

Actividad en Clase Transfer Learning

Equipo

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```
In [ ]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import tensorflow as tf
import os
from keras.applications.inception_resnet_v2 import InceptionResNetV2
from keras.preprocessing import image
from keras.applications.inception_resnet_v2 import preprocess_input, decode_predictions
```

```
In [ ]: from google.colab import drive
drive.mount('/content/drive')
```

Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount("/content/drive", force_remount=True).

```
In [ ]: train_dir = '/content/drive/Shareddrives/Reto IA/Actividades/Actividad en Clase Transfer Learning'
validation_dir = '/content/drive/Shareddrives/Reto IA/Actividades/Actividad en Clase Transfer Learning'

BATCH_SIZE = 64
IMG_SIZE = (160,160)

train_dataset = tf.keras.utils.image_dataset_from_directory(train_dir,
                                                            shuffle=True,
                                                            batch_size=BATCH_SIZE,
                                                            image_size = IMG_SIZE)

validation_dataset = tf.keras.utils.image_dataset_from_directory(validation_dir,
                                                                shuffle=True,
                                                                batch_size=BATCH_SIZE,
                                                                image_size = IMG_SIZE)
```

Found 1329 files belonging to 3 classes.
Found 148 files belonging to 3 classes.

```
In [ ]: class_names = train_dataset.class_names
```

```
Out[ ]: ['keyboard', 'monitor', 'mouse']
```

```
In [ ]: plt.figure(figsize=(10,10))
for image, labels in train_dataset.take(1):
    for i in range(9):
        ax=plt.subplot(3,3,i+1)
        plt.imshow(image[i].numpy().astype('uint8'))
        plt.title(class_names[labels[i]])
        plt.axis('off')
```

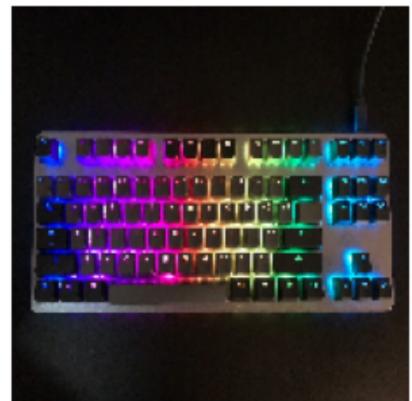
mouse



monitor



keyboard



keyboard



mouse



mouse



monitor



mouse



mouse



In []:

```
val_batches = tf.data.experimental.cardinality(validation_dataset)
test_dataset = validation_dataset.take(val_batches // 6)
validation_dataset = validation_dataset.skip(val_batches // 6)
```

```
print('Número de batches para validation_dataset = %d' % tf.data.experimental.cardinality(validation_dataset))
print('Número de batches para test_dataset = %d' % tf.data.experimental.cardinality(test_dataset))
```

```
Número de batches para validation_dataset = 3
Número de batches para test_dataset = 0
```

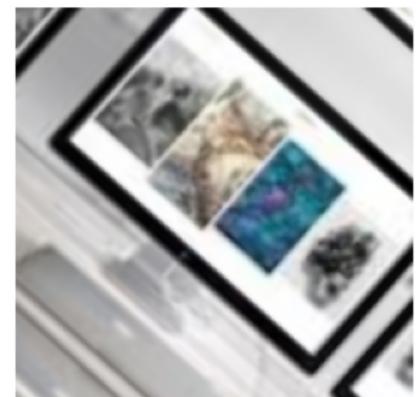
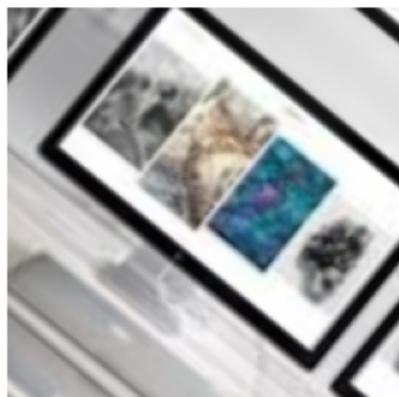
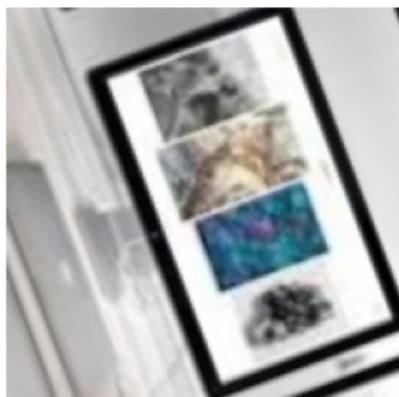
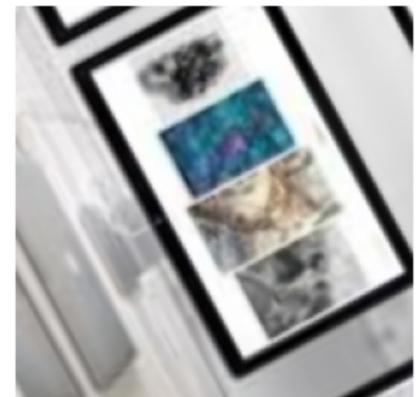
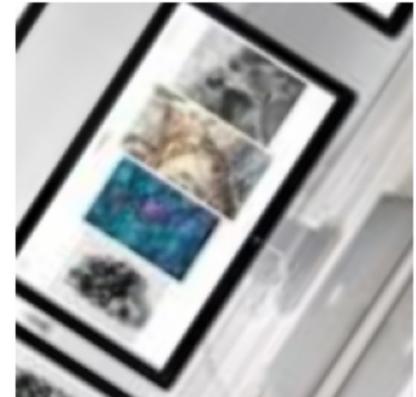
In []:

```
AUTOTUNE = tf.data.AUTOTUNE

train_dataset = train_dataset.prefetch(buffer_size=AUTOTUNE)
validation_dataset = validation_dataset.prefetch(buffer_size=AUTOTUNE)
test_dataset = test_dataset.prefetch(buffer_size=AUTOTUNE)
```

```
In [ ]: data_augmentation = tf.keras.Sequential([
    tf.keras.layers.RandomFlip('horizontal'),
    tf.keras.layers.RandomRotation(0.2),
])
```

```
In [ ]: for image, _ in train_dataset.take(1):
    plt.figure(figsize=(10,10))
    first_image = image[0]
    for i in range(9):
        ax=plt.subplot(3,3,i+1)
        augmented_image= data_augmentation(tf.expand_dims(first_image,0))
        plt.imshow(augmented_image[0] / 255)
        plt.axis('off')
```



```
In [ ]: rescale = tf.keras.layers.Rescaling(1./127,offset=1)
```

```
In [ ]: from tensorflow.keras.applications.efficientnet import preprocess_input
preprocessing_input = tf.keras.applications.efficientnet.preprocess_input
```

```
In [ ]: IMG_SHAPE = IMG_SIZE + (3,)  
print(IMG_SHAPE)  
  
base_model = tf.keras.applications.EfficientNetB7(  
    input_shape=(160, 160, 3),  
    include_top=False,  
    weights='imagenet'  
)  
  
(160, 160, 3)
```

```
In [ ]: image_batch, label_batch = next(iter(train_dataset))  
feature_batch = base_model(image_batch)  
  
print(feature_batch.shape)  
  
(64, 5, 5, 2560)
```

```
In [ ]: base_model.trainable=False  
base_model.summary()
```

Model: "efficientnetb7"

Layer (type)	Output Shape	Param #	Connected to
=====			
input_16 (InputLayer)	[(None, 160, 160, 3)]	0	[]
rescaling_23 (Rescaling)	(None, 160, 160, 3)	0	['input_16[0][0]']
normalization_7 (Normalization)	(None, 160, 160, 3)	7	['rescaling_23[0][0]']
rescaling_24 (Rescaling)	(None, 160, 160, 3)	0	['normalization_7[0][0]']
stem_conv_pad (ZeroPadding2D)	(None, 161, 161, 3)	0	['rescaling_24[0][0]']
stem_conv (Conv2D)	(None, 80, 80, 64)	1728	['stem_conv_pad[0][0]']
stem_bn (BatchNormalization)	(None, 80, 80, 64)	256	['stem_conv[0][0]']
stem_activation (Activation)	(None, 80, 80, 64)	0	['stem_bn[0][0]']
block1a_dwconv (DepthwiseConv2D)	(None, 80, 80, 64)	576	['stem_activation[0][0]']
block1a_bn (BatchNormalization)	(None, 80, 80, 64)	256	['block1a_dwconv[0][0]']
block1a_activation (Activation)	(None, 80, 80, 64)	0	['block1a_bn[0][0]']
block1a_se_squeeze (GlobalAveragePooling2D)	(None, 64)	0	['block1a_activation[0][0]']
block1a_se_reshape (Reshape)	(None, 1, 1, 64)	0	['block1a_se_squeeze[0][0]']
block1a_se_reduce (Conv2D)	(None, 1, 1, 16)	1040	['block1a_se_reshape[0][0]']
block1a_se_expand (Conv2D)	(None, 1, 1, 64)	1088	['block1a_se_reduce[0][0]']
block1a_se_excite (Multipl y)	(None, 80, 80, 64)	0	['block1a_activation[0][0]', 'block1a_se_expand[0][0]']
block1a_project_conv (Conv2D)	(None, 80, 80, 32)	2048	['block1a_se_excite[0][0]']
block1a_project_bn (BatchNormaliz ation)	(None, 80, 80, 32)	128	['block1a_project_conv[0][0]']
block1b_dwconv (DepthwiseConv2D)	(None, 80, 80, 32)	288	['block1a_project_bn[0][0]']
block1b_bn (BatchNormalization)	(None, 80, 80, 32)	128	['block1b_dwconv[0][0]']
block1b_activation (Activation)	(None, 80, 80, 32)	0	['block1b_bn[0][0]']

block1b_se_squeeze (Global AveragePooling2D)	(None, 32)	0	['block1b_activation[0][0]']
block1b_se_reshape (Reshape)	(None, 1, 1, 32)	0	['block1b_se_squeeze[0][0]']
block1b_se_reduce (Conv2D)	(None, 1, 1, 8)	264	['block1b_se_reshape[0][0]']
block1b_se_expand (Conv2D)	(None, 1, 1, 32)	288	['block1b_se_reduce[0][0]']
block1b_se_excite (Multipl y)	(None, 80, 80, 32)	0	['block1b_activation[0][0]', 'block1b_se_expand[0][0]']
block1b_project_conv (Conv 2D)	(None, 80, 80, 32)	1024	['block1b_se_excite[0][0]']
block1b_project_bn (BatchN [0][0])	(None, 80, 80, 32)	128	['block1b_project_conv
ormalization)			
block1b_drop (Dropout)	(None, 80, 80, 32)	0	['block1b_project_bn[0][0]']
block1b_add (Add)	(None, 80, 80, 32)	0	['block1b_drop[0][0]', 'block1a_project_bn[0][0]']
block1c_dwconv (DepthwiseC onv2D)	(None, 80, 80, 32)	288	['block1b_add[0][0]']
block1c_bn (BatchNormaliza tion)	(None, 80, 80, 32)	128	['block1c_dwconv[0][0]']
block1c_activation (Activat ion)	(None, 80, 80, 32)	0	['block1c_bn[0][0]']
block1c_se_squeeze (Global AveragePooling2D)	(None, 32)	0	['block1c_activation[0][0]']
block1c_se_reshape (Reshape)	(None, 1, 1, 32)	0	['block1c_se_squeeze[0][0]']
block1c_se_reduce (Conv2D)	(None, 1, 1, 8)	264	['block1c_se_reshape[0][0]']
block1c_se_expand (Conv2D)	(None, 1, 1, 32)	288	['block1c_se_reduce[0][0]']
block1c_se_excite (Multipl y)	(None, 80, 80, 32)	0	['block1c_activation[0][0]', 'block1c_se_expand[0][0]']
block1c_project_conv (Conv 2D)	(None, 80, 80, 32)	1024	['block1c_se_excite[0][0]']
block1c_project_bn (BatchN [0][0])	(None, 80, 80, 32)	128	['block1c_project_conv
ormalization)			
block1c_drop (Dropout)	(None, 80, 80, 32)	0	['block1c_project_bn[0][0]']
block1c_add (Add)	(None, 80, 80, 32)	0	['block1c_drop[0][0]', 'block1b_add[0][0]']
block1d_dwconv (DepthwiseC onv2D)	(None, 80, 80, 32)	288	['block1c_add[0][0]']
block1d_bn (BatchNormaliza tion)	(None, 80, 80, 32)	128	['block1d_dwconv[0][0]']

block1d_activation (Activation)	(None, 80, 80, 32)	0	['block1d_bn[0][0]']
block1d_se_squeeze (GlobalAveragePooling2D)	(None, 32)	0	['block1d_activation[0][0]']
block1d_se_reshape (Reshape)	(None, 1, 1, 32)	0	['block1d_se_squeeze[0][0]']
block1d_se_reduce (Conv2D)	(None, 1, 1, 8)	264	['block1d_se_reshape[0][0]']
block1d_se_expand (Conv2D)	(None, 1, 1, 32)	288	['block1d_se_reduce[0][0]']
block1d_se_excite (Multiply)	(None, 80, 80, 32)	0	['block1d_activation[0][0]', 'block1d_se_expand[0][0]']
block1d_project_conv (Conv2D)	(None, 80, 80, 32)	1024	['block1d_se_excite[0][0]']
block1d_project_bn (BatchNormalization)	(None, 80, 80, 32)	128	['block1d_project_conv[0][0]']
block1d_drop (Dropout)	(None, 80, 80, 32)	0	['block1d_project_bn[0][0]']
block1d_add (Add)	(None, 80, 80, 32)	0	['block1d_drop[0][0]', 'block1c_add[0][0]']
block2a_expand_conv (Conv2D)	(None, 80, 80, 192)	6144	['block1d_add[0][0]']
block2a_expand_bn (BatchNormalization)	(None, 80, 80, 192)	768	['block2a_expand_conv[0][0]']
block2a_expand_activation (Activation)	(None, 80, 80, 192)	0	['block2a_expand_bn[0][0]']
block2a_dwconv_pad (ZeroPadding2D)	(None, 81, 81, 192)	0	['block2a_expand_activation[0][0]']
block2a_dwconv (DepthwiseConv2D)	(None, 40, 40, 192)	1728	['block2a_dwconv_pad[0][0]']
block2a_bn (BatchNormalization)	(None, 40, 40, 192)	768	['block2a_dwconv[0][0]']
block2a_activation (Activation)	(None, 40, 40, 192)	0	['block2a_bn[0][0]']
block2a_se_squeeze (GlobalAveragePooling2D)	(None, 192)	0	['block2a_activation[0][0]']
block2a_se_reshape (Reshape)	(None, 1, 1, 192)	0	['block2a_se_squeeze[0][0]']
block2a_se_reduce (Conv2D)	(None, 1, 1, 8)	1544	['block2a_se_reshape[0][0]']
block2a_se_expand (Conv2D)	(None, 1, 1, 192)	1728	['block2a_se_reduce[0][0]']
block2a_se_excite (Multiply)	(None, 40, 40, 192)	0	['block2a_activation[0][0]', 'block2a_se_expand[0][0]']

block2a_project_conv (Conv 2D)	(None, 40, 40, 48)	9216	['block2a_se_excite[0][0]']
block2a_project_bn (BatchN [0][0]')	(None, 40, 40, 48)	192	['block2a_project_conv' 'ormalization)
block2b_expand_conv (Conv2 D)	(None, 40, 40, 288)	13824	['block2a_project_bn[0][0]']
block2b_expand_bn (BatchNo [0][0]')	(None, 40, 40, 288)	1152	['block2b_expand_conv' 'rmalization)
block2b_expand_activation (Activation)	(None, 40, 40, 288)	0	['block2b_expand_bn[0][0]']
block2b_dwconv (DepthwiseC [0]	(None, 40, 40, 288)	2592	['block2b_expand_activation' 'onv2D)
block2b_bn (BatchNormaliza tion)	(None, 40, 40, 288)	1152	['block2b_dwconv[0][0]']
block2b_activation (Activa tion)	(None, 40, 40, 288)	0	['block2b_bn[0][0]']
block2b_se_squeeze (Global AveragePooling2D)	(None, 288)	0	['block2b_activation[0][0]']
block2b_se_reshape (Reshap e)	(None, 1, 1, 288)	0	['block2b_se_squeeze[0][0]']
block2b_se_reduce (Conv2D)	(None, 1, 1, 12)	3468	['block2b_se_reshape[0][0]']
block2b_se_expand (Conv2D)	(None, 1, 1, 288)	3744	['block2b_se_reduce[0][0]']
block2b_se_excite (Multipl y)	(None, 40, 40, 288)	0	['block2b_activation[0][0]', 'block2b_se_expand[0][0]']
block2b_project_conv (Conv 2D)	(None, 40, 40, 48)	13824	['block2b_se_excite[0][0]']
block2b_project_bn (BatchN [0][0]')	(None, 40, 40, 48)	192	['block2b_project_conv' 'ormalization)
block2b_drop (Dropout)	(None, 40, 40, 48)	0	['block2b_project_bn[0][0]']
block2b_add (Add)	(None, 40, 40, 48)	0	['block2b_drop[0][0]', 'block2a_project_bn[0][0]']
block2c_expand_conv (Conv2 D)	(None, 40, 40, 288)	13824	['block2b_add[0][0]']
block2c_expand_bn (BatchNo [0][0]')	(None, 40, 40, 288)	1152	['block2c_expand_conv' 'rmalization)
block2c_expand_activation (Activation)	(None, 40, 40, 288)	0	['block2c_expand_bn[0][0]']
block2c_dwconv (DepthwiseC	(None, 40, 40, 288)	2592	['block2c_expand_activation'

[0]	onv2D)		[0]']
block2c_bn (BatchNormaliza	(None, 40, 40, 288)	1152	['block2c_dwconv[0][0]']
tion)			
block2c_activation (Activa	(None, 40, 40, 288)	0	['block2c_bn[0][0]']
tion)			
block2c_se_squeeze (Global	(None, 288)	0	['block2c_activation[0][0]']
AveragePooling2D)			
block2c_se_reshape (Reshap	(None, 1, 1, 288)	0	['block2c_se_squeeze[0][0]']
e)			
block2c_se_reduce (Conv2D)	(None, 1, 1, 12)	3468	['block2c_se_reshape[0][0]']
block2c_se_expand (Conv2D)	(None, 1, 1, 288)	3744	['block2c_se_reduce[0][0]']
block2c_se_excite (Multipl	(None, 40, 40, 288)	0	['block2c_activation[0][0]',
y)			'block2c_se_expand[0][0]']
block2c_project_conv (Conv	(None, 40, 40, 48)	13824	['block2c_se_excite[0][0]']
2D)			
block2c_project_bn (BatchN	(None, 40, 40, 48)	192	['block2c_project_conv
[0][0]']			
ormalization)			
block2c_drop (Dropout)	(None, 40, 40, 48)	0	['block2c_project_bn[0][0]']
block2c_add (Add)	(None, 40, 40, 48)	0	['block2c_drop[0][0]',
			'block2b_add[0][0]']
block2d_expand_conv (Conv2	(None, 40, 40, 288)	13824	['block2c_add[0][0]']
D)			
block2d_expand_bn (BatchNo	(None, 40, 40, 288)	1152	['block2d_expand_conv
[0][0]']			
rmalization)			
block2d_expand_activation	(None, 40, 40, 288)	0	['block2d_expand_bn[0][0]']
(Activation)			
block2d_dwconv (DepthwiseC	(None, 40, 40, 288)	2592	['block2d_expand_activation
[0]			
onv2D)			[0]']
block2d_bn (BatchNormaliza	(None, 40, 40, 288)	1152	['block2d_dwconv[0][0]']
tion)			
block2d_activation (Activa	(None, 40, 40, 288)	0	['block2d_bn[0][0]']
tion)			
block2d_se_squeeze (Global	(None, 288)	0	['block2d_activation[0][0]']
AveragePooling2D)			
block2d_se_reshape (Reshap	(None, 1, 1, 288)	0	['block2d_se_squeeze[0][0]']
e)			
block2d_se_reduce (Conv2D)	(None, 1, 1, 12)	3468	['block2d_se_reshape[0][0]']
block2d_se_expand (Conv2D)	(None, 1, 1, 288)	3744	['block2d_se_reduce[0][0]']

block2d_se_excite (Multipl y)	(None, 40, 40, 288)	0	['block2d_activation[0][0]', 'block2d_se_expand[0][0]']
block2d_project_conv (Conv 2D)	(None, 40, 40, 48)	13824	['block2d_se_excite[0][0]']
block2d_project_bn (BatchN ormalization)	(None, 40, 40, 48)	192	['block2d_project_conv [0][0]']
block2d_drop (Dropout)	(None, 40, 40, 48)	0	['block2d_project_bn[0][0]']
block2d_add (Add)	(None, 40, 40, 48)	0	['block2d_drop[0][0]', 'block2d_add[0][0]']
block2e_expand_conv (Conv2 D)	(None, 40, 40, 288)	13824	['block2d_add[0][0]']
block2e_expand_bn (BatchNo rmalization)	(None, 40, 40, 288)	1152	['block2e_expand_conv [0][0]']
block2e_expand_activation (Activation)	(None, 40, 40, 288)	0	['block2e_expand_bn[0][0]']
block2e_dwconv (DepthwiseC onv2D)	(None, 40, 40, 288)	2592	['block2e_expand_activation [0][0]']
block2e_bn (BatchNormaliza tion)	(None, 40, 40, 288)	1152	['block2e_dwconv[0][0]']
block2e_activation (Activa tion)	(None, 40, 40, 288)	0	['block2e_bn[0][0]']
block2e_se_squeeze (Global AveragePooling2D)	(None, 288)	0	['block2e_activation[0][0]']
block2e_se_reshape (Reshap e)	(None, 1, 1, 288)	0	['block2e_se_squeeze[0][0]']
block2e_se_reduce (Conv2D)	(None, 1, 1, 12)	3468	['block2e_se_reshape[0][0]']
block2e_se_expand (Conv2D)	(None, 1, 1, 288)	3744	['block2e_se_reduce[0][0]']
block2e_se_excite (Multipl y)	(None, 40, 40, 288)	0	['block2e_activation[0][0]', 'block2e_se_expand[0][0]']
block2e_project_conv (Conv 2D)	(None, 40, 40, 48)	13824	['block2e_se_excite[0][0]']
block2e_project_bn (BatchN ormalization)	(None, 40, 40, 48)	192	['block2e_project_conv [0][0]']
block2e_drop (Dropout)	(None, 40, 40, 48)	0	['block2e_project_bn[0][0]']
block2e_add (Add)	(None, 40, 40, 48)	0	['block2e_drop[0][0]', 'block2d_add[0][0]']
block2f_expand_conv (Conv2 D)	(None, 40, 40, 288)	13824	['block2e_add[0][0]']
block2f_expand_bn (BatchNo rmalization)	(None, 40, 40, 288)	1152	['block2f_expand_conv [0][0]']

[0][0]'			
rnalization)			
block2f_expand_activation (None, 40, 40, 288) (Activation)	0		['block2f_expand_bn[0][0]']
block2f_dwconv (DepthwiseC [0] onv2D) (None, 40, 40, 288)	2592		['block2f_expand_activation[0]']
block2f_bn (BatchNormaliza tion) (None, 40, 40, 288)	1152		['block2f_dwconv[0][0]']
block2f_activation (Activat ion) (None, 40, 40, 288)	0		['block2f_bn[0][0]']
block2f_se_squeeze (Global AveragePooling2D) (None, 288)	0		['block2f_activation[0][0]']
block2f_se_reshape (Reshap e) (None, 1, 1, 288)	0		['block2f_se_squeeze[0][0]']
block2f_se_reduce (Conv2D) (None, 1, 1, 12)	3468		['block2f_se_reshape[0][0]']
block2f_se_expand (Conv2D) (None, 1, 1, 288)	3744		['block2f_se_reduce[0][0]']
block2f_se_excite (Multipl y) (None, 40, 40, 288)	0		['block2f_activation[0][0]', 'block2f_se_expand[0][0]']
block2f_project_conv (Conv 2D) (None, 40, 40, 48)	13824		['block2f_se_excite[0][0]']
block2f_project_bn (BatchN [0][0]') ormalization) (None, 40, 40, 48)	192		['block2f_project_conv
block2f_drop (Dropout) (None, 40, 40, 48)	0		['block2f_project_bn[0][0]']
block2f_add (Add) (None, 40, 40, 48)	0		['block2f_drop[0][0]', 'block2e_add[0][0]']
block2g_expand_conv (Conv2 D) (None, 40, 40, 288)	13824		['block2f_add[0][0]']
block2g_expand_bn (BatchNo [0][0]') rmalization) (None, 40, 40, 288)	1152		['block2g_expand_conv
block2g_expand_activation (Activation) (None, 40, 40, 288)	0		['block2g_expand_bn[0][0]']
block2g_dwconv (DepthwiseC [0] onv2D) (None, 40, 40, 288)	2592		['block2g_expand_activation[0]']
block2g_bn (BatchNormaliza tion) (None, 40, 40, 288)	1152		['block2g_dwconv[0][0]']
block2g_activation (Activat ion) (None, 40, 40, 288)	0		['block2g_bn[0][0]']
block2g_se_squeeze (Global AveragePooling2D) (None, 288)	0		['block2g_activation[0][0]']

block2g_se_reshape (Reshape)	(None, 1, 1, 288)	0	['block2g_se_squeeze[0][0]']
block2g_se_reduce (Conv2D)	(None, 1, 1, 12)	3468	['block2g_se_reshape[0][0]']
block2g_se_expand (Conv2D)	(None, 1, 1, 288)	3744	['block2g_se_reduce[0][0]']
block2g_se_excite (Multipl y)	(None, 40, 40, 288)	0	['block2g_activation[0][0]', 'block2g_se_expand[0][0]']
block2g_project_conv (Conv 2D)	(None, 40, 40, 48)	13824	['block2g_se_excite[0][0]']
block2g_project_bn (BatchN [0][0])	(None, 40, 40, 48)	192	['block2g_project_conv [0][0]']
block2g_drop (Dropout)	(None, 40, 40, 48)	0	['block2g_project_bn[0][0]']
block2g_add (Add)	(None, 40, 40, 48)	0	['block2g_drop[0][0]', 'block2f_add[0][0]']
block3a_expand_conv (Conv2 D)	(None, 40, 40, 288)	13824	['block2g_add[0][0]']
block3a_expand_bn (BatchNo rmalization)	(None, 40, 40, 288)	1152	['block3a_expand_conv [0][0]']
block3a_expand_activation (Activation)	(None, 40, 40, 288)	0	['block3a_expand_bn[0][0]']
block3a_dwconv_pad (ZeroPadding2D)	(None, 43, 43, 288)	0	['block3a_expand_activation [0][0]']
block3a_dwconv (DepthwiseConv2D)	(None, 20, 20, 288)	7200	['block3a_dwconv_pad[0][0]']
block3a_bn (BatchNormaliza tion)	(None, 20, 20, 288)	1152	['block3a_dwconv[0][0]']
block3a_activation (Activat ion)	(None, 20, 20, 288)	0	['block3a_bn[0][0]']
block3a_se_squeeze (Global AveragePooling2D)	(None, 288)	0	['block3a_activation[0][0]']
block3a_se_reshape (Reshape)	(None, 1, 1, 288)	0	['block3a_se_squeeze[0][0]']
block3a_se_reduce (Conv2D)	(None, 1, 1, 12)	3468	['block3a_se_reshape[0][0]']
block3a_se_expand (Conv2D)	(None, 1, 1, 288)	3744	['block3a_se_reduce[0][0]']
block3a_se_excite (Multipl y)	(None, 20, 20, 288)	0	['block3a_activation[0][0]', 'block3a_se_expand[0][0]']
block3a_project_conv (Conv 2D)	(None, 20, 20, 80)	23040	['block3a_se_excite[0][0]']
block3a_project_bn (BatchN [0][0])	(None, 20, 20, 80)	320	['block3a_project_conv [0][0]']

block3b_expand_conv (Conv2D)	(None, 20, 20, 480)	38400	['block3a_project_bn[0][0]']
block3b_expand_bn (BatchNormalization)	(None, 20, 20, 480)	1920	['block3b_expand_conv[0][0]']
block3b_expand_activation (Activation)	(None, 20, 20, 480)	0	['block3b_expand_bn[0][0]']
block3b_dwconv (DepthwiseConv2D)	(None, 20, 20, 480)	12000	['block3b_expand_activation[0]']
block3b_bn (BatchNormalization)	(None, 20, 20, 480)	1920	['block3b_dwconv[0][0]']
block3b_activation (Activation)	(None, 20, 20, 480)	0	['block3b_bn[0][0]']
block3b_se_squeeze (GlobalAveragePooling2D)	(None, 480)	0	['block3b_activation[0][0]']
block3b_se_reshape (Reshape)	(None, 1, 1, 480)	0	['block3b_se_squeeze[0][0]']
block3b_se_reduce (Conv2D)	(None, 1, 1, 20)	9620	['block3b_se_reshape[0][0]']
block3b_se_expand (Conv2D)	(None, 1, 1, 480)	10080	['block3b_se_reduce[0][0]']
block3b_se_excite (Multiply)	(None, 20, 20, 480)	0	['block3b_activation[0][0]', 'block3b_se_expand[0][0]']
block3b_project_conv (Conv2D)	(None, 20, 20, 80)	38400	['block3b_se_excite[0][0]']
block3b_project_bn (BatchNormalization)	(None, 20, 20, 80)	320	['block3b_project_conv[0][0]']
block3b_drop (Dropout)	(None, 20, 20, 80)	0	['block3b_project_bn[0][0]']
block3b_add (Add)	(None, 20, 20, 80)	0	['block3b_drop[0][0]', 'block3a_project_bn[0][0]']
block3c_expand_conv (Conv2D)	(None, 20, 20, 480)	38400	['block3b_add[0][0]']
block3c_expand_bn (BatchNormalization)	(None, 20, 20, 480)	1920	['block3c_expand_conv[0][0]']
block3c_expand_activation (Activation)	(None, 20, 20, 480)	0	['block3c_expand_bn[0][0]']
block3c_dwconv (DepthwiseConv2D)	(None, 20, 20, 480)	12000	['block3c_expand_activation[0]']
block3c_bn (BatchNormalization)	(None, 20, 20, 480)	1920	['block3c_dwconv[0][0]']
block3c_activation (Activation)	(None, 20, 20, 480)	0	['block3c_bn[0][0]']

tion)			
block3c_se_squeeze (Global AveragePooling2D)	(None, 480)	0	['block3c_activation[0][0]']
block3c_se_reshape (Reshape)	(None, 1, 1, 480)	0	['block3c_se_squeeze[0][0]']
block3c_se_reduce (Conv2D)	(None, 1, 1, 20)	9620	['block3c_se_reshape[0][0]']
block3c_se_expand (Conv2D)	(None, 1, 1, 480)	10080	['block3c_se_reduce[0][0]']
block3c_se_excite (Multiply)	(None, 20, 20, 480)	0	['block3c_activation[0][0]', 'block3c_se_expand[0][0]']
block3c_project_conv (Conv2D)	(None, 20, 20, 80)	38400	['block3c_se_excite[0][0]']
block3c_project_bn (BatchNormalization)	(None, 20, 20, 80)	320	['block3c_project_conv[0][0]']
block3c_drop (Dropout)	(None, 20, 20, 80)	0	['block3c_project_bn[0][0]']
block3c_add (Add)	(None, 20, 20, 80)	0	['block3c_drop[0][0]', 'block3b_add[0][0]']
block3d_expand_conv (Conv2D)	(None, 20, 20, 480)	38400	['block3c_add[0][0]']
block3d_expand_bn (BatchNormalization)	(None, 20, 20, 480)	1920	['block3d_expand_conv[0][0]']
block3d_expand_activation (Activation)	(None, 20, 20, 480)	0	['block3d_expand_bn[0][0]']
block3d_dwconv (DepthwiseConv2D)	(None, 20, 20, 480)	12000	['block3d_expand_activation[0][0]']
block3d_bn (BatchNormalization)	(None, 20, 20, 480)	1920	['block3d_dwconv[0][0]']
block3d_activation (Activation)	(None, 20, 20, 480)	0	['block3d_bn[0][0]']
block3d_se_squeeze (Global AveragePooling2D)	(None, 480)	0	['block3d_activation[0][0]']
block3d_se_reshape (Reshape)	(None, 1, 1, 480)	0	['block3d_se_squeeze[0][0]']
block3d_se_reduce (Conv2D)	(None, 1, 1, 20)	9620	['block3d_se_reshape[0][0]']
block3d_se_expand (Conv2D)	(None, 1, 1, 480)	10080	['block3d_se_reduce[0][0]']
block3d_se_excite (Multiply)	(None, 20, 20, 480)	0	['block3d_activation[0][0]', 'block3d_se_expand[0][0]']
block3d_project_conv (Conv2D)	(None, 20, 20, 80)	38400	['block3d_se_excite[0][0]']
block3d_project_bn (BatchNormalization)	(None, 20, 20, 80)	320	['block3d_project_conv[0][0]']

[0][0]'			
ormalization)			
block3d_drop (Dropout)	(None, 20, 20, 80)	0	['block3d_project_bn[0][0]']
block3d_add (Add)	(None, 20, 20, 80)	0	['block3d_drop[0][0]', 'block3c_add[0][0]']
block3e_expand_conv (Conv2D)	(None, 20, 20, 480)	38400	['block3d_add[0][0]']
block3e_expand_bn (BatchNormalization[0][0])	(None, 20, 20, 480)	1920	['block3e_expand_conv[0][0]']
block3e_expand_activation (Activation)	(None, 20, 20, 480)	0	['block3e_expand_bn[0][0]']
block3e_dwconv (DepthwiseConv2D)	(None, 20, 20, 480)	12000	['block3e_expand_activation[0][0]']
block3e_bn (BatchNormalization)	(None, 20, 20, 480)	1920	['block3e_dwconv[0][0]']
block3e_activation (Activation)	(None, 20, 20, 480)	0	['block3e_bn[0][0]']
block3e_se_squeeze (GlobalAveragePooling2D)	(None, 480)	0	['block3e_activation[0][0]']
block3e_se_reshape (Reshape)	(None, 1, 1, 480)	0	['block3e_se_squeeze[0][0]']
block3e_se_reduce (Conv2D)	(None, 1, 1, 20)	9620	['block3e_se_reshape[0][0]']
block3e_se_expand (Conv2D)	(None, 1, 1, 480)	10080	['block3e_se_reduce[0][0]']
block3e_se_excite (Multiply)	(None, 20, 20, 480)	0	['block3e_activation[0][0]', 'block3e_se_expand[0][0]']
block3e_project_conv (Conv2D)	(None, 20, 20, 80)	38400	['block3e_se_excite[0][0]']
block3e_project_bn (BatchNormalization[0][0])	(None, 20, 20, 80)	320	['block3e_project_conv[0][0]']
block3e_drop (Dropout)	(None, 20, 20, 80)	0	['block3e_project_bn[0][0]']
block3e_add (Add)	(None, 20, 20, 80)	0	['block3e_drop[0][0]', 'block3d_add[0][0]']
block3f_expand_conv (Conv2D)	(None, 20, 20, 480)	38400	['block3e_add[0][0]']
block3f_expand_bn (BatchNormalization[0][0])	(None, 20, 20, 480)	1920	['block3f_expand_conv[0][0]']
block3f_expand_activation (Activation)	(None, 20, 20, 480)	0	['block3f_expand_bn[0][0]']
block3f_dwconv (DepthwiseConv2D)	(None, 20, 20, 480)	12000	['block3f_expand_activation[0][0]']

[0]	onv2D)		[0]']
block3f_bn (BatchNormaliza	(None, 20, 20, 480)	1920	['block3f_dwconv[0][0]']
tion)			
block3f_activation (Activati	(None, 20, 20, 480)	0	['block3f_bn[0][0]']
on)			
block3f_se_squeeze (Global	(None, 480)	0	['block3f_activation[0][0]']
AveragePooling2D)			
block3f_se_reshape (Reshape	(None, 1, 1, 480)	0	['block3f_se_squeeze[0][0]']
e)			
block3f_se_reduce (Conv2D)	(None, 1, 1, 20)	9620	['block3f_se_reshape[0][0]']
block3f_se_expand (Conv2D)	(None, 1, 1, 480)	10080	['block3f_se_reduce[0][0]']
block3f_se_excite (Multipl	(None, 20, 20, 480)	0	['block3f_activation[0][0]',
y)			'block3f_se_expand[0][0]']
block3f_project_conv (Conv	(None, 20, 20, 80)	38400	['block3f_se_excite[0][0]']
2D)			
block3f_project_bn (BatchN	(None, 20, 20, 80)	320	['block3f_project_conv
[0][0]']			
ormalization)			
block3f_drop (Dropout)	(None, 20, 20, 80)	0	['block3f_project_bn[0][0]']
block3f_add (Add)	(None, 20, 20, 80)	0	['block3f_drop[0][0]',
			'block3e_add[0][0]']
block3g_expand_conv (Conv2	(None, 20, 20, 480)	38400	['block3f_add[0][0]']
D)			
block3g_expand_bn (BatchNo	(None, 20, 20, 480)	1920	['block3g_expand_conv
[0][0]']			
rmalization)			
block3g_expand_activation	(None, 20, 20, 480)	0	['block3g_expand_bn[0][0]']
(Activation)			
block3g_dwconv (DepthwiseC	(None, 20, 20, 480)	12000	['block3g_expand_activation
[0]			
onv2D)			[0]']
block3g_bn (BatchNormaliza	(None, 20, 20, 480)	1920	['block3g_dwconv[0][0]']
tion)			
block3g_activation (Activati	(None, 20, 20, 480)	0	['block3g_bn[0][0]']
on)			
block3g_se_squeeze (Global	(None, 480)	0	['block3g_activation[0][0]']
AveragePooling2D)			
block3g_se_reshape (Reshape	(None, 1, 1, 480)	0	['block3g_se_squeeze[0][0]']
e)			
block3g_se_reduce (Conv2D)	(None, 1, 1, 20)	9620	['block3g_se_reshape[0][0]']
block3g_se_expand (Conv2D)	(None, 1, 1, 480)	10080	['block3g_se_reduce[0][0]']

block3g_se_excite (Multipl y)	(None, 20, 20, 480)	0	['block3g_activation[0][0]', 'block3g_se_expand[0][0]']
block3g_project_conv (Conv 2D)	(None, 20, 20, 80)	38400	['block3g_se_excite[0][0]']
block3g_project_bn (BatchN ormalization)	(None, 20, 20, 80)	320	['block3g_project_conv [0][0]']
block3g_drop (Dropout)	(None, 20, 20, 80)	0	['block3g_project_bn[0][0]']
block3g_add (Add)	(None, 20, 20, 80)	0	['block3g_drop[0][0]', 'block3f_add[0][0]']
block4a_expand_conv (Conv2 D)	(None, 20, 20, 480)	38400	['block3g_add[0][0]']
block4a_expand_bn (BatchNo rmalization)	(None, 20, 20, 480)	1920	['block4a_expand_conv [0][0]']
block4a_expand_activation (Activation)	(None, 20, 20, 480)	0	['block4a_expand_bn[0][0]']
block4a_dwconv_pad (ZeroPa dding2D)	(None, 21, 21, 480)	0	['block4a_expand_activation [0]']
block4a_dwconv (DepthwiseC onv2D)	(None, 10, 10, 480)	4320	['block4a_dwconv_pad[0][0]']
block4a_bn (BatchNormaliza tion)	(None, 10, 10, 480)	1920	['block4a_dwconv[0][0]']
block4a_activation (Activa tion)	(None, 10, 10, 480)	0	['block4a_bn[0][0]']
block4a_se_squeeze (Global AveragePooling2D)	(None, 480)	0	['block4a_activation[0][0]']
block4a_se_reshape (Reshap e)	(None, 1, 1, 480)	0	['block4a_se_squeeze[0][0]']
block4a_se_reduce (Conv2D)	(None, 1, 1, 20)	9620	['block4a_se_reshape[0][0]']
block4a_se_expand (Conv2D)	(None, 1, 1, 480)	10080	['block4a_se_reduce[0][0]']
block4a_se_excite (Multipl y)	(None, 10, 10, 480)	0	['block4a_activation[0][0]', 'block4a_se_expand[0][0]']
block4a_project_conv (Conv 2D)	(None, 10, 10, 160)	76800	['block4a_se_excite[0][0]']
block4a_project_bn (BatchN ormalization)	(None, 10, 10, 160)	640	['block4a_project_conv [0][0]']
block4b_expand_conv (Conv2 D)	(None, 10, 10, 960)	153600	['block4a_project_bn[0][0]']
block4b_expand_bn (BatchNo rmalization)	(None, 10, 10, 960)	3840	['block4b_expand_conv [0][0]']

block4b_expand_activation (Activation)	(None, 10, 10, 960)	0	['block4b_expand_bn[0][0]']
block4b_dwconv (DepthwiseC [0] onv2D)	(None, 10, 10, 960)	8640	['block4b_expand_activation [0]']
block4b_bn (BatchNormaliza tion)	(None, 10, 10, 960)	3840	['block4b_dwconv[0][0]']
block4b_activation (Activa tion)	(None, 10, 10, 960)	0	['block4b_bn[0][0]']
block4b_se_squeeze (Global AveragePooling2D)	(None, 960)	0	['block4b_activation[0][0]']
block4b_se_reshape (Reshap e)	(None, 1, 1, 960)	0	['block4b_se_squeeze[0][0]']
block4b_se_reduce (Conv2D)	(None, 1, 1, 40)	38440	['block4b_se_reshape[0][0]']
block4b_se_expand (Conv2D)	(None, 1, 1, 960)	39360	['block4b_se_reduce[0][0]']
block4b_se_excite (Multipl y)	(None, 10, 10, 960)	0	['block4b_activation[0][0]', 'block4b_se_expand[0][0]']
block4b_project_conv (Conv 2D)	(None, 10, 10, 160)	153600	['block4b_se_excite[0][0]']
block4b_project_bn (BatchN [0][0]' ormalization)	(None, 10, 10, 160)	640	['block4b_project_conv
block4b_drop (Dropout)	(None, 10, 10, 160)	0	['block4b_project_bn[0][0]']
block4b_add (Add)	(None, 10, 10, 160)	0	['block4b_drop[0][0]', 'block4a_project_bn[0][0]']
block4c_expand_conv (Conv2 D)	(None, 10, 10, 960)	153600	['block4b_add[0][0]']
block4c_expand_bn (BatchNo [0][0]' rmalization)	(None, 10, 10, 960)	3840	['block4c_expand_conv
block4c_expand_activation (Activation)	(None, 10, 10, 960)	0	['block4c_expand_bn[0][0]']
block4c_dwconv (DepthwiseC [0] onv2D)	(None, 10, 10, 960)	8640	['block4c_expand_activation [0]']
block4c_bn (BatchNormaliza tion)	(None, 10, 10, 960)	3840	['block4c_dwconv[0][0]']
block4c_activation (Activa tion)	(None, 10, 10, 960)	0	['block4c_bn[0][0]']
block4c_se_squeeze (Global AveragePooling2D)	(None, 960)	0	['block4c_activation[0][0]']
block4c_se_reshape (Reshap e)	(None, 1, 1, 960)	0	['block4c_se_squeeze[0][0]']

block4c_se_reduce (Conv2D)	(None, 1, 1, 40)	38440	['block4c_se_reshape[0][0]']
block4c_se_expand (Conv2D)	(None, 1, 1, 960)	39360	['block4c_se_reduce[0][0]']
block4c_se_excite (Multipl y)	(None, 10, 10, 960)	0	['block4c_activation[0][0]', 'block4c_se_expand[0][0]']
block4c_project_conv (Conv 2D)	(None, 10, 10, 160)	153600	['block4c_se_excite[0][0]']
block4c_project_bn (BatchN [0][0]' ormalization)	(None, 10, 10, 160)	640	['block4c_project_conv [0][0]']
block4c_drop (Dropout)	(None, 10, 10, 160)	0	['block4c_project_bn[0][0]']
block4c_add (Add)	(None, 10, 10, 160)	0	['block4c_drop[0][0]', 'block4b_add[0][0]']
block4d_expand_conv (Conv2 D)	(None, 10, 10, 960)	153600	['block4c_add[0][0]']
block4d_expand_bn (BatchNo [0][0]' rmalization)	(None, 10, 10, 960)	3840	['block4d_expand_conv [0][0]']
block4d_expand_activation (Activation)	(None, 10, 10, 960)	0	['block4d_expand_bn[0][0]']
block4d_dwconv (DepthwiseC onv2D)	(None, 10, 10, 960)	8640	['block4d_expand_activation [0][0]']
block4d_bn (BatchNormaliza tion)	(None, 10, 10, 960)	3840	['block4d_dwconv[0][0]']
block4d_activation (Activa tion)	(None, 10, 10, 960)	0	['block4d_bn[0][0]']
block4d_se_squeeze (Global AveragePooling2D)	(None, 960)	0	['block4d_activation[0][0]']
block4d_se_reshape (Reshap e)	(None, 1, 1, 960)	0	['block4d_se_squeeze[0][0]']
block4d_se_reduce (Conv2D)	(None, 1, 1, 40)	38440	['block4d_se_reshape[0][0]']
block4d_se_expand (Conv2D)	(None, 1, 1, 960)	39360	['block4d_se_reduce[0][0]']
block4d_se_excite (Multipl y)	(None, 10, 10, 960)	0	['block4d_activation[0][0]', 'block4d_se_expand[0][0]']
block4d_project_conv (Conv 2D)	(None, 10, 10, 160)	153600	['block4d_se_excite[0][0]']
block4d_project_bn (BatchN [0][0]' ormalization)	(None, 10, 10, 160)	640	['block4d_project_conv [0][0]']
block4d_drop (Dropout)	(None, 10, 10, 160)	0	['block4d_project_bn[0][0]']
block4d_add (Add)	(None, 10, 10, 160)	0	['block4d_drop[0][0]', 'block4c_add[0][0]']

block4e_expand_conv (Conv2D)	(None, 10, 10, 960)	153600	['block4d_add[0][0]']
block4e_expand_bn (BatchNormalization)	(None, 10, 10, 960)	3840	['block4e_expand_conv[0][0]']
block4e_expand_activation (Activation)	(None, 10, 10, 960)	0	['block4e_expand_bn[0][0]']
block4e_dwconv (DepthwiseConv2D)	(None, 10, 10, 960)	8640	['block4e_expand_activation[0]']
block4e_bn (BatchNormalization)	(None, 10, 10, 960)	3840	['block4e_dwconv[0][0]']
block4e_activation (Activation)	(None, 10, 10, 960)	0	['block4e_bn[0][0]']
block4e_se_squeeze (GlobalAveragePooling2D)	(None, 960)	0	['block4e_activation[0][0]']
block4e_se_reshape (Reshape)	(None, 1, 1, 960)	0	['block4e_se_squeeze[0][0]']
block4e_se_reduce (Conv2D)	(None, 1, 1, 40)	38440	['block4e_se_reshape[0][0]']
block4e_se_expand (Conv2D)	(None, 1, 1, 960)	39360	['block4e_se_reduce[0][0]']
block4e_se_excite (Multiply)	(None, 10, 10, 960)	0	['block4e_activation[0][0]', 'block4e_se_expand[0][0]']
block4e_project_conv (Conv2D)	(None, 10, 10, 160)	153600	['block4e_se_excite[0][0]']
block4e_project_bn (BatchNormalization)	(None, 10, 10, 160)	640	['block4e_project_conv[0][0]']
block4e_drop (Dropout)	(None, 10, 10, 160)	0	['block4e_project_bn[0][0]']
block4e_add (Add)	(None, 10, 10, 160)	0	['block4e_drop[0][0]', 'block4d_add[0][0]']
block4f_expand_conv (Conv2D)	(None, 10, 10, 960)	153600	['block4e_add[0][0]']
block4f_expand_bn (BatchNormalization)	(None, 10, 10, 960)	3840	['block4f_expand_conv[0][0]']
block4f_expand_activation (Activation)	(None, 10, 10, 960)	0	['block4f_expand_bn[0][0]']
block4f_dwconv (DepthwiseConv2D)	(None, 10, 10, 960)	8640	['block4f_expand_activation[0]']
block4f_bn (BatchNormalization)	(None, 10, 10, 960)	3840	['block4f_dwconv[0][0]']
block4f_activation (Activation)	(None, 10, 10, 960)	0	['block4f_bn[0][0]']

tion)			
block4f_se_squeeze (Global AveragePooling2D)	(None, 960)	0	['block4f_activation[0][0]']
block4f_se_reshape (Reshape)	(None, 1, 1, 960)	0	['block4f_se_squeeze[0][0]']
block4f_se_reduce (Conv2D)	(None, 1, 1, 40)	38440	['block4f_se_reshape[0][0]']
block4f_se_expand (Conv2D)	(None, 1, 1, 960)	39360	['block4f_se_reduce[0][0]']
block4f_se_excite (Multipl y)	(None, 10, 10, 960)	0	['block4f_activation[0][0]', 'block4f_se_expand[0][0]']
block4f_project_conv (Conv 2D)	(None, 10, 10, 160)	153600	['block4f_se_excite[0][0]']
block4f_project_bn (BatchN [0][0]' ormalization)	(None, 10, 10, 160)	640	['block4f_project_conv
block4f_drop (Dropout)	(None, 10, 10, 160)	0	['block4f_project_bn[0][0]']
block4f_add (Add)	(None, 10, 10, 160)	0	['block4f_drop[0][0]', 'block4e_add[0][0]']
block4g_expand_conv (Conv2 D)	(None, 10, 10, 960)	153600	['block4f_add[0][0]']
block4g_expand_bn (BatchNo [0][0]' rmalization)	(None, 10, 10, 960)	3840	['block4g_expand_conv
block4g_expand_activation (Activation)	(None, 10, 10, 960)	0	['block4g_expand_bn[0][0]']
block4g_dwconv (DepthwiseC [0]	onv2D)	8640	['block4g_expand_activation [0]']
block4g_bn (BatchNormaliza tion)	(None, 10, 10, 960)	3840	['block4g_dwconv[0][0]']
block4g_activation (Activa tion)	(None, 10, 10, 960)	0	['block4g_bn[0][0]']
block4g_se_squeeze (Global AveragePooling2D)	(None, 960)	0	['block4g_activation[0][0]']
block4g_se_reshape (Reshape)	(None, 1, 1, 960)	0	['block4g_se_squeeze[0][0]']
block4g_se_reduce (Conv2D)	(None, 1, 1, 40)	38440	['block4g_se_reshape[0][0]']
block4g_se_expand (Conv2D)	(None, 1, 1, 960)	39360	['block4g_se_reduce[0][0]']
block4g_se_excite (Multipl y)	(None, 10, 10, 960)	0	['block4g_activation[0][0]', 'block4g_se_expand[0][0]']
block4g_project_conv (Conv 2D)	(None, 10, 10, 160)	153600	['block4g_se_excite[0][0]']
block4g_project_bn (BatchN	(None, 10, 10, 160)	640	['block4g_project_conv

[0][0]'			
ormalization)			
block4g_drop (Dropout)	(None, 10, 10, 160)	0	['block4g_project_bn[0][0]']
block4g_add (Add)	(None, 10, 10, 160)	0	['block4g_drop[0][0]', 'block4f_add[0][0]']
block4h_expand_conv (Conv2D)	(None, 10, 10, 960)	153600	['block4g_add[0][0]']
block4h_expand_bn (BatchNormalization)	(None, 10, 10, 960)	3840	['block4h_expand_conv[0][0]']
block4h_expand_activation (Activation)	(None, 10, 10, 960)	0	['block4h_expand_bn[0][0]']
block4h_dwconv (DepthwiseConv2D)	(None, 10, 10, 960)	8640	['block4h_expand_activation[0][0]']
block4h_bn (BatchNormalization)	(None, 10, 10, 960)	3840	['block4h_dwconv[0][0]']
block4h_activation (Activation)	(None, 10, 10, 960)	0	['block4h_bn[0][0]']
block4h_se_squeeze (GlobalAveragePooling2D)	(None, 960)	0	['block4h_activation[0][0]']
block4h_se_reshape (Reshape)	(None, 1, 1, 960)	0	['block4h_se_squeeze[0][0]']
block4h_se_reduce (Conv2D)	(None, 1, 1, 40)	38440	['block4h_se_reshape[0][0]']
block4h_se_expand (Conv2D)	(None, 1, 1, 960)	39360	['block4h_se_reduce[0][0]']
block4h_se_excite (Multiply)	(None, 10, 10, 960)	0	['block4h_activation[0][0]', 'block4h_se_expand[0][0]']
block4h_project_conv (Conv2D)	(None, 10, 10, 160)	153600	['block4h_se_excite[0][0]']
block4h_project_bn (BatchNormalization)	(None, 10, 10, 160)	640	['block4h_project_conv[0][0]']
block4h_drop (Dropout)	(None, 10, 10, 160)	0	['block4h_project_bn[0][0]']
block4h_add (Add)	(None, 10, 10, 160)	0	['block4h_drop[0][0]', 'block4g_add[0][0]']
block4i_expand_conv (Conv2D)	(None, 10, 10, 960)	153600	['block4h_add[0][0]']
block4i_expand_bn (BatchNormalization)	(None, 10, 10, 960)	3840	['block4i_expand_conv[0][0]']
block4i_expand_activation (Activation)	(None, 10, 10, 960)	0	['block4i_expand_bn[0][0]']
block4i_dwconv (DepthwiseConv2D)	(None, 10, 10, 960)	8640	['block4i_expand_activation[0][0]']

[0]	onv2D)		[0]']
block4i_bn (BatchNormaliza	(None, 10, 10, 960)	3840	['block4i_dwconv[0][0]']
tion)			
block4i_activation (Activati	(None, 10, 10, 960)	0	['block4i_bn[0][0]']
on)			
block4i_se_squeeze (Global	(None, 960)	0	['block4i_activation[0][0]']
AveragePooling2D)			
block4i_se_reshape (Reshape	(None, 1, 1, 960)	0	['block4i_se_squeeze[0][0]']
e)			
block4i_se_reduce (Conv2D)	(None, 1, 1, 40)	38440	['block4i_se_reshape[0][0]']
block4i_se_expand (Conv2D)	(None, 1, 1, 960)	39360	['block4i_se_reduce[0][0]']
block4i_se_excite (Multipl	(None, 10, 10, 960)	0	['block4i_activation[0][0]',
y)			'block4i_se_expand[0][0]']
block4i_project_conv (Conv	(None, 10, 10, 160)	153600	['block4i_se_excite[0][0]']
2D)			
block4i_project_bn (BatchN	(None, 10, 10, 160)	640	['block4i_project_conv
[0][0]']			
ormalization)			
block4i_drop (Dropout)	(None, 10, 10, 160)	0	['block4i_project_bn[0][0]']
block4i_add (Add)	(None, 10, 10, 160)	0	['block4i_drop[0][0]',
			'block4h_add[0][0]']
block4j_expand_conv (Conv2	(None, 10, 10, 960)	153600	['block4i_add[0][0]']
D)			
block4j_expand_bn (BatchNo	(None, 10, 10, 960)	3840	['block4j_expand_conv
[0][0]']			
rmalization)			
block4j_expand_activation	(None, 10, 10, 960)	0	['block4j_expand_bn[0][0]']
(Activation)			
block4j_dwconv (DepthwiseC	(None, 10, 10, 960)	8640	['block4j_expand_activation
[0]			
onv2D)			[0]']
block4j_bn (BatchNormaliza	(None, 10, 10, 960)	3840	['block4j_dwconv[0][0]']
tion)			
block4j_activation (Activati	(None, 10, 10, 960)	0	['block4j_bn[0][0]']
on)			
block4j_se_squeeze (Global	(None, 960)	0	['block4j_activation[0][0]']
AveragePooling2D)			
block4j_se_reshape (Reshape	(None, 1, 1, 960)	0	['block4j_se_squeeze[0][0]']
e)			
block4j_se_reduce (Conv2D)	(None, 1, 1, 40)	38440	['block4j_se_reshape[0][0]']
block4j_se_expand (Conv2D)	(None, 1, 1, 960)	39360	['block4j_se_reduce[0][0]']

block4j_se_excite (Multipl y)	(None, 10, 10, 960)	0	['block4j_activation[0][0]', 'block4j_se_expand[0][0]']
block4j_project_conv (Conv 2D)	(None, 10, 10, 160)	153600	['block4j_se_excite[0][0]']
block4j_project_bn (BatchN ormalization)	(None, 10, 10, 160)	640	['block4j_project_conv [0][0]']
block4j_drop (Dropout)	(None, 10, 10, 160)	0	['block4j_project_bn[0][0]']
block4j_add (Add)	(None, 10, 10, 160)	0	['block4j_drop[0][0]', 'block4i_add[0][0]']
block5a_expand_conv (Conv2 D)	(None, 10, 10, 960)	153600	['block4j_add[0][0]']
block5a_expand_bn (BatchNo rmalization)	(None, 10, 10, 960)	3840	['block5a_expand_conv [0][0]']
block5a_expand_activation (Activation)	(None, 10, 10, 960)	0	['block5a_expand_bn[0][0]']
block5a_dwconv (DepthwiseC onv2D)	(None, 10, 10, 960)	24000	['block5a_expand_activation [0]']
block5a_bn (BatchNormaliza tion)	(None, 10, 10, 960)	3840	['block5a_dwconv[0][0]']
block5a_activation (Activa tion)	(None, 10, 10, 960)	0	['block5a_bn[0][0]']
block5a_se_squeeze (Global AveragePooling2D)	(None, 960)	0	['block5a_activation[0][0]']
block5a_se_reshape (Reshap e)	(None, 1, 1, 960)	0	['block5a_se_squeeze[0][0]']
block5a_se_reduce (Conv2D)	(None, 1, 1, 40)	38440	['block5a_se_reshape[0][0]']
block5a_se_expand (Conv2D)	(None, 1, 1, 960)	39360	['block5a_se_reduce[0][0]']
block5a_se_excite (Multipl y)	(None, 10, 10, 960)	0	['block5a_activation[0][0]', 'block5a_se_expand[0][0]']
block5a_project_conv (Conv 2D)	(None, 10, 10, 224)	215040	['block5a_se_excite[0][0]']
block5a_project_bn (BatchN ormalization)	(None, 10, 10, 224)	896	['block5a_project_conv [0][0]']
block5b_expand_conv (Conv2 D)	(None, 10, 10, 1344)	301056	['block5a_project_bn[0][0]']
block5b_expand_bn (BatchNo rmalization)	(None, 10, 10, 1344)	5376	['block5b_expand_conv [0][0]']
block5b_expand_activation (Activation)	(None, 10, 10, 1344)	0	['block5b_expand_bn[0][0]']

block5b_dwconv (DepthwiseConv2D)	(None, 10, 10, 1344)	33600	['block5b_expand_activation[0][0]']
block5b_bn (BatchNormalization)	(None, 10, 10, 1344)	5376	['block5b_dwconv[0][0]']
block5b_activation (Activation)	(None, 10, 10, 1344)	0	['block5b_bn[0][0]']
block5b_se_squeeze (GlobalAveragePooling2D)	(None, 1344)	0	['block5b_activation[0][0]']
block5b_se_reshape (Reshape)	(None, 1, 1, 1344)	0	['block5b_se_squeeze[0][0]']
block5b_se_reduce (Conv2D)	(None, 1, 1, 56)	75320	['block5b_se_reshape[0][0]']
block5b_se_expand (Conv2D)	(None, 1, 1, 1344)	76608	['block5b_se_reduce[0][0]']
block5b_se_excite (Multiply)	(None, 10, 10, 1344)	0	['block5b_activation[0][0]', 'block5b_se_expand[0][0]']
block5b_project_conv (Conv2D)	(None, 10, 10, 224)	301056	['block5b_se_excite[0][0]']
block5b_project_bn (BatchNormalization)	(None, 10, 10, 224)	896	['block5b_project_conv[0][0]']
block5b_drop (Dropout)	(None, 10, 10, 224)	0	['block5b_project_bn[0][0]']
block5b_add (Add)	(None, 10, 10, 224)	0	['block5b_drop[0][0]', 'block5a_project_bn[0][0]']
block5c_expand_conv (Conv2D)	(None, 10, 10, 1344)	301056	['block5b_add[0][0]']
block5c_expand_bn (BatchNormalization)	(None, 10, 10, 1344)	5376	['block5c_expand_conv[0][0]']
block5c_expand_activation (Activation)	(None, 10, 10, 1344)	0	['block5c_expand_bn[0][0]']
block5c_dwconv (DepthwiseConv2D)	(None, 10, 10, 1344)	33600	['block5c_expand_activation[0][0]']
block5c_bn (BatchNormalization)	(None, 10, 10, 1344)	5376	['block5c_dwconv[0][0]']
block5c_activation (Activation)	(None, 10, 10, 1344)	0	['block5c_bn[0][0]']
block5c_se_squeeze (GlobalAveragePooling2D)	(None, 1344)	0	['block5c_activation[0][0]']
block5c_se_reshape (Reshape)	(None, 1, 1, 1344)	0	['block5c_se_squeeze[0][0]']
block5c_se_reduce (Conv2D)	(None, 1, 1, 56)	75320	['block5c_se_reshape[0][0]']

block5c_se_expand (Conv2D)	(None, 1, 1, 1344)	76608	['block5c_se_reduce[0][0]']
block5c_se_excite (Multipl y)	(None, 10, 10, 1344)	0	['block5c_activation[0][0]', 'block5c_se_expand[0][0]']
block5c_project_conv (Conv 2D)	(None, 10, 10, 224)	301056	['block5c_se_excite[0][0]']
block5c_project_bn (BatchN [0][0]')	(None, 10, 10, 224)	896	['block5c_project_conv [0][0]']
ormalization)			
block5c_drop (Dropout)	(None, 10, 10, 224)	0	['block5c_project_bn[0][0]']
block5c_add (Add)	(None, 10, 10, 224)	0	['block5c_drop[0][0]', 'block5b_add[0][0]']
block5d_expand_conv (Conv2 D)	(None, 10, 10, 1344)	301056	['block5c_add[0][0]']
block5d_expand_bn (BatchNo [0][0]')	(None, 10, 10, 1344)	5376	['block5d_expand_conv [0][0]']
rmalization)			
block5d_expand_activation (Activation)	(None, 10, 10, 1344)	0	['block5d_expand_bn[0][0]']
block5d_dwconv (DepthwiseC [0]	(None, 10, 10, 1344)	33600	['block5d_expand_activation [0][0]']
onv2D)			
block5d_bn (BatchNormaliza tion)	(None, 10, 10, 1344)	5376	['block5d_dwconv[0][0]']
block5d_activation (Activa tion)	(None, 10, 10, 1344)	0	['block5d_bn[0][0]']
block5d_se_squeeze (Global AveragePooling2D)	(None, 1344)	0	['block5d_activation[0][0]']
block5d_se_reshape (Reshap e)	(None, 1, 1, 1344)	0	['block5d_se_squeeze[0][0]']
block5d_se_reduce (Conv2D)	(None, 1, 1, 56)	75320	['block5d_se_reshape[0][0]']
block5d_se_expand (Conv2D)	(None, 1, 1, 1344)	76608	['block5d_se_reduce[0][0]']
block5d_se_excite (Multipl y)	(None, 10, 10, 1344)	0	['block5d_activation[0][0]', 'block5d_se_expand[0][0]']
block5d_project_conv (Conv 2D)	(None, 10, 10, 224)	301056	['block5d_se_excite[0][0]']
block5d_project_bn (BatchN [0][0]')	(None, 10, 10, 224)	896	['block5d_project_conv [0][0]']
ormalization)			
block5d_drop (Dropout)	(None, 10, 10, 224)	0	['block5d_project_bn[0][0]']
block5d_add (Add)	(None, 10, 10, 224)	0	['block5d_drop[0][0]', 'block5c_add[0][0]']
block5e_expand_conv (Conv2 D)	(None, 10, 10, 1344)	301056	['block5d_add[0][0]']

block5e_expand_bn (BatchNormaliza [0][0]'	(None, 10, 10, 1344)	5376	['block5e_expand_conv
block5e_expand_activation (Activati on)	(None, 10, 10, 1344)	0	['block5e_expand_bn[0][0]']
block5e_dwconv (DepthwiseConv2D)	(None, 10, 10, 1344)	33600	['block5e_expand_activation [0]']
block5e_bn (BatchNormalization)	(None, 10, 10, 1344)	5376	['block5e_dwconv[0][0]']
block5e_activation (Activati on)	(None, 10, 10, 1344)	0	['block5e_bn[0][0]']
block5e_se_squeeze (GlobalAverageP ooling2D)	(None, 1344)	0	['block5e_activation[0][0]']
block5e_se_reshape (Reshape)	(None, 1, 1, 1344)	0	['block5e_se_squeeze[0][0]']
block5e_se_reduce (Conv2D)	(None, 1, 1, 56)	75320	['block5e_se_reshape[0][0]']
block5e_se_expand (Conv2D)	(None, 1, 1, 1344)	76608	['block5e_se_reduce[0][0]']
block5e_se_excite (Multipl y)	(None, 10, 10, 1344)	0	['block5e_activation[0][0]', 'block5e_se_expand[0][0]']
block5e_project_conv (Conv2D)	(None, 10, 10, 224)	301056	['block5e_se_excite[0][0]']
block5e_project_bn (BatchNormaliza [0][0]')	(None, 10, 10, 224)	896	['block5e_project_conv
block5e_drop (Dropout)	(None, 10, 10, 224)	0	['block5e_project_bn[0][0]']
block5e_add (Add)	(None, 10, 10, 224)	0	['block5e_drop[0][0]', 'block5d_add[0][0]']
block5f_expand_conv (Conv2D)	(None, 10, 10, 1344)	301056	['block5e_add[0][0]']
block5f_expand_bn (BatchNormaliza [0][0]')	(None, 10, 10, 1344)	5376	['block5f_expand_conv
block5f_expand_activation (Activati on)	(None, 10, 10, 1344)	0	['block5f_expand_bn[0][0]']
block5f_dwconv (DepthwiseConv2D)	(None, 10, 10, 1344)	33600	['block5f_expand_activation [0]']
block5f_bn (BatchNormalization)	(None, 10, 10, 1344)	5376	['block5f_dwconv[0][0]']
block5f_activation (Activati on)	(None, 10, 10, 1344)	0	['block5f_bn[0][0]']
block5f_se_squeeze (GlobalAverageP ooling2D)	(None, 1344)	0	['block5f_activation[0][0]']

AveragePooling2D)			
block5f_se_reshape (Reshape)	(None, 1, 1, 1344)	0	['block5f_se_squeeze[0][0]']
e)			
block5f_se_reduce (Conv2D)	(None, 1, 1, 56)	75320	['block5f_se_reshape[0][0]']
block5f_se_expand (Conv2D)	(None, 1, 1, 1344)	76608	['block5f_se_reduce[0][0]']
block5f_se_excite (Multipl	(None, 10, 10, 1344)	0	['block5f_activation[0][0]', 'block5f_se_expand[0][0]']
y)			
block5f_project_conv (Conv	(None, 10, 10, 224)	301056	['block5f_se_excite[0][0]']
2D)			
block5f_project_bn (BatchN	(None, 10, 10, 224)	896	['block5f_project_conv
[0][0]']			
ormalization)			
block5f_drop (Dropout)	(None, 10, 10, 224)	0	['block5f_project_bn[0][0]']
block5f_add (Add)	(None, 10, 10, 224)	0	['block5f_drop[0][0]', 'block5e_add[0][0]']
block5g_expand_conv (Conv2	(None, 10, 10, 1344)	301056	['block5f_add[0][0]']
D)			
block5g_expand_bn (BatchNo	(None, 10, 10, 1344)	5376	['block5g_expand_conv
[0][0]']			
rmalization)			
block5g_expand_activation	(None, 10, 10, 1344)	0	['block5g_expand_bn[0][0]']
(Activation)			
block5g_dwconv (DepthwiseC	(None, 10, 10, 1344)	33600	['block5g_expand_activation
[0]			
onv2D)			[0]']
block5g_bn (BatchNormaliza	(None, 10, 10, 1344)	5376	['block5g_dwconv[0][0]']
tion)			
block5g_activation (Activa	(None, 10, 10, 1344)	0	['block5g_bn[0][0]']
tion)			
block5g_se_squeeze (Global	(None, 1344)	0	['block5g_activation[0][0]']
AveragePooling2D)			
block5g_se_reshape (Reshap	(None, 1, 1, 1344)	0	['block5g_se_squeeze[0][0]']
e)			
block5g_se_reduce (Conv2D)	(None, 1, 1, 56)	75320	['block5g_se_reshape[0][0]']
block5g_se_expand (Conv2D)	(None, 1, 1, 1344)	76608	['block5g_se_reduce[0][0]']
block5g_se_excite (Multipl	(None, 10, 10, 1344)	0	['block5g_activation[0][0]', 'block5g_se_expand[0][0]']
y)			
block5g_project_conv (Conv	(None, 10, 10, 224)	301056	['block5g_se_excite[0][0]']
2D)			
block5g_project_bn (BatchN	(None, 10, 10, 224)	896	['block5g_project_conv
[0][0]']			
ormalization)			

block5g_drop (Dropout)	(None, 10, 10, 224)	0	['block5g_project_bn[0][0]']
block5g_add (Add)	(None, 10, 10, 224)	0	['block5g_drop[0][0]', 'block5f_add[0][0]']
block5h_expand_conv (Conv2D)	(None, 10, 10, 1344)	301056	['block5g_add[0][0]']
block5h_expand_bn (BatchNormalization[0][0])	(None, 10, 10, 1344)	5376	['block5h_expand_conv[0][0]']
block5h_expand_activation (Activation)	(None, 10, 10, 1344)	0	['block5h_expand_bn[0][0]']
block5h_dwconv (DepthwiseConv2D)	(None, 10, 10, 1344)	33600	['block5h_expand_activation[0][0]']
block5h_bn (BatchNormalization)	(None, 10, 10, 1344)	5376	['block5h_dwconv[0][0]']
block5h_activation (Activation)	(None, 10, 10, 1344)	0	['block5h_bn[0][0]']
block5h_se_squeeze (GlobalAveragePooling2D)	(None, 1344)	0	['block5h_activation[0][0]']
block5h_se_reshape (Reshape)	(None, 1, 1, 1344)	0	['block5h_se_squeeze[0][0]']
block5h_se_reduce (Conv2D)	(None, 1, 1, 56)	75320	['block5h_se_reshape[0][0]']
block5h_se_expand (Conv2D)	(None, 1, 1, 1344)	76608	['block5h_se_reduce[0][0]']
block5h_se_excite (Multiplication)	(None, 10, 10, 1344)	0	['block5h_activation[0][0]', 'block5h_se_expand[0][0]']
block5h_project_conv (Conv2D)	(None, 10, 10, 224)	301056	['block5h_se_excite[0][0]']
block5h_project_bn (BatchNormalization[0][0])	(None, 10, 10, 224)	896	['block5h_project_conv[0][0]']
block5h_drop (Dropout)	(None, 10, 10, 224)	0	['block5h_project_bn[0][0]']
block5h_add (Add)	(None, 10, 10, 224)	0	['block5h_drop[0][0]', 'block5g_add[0][0]']
block5i_expand_conv (Conv2D)	(None, 10, 10, 1344)	301056	['block5h_add[0][0]']
block5i_expand_bn (BatchNormalization[0][0])	(None, 10, 10, 1344)	5376	['block5i_expand_conv[0][0]']
block5i_expand_activation (Activation)	(None, 10, 10, 1344)	0	['block5i_expand_bn[0][0]']
block5i_dwconv (DepthwiseConv2D)	(None, 10, 10, 1344)	33600	['block5i_expand_activation[0][0]']

block5i_bn (BatchNormaliza	(None, 10, 10, 1344)	5376	['block5i_dwconv[0][0]']
block5i_activation (Activa	(None, 10, 10, 1344)	0	['block5i_bn[0][0]']
block5i_se_squeeze (Global	(None, 1344)	0	['block5i_activation[0][0]']
AveragePooling2D)			
block5i_se_reshape (Reshap	(None, 1, 1, 1344)	0	['block5i_se_squeeze[0][0]']
e)			
block5i_se_reduce (Conv2D)	(None, 1, 1, 56)	75320	['block5i_se_reshape[0][0]']
block5i_se_expand (Conv2D)	(None, 1, 1, 1344)	76608	['block5i_se_reduce[0][0]']
block5i_se_excite (Multipl	(None, 10, 10, 1344)	0	['block5i_activation[0][0]',
y)			'block5i_se_expand[0][0]']
block5i_project_conv (Conv	(None, 10, 10, 224)	301056	['block5i_se_excite[0][0]']
2D)			
block5i_project_bn (BatchN	(None, 10, 10, 224)	896	['block5i_project_conv
[0][0]']			
ormalization)			
block5i_drop (Dropout)	(None, 10, 10, 224)	0	['block5i_project_bn[0][0]']
block5i_add (Add)	(None, 10, 10, 224)	0	['block5i_drop[0][0]',
			'block5h_add[0][0]']
block5j_expand_conv (Conv2	(None, 10, 10, 1344)	301056	['block5i_add[0][0]']
D)			
block5j_expand_bn (BatchNo	(None, 10, 10, 1344)	5376	['block5j_expand_conv
[0][0]']			
rmalization)			
block5j_expand_activation	(None, 10, 10, 1344)	0	['block5j_expand_bn[0][0]']
(Activation)			
block5j_dwconv (DepthwiseC	(None, 10, 10, 1344)	33600	['block5j_expand_activation
[0]			
onv2D)			[0]']
block5j_bn (BatchNormaliza	(None, 10, 10, 1344)	5376	['block5j_dwconv[0][0]']
tion)			
block5j_activation (Activa	(None, 10, 10, 1344)	0	['block5j_bn[0][0]']
tion)			
block5j_se_squeeze (Global	(None, 1344)	0	['block5j_activation[0][0]']
AveragePooling2D)			
block5j_se_reshape (Reshap	(None, 1, 1, 1344)	0	['block5j_se_squeeze[0][0]']
e)			
block5j_se_reduce (Conv2D)	(None, 1, 1, 56)	75320	['block5j_se_reshape[0][0]']
block5j_se_expand (Conv2D)	(None, 1, 1, 1344)	76608	['block5j_se_reduce[0][0]']
block5j_se_excite (Multipl	(None, 10, 10, 1344)	0	['block5j_activation[0][0]',
y)			'block5j_se_expand[0][0]']

block5j_project_conv (Conv2D)	(None, 10, 10, 224)	301056	['block5j_se_excite[0][0]']
block5j_project_bn (BatchNormalization)	(None, 10, 10, 224)	896	['block5j_project_conv[0][0]']
block5j_drop (Dropout)	(None, 10, 10, 224)	0	['block5j_project_bn[0][0]']
block5j_add (Add)	(None, 10, 10, 224)	0	['block5j_drop[0][0]', 'block5i_add[0][0]']
block6a_expand_conv (Conv2D)	(None, 10, 10, 1344)	301056	['block5j_add[0][0]']
block6a_expand_bn (BatchNormalization)	(None, 10, 10, 1344)	5376	['block6a_expand_conv[0][0]']
block6a_expand_activation (Activation)	(None, 10, 10, 1344)	0	['block6a_expand_bn[0][0]']
block6a_dwconv_pad (ZeroPadding2D)	(None, 13, 13, 1344)	0	['block6a_expand_activation[0][0]']
block6a_dwconv (DepthwiseConv2D)	(None, 5, 5, 1344)	33600	['block6a_dwconv_pad[0][0]']
block6a_bn (BatchNormalization)	(None, 5, 5, 1344)	5376	['block6a_dwconv[0][0]']
block6a_activation (Activation)	(None, 5, 5, 1344)	0	['block6a_bn[0][0]']
block6a_se_squeeze (GlobalAveragePooling2D)	(None, 1344)	0	['block6a_activation[0][0]']
block6a_se_reshape (Reshape)	(None, 1, 1, 1344)	0	['block6a_se_squeeze[0][0]']
block6a_se_reduce (Conv2D)	(None, 1, 1, 56)	75320	['block6a_se_reshape[0][0]']
block6a_se_expand (Conv2D)	(None, 1, 1, 1344)	76608	['block6a_se_reduce[0][0]']
block6a_se_excite (Multiply)	(None, 5, 5, 1344)	0	['block6a_activation[0][0]', 'block6a_se_expand[0][0]']
block6a_project_conv (Conv2D)	(None, 5, 5, 384)	516096	['block6a_se_excite[0][0]']
block6a_project_bn (BatchNormalization)	(None, 5, 5, 384)	1536	['block6a_project_conv[0][0]']
block6b_expand_conv (Conv2D)	(None, 5, 5, 2304)	884736	['block6a_project_bn[0][0]']
block6b_expand_bn (BatchNormalization)	(None, 5, 5, 2304)	9216	['block6b_expand_conv[0][0]']
block6b_expand_activation (Activation)	(None, 5, 5, 2304)	0	['block6b_expand_bn[0][0]']

block6b_dwconv (DepthwiseConv2D)	(None, 5, 5, 2304)	57600	['block6b_expand_activation[0]']
block6b_bn (BatchNormalization)	(None, 5, 5, 2304)	9216	['block6b_dwconv[0][0]']
block6b_activation (Activation)	(None, 5, 5, 2304)	0	['block6b_bn[0][0]']
block6b_se_squeeze (GlobalAveragePooling2D)	(None, 2304)	0	['block6b_activation[0][0]']
block6b_se_reshape (Reshape)	(None, 1, 1, 2304)	0	['block6b_se_squeeze[0][0]']
block6b_se_reduce (Conv2D)	(None, 1, 1, 96)	221280	['block6b_se_reshape[0][0]']
block6b_se_expand (Conv2D)	(None, 1, 1, 2304)	223488	['block6b_se_reduce[0][0]']
block6b_se_excite (Multiply)	(None, 5, 5, 2304)	0	['block6b_activation[0][0]', 'block6b_se_expand[0][0]']
block6b_project_conv (Conv2D)	(None, 5, 5, 384)	884736	['block6b_se_excite[0][0]']
block6b_project_bn (BatchNormalization)	(None, 5, 5, 384)	1536	['block6b_project_conv[0][0]']
block6b_drop (Dropout)	(None, 5, 5, 384)	0	['block6b_project_bn[0][0]']
block6b_add (Add)	(None, 5, 5, 384)	0	['block6b_drop[0][0]', 'block6a_project_bn[0][0]']
block6c_expand_conv (Conv2D)	(None, 5, 5, 2304)	884736	['block6b_add[0][0]']
block6c_expand_bn (BatchNormalization)	(None, 5, 5, 2304)	9216	['block6c_expand_conv[0][0]']
block6c_expand_activation (Activation)	(None, 5, 5, 2304)	0	['block6c_expand_bn[0][0]']
block6c_dwconv (DepthwiseConv2D)	(None, 5, 5, 2304)	57600	['block6c_expand_activation[0]']
block6c_bn (BatchNormalization)	(None, 5, 5, 2304)	9216	['block6c_dwconv[0][0]']
block6c_activation (Activation)	(None, 5, 5, 2304)	0	['block6c_bn[0][0]']
block6c_se_squeeze (GlobalAveragePooling2D)	(None, 2304)	0	['block6c_activation[0][0]']
block6c_se_reshape (Reshape)	(None, 1, 1, 2304)	0	['block6c_se_squeeze[0][0]']
block6c_se_reduce (Conv2D)	(None, 1, 1, 96)	221280	['block6c_se_reshape[0][0]']

block6c_se_expand (Conv2D)	(None, 1, 1, 2304)	223488	['block6c_se_reduce[0][0]']
block6c_se_excite (Multipl y)	(None, 5, 5, 2304)	0	['block6c_activation[0][0]', 'block6c_se_expand[0][0]']
block6c_project_conv (Conv 2D)	(None, 5, 5, 384)	884736	['block6c_se_excite[0][0]']
block6c_project_bn (BatchN [0][0]')	(None, 5, 5, 384)	1536	['block6c_project_conv [0][0]']
ormalization)			
block6c_drop (Dropout)	(None, 5, 5, 384)	0	['block6c_project_bn[0][0]']
block6c_add (Add)	(None, 5, 5, 384)	0	['block6c_drop[0][0]', 'block6b_add[0][0]']
block6d_expand_conv (Conv2 D)	(None, 5, 5, 2304)	884736	['block6c_add[0][0]']
block6d_expand_bn (BatchNo [0][0]')	(None, 5, 5, 2304)	9216	['block6d_expand_conv [0][0]']
rmalization)			
block6d_expand_activation (Activation)	(None, 5, 5, 2304)	0	['block6d_expand_bn[0][0]']
block6d_dwconv (DepthwiseC [0]	(None, 5, 5, 2304)	57600	['block6d_expand_activation [0][0]']
onv2D)			
block6d_bn (BatchNormaliza tion)	(None, 5, 5, 2304)	9216	['block6d_dwconv[0][0]']
block6d_activation (Activa tion)	(None, 5, 5, 2304)	0	['block6d_bn[0][0]']
block6d_se_squeeze (Global AveragePooling2D)	(None, 2304)	0	['block6d_activation[0][0]']
block6d_se_reshape (Reshap e)	(None, 1, 1, 2304)	0	['block6d_se_squeeze[0][0]']
block6d_se_reduce (Conv2D)	(None, 1, 1, 96)	221280	['block6d_se_reshape[0][0]']
block6d_se_expand (Conv2D)	(None, 1, 1, 2304)	223488	['block6d_se_reduce[0][0]']
block6d_se_excite (Multipl y)	(None, 5, 5, 2304)	0	['block6d_activation[0][0]', 'block6d_se_expand[0][0]']
block6d_project_conv (Conv 2D)	(None, 5, 5, 384)	884736	['block6d_se_excite[0][0]']
block6d_project_bn (BatchN [0][0]')	(None, 5, 5, 384)	1536	['block6d_project_conv [0][0]']
ormalization)			
block6d_drop (Dropout)	(None, 5, 5, 384)	0	['block6d_project_bn[0][0]']
block6d_add (Add)	(None, 5, 5, 384)	0	['block6d_drop[0][0]', 'block6c_add[0][0]']
block6e_expand_conv (Conv2 D)	(None, 5, 5, 2304)	884736	['block6d_add[0][0]']

block6e_expand_bn (BatchNo [0][0]'	(None, 5, 5, 2304)	9216	['block6e_expand_conv
rnmalization)			
block6e_expand_activation (Activation)	(None, 5, 5, 2304)	0	['block6e_expand_bn[0][0]']
block6e_dwconv (DepthwiseC [0]	(None, 5, 5, 2304)	57600	['block6e_expand_activation
onv2D)			[0]']
block6e_bn (BatchNormaliza	(None, 5, 5, 2304)	9216	['block6e_dwconv[0][0]']
tion)			
block6e_activation (Activa	(None, 5, 5, 2304)	0	['block6e_bn[0][0]']
tion)			
block6e_se_squeeze (Global	(None, 2304)	0	['block6e_activation[0][0]']
AveragePooling2D)			
block6e_se_reshape (Reshap	(None, 1, 1, 2304)	0	['block6e_se_squeeze[0][0]']
e)			
block6e_se_reduce (Conv2D)	(None, 1, 1, 96)	221280	['block6e_se_reshape[0][0]']
block6e_se_expand (Conv2D)	(None, 1, 1, 2304)	223488	['block6e_se_reduce[0][0]']
block6e_se_excite (Multipl	(None, 5, 5, 2304)	0	['block6e_activation[0][0]',
y)			'block6e_se_expand[0][0]']
block6e_project_conv (Conv	(None, 5, 5, 384)	884736	['block6e_se_excite[0][0]']
2D)			
block6e_project_bn (BatchN	(None, 5, 5, 384)	1536	['block6e_project_conv
[0][0]'			
ormalization)			
block6e_drop (Dropout)	(None, 5, 5, 384)	0	['block6e_project_bn[0][0]']
block6e_add (Add)	(None, 5, 5, 384)	0	['block6e_drop[0][0]',
			'block6d_add[0][0]']
block6f_expand_conv (Conv2	(None, 5, 5, 2304)	884736	['block6e_add[0][0]']
D)			
block6f_expand_bn (BatchNo	(None, 5, 5, 2304)	9216	['block6f_expand_conv
[0][0]'			
rnmalization)			
block6f_expand_activation	(None, 5, 5, 2304)	0	['block6f_expand_bn[0][0]']
(Activation)			
block6f_dwconv (DepthwiseC	(None, 5, 5, 2304)	57600	['block6f_expand_activation
[0]			[0]']
onv2D)			
block6f_bn (BatchNormaliza	(None, 5, 5, 2304)	9216	['block6f_dwconv[0][0]']
tion)			
block6f_activation (Activa	(None, 5, 5, 2304)	0	['block6f_bn[0][0]']
tion)			
block6f_se_squeeze (Global	(None, 2304)	0	['block6f_activation[0][0]']

AveragePooling2D)			
block6f_se_reshape (Reshape (None, 1, 1, 2304)e)	0	['block6f_se_squeeze[0][0]']	
block6f_se_reduce (Conv2D) (None, 1, 1, 96)	221280	['block6f_se_reshape[0][0]']	
block6f_se_expand (Conv2D) (None, 1, 1, 2304)	223488	['block6f_se_reduce[0][0]']	
block6f_se_excite (Multipl (None, 5, 5, 2304)y)	0	['block6f_activation[0][0]', 'block6f_se_expand[0][0]']	
block6f_project_conv (Conv (None, 5, 5, 384)2D)	884736	['block6f_se_excite[0][0]']	
block6f_project_bn (BatchN (None, 5, 5, 384)[0][0]'ormalization)	1536	['block6f_project_conv	
block6f_drop (Dropout) (None, 5, 5, 384)	0	['block6f_project_bn[0][0]']	
block6f_add (Add) (None, 5, 5, 384)	0	['block6f_drop[0][0]', 'block6e_add[0][0]']	
block6g_expand_conv (Conv2 (None, 5, 5, 2304)D)	884736	['block6f_add[0][0]']	
block6g_expand_bn (BatchNo (None, 5, 5, 2304)[0][0]'rmalization)	9216	['block6g_expand_conv	
block6g_expand_activation (None, 5, 5, 2304)(Activation)	0	['block6g_expand_bn[0][0]']	
block6g_dwconv (DepthwiseC (None, 5, 5, 2304)[0]onv2D)	57600	['block6g_expand_activation	
block6g_bn (BatchNormaliza (None, 5, 5, 2304)tion)	9216	['block6g_dwconv[0][0]']	
block6g_activation (Activat (None, 5, 5, 2304)ion)	0	['block6g_bn[0][0]']	
block6g_se_squeeze (Global (None, 2304)AveragePooling2D)	0	['block6g_activation[0][0]']	
block6g_se_reshape (Reshap (None, 1, 1, 2304)e)	0	['block6g_se_squeeze[0][0]']	
block6g_se_reduce (Conv2D) (None, 1, 1, 96)	221280	['block6g_se_reshape[0][0]']	
block6g_se_expand (Conv2D) (None, 1, 1, 2304)	223488	['block6g_se_reduce[0][0]']	
block6g_se_excite (Multipl (None, 5, 5, 2304)y)	0	['block6g_activation[0][0]', 'block6g_se_expand[0][0]']	
block6g_project_conv (Conv (None, 5, 5, 384)2D)	884736	['block6g_se_excite[0][0]']	
block6g_project_bn (BatchN (None, 5, 5, 384)[0][0]'ormalization)	1536	['block6g_project_conv	

block6g_drop (Dropout)	(None, 5, 5, 384)	0	['block6g_project_bn[0][0]']
block6g_add (Add)	(None, 5, 5, 384)	0	['block6g_drop[0][0]', 'block6f_add[0][0]']
block6h_expand_conv (Conv2D)	(None, 5, 5, 2304)	884736	['block6g_add[0][0]']
block6h_expand_bn (BatchNormalization[0][0])	(None, 5, 5, 2304)	9216	['block6h_expand_conv[0][0]']
block6h_expand_activation (Activation)	(None, 5, 5, 2304)	0	['block6h_expand_bn[0][0]']
block6h_dwconv (DepthwiseConv2D)	(None, 5, 5, 2304)	57600	['block6h_expand_activation[0][0]']
block6h_bn (BatchNormalization)	(None, 5, 5, 2304)	9216	['block6h_dwconv[0][0]']
block6h_activation (Activation)	(None, 5, 5, 2304)	0	['block6h_bn[0][0]']
block6h_se_squeeze (GlobalAveragePooling2D)	(None, 2304)	0	['block6h_activation[0][0]']
block6h_se_reshape (Reshape)	(None, 1, 1, 2304)	0	['block6h_se_squeeze[0][0]']
block6h_se_reduce (Conv2D)	(None, 1, 1, 96)	221280	['block6h_se_reshape[0][0]']
block6h_se_expand (Conv2D)	(None, 1, 1, 2304)	223488	['block6h_se_reduce[0][0]']
block6h_se_excite (Multiply)	(None, 5, 5, 2304)	0	['block6h_activation[0][0]', 'block6h_se_expand[0][0]']
block6h_project_conv (Conv2D)	(None, 5, 5, 384)	884736	['block6h_se_excite[0][0]']
block6h_project_bn (BatchNormalization[0][0])	(None, 5, 5, 384)	1536	['block6h_project_conv[0][0]']
block6h_drop (Dropout)	(None, 5, 5, 384)	0	['block6h_project_bn[0][0]']
block6h_add (Add)	(None, 5, 5, 384)	0	['block6h_drop[0][0]', 'block6g_add[0][0]']
block6i_expand_conv (Conv2D)	(None, 5, 5, 2304)	884736	['block6h_add[0][0]']
block6i_expand_bn (BatchNormalization[0][0])	(None, 5, 5, 2304)	9216	['block6i_expand_conv[0][0]']
block6i_expand_activation (Activation)	(None, 5, 5, 2304)	0	['block6i_expand_bn[0][0]']
block6i_dwconv (DepthwiseConv2D)	(None, 5, 5, 2304)	57600	['block6i_expand_activation[0][0]']

block6i_bn (BatchNormaliza tion)	(None, 5, 5, 2304)	9216	['block6i_dwconv[0][0]']
block6i_activation (Activa tion)	(None, 5, 5, 2304)	0	['block6i_bn[0][0]']
block6i_se_squeeze (Global AveragePooling2D)	(None, 2304)	0	['block6i_activation[0][0]']
block6i_se_reshape (Reshap e)	(None, 1, 1, 2304)	0	['block6i_se_squeeze[0][0]']
block6i_se_reduce (Conv2D)	(None, 1, 1, 96)	221280	['block6i_se_reshape[0][0]']
block6i_se_expand (Conv2D)	(None, 1, 1, 2304)	223488	['block6i_se_reduce[0][0]']
block6i_se_excite (Multipl y)	(None, 5, 5, 2304)	0	['block6i_activation[0][0]', 'block6i_se_expand[0][0]']
block6i_project_conv (Conv 2D)	(None, 5, 5, 384)	884736	['block6i_se_excite[0][0]']
block6i_project_bn (BatchN ormalization)	(None, 5, 5, 384)	1536	['block6i_project_conv [0][0]']
block6i_drop (Dropout)	(None, 5, 5, 384)	0	['block6i_project_bn[0][0]']
block6i_add (Add)	(None, 5, 5, 384)	0	['block6i_drop[0][0]', 'block6h_add[0][0]']
block6j_expand_conv (Conv2 D)	(None, 5, 5, 2304)	884736	['block6i_add[0][0]']
block6j_expand_bn (BatchNo rmalization)	(None, 5, 5, 2304)	9216	['block6j_expand_conv [0][0]']
block6j_expand_activation (Activation)	(None, 5, 5, 2304)	0	['block6j_expand_bn[0][0]']
block6j_dwconv (DepthwiseC onv2D)	(None, 5, 5, 2304)	57600	['block6j_expand_activation [0][0]']
block6j_bn (BatchNormaliza tion)	(None, 5, 5, 2304)	9216	['block6j_dwconv[0][0]']
block6j_activation (Activa tion)	(None, 5, 5, 2304)	0	['block6j_bn[0][0]']
block6j_se_squeeze (Global AveragePooling2D)	(None, 2304)	0	['block6j_activation[0][0]']
block6j_se_reshape (Reshap e)	(None, 1, 1, 2304)	0	['block6j_se_squeeze[0][0]']
block6j_se_reduce (Conv2D)	(None, 1, 1, 96)	221280	['block6j_se_reshape[0][0]']
block6j_se_expand (Conv2D)	(None, 1, 1, 2304)	223488	['block6j_se_reduce[0][0]']
block6j_se_excite (Multipl y)	(None, 5, 5, 2304)	0	['block6j_activation[0][0]', 'block6j_se_expand[0][0]']

block6j_project_conv (Conv 2D)	(None, 5, 5, 384)	884736	['block6j_se_excite[0][0]']
block6j_project_bn (BatchN [0][0]')	(None, 5, 5, 384)	1536	['block6j_project_conv ormalization)']
block6j_drop (Dropout)	(None, 5, 5, 384)	0	['block6j_project_bn[0][0]']
block6j_add (Add)	(None, 5, 5, 384)	0	['block6j_drop[0][0]', 'block6i_add[0][0]']
block6k_expand_conv (Conv2 D)	(None, 5, 5, 2304)	884736	['block6j_add[0][0]']
block6k_expand_bn (BatchNo [0][0]')	(None, 5, 5, 2304)	9216	['block6k_expand_conv rmalization)']
block6k_expand_activation (Activation)	(None, 5, 5, 2304)	0	['block6k_expand_bn[0][0]']
block6k_dwconv (DepthwiseC [0]	(None, 5, 5, 2304)	57600	['block6k_expand_activation onv2D)']
block6k_bn (BatchNormaliza tion)	(None, 5, 5, 2304)	9216	['block6k_dwconv[0][0]']
block6k_activation (Activa tion)	(None, 5, 5, 2304)	0	['block6k_bn[0][0]']
block6k_se_squeeze (Global AveragePooling2D)	(None, 2304)	0	['block6k_activation[0][0]']
block6k_se_reshape (Reshap e)	(None, 1, 1, 2304)	0	['block6k_se_squeeze[0][0]']
block6k_se_reduce (Conv2D)	(None, 1, 1, 96)	221280	['block6k_se_reshape[0][0]']
block6k_se_expand (Conv2D)	(None, 1, 1, 2304)	223488	['block6k_se_reduce[0][0]']
block6k_se_excite (Multipl y)	(None, 5, 5, 2304)	0	['block6k_activation[0][0]', 'block6k_se_expand[0][0]']
block6k_project_conv (Conv 2D)	(None, 5, 5, 384)	884736	['block6k_se_excite[0][0]']
block6k_project_bn (BatchN [0][0]')	(None, 5, 5, 384)	1536	['block6k_project_conv ormalization)']
block6k_drop (Dropout)	(None, 5, 5, 384)	0	['block6k_project_bn[0][0]']
block6k_add (Add)	(None, 5, 5, 384)	0	['block6k_drop[0][0]', 'block6j_add[0][0]']
block6l_expand_conv (Conv2 D)	(None, 5, 5, 2304)	884736	['block6k_add[0][0]']
block6l_expand_bn (BatchNo [0][0]')	(None, 5, 5, 2304)	9216	['block6l_expand_conv rmalization)']

block6l_expand_activation (Activation)	(None, 5, 5, 2304)	0	['block6l_expand_bn[0][0]']
block6l_dwconv (DepthwiseC [0] onv2D)	(None, 5, 5, 2304)	57600	['block6l_expand_activation [0]']
block6l_bn (BatchNormaliza tion)	(None, 5, 5, 2304)	9216	['block6l_dwconv[0][0]']
block6l_activation (Activa tion)	(None, 5, 5, 2304)	0	['block6l_bn[0][0]']
block6l_se_squeeze (Global AveragePooling2D)	(None, 2304)	0	['block6l_activation[0][0]']
block6l_se_reshape (Reshap e)	(None, 1, 1, 2304)	0	['block6l_se_squeeze[0][0]']
block6l_se_reduce (Conv2D)	(None, 1, 1, 96)	221280	['block6l_se_reshape[0][0]']
block6l_se_expand (Conv2D)	(None, 1, 1, 2304)	223488	['block6l_se_reduce[0][0]']
block6l_se_excite (Multipl y)	(None, 5, 5, 2304)	0	['block6l_activation[0][0]', 'block6l_se_expand[0][0]']
block6l_project_conv (Conv 2D)	(None, 5, 5, 384)	884736	['block6l_se_excite[0][0]']
block6l_project_bn (BatchN [0][0]) ormalization)	(None, 5, 5, 384)	1536	['block6l_project_conv
block6l_drop (Dropout)	(None, 5, 5, 384)	0	['block6l_project_bn[0][0]']
block6l_add (Add)	(None, 5, 5, 384)	0	['block6l_drop[0][0]', 'block6k_add[0][0]']
block6m_expand_conv (Conv2 D)	(None, 5, 5, 2304)	884736	['block6l_add[0][0]']
block6m_expand_bn (BatchNo [0][0]) rmalization)	(None, 5, 5, 2304)	9216	['block6m_expand_conv
block6m_expand_activation (Activation)	(None, 5, 5, 2304)	0	['block6m_expand_bn[0][0]']
block6m_dwconv (DepthwiseC [0] onv2D)	(None, 5, 5, 2304)	57600	['block6m_expand_activation [0]']
block6m_bn (BatchNormaliza tion)	(None, 5, 5, 2304)	9216	['block6m_dwconv[0][0]']
block6m_activation (Activa tion)	(None, 5, 5, 2304)	0	['block6m_bn[0][0]']
block6m_se_squeeze (Global AveragePooling2D)	(None, 2304)	0	['block6m_activation[0][0]']
block6m_se_reshape (Reshap e)	(None, 1, 1, 2304)	0	['block6m_se_squeeze[0][0]']

block6m_se_reduce (Conv2D)	(None, 1, 1, 96)	221280	['block6m_se_reshape[0][0]']
block6m_se_expand (Conv2D)	(None, 1, 1, 2304)	223488	['block6m_se_reduce[0][0]']
block6m_se_excite (Multipl y)	(None, 5, 5, 2304)	0	['block6m_activation[0][0]', 'block6m_se_expand[0][0]']
block6m_project_conv (Conv 2D)	(None, 5, 5, 384)	884736	['block6m_se_excite[0][0]']
block6m_project_bn (BatchN [0][0]') ormalization)	(None, 5, 5, 384)	1536	['block6m_project_conv [0][0]']
block6m_drop (Dropout)	(None, 5, 5, 384)	0	['block6m_project_bn[0][0]']
block6m_add (Add)	(None, 5, 5, 384)	0	['block6m_drop[0][0]', 'block6l1_add[0][0]']
block7a_expand_conv (Conv2 D)	(None, 5, 5, 2304)	884736	['block6m_add[0][0]']
block7a_expand_bn (BatchNo [0][0]') rmalization)	(None, 5, 5, 2304)	9216	['block7a_expand_conv [0][0]']
block7a_expand_activation (Activation)	(None, 5, 5, 2304)	0	['block7a_expand_bn[0][0]']
block7a_dwconv (DepthwiseC onv2D)	(None, 5, 5, 2304)	20736	['block7a_expand_activation [0][0]']
block7a_bn (BatchNormaliza tion)	(None, 5, 5, 2304)	9216	['block7a_dwconv[0][0]']
block7a_activation (Activa tion)	(None, 5, 5, 2304)	0	['block7a_bn[0][0]']
block7a_se_squeeze (Global AveragePooling2D)	(None, 2304)	0	['block7a_activation[0][0]']
block7a_se_reshape (Reshap e)	(None, 1, 1, 2304)	0	['block7a_se_squeeze[0][0]']
block7a_se_reduce (Conv2D)	(None, 1, 1, 96)	221280	['block7a_se_reshape[0][0]']
block7a_se_expand (Conv2D)	(None, 1, 1, 2304)	223488	['block7a_se_reduce[0][0]']
block7a_se_excite (Multipl y)	(None, 5, 5, 2304)	0	['block7a_activation[0][0]', 'block7a_se_expand[0][0]']
block7a_project_conv (Conv 2D)	(None, 5, 5, 640)	1474560	['block7a_se_excite[0][0]']
block7a_project_bn (BatchN [0][0]') ormalization)	(None, 5, 5, 640)	2560	['block7a_project_conv [0][0]']
block7b_expand_conv (Conv2 D)	(None, 5, 5, 3840)	2457600	['block7a_project_bn[0][0]']
block7b_expand_bn (BatchNo [0][0]')	(None, 5, 5, 3840)	15360	['block7b_expand_conv [0][0]']

rnmalization)			
block7b_expand_activation (Activation)	(None, 5, 5, 3840)	0	['block7b_expand_bn[0][0]']
block7b_dwconv (DepthwiseConv2D)	(None, 5, 5, 3840)	34560	['block7b_expand_activation[0]']
block7b_bn (BatchNormalization)	(None, 5, 5, 3840)	15360	['block7b_dwconv[0][0]']
block7b_activation (Activation)	(None, 5, 5, 3840)	0	['block7b_bn[0][0]']
block7b_se_squeeze (GlobalAveragePooling2D)	(None, 3840)	0	['block7b_activation[0][0]']
block7b_se_reshape (Reshape)	(None, 1, 1, 3840)	0	['block7b_se_squeeze[0][0]']
block7b_se_reduce (Conv2D)	(None, 1, 1, 160)	614560	['block7b_se_reshape[0][0]']
block7b_se_expand (Conv2D)	(None, 1, 1, 3840)	618240	['block7b_se_reduce[0][0]']
block7b_se_excite (Multiply)	(None, 5, 5, 3840)	0	['block7b_activation[0][0]', 'block7b_se_expand[0][0]']
block7b_project_conv (Conv2D)	(None, 5, 5, 640)	2457600	['block7b_se_excite[0][0]']
block7b_project_bn (BatchNormalization)	(None, 5, 5, 640)	2560	['block7b_project_conv[0][0]']
block7b_drop (Dropout)	(None, 5, 5, 640)	0	['block7b_project_bn[0][0]']
block7b_add (Add)	(None, 5, 5, 640)	0	['block7b_drop[0][0]', 'block7a_project_bn[0][0]']
block7c_expand_conv (Conv2D)	(None, 5, 5, 3840)	2457600	['block7b_add[0][0]']
block7c_expand_bn (BatchNormalization)	(None, 5, 5, 3840)	15360	['block7c_expand_conv[0][0]']
block7c_expand_activation (Activation)	(None, 5, 5, 3840)	0	['block7c_expand_bn[0][0]']
block7c_dwconv (DepthwiseConv2D)	(None, 5, 5, 3840)	34560	['block7c_expand_activation[0]']
block7c_bn (BatchNormalization)	(None, 5, 5, 3840)	15360	['block7c_dwconv[0][0]']
block7c_activation (Activation)	(None, 5, 5, 3840)	0	['block7c_bn[0][0]']
block7c_se_squeeze (GlobalAveragePooling2D)	(None, 3840)	0	['block7c_activation[0][0]']
block7c_se_reshape (Reshape)	(None, 1, 1, 3840)	0	['block7c_se_squeeze[0][0]']

e)			
block7c_se_reduce (Conv2D)	(None, 1, 1, 160)	614560	['block7c_se_reshape[0][0]']
block7c_se_expand (Conv2D)	(None, 1, 1, 3840)	618240	['block7c_se_reduce[0][0]']
block7c_se_excite (Multipl y)	(None, 5, 5, 3840)	0	['block7c_activation[0][0]', 'block7c_se_expand[0][0]']
block7c_project_conv (Conv 2D)	(None, 5, 5, 640)	2457600	['block7c_se_excite[0][0]']
block7c_project_bn (BatchN [0][0]) ormalization)	(None, 5, 5, 640)	2560	['block7c_project_conv [0][0]']
block7c_drop (Dropout)	(None, 5, 5, 640)	0	['block7c_project_bn[0][0]']
block7c_add (Add)	(None, 5, 5, 640)	0	['block7c_drop[0][0]', 'block7b_add[0][0]']
block7d_expand_conv (Conv2 D)	(None, 5, 5, 3840)	2457600	['block7c_add[0][0]']
block7d_expand_bn (BatchNo [0][0]) rmalization)	(None, 5, 5, 3840)	15360	['block7d_expand_conv [0][0]']
block7d_expand_activation (Activation)	(None, 5, 5, 3840)	0	['block7d_expand_bn[0][0]']
block7d_dwconv (DepthwiseC [0] onv2D)	(None, 5, 5, 3840)	34560	['block7d_expand_activation [0][0]']
block7d_bn (BatchNormaliza tion)	(None, 5, 5, 3840)	15360	['block7d_dwconv[0][0]']
block7d_activation (Activa tion)	(None, 5, 5, 3840)	0	['block7d_bn[0][0]']
block7d_se_squeeze (Global AveragePooling2D)	(None, 3840)	0	['block7d_activation[0][0]']
block7d_se_reshape (Reshap e)	(None, 1, 1, 3840)	0	['block7d_se_squeeze[0][0]']
block7d_se_reduce (Conv2D)	(None, 1, 1, 160)	614560	['block7d_se_reshape[0][0]']
block7d_se_expand (Conv2D)	(None, 1, 1, 3840)	618240	['block7d_se_reduce[0][0]']
block7d_se_excite (Multipl y)	(None, 5, 5, 3840)	0	['block7d_activation[0][0]', 'block7d_se_expand[0][0]']
block7d_project_conv (Conv 2D)	(None, 5, 5, 640)	2457600	['block7d_se_excite[0][0]']
block7d_project_bn (BatchN [0][0]) ormalization)	(None, 5, 5, 640)	2560	['block7d_project_conv [0][0]']
block7d_drop (Dropout)	(None, 5, 5, 640)	0	['block7d_project_bn[0][0]']
block7d_add (Add)	(None, 5, 5, 640)	0	['block7d_drop[0][0]', ,

```
          'block7c_add[0][0]']

top_conv (Conv2D)           (None, 5, 5, 2560)    1638400  ['block7d_add[0][0]']

top_bn (BatchNormalization (None, 5, 5, 2560)    10240   ['top_conv[0][0]']

top_activation (Activation (None, 5, 5, 2560)    0       ['top_bn[0][0]']

=====
==

Total params: 64097687 (244.51 MB)
Trainable params: 0 (0.00 Byte)
Non-trainable params: 64097687 (244.51 MB)
```

```
In [ ]: global_average_layer = tf.keras.layers.GlobalAveragePooling2D()
feature_batch_average = global_average_layer(feature_batch)
print(feature_batch_average.shape)

(64, 2560)
```

```
In [ ]: prediction_layer = tf.keras.layers.Dense(3)
prediction_batch = prediction_layer(feature_batch_average)
print(prediction_batch.shape)

(64, 3)
```

```
In [ ]: from keras.src.applications.imagenet_utils import preprocess_input
inputs = tf.keras.Input(shape=(160, 160, 3))
x = data_augmentation(inputs)
x = preprocess_input(x)
x = base_model(x, training=False)
x = global_average_layer(x)
x = tf.keras.layers.Dropout(0.2)(x)
output = prediction_layer(x)
model = tf.keras.Model(inputs, output)
```

```
In [ ]: base_learning_rate = 0.001
model.compile(optimizer=tf.keras.optimizers.Adam(learning_rate = base_learning_rate),
              loss=tf.keras.losses.SparseCategoricalCrossentropy(from_logits=True),
              metrics=[ 'accuracy'])

model.summary()
```

Model: "model 8"

Layer (type)	Output Shape	Param #
input_17 (InputLayer)	[(None, 160, 160, 3)]	0
sequential_7 (Sequential)	(None, 160, 160, 3)	0
tf.__operators__.getitem_8 (SlicingOpLambda)	(None, 160, 160, 3)	0
tf.nn.bias_add_8 (TFOpLamb da)	(None, 160, 160, 3)	0
efficientnetb7 (Functional)	(None, 5, 5, 2560)	64097687
global_average_pooling2d_8 (GlobalAveragePooling2D)	(None, 2560)	0
dropout_8 (Dropout)	(None, 2560)	0
dense_8 (Dense)	(None, 3)	7683
<hr/>		
Total params:	64105370 (244.54 MB)	
Trainable params:	7683 (30.01 KB)	
Non-trainable params:	64097687 (244.51 MB)	

```
In [ ]: initial_epochs= 10
```

```
loss0,accuracy0 = model.evaluate(validation_dataset)
```

3/3 [=====] - 14s 257ms/step - loss: 1.1371 - accuracy: 0.3446

```
In [ ]: print(loss0)
         print(accuracy0)
```

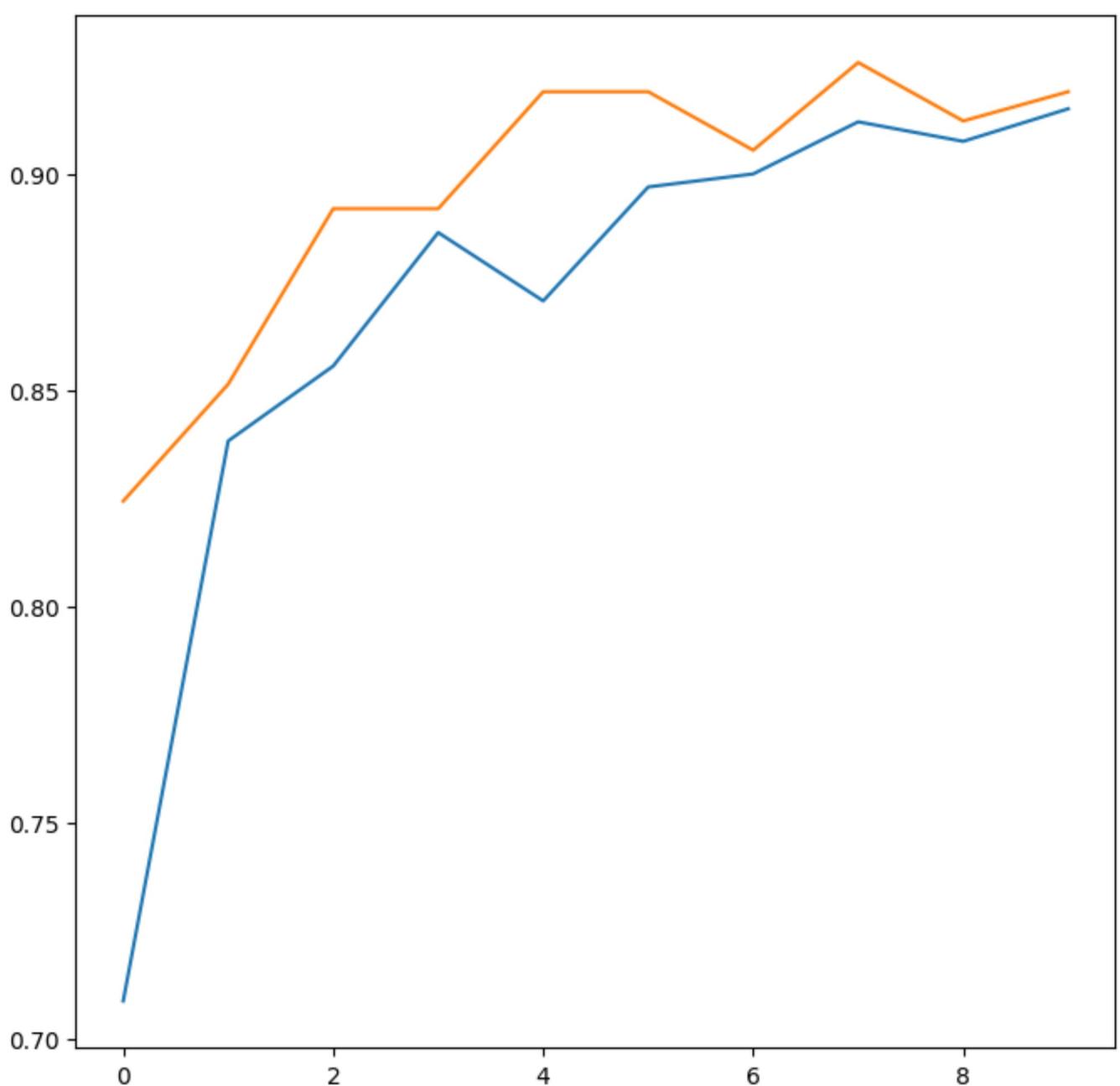
1.137115716934204
0.3445945978164673

```
Epoch 1/10
21/21 [=====] - 34s 468ms/step - loss: 0.7421 - accuracy: 0.7088 - val_loss: 0.5048 - val_accuracy: 0.8243
Epoch 2/10
21/21 [=====] - 13s 475ms/step - loss: 0.4529 - accuracy: 0.8382 - val_loss: 0.4163 - val_accuracy: 0.8514
Epoch 3/10
21/21 [=====] - 14s 528ms/step - loss: 0.3891 - accuracy: 0.8555 - val_loss: 0.3647 - val_accuracy: 0.8919
Epoch 4/10
21/21 [=====] - 13s 489ms/step - loss: 0.3457 - accuracy: 0.8864 - val_loss: 0.3423 - val_accuracy: 0.8919
Epoch 5/10
21/21 [=====] - 13s 508ms/step - loss: 0.3354 - accuracy: 0.8706 - val_loss: 0.3122 - val_accuracy: 0.9189
Epoch 6/10
21/21 [=====] - 12s 483ms/step - loss: 0.3109 - accuracy: 0.8969 - val_loss: 0.3067 - val_accuracy: 0.9189
Epoch 7/10
21/21 [=====] - 13s 514ms/step - loss: 0.2952 - accuracy: 0.8999 - val_loss: 0.3079 - val_accuracy: 0.9054
Epoch 8/10
21/21 [=====] - 13s 490ms/step - loss: 0.2737 - accuracy: 0.9120 - val_loss: 0.2861 - val_accuracy: 0.9257
Epoch 9/10
21/21 [=====] - 13s 497ms/step - loss: 0.2753 - accuracy: 0.9074 - val_loss: 0.2756 - val_accuracy: 0.9122
Epoch 10/10
21/21 [=====] - 12s 485ms/step - loss: 0.2523 - accuracy: 0.9150 - val_loss: 0.2767 - val_accuracy: 0.9189
```

```
In [ ]: acc = history.history['accuracy']
val_acc = history.history['val_accuracy']

plt.figure(figsize=(8,8))
plt.plot(acc, label='Training acc')
plt.plot(val_acc, label='Validation acc')
```

```
Out[ ]: [<matplotlib.lines.Line2D at 0x7e1ce4c9bd60>]
```



```
In [ ]: base_model.train = True  
print("Numero de capas", len(base_model.layers))
```

Numero de capas 814

```
In [ ]: fine_tune_at = 100  
for layer in base_model.layers[:fine_tune_at]:  
    layer.trainable = False
```

```
In [ ]: model.compile(optimizer=tf.keras.optimizers.RMSprop(learning_rate=base_learning_rate),  
                      loss=tf.keras.losses.SparseCategoricalCrossentropy(from_logits=True),  
                      metrics=['accuracy'])  
model.summary()
```

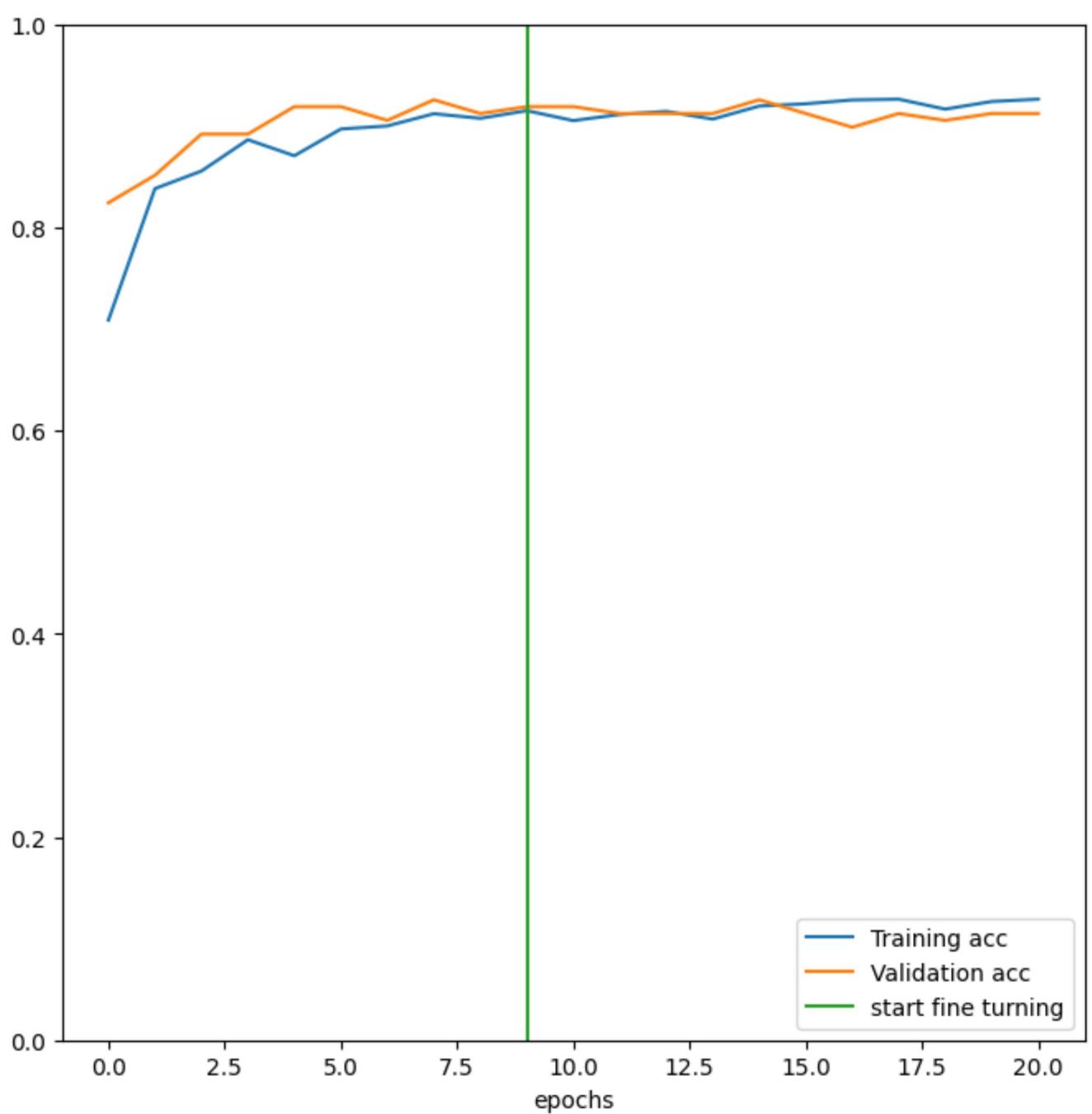
Model: "model 8"

Layer (type)	Output Shape	Param #
input_17 (InputLayer)	[(None, 160, 160, 3)]	0
sequential_7 (Sequential)	(None, 160, 160, 3)	0
tf.__operators__.getitem_8 (SlicingOpLambda)	(None, 160, 160, 3)	0
tf.nn.bias_add_8 (TFOpLamb da)	(None, 160, 160, 3)	0
efficientnetb7 (Functional)	(None, 5, 5, 2560)	64097687
global_average_pooling2d_8 (GlobalAveragePooling2D)	(None, 2560)	0
dropout_8 (Dropout)	(None, 2560)	0
dense_8 (Dense)	(None, 3)	7683
<hr/>		
Total params:	64105370 (244.54 MB)	
Trainable params:	7683 (30.01 KB)	
Non-trainable params:	64097687 (244.51 MB)	

```
Epoch 10/20
21/21 [=====] - 44s 767ms/step - loss: 0.2675 - accuracy: 0.9052 - val_
loss: 0.2771 - val_accuracy: 0.9189
Epoch 11/20
21/21 [=====] - 13s 502ms/step - loss: 0.2541 - accuracy: 0.9112 - val_
loss: 0.2608 - val_accuracy: 0.9122
Epoch 12/20
21/21 [=====] - 12s 490ms/step - loss: 0.2392 - accuracy: 0.9142 - val_
loss: 0.2592 - val_accuracy: 0.9122
Epoch 13/20
21/21 [=====] - 12s 493ms/step - loss: 0.2419 - accuracy: 0.9067 - val_
loss: 0.2652 - val_accuracy: 0.9122
Epoch 14/20
21/21 [=====] - 13s 500ms/step - loss: 0.2370 - accuracy: 0.9195 - val_
loss: 0.2650 - val_accuracy: 0.9257
Epoch 15/20
21/21 [=====] - 12s 482ms/step - loss: 0.2306 - accuracy: 0.9217 - val_
loss: 0.2689 - val_accuracy: 0.9122
Epoch 16/20
21/21 [=====] - 12s 472ms/step - loss: 0.2270 - accuracy: 0.9255 - val_
loss: 0.2869 - val_accuracy: 0.8986
Epoch 17/20
21/21 [=====] - 12s 479ms/step - loss: 0.2131 - accuracy: 0.9263 - val_
loss: 0.2650 - val_accuracy: 0.9122
Epoch 18/20
21/21 [=====] - 13s 506ms/step - loss: 0.2218 - accuracy: 0.9165 - val_
loss: 0.2773 - val_accuracy: 0.9054
Epoch 19/20
21/21 [=====] - 13s 508ms/step - loss: 0.2080 - accuracy: 0.9240 - val_
loss: 0.2591 - val_accuracy: 0.9122
Epoch 20/20
21/21 [=====] - 12s 495ms/step - loss: 0.2123 - accuracy: 0.9263 - val_
loss: 0.2356 - val_accuracy: 0.9122
```

```
In [ ]: acc += history_fine.history['accuracy']
val_acc += history_fine.history['val_accuracy']

plt.figure(figsize=(8,8))
plt.plot(acc, label='Training acc')
plt.plot(val_acc, label='Validation acc')
plt.ylim([0, 1])
plt.plot([initial_epochs-1, initial_epochs-1],
         plt.ylim(), label='start fine tuning')
plt.legend(loc='lower right')
plt.xlabel('epochs')
plt.show()
```



```
In [ ]: predictions = model.predict(validation_dataset)

plt.figure(figsize=(10,10))
for image, labels in train_dataset.take(1):
    for i in range(9):
        ax=plt.subplot(3,3,i+1)
        plt.imshow(image[i].numpy().astype('uint8'))
        plt.title(class_names[np.argmax(predictions[i])])
        plt.axis('off')
```

3/3 [=====] - 2s 306ms/step

mouse



mouse



mouse



keyboard



keyboard



keyboard



keyboard



mouse



mouse

