuBLAS when one has already been registered
2025-01-27 09:14:21.903111: I
tensorflow/core/platform/cpu_feature_guard.cc:210] This TensorFlow
binary is optimized to use available CPU instructions in performance-
critical operations.
To enable the following instructions: AVX2 FMA, in other operations,
rebuild TensorFlow with the appropriate compiler flags.
```

```
# Set Dataset Paths and Set Image Size and Hyperparameters
```

```
import os
import matplotlib.pyplot as plt

base_dir = 'tempfile/Images'

train_dir = os.path.join(base_dir, 'train')
test_dir = os.path.join(base_dir, 'test')
```

```
image_size = (300, 300) # efficientB3
```

```
batch_size = 32
LEARNING_RATE=0.0001
num_classes=6
epochs = 10
```

```
# Define Data Generators and Visualize Preprocessed Images
```

```
trdata=tf.keras.preprocessing.image.ImageDataGenerator(
    featurewise_center=False, samplewise_center=False,
    featurewise_std_normalization=False,
    samplewise_std_normalization=False,
    rotation_range=0, width_shift_range=0.0, height_shift_range=0.0,
    brightness_range=None, shear_range=0.0, zoom_range=0.0,
    channel_shift_range=0.0,
    horizontal_flip=False, vertical_flip=False,
    validation_split=0.2, rescale=1./255
)
```

```
train_ds = trdata.flow_from_directory(
    directory=train_dir,
    target_size=image_size,
    class_mode="categorical",
    subset="training",
    batch_size=batch_size,
    shuffle=True,
```

```

)

val_ds = trdata.flow_from_directory(
    directory=train_dir,
    target_size=image_size,
    class_mode="categorical",
    subset="validation",
    batch_size=batch_size,
    shuffle=True,
)

testdata=tf.keras.preprocessing.image.ImageDataGenerator(
    featurewise_center=False, samplewise_center=False,
    featurewise_std_normalization=False,
    samplewise_std_normalization=False,
    rotation_range=0, width_shift_range=0.0, height_shift_range=0.0,
    brightness_range=None, shear_range=0.0, zoom_range=0.0,
    channel_shift_range=0.0,
    horizontal_flip=False, vertical_flip=False, rescale=1./255
)

test_ds = testdata.flow_from_directory(
    directory=test_dir,
    target_size=image_size,
    class_mode="categorical",
    batch_size=batch_size,
    shuffle=False,
)

x_batch, y_batch = next(train_ds)

_, axs = plt.subplots(4, 8, figsize=(20, 10))
axs = axs.flatten()
for i, ax in zip(range(0, 32), axs):
    image = x_batch[i]
    ax.axis("off")
    ax.imshow(image)

plt.savefig("preprocessed.png")
plt.show()

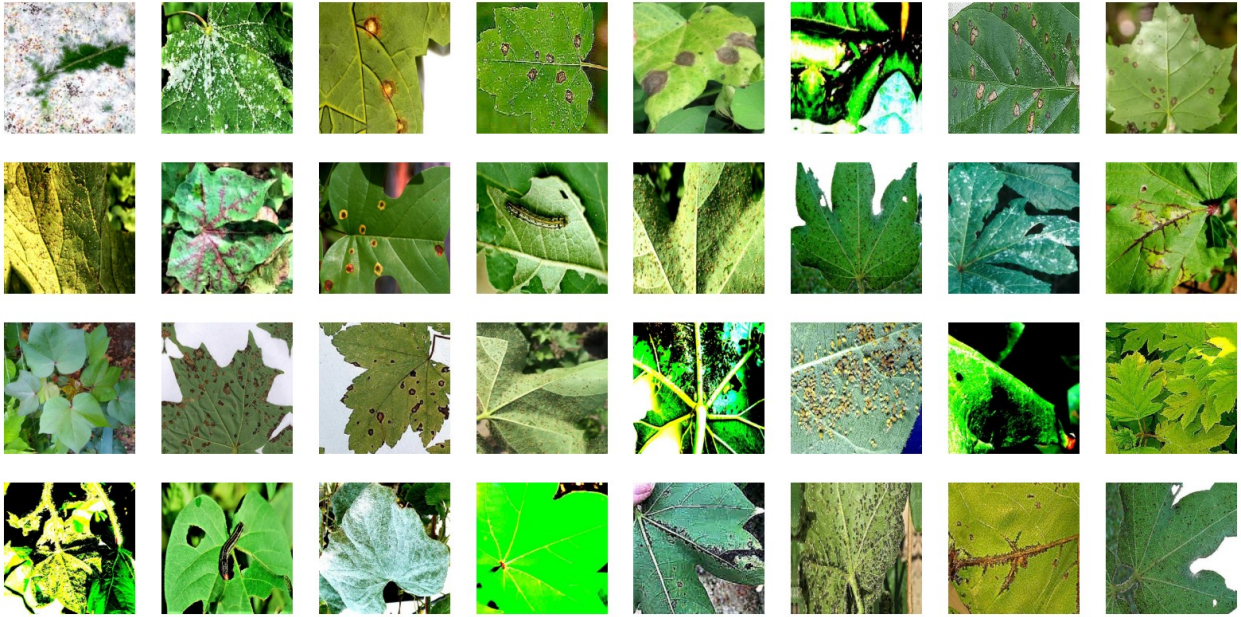
```

```

Found 3125 images belonging to 6 classes.
Found 778 images belonging to 6 classes.
Found 977 images belonging to 6 classes.

```





```
# Load Base Model
```

```
from keras import layers
from keras.layers import AveragePooling2D, BatchNormalization
from keras.layers import Dropout
from keras.layers import Flatten
from keras.layers import Dense
from keras.layers import Input
from keras.models import Model
from tensorflow.keras.optimizers import Adam
from tensorflow.keras.optimizers import SGD
from tensorflow.keras.applications import EfficientNetB0
from tensorflow.keras.applications import EfficientNetB1
from tensorflow.keras.applications import EfficientNetB2
from tensorflow.keras.applications import EfficientNetB3
from tensorflow.keras.applications import ResNet50V2
from tensorflow.keras.applications import DenseNet121
from tensorflow.keras.applications import MobileNetV2
```

```
from keras import optimizers
```

```
base_model = EfficientNetB3(include_top=False,
input_shape=input_shapes, pooling='avg',
weights="imagenet", classes=num_classes)
```

```
# Build Custom Classification Model
```

```
x = base_model.output
```

```
x = BatchNormalization()(x)
```

```

x = Dense(512,activation='sigmoid')(x)
x = BatchNormalization()(x)
x = Dropout(0.5)(x)

x = Dense(128,activation='sigmoid')(x)
x = Dropout(0.7)(x)

predictions = Dense(num_classes, activation="softmax")(x)

model= Model(inputs = base_model.input, outputs = predictions)

# Compile and Save Model

model.compile(loss='categorical_crossentropy',optimizer=Adam(learning_
rate=LEARNING_RATE),metrics=['acc'])
model.summary()
model.save('model_base.h5')

```

```

W0000 00:00:1737969442.287947    5181 gpu_device.cc:2344] Cannot
dlopen some GPU libraries. Please make sure the missing libraries
mentioned above are installed properly if you would like to use GPU.
Follow the guide at https://www.tensorflow.org/install/gpu for how to
download and setup the required libraries for your platform.
Skipping registering GPU devices...

```

```

Downloading data from https://storage.googleapis.com/keras-
applications/efficientnetb3_notop.h5
43941136/43941136 ————— 0s 0us/step

```

Model: "functional"

Layer (type)	Output Shape	Param #	Connected to
input_layer (InputLayer)	(None, 300, 300, 3)	0	-
rescaling input_layer[0][0] (Rescaling)	(None, 300, 300, 3)	0	
normalization [0]	(None, 300, 300, 7)	7	rescaling[0]

(Normalization)	3)		
rescaling_1 normalization[0]...	(None, 300, 300,	0	
(Rescaling)	3)		
stem_conv_pad rescaling_1[0][0]	(None, 301, 301,	0	
(ZeroPadding2D)	3)		
stem_conv (Conv2D) stem_conv_pad[0]...	(None, 150, 150,	1,080	
	40)		
stem_bn [0]	(None, 150, 150,	160	stem_conv[0]
(BatchNormalizatio...	40)		
stem_activation	(None, 150, 150,	0	stem_bn[0][0]
(Activation)	40)		
block1a_dwconv stem_activation[...	(None, 150, 150,	360	
(DepthwiseConv2D)	40)		
block1a_bn block1a_dwconv[0]...	(None, 150, 150,	160	
(BatchNormalizatio...	40)		
block1a_activation [0]	(None, 150, 150,	0	block1a_bn[0]
(Activation)	40)		

block1a_se_squeeze	(None, 40)	0	
block1a_activati...	(GlobalAveragePool...		
block1a_se_reshape	(None, 1, 1, 40)	0	
block1a_se_squee...	(Reshape)		
block1a_se_reduce	(None, 1, 1, 10)	410	
block1a_se_resha...	(Conv2D)		
block1a_se_expand	(None, 1, 1, 40)	440	
block1a_se_reduc...	(Conv2D)		
block1a_se_excite	(None, 150, 150,	0	
block1a_activati...	(Multiply)	40)	
block1a_se_expan...			
block1a_project_co...	(None, 150, 150,	960	
block1a_se_excit...	(Conv2D)	24)	
block1a_project_bn	(None, 150, 150,	96	
block1a_project_...	(BatchNormalizatio...	24)	
block1b_dwconv	(None, 150, 150,	216	
block1a_project_...	(DepthwiseConv2D)	24)	

block1b_bn	(None, 150, 150,	96		
block1b_dwconv[0...	(BatchNormalizatio...	24)		
block1b_activation	(None, 150, 150,	0	block1b_bn[0]	
[0]	(Activation)	24)		
block1b_se_squeeze	(None, 24)	0		
block1b_activati...	(GlobalAveragePool...			
block1b_se_reshape	(None, 1, 1, 24)	0		
block1b_se_squee...	(Reshape)			
block1b_se_reduce	(None, 1, 1, 6)	150		
block1b_se_resha...	(Conv2D)			
block1b_se_expand	(None, 1, 1, 24)	168		
block1b_se_reduc...	(Conv2D)			
block1b_se_excite	(None, 150, 150,	0		
block1b_activati...	(Multiply)	24)		
block1b_se_expan...				
block1b_project_co...	(None, 150, 150,	576		
block1b_se_excit...	(Conv2D)	24)		

block1b_project_bn	(None, 150, 150,	96
block1b_project_...	(BatchNormalizatio...	24)
block1b_drop	(None, 150, 150,	0
block1b_project_...	(Dropout)	24)
block1b_add (Add)	(None, 150, 150,	0
block1b_drop[0][...		24)
block1a_project_...		
block2a_expand_conv	(None, 150, 150,	3,456
block1b_add[0][0]	(Conv2D)	144)
block2a_expand_bn	(None, 150, 150,	576
block2a_expand_c...	(BatchNormalizatio...	144)
block2a_expand_act...	(None, 150, 150,	0
block2a_expand_b...	(Activation)	144)
block2a_dwconv_pad	(None, 151, 151,	0
block2a_expand_a...	(ZeroPadding2D)	144)
block2a_dwconv	(None, 75, 75,	1,296
block2a_dwconv_p...	(DepthwiseConv2D)	144)

block2a_bn block2a_dwconv[0... (BatchNormalizatio...	(None, 75, 75, 144)	576	
block2a_activation [0] (Activation)	(None, 75, 75, 144)	0	block2a_bn[0]
block2a_se_squeeze block2a_activati... (GlobalAveragePool...	(None, 144)	0	
block2a_se_reshape block2a_se_squee... (Reshape)	(None, 1, 1, 144)	0	
block2a_se_reduce block2a_se_resha... (Conv2D)	(None, 1, 1, 6)	870	
block2a_se_expand block2a_se_reduc... (Conv2D)	(None, 1, 1, 144)	1,008	
block2a_se_excite block2a_activati... (Multiply) block2a_se_expan...	(None, 75, 75, 144)	0	
block2a_project_co... block2a_se_excit... (Conv2D)	(None, 75, 75, 32)	4,608	
block2a_project_bn	(None, 75, 75,	128	

block2a_project_...	(BatchNormalizatio...	32)		
block2b_expand_conv	(None, 75, 75,		6,144	
block2a_project_...	(Conv2D)	192)		
block2b_expand_bn	(None, 75, 75,		768	
block2b_expand_c...	(BatchNormalizatio...	192)		
block2b_expand_act...	(None, 75, 75,		0	
block2b_expand_b...	(Activation)	192)		
block2b_dwconv	(None, 75, 75,		1,728	
block2b_expand_a...	(DepthwiseConv2D)	192)		
block2b_bn	(None, 75, 75,		768	
block2b_dwconv[0...	(BatchNormalizatio...	192)		
block2b_activation	(None, 75, 75,		0	block2b_bn[0]
[0]	(Activation)	192)		
block2b_se_squeeze	(None, 192)		0	
block2b_activati...	(GlobalAveragePool...			
block2b_se_reshape	(None, 1, 1, 192)		0	
block2b_se_squee...				



(Reshape)			
block2b_se_reduce block2b_se_resha... (Conv2D)	(None, 1, 1, 8)	1,544	
block2b_se_expand block2b_se_reduc... (Conv2D)	(None, 1, 1, 192)	1,728	
block2b_se_excite block2b_activati... (Multiply) block2b_se_expan...	(None, 75, 75, 192)	0	
block2b_project_co... block2b_se_excit... (Conv2D)	(None, 75, 75, 32)	6,144	
block2b_project_bn block2b_project_... (BatchNormalizatio...)	(None, 75, 75, 32)	128	
block2b_drop block2b_project_... (Dropout)	(None, 75, 75, 32)	0	
block2b_add (Add) block2b_drop[0][... block2a_project_...	(None, 75, 75, 32)	0	
block2c_expand_conv block2b_add[0][0] (Conv2D)	(None, 75, 75, 192)	6,144	

block2c_expand_bn	(None, 75, 75,	768		
block2c_expand_c...	(BatchNormalizatio...	192)		
block2c_expand_act...	(None, 75, 75,	0		
block2c_expand_b...	(Activation)	192)		
block2c_dwconv	(None, 75, 75,	1,728		
block2c_expand_a...	(DepthwiseConv2D)	192)		
block2c_bn	(None, 75, 75,	768		
block2c_dwconv[0...	(BatchNormalizatio...	192)		
block2c_activation	(None, 75, 75,	0	block2c_bn[0]	
[0]	(Activation)	192)		
block2c_se_squeeze	(None, 192)	0		
block2c_activati...	(GlobalAveragePool...			
block2c_se_reshape	(None, 1, 1, 192)	0		
block2c_se_squee...	(Reshape)			
block2c_se_reduce	(None, 1, 1, 8)	1,544		
block2c_se_resha...	(Conv2D)			

block2c_se_expand	(None, 1, 1, 192)	1,728	
block2c_se_reduc...			
(Conv2D)			
block2c_se_excite	(None, 75, 75,	0	
block2c_activati...			
(Multiply)	192)		
block2c_se_expan...			
block2c_project_co...	(None, 75, 75,	6,144	
block2c_se_excit...			
(Conv2D)	32)		
block2c_project_bn	(None, 75, 75,	128	
block2c_project_...			
(BatchNormalizatio...	32)		
block2c_drop	(None, 75, 75,	0	
block2c_project_...			
(Dropout)	32)		
block2c_add (Add)	(None, 75, 75,	0	
block2c_drop[0][...			
	32)		
block2b_add[0][0]			
block3a_expand_conv	(None, 75, 75,	6,144	
block2c_add[0][0]			
(Conv2D)	192)		
block3a_expand_bn	(None, 75, 75,	768	
block3a_expand_c...			
(BatchNormalizatio...	192)		

block3a_expand_act...	(None, 75, 75,	0	
block3a_expand_b...	(Activation)	192)	
block3a_dwconv_pad	(None, 79, 79,	0	
block3a_expand_a...	(ZeroPadding2D)	192)	
block3a_dwconv	(None, 38, 38,	4,800	
block3a_dwconv_p...	(DepthwiseConv2D)	192)	
block3a_bn	(None, 38, 38,	768	
block3a_dwconv[0...	(BatchNormalizatio...	192)	
block3a_activation	(None, 38, 38,	0	block3a_bn[0]
[0]	(Activation)	192)	
block3a_se_squeeze	(None, 192)	0	
block3a_activati...	(GlobalAveragePool...		
block3a_se_reshape	(None, 1, 1, 192)	0	
block3a_se_squee...	(Reshape)		
block3a_se_reduce	(None, 1, 1, 8)	1,544	
block3a_se_resha...	(Conv2D)		
block3a_se_expand	(None, 1, 1, 192)	1,728	

block3a_se_reduc...	(Conv2D)		
block3a_se_excite	(None, 38, 38,	0	
block3a_activati...	(Multiply)	192)	
block3a_se_expan...			
block3a_project_co...	(None, 38, 38,	9,216	
block3a_se_excit...	(Conv2D)	48)	
block3a_project_bn	(None, 38, 38,	192	
block3a_project_...	(BatchNormalizatio...	48)	
block3b_expand_conv	(None, 38, 38,	13,824	
block3a_project_...	(Conv2D)	288)	
block3b_expand_bn	(None, 38, 38,	1,152	
block3b_expand_c...	(BatchNormalizatio...	288)	
block3b_expand_act...	(None, 38, 38,	0	
block3b_expand_b...	(Activation)	288)	
block3b_dwconv	(None, 38, 38,	7,200	
block3b_expand_a...	(DepthwiseConv2D)	288)	
block3b_bn	(None, 38, 38,	1,152	
block3b_dwconv[0...			

(BatchNormalizatio...	288)		
block3b_activation [0]	(None, 38, 38, (Activation)	0	block3b_bn[0]
block3b_se_squeeze block3b_activati...	(None, 288) (GlobalAveragePool...	0	
block3b_se_reshape block3b_se_squee...	(None, 1, 1, 288) (Reshape)	0	
block3b_se_reduce block3b_se_resha...	(None, 1, 1, 12) (Conv2D)	3,468	
block3b_se_expand block3b_se_reduc...	(None, 1, 1, 288) (Conv2D)	3,744	
block3b_se_excite block3b_activati...	(None, 38, 38, (Multiply)	0	
block3b_se_expan...	288)		
block3b_project_co... block3b_se_excit...	(None, 38, 38, (Conv2D)	13,824	
block3b_project_bn block3b_project_...	(None, 38, 38, (BatchNormalizatio...	192	
	48)		

block3b_drop block3b_project_...	(None, 38, 38, (Dropout) 48)	0	
block3b_add (Add) block3b_drop[0][...]	(None, 38, 38, 48)	0	
block3a_project_...			
block3c_expand_conv block3b_add[0][0]	(None, 38, 38, (Conv2D) 288)	13,824	
block3c_expand_bn block3c_expand_c...	(None, 38, 38, (BatchNormalizatio... 288)	1,152	
block3c_expand_act... block3c_expand_b...	(None, 38, 38, (Activation) 288)	0	
block3c_dwconv block3c_expand_a...	(None, 38, 38, (DepthwiseConv2D) 288)	7,200	
block3c_bn block3c_dwconv[0...	(None, 38, 38, (BatchNormalizatio... 288)	1,152	
block3c_activation [0]	(None, 38, 38, (Activation) 288)	0	block3c_bn[0]

block3c_se_squeeze	(None, 288)	0	
block3c_activati...			
(GlobalAveragePool...			
block3c_se_reshape	(None, 1, 1, 288)	0	
block3c_se_squee...			
(Reshape)			
block3c_se_reduce	(None, 1, 1, 12)	3,468	
block3c_se_resha...			
(Conv2D)			
block3c_se_expand	(None, 1, 1, 288)	3,744	
block3c_se_reduc...			
(Conv2D)			
block3c_se_excite	(None, 38, 38,	0	
block3c_activati...			
(Multiply)	288)		
block3c_se_expan...			
block3c_project_co...	(None, 38, 38,	13,824	
block3c_se_excit...			
(Conv2D)	48)		
block3c_project_bn	(None, 38, 38,	192	
block3c_project_...			
(BatchNormalizatio...	48)		
block3c_drop	(None, 38, 38,	0	
block3c_project_...			
(Dropout)	48)		



block3c_add (Add)	(None, 38, 38,	0	
block3c_drop[0][0]	48)		
block3b_add[0][0]			
block4a_expand_conv	(None, 38, 38,	13,824	
block3c_add[0][0]	(Conv2D)	288)	
block4a_expand_bn	(None, 38, 38,	1,152	
block4a_expand_c...	(BatchNormalizatio...	288)	
block4a_expand_act...	(None, 38, 38,	0	
block4a_expand_b...	(Activation)	288)	
block4a_dwconv_pad	(None, 39, 39,	0	
block4a_expand_a...	(ZeroPadding2D)	288)	
block4a_dwconv	(None, 19, 19,	2,592	
block4a_dwconv_p...	(DepthwiseConv2D)	288)	
block4a_bn	(None, 19, 19,	1,152	
block4a_dwconv[0...	(BatchNormalizatio...	288)	
block4a_activation	(None, 19, 19,	0	block4a_bn[0]
[0]	(Activation)	288)	

block4a_se_squeeze	(None, 288)	0
block4a_activation_4	(GlobalAveragePool2D)	
block4a_se_reshape	(None, 1, 1, 288)	0
block4a_se_squeeze	(Reshape)	
block4a_se_reduce	(None, 1, 1, 12)	3,468
block4a_se_reshape	(Conv2D)	
block4a_se_expand	(None, 1, 1, 288)	3,744
block4a_se_reduce	(Conv2D)	
block4a_se_excite	(None, 19, 19,	0
block4a_activation_5	(Multiply)	288)
block4a_se_expand		
block4a_project_conv	(None, 19, 19,	27,648
block4a_se_excite	(Conv2D)	96)
block4a_project_bn	(None, 19, 19,	384
block4a_project_conv	(BatchNormalization)	96)
block4b_expand_conv	(None, 19, 19,	55,296
block4a_project_conv	(Conv2D)	576)
block4b_expand_bn	(None, 19, 19,	2,304

block4b_expand_c...	(BatchNormalizatio...	576)		
block4b_expand_act...	(None, 19, 19,		0	
block4b_expand_b...	(Activation)	576)		
block4b_dwconv	(None, 19, 19,		5,184	
block4b_expand_a...	(DepthwiseConv2D)	576)		
block4b_bn	(None, 19, 19,		2,304	
block4b_dwconv[0...	(BatchNormalizatio...	576)		
block4b_activation	(None, 19, 19,		0	block4b_bn[0]
[0]	(Activation)	576)		
block4b_se_squeeze	(None, 576)		0	
block4b_activati...	(GlobalAveragePool...			
block4b_se_reshape	(None, 1, 1, 576)		0	
block4b_se_squee...	(Reshape)			
block4b_se_reduce	(None, 1, 1, 24)		13,848	
block4b_se_resha...	(Conv2D)			
block4b_se_expand	(None, 1, 1, 576)		14,400	
block4b_se_reduc...				

(Conv2D)			
block4b_se_excite	(None, 19, 19,	0	
block4b_activati...			
(Multiply)	576)		
block4b_se_expan...			
block4b_project_co...	(None, 19, 19,	55,296	
block4b_se_excit...			
(Conv2D)	96)		
block4b_project_bn	(None, 19, 19,	384	
block4b_project_...			
(BatchNormalizatio...	96)		
block4b_drop	(None, 19, 19,	0	
block4b_project_...			
(Dropout)	96)		
block4b_add (Add)	(None, 19, 19,	0	
block4b_drop[0][...			
	96)		
block4a_project_...			
block4c_expand_conv	(None, 19, 19,	55,296	
block4b_add[0][0]			
(Conv2D)	576)		
block4c_expand_bn	(None, 19, 19,	2,304	
block4c_expand_c...			
(BatchNormalizatio...	576)		
block4c_expand_act...	(None, 19, 19,	0	
block4c_expand_b...			
(Activation)	576)		

block4c_dwconv	(None, 19, 19,	5,184		
block4c_expand_a...	(DepthwiseConv2D)	576)		
block4c_bn	(None, 19, 19,	2,304		
block4c_dwconv[0...	(BatchNormalizatio...	576)		
block4c_activation	(None, 19, 19,	0	block4c_bn[0]	
[0]	(Activation)	576)		
block4c_se_squeeze	(None, 576)	0		
block4c_activati...	(GlobalAveragePool...			
block4c_se_reshape	(None, 1, 1, 576)	0		
block4c_se_squee...	(Reshape)			
block4c_se_reduce	(None, 1, 1, 24)	13,848		
block4c_se_resha...	(Conv2D)			
block4c_se_expand	(None, 1, 1, 576)	14,400		
block4c_se_reduc...	(Conv2D)			
block4c_se_excite	(None, 19, 19,	0		
block4c_activati...	(Multiply)	576)		
block4c_se_expan...				

block4c_project_conv block4c_se_excit... (Conv2D)	(None, 19, 19, 96)	55,296	
block4c_project_bn block4c_project_... (BatchNormalizatio...	(None, 19, 19, 96)	384	
block4c_drop block4c_project_... (Dropout)	(None, 19, 19, 96)	0	
block4c_add (Add) block4c_drop[0][... block4b_add[0][0]	(None, 19, 19, 96)	0	
block4d_expand_conv block4c_add[0][0] (Conv2D)	(None, 19, 19, 576)	55,296	
block4d_expand_bn block4d_expand_c... (BatchNormalizatio...	(None, 19, 19, 576)	2,304	
block4d_expand_act... block4d_expand_b... (Activation)	(None, 19, 19, 576)	0	
block4d_dwconv block4d_expand_a... (DepthwiseConv2D)	(None, 19, 19, 576)	5,184	

block4d_bn	(None, 19, 19,	2,304	
block4d_dwconv[0... (BatchNormalization)	576)		
block4d_activation [0]	(None, 19, 19,	0	block4d_bn[0]
(Activation)	576)		
block4d_se_squeeze block4d_activati...	(None, 576)	0	
(GlobalAveragePool...			
block4d_se_reshape block4d_se_squee...	(None, 1, 1, 576)	0	
(Reshape)			
block4d_se_reduce block4d_se_resha...	(None, 1, 1, 24)	13,848	
(Conv2D)			
block4d_se_expand block4d_se_reduc...	(None, 1, 1, 576)	14,400	
(Conv2D)			
block4d_se_excite block4d_activati...	(None, 19, 19,	0	
(Multiply)	576)		
block4d_se_expan...			
block4d_project_co... block4d_se_excit...	(None, 19, 19,	55,296	
(Conv2D)	96)		
block4d_project_bn	(None, 19, 19,	384	

block4d_project_...	(BatchNormalizatio...	96)		
block4d_drop	(None, 19, 19,	0		
block4d_project_...	(Dropout)	96)		
block4d_add (Add)	(None, 19, 19,	0		
block4d_drop[0][...		96)		
block4c_add[0][0]				
block4e_expand_conv	(None, 19, 19,	55,296		
block4d_add[0][0]	(Conv2D)	576)		
block4e_expand_bn	(None, 19, 19,	2,304		
block4e_expand_c...	(BatchNormalizatio...	576)		
block4e_expand_act...	(None, 19, 19,	0		
block4e_expand_b...	(Activation)	576)		
block4e_dwconv	(None, 19, 19,	5,184		
block4e_expand_a...	(DepthwiseConv2D)	576)		
block4e_bn	(None, 19, 19,	2,304		
block4e_dwconv[0...	(BatchNormalizatio...	576)		
block4e_activation	(None, 19, 19,	0	block4e_bn[0]	
[0]				



(Activation)	576)		
block4e_se_squeeze	(None, 576)	0	
block4e_activati...	(GlobalAveragePool...		
block4e_se_reshape	(None, 1, 1, 576)	0	
block4e_se_squee...	(Reshape)		
block4e_se_reduce	(None, 1, 1, 24)	13,848	
block4e_se_resha...	(Conv2D)		
block4e_se_expand	(None, 1, 1, 576)	14,400	
block4e_se_reduc...	(Conv2D)		
block4e_se_excite	(None, 19, 19,	0	
block4e_activati...	(Multiply)	576)	
block4e_se_expan...			
block4e_project_co...	(None, 19, 19,	55,296	
block4e_se_excit...	(Conv2D)	96)	
block4e_project_bn	(None, 19, 19,	384	
block4e_project_...	(BatchNormalizatio...	96)	
block4e_drop	(None, 19, 19,	0	
block4e_project_...	(Dropout)	96)	

block4e_add (Add)	(None, 19, 19,	0	
block4e_drop[0][...	96)		
block4d_add[0][0]			
block5a_expand_conv	(None, 19, 19,	55,296	
block4e_add[0][0]	(Conv2D)	576)	
block5a_expand_bn	(None, 19, 19,	2,304	
block5a_expand_c...	(BatchNormalizatio...	576)	
block5a_expand_act...	(None, 19, 19,	0	
block5a_expand_b...	(Activation)	576)	
block5a_dwconv	(None, 19, 19,	14,400	
block5a_expand_a...	(DepthwiseConv2D)	576)	
block5a_bn	(None, 19, 19,	2,304	
block5a_dwconv[0...	(BatchNormalizatio...	576)	
block5a_activation	(None, 19, 19,	0	block5a_bn[0]
[0]	(Activation)	576)	
block5a_se_squeeze	(None, 576)	0	
block5a_activati...	(GlobalAveragePool...		

block5a_se_reshape	(None, 1, 1, 576)	0	
block5a_se_squee...			
(Reshape)			
block5a_se_reduce	(None, 1, 1, 24)	13,848	
block5a_se_resha...			
(Conv2D)			
block5a_se_expand	(None, 1, 1, 576)	14,400	
block5a_se_reduc...			
(Conv2D)			
block5a_se_excite	(None, 19, 19,	0	
block5a_activati...			
(Multiply)	576)		
block5a_se_expan...			
block5a_project_co...	(None, 19, 19,	78,336	
block5a_se_excit...			
(Conv2D)	136)		
block5a_project_bn	(None, 19, 19,	544	
block5a_project_...			
(BatchNormalizatio...	136)		
block5b_expand_conv	(None, 19, 19,	110,976	
block5a_project_...			
(Conv2D)	816)		
block5b_expand_bn	(None, 19, 19,	3,264	
block5b_expand_c...			
(BatchNormalizatio...	816)		

block5b_expand_act...	(None, 19, 19,	0	
block5b_expand_b...	(Activation)	816)	
block5b_dwconv	(None, 19, 19,	20,400	
block5b_expand_a...	(DepthwiseConv2D)	816)	
block5b_bn	(None, 19, 19,	3,264	
block5b_dwconv[0...	(BatchNormalizatio...	816)	
block5b_activation	(None, 19, 19,	0	block5b_bn[0]
[0]	(Activation)	816)	
block5b_se_squeeze	(None, 816)	0	
block5b_activati...	(GlobalAveragePool...		
block5b_se_reshape	(None, 1, 1, 816)	0	
block5b_se_squee...	(Reshape)		
block5b_se_reduce	(None, 1, 1, 34)	27,778	
block5b_se_resha...	(Conv2D)		
block5b_se_expand	(None, 1, 1, 816)	28,560	
block5b_se_reduc...	(Conv2D)		

block5b_se_excite	(None, 19, 19,	0
block5b_activati...	(Multiply)	816)
block5b_se_expan...		
block5b_project_co...	(None, 19, 19,	110,976
block5b_se_excit...	(Conv2D)	136)
block5b_project_bn	(None, 19, 19,	544
block5b_project_...	(BatchNormalizatio...	136)
block5b_drop	(None, 19, 19,	0
block5b_project_...	(Dropout)	136)
block5b_add (Add)	(None, 19, 19,	0
block5b_drop[0][...		136)
block5a_project_...		
block5c_expand_conv	(None, 19, 19,	110,976
block5b_add[0][0]	(Conv2D)	816)
block5c_expand_bn	(None, 19, 19,	3,264
block5c_expand_c...	(BatchNormalizatio...	816)
block5c_expand_act...	(None, 19, 19,	0
block5c_expand_b...	(Activation)	816)
block5c_dwconv	(None, 19, 19,	20,400

block5c_expand_a...	(DepthwiseConv2D)	816)		
block5c_bn	(None, 19, 19,	3,264		
block5c_dwconv[0...	(BatchNormalizatio...	816)		
block5c_activation	(None, 19, 19,	0	block5c_bn[0]	
[0]	(Activation)	816)		
block5c_se_squeeze	(None, 816)	0		
block5c_activati...	(GlobalAveragePool...			
block5c_se_reshape	(None, 1, 1, 816)	0		
block5c_se_squee...	(Reshape)			
block5c_se_reduce	(None, 1, 1, 34)	27,778		
block5c_se_resha...	(Conv2D)			
block5c_se_expand	(None, 1, 1, 816)	28,560		
block5c_se_reduc...	(Conv2D)			
block5c_se_excite	(None, 19, 19,	0		
block5c_activati...	(Multiply)	816)		
block5c_se_expan...				
block5c_project_co...	(None, 19, 19,	110,976		
block5c_se_excit...				

(Conv2D)	136)		
block5c_project_bn	(None, 19, 19,	544	
block5c_project_...	(BatchNormalizatio...	136)	
block5c_drop	(None, 19, 19,	0	
block5c_project_...	(Dropout)	136)	
block5c_add (Add)	(None, 19, 19,	0	
block5c_drop[0][...			
	136)		
block5b_add[0][0]			
block5d_expand_conv	(None, 19, 19,	110,976	
block5c_add[0][0]	(Conv2D)	816)	
block5d_expand_bn	(None, 19, 19,	3,264	
block5d_expand_c...	(BatchNormalizatio...	816)	
block5d_expand_act...	(None, 19, 19,	0	
block5d_expand_b...	(Activation)	816)	
block5d_dwconv	(None, 19, 19,	20,400	
block5d_expand_a...	(DepthwiseConv2D)	816)	
block5d_bn	(None, 19, 19,	3,264	
block5d_dwconv[0...	(BatchNormalizatio...	816)	

block5d_activation [0]	(None, 19, 19, (Activation)	0	block5d_bn[0]
	816)		
block5d_se_squeeze block5d_activati...	(None, 816) (GlobalAveragePool...	0	
block5d_se_reshape block5d_se_squee...	(None, 1, 1, 816) (Reshape)	0	
block5d_se_reduce block5d_se_resha...	(None, 1, 1, 34) (Conv2D)	27,778	
block5d_se_expand block5d_se_reduc...	(None, 1, 1, 816) (Conv2D)	28,560	
block5d_se_excite block5d_activati...	(None, 19, 19, (Multiply)	0	
block5d_se_expan...	816)		
block5d_project_co... block5d_se_excit...	(None, 19, 19, (Conv2D)	110,976	
	136)		
block5d_project_bn block5d_project_...	(None, 19, 19, (BatchNormalizatio...	544	
	136)		



block5d_drop	(None, 19, 19,	0	
block5d_project_...	136)		
(Dropout)			
block5d_add (Add)	(None, 19, 19,	0	
block5d_drop[0][...	136)		
block5c_add[0][0]			
block5e_expand_conv	(None, 19, 19,	110,976	
block5d_add[0][0]	816)		
(Conv2D)			
block5e_expand_bn	(None, 19, 19,	3,264	
block5e_expand_c...	816)		
(BatchNormalizatio...			
block5e_expand_act...	(None, 19, 19,	0	
block5e_expand_b...	816)		
(Activation)			
block5e_dwconv	(None, 19, 19,	20,400	
block5e_expand_a...	816)		
(DepthwiseConv2D)			
block5e_bn	(None, 19, 19,	3,264	
block5e_dwconv[0...	816)		
(BatchNormalizatio...			
block5e_activation	(None, 19, 19,	0	block5e_bn[0]
[0]	816)		
(Activation)			

block5e_se_squeeze	(None, 816)	0
block5e_activation_1	(GlobalAveragePool2D)	
block5e_se_reshape	(None, 1, 1, 816)	0
block5e_se_squeeze_1	(Reshape)	
block5e_se_reduce	(None, 1, 1, 34)	27,778
block5e_se_reshape_1	(Conv2D)	
block5e_se_expand	(None, 1, 1, 816)	28,560
block5e_se_reduce_1	(Conv2D)	
block5e_se_excite	(None, 19, 19, 816)	0
block5e_activation_2	(Multiply)	
block5e_se_expand_1		
block5e_project_conv	(None, 19, 19, 136)	110,976
block5e_se_excite_1	(Conv2D)	
block5e_project_bn	(None, 19, 19, 136)	544
block5e_project_dropout	(BatchNormalization)	
block5e_drop	(None, 19, 19, 136)	0
block5e_project_dropout_1	(Dropout)	
block5e_add	(Add)	0

block5e_drop[0][...				
		136)		
block5d_add[0][0]				
block6a_expand_conv	(None, 19, 19,		110,976	
block5e_add[0][0]				
(Conv2D)	816)			
block6a_expand_bn	(None, 19, 19,		3,264	
block6a_expand_c...				
(BatchNormalizatio...	816)			
block6a_expand_act...	(None, 19, 19,		0	
block6a_expand_b...				
(Activation)	816)			
block6a_dwconv_pad	(None, 23, 23,		0	
block6a_expand_a...				
(ZeroPadding2D)	816)			
block6a_dwconv	(None, 10, 10,		20,400	
block6a_dwconv_p...				
(DepthwiseConv2D)	816)			
block6a_bn	(None, 10, 10,		3,264	
block6a_dwconv[0...				
(BatchNormalizatio...	816)			
block6a_activation	(None, 10, 10,		0	block6a_bn[0]
[0]				
(Activation)	816)			
block6a_se_squeeze	(None, 816)		0	
block6a_activati...				

(GlobalAveragePool...			
block6a_se_reshape	(None, 1, 1, 816)	0	
block6a_se_squee... (Reshape)			
block6a_se_reduce	(None, 1, 1, 34)	27,778	
block6a_se_resha... (Conv2D)			
block6a_se_expand	(None, 1, 1, 816)	28,560	
block6a_se_reduc... (Conv2D)			
block6a_se_excite	(None, 10, 10,	0	
block6a_activati... (Multiply)	816)		
block6a_se_expan...			
block6a_project_co...	(None, 10, 10,	189,312	
block6a_se_excit... (Conv2D)	232)		
block6a_project_bn	(None, 10, 10,	928	
block6a_project_... (BatchNormalizatio...	232)		
block6b_expand_conv	(None, 10, 10,	322,944	
block6a_project_... (Conv2D)	1392)		
block6b_expand_bn	(None, 10, 10,	5,568	
block6b_expand_c... (BatchNormalizatio...	1392)		

block6b_expand_act...	(None, 10, 10,	0		
block6b_expand_b...	(Activation)	1392)		
block6b_dwconv	(None, 10, 10,	34,800		
block6b_expand_a...	(DepthwiseConv2D)	1392)		
block6b_bn	(None, 10, 10,	5,568		
block6b_dwconv[0...	(BatchNormalizatio...	1392)		
block6b_activation	(None, 10, 10,	0	block6b_bn[0]	
[0]	(Activation)	1392)		
block6b_se_squeeze	(None, 1392)	0		
block6b_activati...	(GlobalAveragePool...			
block6b_se_reshape	(None, 1, 1,	0		
block6b_se_squee...	(Reshape)	1392)		
block6b_se_reduce	(None, 1, 1, 58)	80,794		
block6b_se_resha...	(Conv2D)			
block6b_se_expand	(None, 1, 1,	82,128		
block6b_se_reduc...	(Conv2D)	1392)		

block6b_se_excite	(None, 10, 10,	0	
block6b_activati...			
(Multiply)	1392)		
block6b_se_expan...			
block6b_project_co...	(None, 10, 10,	322,944	
block6b_se_excit...			
(Conv2D)	232)		
block6b_project_bn	(None, 10, 10,	928	
block6b_project_...			
(BatchNormalizatio...	232)		
block6b_drop	(None, 10, 10,	0	
block6b_project_...			
(Dropout)	232)		
block6b_add (Add)	(None, 10, 10,	0	
block6b_drop[0][...			
	232)		
block6a_project_...			
block6c_expand_conv	(None, 10, 10,	322,944	
block6b_add[0][0]			
(Conv2D)	1392)		
block6c_expand_bn	(None, 10, 10,	5,568	
block6c_expand_c...			
(BatchNormalizatio...	1392)		
block6c_expand_act...	(None, 10, 10,	0	
block6c_expand_b...			
(Activation)	1392)		

block6c_dwconv	(None, 10, 10,	34,800	
block6c_expand_a... (DepthwiseConv2D)	1392)		
block6c_bn	(None, 10, 10,	5,568	
block6c_dwconv[0... (BatchNormalizatio...	1392)		
block6c_activation [0]	(None, 10, 10,	0	block6c_bn[0]
(Activation)	1392)		
block6c_se_squeeze	(None, 1392)	0	
block6c_activati... (GlobalAveragePool...			
block6c_se_reshape	(None, 1, 1,	0	
block6c_se_squee... (Reshape)	1392)		
block6c_se_reduce	(None, 1, 1, 58)	80,794	
block6c_se_resha... (Conv2D)			
block6c_se_expand	(None, 1, 1,	82,128	
block6c_se_reduc... (Conv2D)	1392)		
block6c_se_excite	(None, 10, 10,	0	
block6c_activati... (Multiply)	1392)		
block6c_se_expan...			

block6c_project_conv block6c_se_excit... (Conv2D)	(None, 10, 10, 232)	322,944	
block6c_project_bn block6c_project... (BatchNormalizatio...	(None, 10, 10, 232)	928	
block6c_drop block6c_project... (Dropout)	(None, 10, 10, 232)	0	
block6c_add (Add) block6c_drop[0][... block6b_add[0][0]	(None, 10, 10, 232)	0	
block6d_expand_conv block6c_add[0][0] (Conv2D)	(None, 10, 10, 1392)	322,944	
block6d_expand_bn block6d_expand_c... (BatchNormalizatio...	(None, 10, 10, 1392)	5,568	
block6d_expand_act... block6d_expand_b... (Activation)	(None, 10, 10, 1392)	0	
block6d_dwconv block6d_expand_a... (DepthwiseConv2D)	(None, 10, 10, 1392)	34,800	
block6d_bn	(None, 10, 10,	5,568	



block6d_dwconv[0...   (BatchNormalizatio...	1392)		
block6d_activation [0]   (Activation)	(None, 10, 10, 1392)	0	block6d_bn[0]
block6d_se_squeeze block6d_activati...   (GlobalAveragePool...	(None, 1392)	0	
block6d_se_reshape block6d_se_squee...   (Reshape)	(None, 1, 1, 1392)	0	
block6d_se_reduce block6d_se_resha...   (Conv2D)	(None, 1, 1, 58)	80,794	
block6d_se_expand block6d_se_reduc...   (Conv2D)	(None, 1, 1, 1392)	82,128	
block6d_se_excite block6d_activati...   (Multiply)	(None, 10, 10, 1392)	0	
block6d_se_expan...			
block6d_project_co... block6d_se_excit...   (Conv2D)	(None, 10, 10, 232)	322,944	
block6d_project_bn block6d_project_...	(None, 10, 10,	928	

(BatchNormalizatio...	232)		
block6d_drop	(None, 10, 10,	0	
block6d_project_...	(Dropout)	232)	
block6d_add (Add)	(None, 10, 10,	0	
block6d_drop[0][...		232)	
block6c_add[0][0]			
block6e_expand_conv	(None, 10, 10,	322,944	
block6d_add[0][0]	(Conv2D)	1392)	
block6e_expand_bn	(None, 10, 10,	5,568	
block6e_expand_c...	(BatchNormalizatio...	1392)	
block6e_expand_act...	(None, 10, 10,	0	
block6e_expand_b...	(Activation)	1392)	
block6e_dwconv	(None, 10, 10,	34,800	
block6e_expand_a...	(DepthwiseConv2D)	1392)	
block6e_bn	(None, 10, 10,	5,568	
block6e_dwconv[0...	(BatchNormalizatio...	1392)	
block6e_activation	(None, 10, 10,	0	block6e_bn[0]
[0]	(Activation)	1392)	

block6e_se_squeeze	(None, 1392)	0	
block6e_activation_1	(GlobalAveragePool2D)		
block6e_se_reshape	(None, 1, 1, 1392)	0	
block6e_se_squeeze_1	(Reshape)		
block6e_se_reduce	(None, 1, 1, 58)	80,794	
block6e_se_reshape_1	(Conv2D)		
block6e_se_expand	(None, 1, 1, 1392)	82,128	
block6e_se_reduce_1	(Conv2D)		
block6e_se_excite	(None, 10, 10, 1392)	0	
block6e_activation_2	(Multiply)		
block6e_se_expand_1			
block6e_project_conv	(None, 10, 10, 232)	322,944	
block6e_se_excite_1	(Conv2D)		
block6e_project_bn	(None, 10, 10, 232)	928	
block6e_project_dropout	(BatchNormalization)		
block6e_drop	(None, 10, 10, 232)	0	
block6e_project_dropout_1	(Dropout)		

block6e_add (Add)	(None, 10, 10,	0	
block6e_drop[0][...	232)		
block6d_add[0][0]			
block6f_expand_conv	(None, 10, 10,	322,944	
block6e_add[0][0]	(Conv2D)	1392)	
block6f_expand_bn	(None, 10, 10,	5,568	
block6f_expand_c...	(BatchNormalizatio...	1392)	
block6f_expand_act...	(None, 10, 10,	0	
block6f_expand_b...	(Activation)	1392)	
block6f_dwconv	(None, 10, 10,	34,800	
block6f_expand_a...	(DepthwiseConv2D)	1392)	
block6f_bn	(None, 10, 10,	5,568	
block6f_dwconv[0...	(BatchNormalizatio...	1392)	
block6f_activation	(None, 10, 10,	0	block6f_bn[0]
[0]	(Activation)	1392)	
block6f_se_squeeze	(None, 1392)	0	
block6f_activati...	(GlobalAveragePool...		

block6f_se_reshape block6f_se_squee...	(None, 1, 1,	0	
(Reshape)	1392)		
block6f_se_reduce block6f_se_resha...	(None, 1, 1, 58)	80,794	
(Conv2D)			
block6f_se_expand block6f_se_reduc...	(None, 1, 1,	82,128	
(Conv2D)	1392)		
block6f_se_excite block6f_activati...	(None, 10, 10,	0	
(Multiply)	1392)		
block6f_se_expan...			
block6f_project_co... block6f_se_excit...	(None, 10, 10,	322,944	
(Conv2D)	232)		
block6f_project_bn block6f_project_...	(None, 10, 10,	928	
(BatchNormalizatio...	232)		
block6f_drop block6f_project_...	(None, 10, 10,	0	
(Dropout)	232)		
block6f_add (Add) block6f_drop[0][...	(None, 10, 10,	0	
block6e_add[0][0]	232)		
block7a_expand_conv	(None, 10, 10,	322,944	

block6f_add[0][0]   (Conv2D)	1392)		
block7a_expand_bn block7a_expand_c...   (BatchNormalizatio...	(None, 10, 10, 1392)	5,568	
block7a_expand_act... block7a_expand_b...   (Activation)	(None, 10, 10, 1392)	0	
block7a_dwconv block7a_expand_a...   (DepthwiseConv2D)	(None, 10, 10, 1392)	12,528	
block7a_bn block7a_dwconv[0...   (BatchNormalizatio...	(None, 10, 10, 1392)	5,568	
block7a_activation [0]   (Activation)	(None, 10, 10, 1392)	0	block7a_bn[0]
block7a_se_squeeze block7a_activati...   (GlobalAveragePool...	(None, 1392)	0	
block7a_se_reshape block7a_se_squee...   (Reshape)	(None, 1, 1, 1392)	0	
block7a_se_reduce block7a_se_resha...	(None, 1, 1, 58)	80,794	

(Conv2D)			
block7a_se_expand block7a_se_reduc...	(None, 1, 1, (Conv2D)	82,128 1392)	
block7a_se_excite block7a_activati...	(None, 10, 10, (Multiply)	0 1392)	
block7a_se_expan...			
block7a_project_co... block7a_se_excit...	(None, 10, 10, (Conv2D)	534,528 384)	
block7a_project_bn block7a_project_...	(None, 10, 10, (BatchNormalizatio...	1,536 384)	
block7b_expand_conv block7a_project_...	(None, 10, 10, (Conv2D)	884,736 2304)	
block7b_expand_bn block7b_expand_c...	(None, 10, 10, (BatchNormalizatio...	9,216 2304)	
block7b_expand_act... block7b_expand_b...	(None, 10, 10, (Activation)	0 2304)	
block7b_dwconv block7b_expand_a...	(None, 10, 10, (DepthwiseConv2D)	20,736 2304)	

block7b_bn	(None, 10, 10,	9,216	
block7b_dwconv[0...	(BatchNormalizatio...	2304)	
block7b_activation	(None, 10, 10,	0	block7b_bn[0]
[0]	(Activation)	2304)	
block7b_se_squeeze	(None, 2304)	0	
block7b_activati...	(GlobalAveragePool...		
block7b_se_reshape	(None, 1, 1,	0	
block7b_se_squee...	(Reshape)	2304)	
block7b_se_reduce	(None, 1, 1, 96)	221,280	
block7b_se_resha...	(Conv2D)		
block7b_se_expand	(None, 1, 1,	223,488	
block7b_se_reduc...	(Conv2D)	2304)	
block7b_se_excite	(None, 10, 10,	0	
block7b_activati...	(Multiply)	2304)	
block7b_se_expan...			
block7b_project_co...	(None, 10, 10,	884,736	
block7b_se_excit...	(Conv2D)	384)	



block7b_project_bn block7b_project_...	(None, 10, 10, 384)	1,536	
block7b_drop block7b_project_...	(None, 10, 10, 384)	0	
block7b_add (Add) block7b_drop[0][... block7a_project_...	(None, 10, 10, 384)	0	
top_conv (Conv2D) block7b_add[0][0]	(None, 10, 10, 1536)	589,824	
top_bn [0] (BatchNormalizatio...	(None, 10, 10, 1536)	6,144	top_conv[0]
top_activation (Activation)	(None, 10, 10, 1536)	0	top_bn[0][0]
avg_pool top_activation[0... (GlobalAveragePool...	(None, 1536)	0	
batch_normalization [0] (BatchNormalizatio...	(None, 1536)	6,144	avg_pool[0]

dense (Dense)	(None, 512)	786,944	
batch_normalizat...			
batch_normalizatio...	(None, 512)	2,048	dense[0][0]
(BatchNormalizatio...			
dropout (Dropout)	(None, 512)	0	
batch_normalizat...			
dense_1 (Dense)	(None, 128)	65,664	dropout[0][0]
batch_normalizatio...	(None, 128)	512	dense_1[0][0]
(BatchNormalizatio...			
dropout_1 (Dropout)	(None, 128)	0	
batch_normalizat...			
dense_2 (Dense)	(None, 6)	774	dropout_1[0]
[0]			

Total params: 11,645,621 (44.42 MB)

Trainable params: 11,553,966 (44.07 MB)

Non-trainable params: 91,655 (358.03 KB)

WARNING:absl:You are saving your model as an HDF5 file via `model.save()` or `keras.saving.save\_model(model)`. This file format is considered legacy. We recommend using instead the native Keras format, e.g. `model.save('my\_model.keras')` or `keras.saving.save\_model(model, 'my\_model.keras')`.

*# Set Callbacks and Train Model*

from keras.callbacks import ModelCheckpoint, EarlyStopping

checkpoint = ModelCheckpoint('effB3.keras',

```
monitor='val_acc',save_best_only=True,)
early = EarlyStopping(monitor='val_acc', min_delta=0, patience=20,
verbose=1, mode='auto')
history=model.fit(train_ds, epochs=epochs,
callbacks=[checkpoint,early], validation_data=val_ds)
```

/home/zeus/miniconda3/envs/cloudspace/lib/python3.10/site-packages/  
keras/src/trainers/data\_adapters/py\_dataset\_adapter.py:121:

UserWarning: Your `PyDataset` class should call  
`super().\_\_init\_\_(\*\*kwargs)` in its constructor. `\*\*kwargs` can  
include `workers`, `use\_multiprocessing`, `max\_queue\_size`. Do not  
pass these arguments to `fit()`, as they will be ignored.

```
self._warn_if_super_not_called()
```

Epoch 1/10

98/98 \_\_\_\_\_ 766s 7s/step - acc: 0.3571 - loss: 2.5671 -  
val\_acc: 0.1684 - val\_loss: 1.8647

Epoch 2/10

98/98 \_\_\_\_\_ 724s 7s/step - acc: 0.7984 - loss: 0.6338 -  
val\_acc: 0.2044 - val\_loss: 1.7704

Epoch 3/10

98/98 \_\_\_\_\_ 722s 7s/step - acc: 0.8997 - loss: 0.3016 -  
val\_acc: 0.4859 - val\_loss: 1.2683

Epoch 4/10

98/98 \_\_\_\_\_ 725s 7s/step - acc: 0.9360 - loss: 0.1865 -  
val\_acc: 0.8033 - val\_loss: 0.5823

Epoch 5/10

98/98 \_\_\_\_\_ 735s 8s/step - acc: 0.9601 - loss: 0.1171 -  
val\_acc: 0.8535 - val\_loss: 0.4798

Epoch 6/10

98/98 \_\_\_\_\_ 720s 7s/step - acc: 0.9716 - loss: 0.0947 -  
val\_acc: 0.8432 - val\_loss: 0.4955

Epoch 7/10

98/98 \_\_\_\_\_ 706s 7s/step - acc: 0.9775 - loss: 0.0673 -  
val\_acc: 0.8856 - val\_loss: 0.3574

Epoch 8/10

98/98 \_\_\_\_\_ 715s 7s/step - acc: 0.9793 - loss: 0.0626 -  
val\_acc: 0.9936 - val\_loss: 0.0236

Epoch 9/10

98/98 \_\_\_\_\_ 725s 7s/step - acc: 0.9822 - loss: 0.0581 -  
val\_acc: 0.9987 - val\_loss: 0.0067

Epoch 10/10

98/98 \_\_\_\_\_ 726s 7s/step - acc: 0.9865 - loss: 0.0419 -  
val\_acc: 0.9949 - val\_loss: 0.0118

```
import matplotlib.pyplot as plt
```

```
import numpy as np
```

```
from sklearn.metrics import classification_report, confusion_matrix
```

```
from keras.models import load_model
```

```

# Load model weights
model.load_weights('effB3.keras')

# Function to plot confusion matrix
def plot_confusion_matrix(cm, classes, normalize=False,
title='Confusion Matrix', cmap=plt.cm.Blues):
    if normalize:
        cm = cm.astype('float') / cm.sum(axis=1)[:, np.newaxis]
        print("Normalized confusion matrix")
    else:
        print('Confusion matrix, without normalization')

    print(cm)

    plt.imshow(cm, interpolation='nearest', cmap=cmap)
    plt.title(title)
    tick_marks = np.arange(len(classes))
    plt.xticks(tick_marks, classes, rotation=45, ha="right")
    plt.yticks(tick_marks, classes)

    fmt = '.2f' if normalize else 'd'
    thresh = cm.max() / 2.
    for i in range(cm.shape[0]):
        for j in range(cm.shape[1]):
            plt.text(j, i, format(cm[i, j], fmt),
                    horizontalalignment="center",
                    color="white" if cm[i, j] > thresh else "black")

    plt.ylabel('True label')
    plt.xlabel('Predicted label')
    plt.tight_layout()
    plt.savefig('cnf_B3.jpg')

# Get class labels
class_labels = test_ds.class_indices
class_labels = {v: k for k, v in class_labels.items()}
classes = list(class_labels.values())

# Predict on the test dataset using `predict`
Y_pred = model.predict(test_ds)
y_pred = np.argmax(Y_pred, axis=1)

# Confusion matrix
cnf_matrix = confusion_matrix(test_ds.classes, y_pred)

# Plot the confusion matrix
plt.figure(figsize=(10, 10))
plt.rcParams.update({'font.size': 16})
plot_confusion_matrix(cnf_matrix, classes=classes, title='Confusion
Matrix')

```

```
plt.show()

# Classification report
print("\nClassification Report:\n")
print(classification_report(test_ds.classes, y_pred,
target_names=classes, digits=4))
```

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---

 45s 1s/step

Confusion matrix, without normalization

```
[[162  0  1  0  0  1]
 [ 2 160  0  0  0  0]
 [ 2  0 151  0  1  6]
 [ 0  0  0 165  0  0]
 [ 1  0  2  0 162  1]
 [ 1  0  1  4  0 154]]
```



#### Classification Report:

	precision	recall	f1-score	support
Aphids	0.9643	0.9878	0.9759	164
Army worm	1.0000	0.9877	0.9938	162
Bacterial blight	0.9742	0.9437	0.9587	160
Healthy	0.9763	1.0000	0.9880	165
Powdery mildew	0.9939	0.9759	0.9848	166
Target spot	0.9506	0.9625	0.9565	160
accuracy			0.9765	977

macro avg	0.9765	0.9763	0.9763	977
weighted avg	0.9767	0.9765	0.9764	977

```
# predict and display image with probabilities

from tensorflow.keras.preprocessing import image
import numpy as np
import matplotlib.pyplot as plt

def predict_and_display_image_with_probabilities(img_path, model,
image_size=(300, 300)):
    # Load the image with target size
    img = image.load_img(img_path, target_size=image_size)

    # Convert the image to a numpy array
    img_array = image.img_to_array(img)

    # Rescale the image
    img_array = img_array / 255.0

    # Add an extra dimension for the batch size (model expects a
batch)
    img_array = np.expand_dims(img_array, axis=0)

    # Predict the class probabilities
    predictions = model.predict(img_array)

    # Get the class labels
    class_labels = {0: 'Aphids', 1: 'Army worm', 2: 'Bacterial
blight', 3: 'Healthy', 4: 'Powdery mildew', 5: 'Target spot'}

    # Format the probabilities for all classes
    probabilities = {class_labels[i]: predictions[0][i] for i in
range(len(class_labels))}

    # Sort probabilities in descending order
    sorted_probabilities = sorted(probabilities.items(), key=lambda x:
x[1], reverse=True)

    # Display the image
    plt.figure(figsize=(8, 8))
    plt.imshow(image.img_to_array(img) / 255.0) # Display the
original image
    plt.axis('off') # Hide axes

    # Add text with predictions and probabilities
    title_text = "\n".join([f"{label}: {prob:.2%}" for label, prob in
sorted_probabilities])
    plt.title(title_text, fontsize=10, color='blue', loc='left')
```

```
# Save the image with prediction text
plt.savefig("predicted_image_with_probabilities.png",
bbox_inches='tight')
plt.show()

# Example usage
img_path = "army.jpeg" # Replace with your image path
predict_and_display_image_with_probabilities(img_path, model)

1/1 ————— 0s 60ms/step
```



Army worm: 37.12%  
Bacterial blight: 35.51%  
Target spot: 21.81%  
Aphids: 5.31%  
Powdery mildew: 0.20%  
Healthy: 0.05%

