風扇音頻瑕疵偵測

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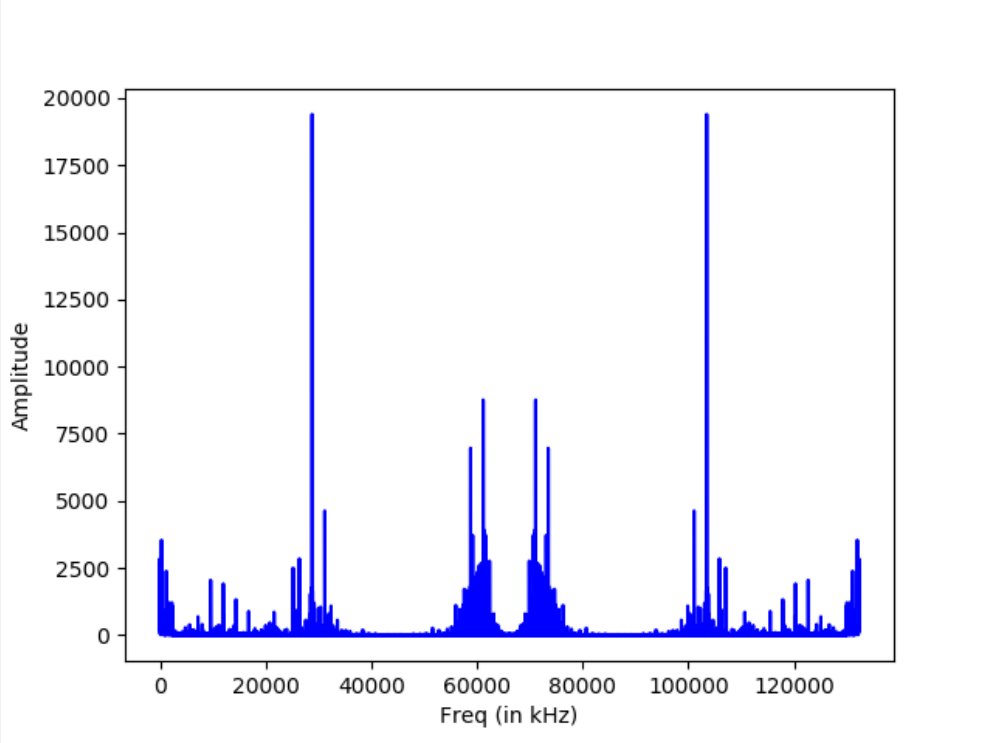
Introduction

Introduction

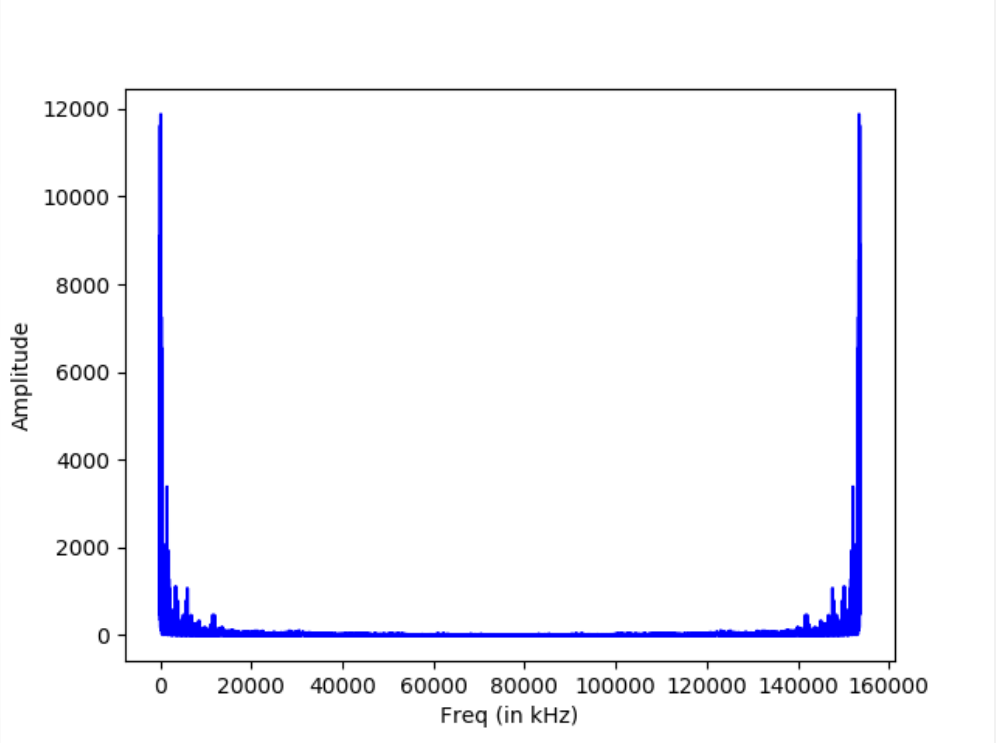
- 風扇資料分為OK 與 NG 兩類音頻(.wav)檔
- OK：230筆
- NG：32筆

Difference

Difference



OK



NG

Preprocessing

Preprocessing

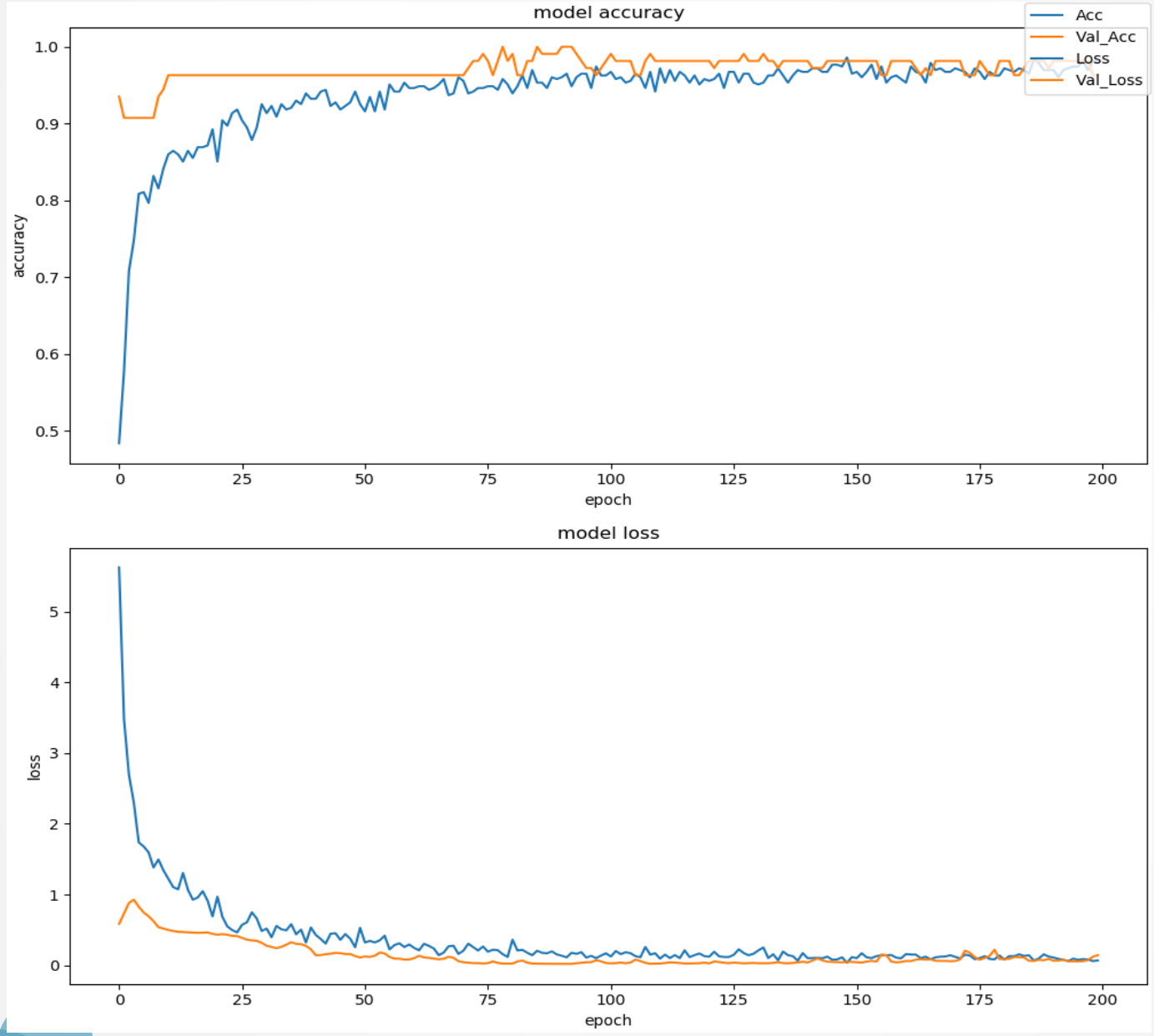
```
def feature_trans(dirname): #將音頻檔案讀進來,並用成stft,回傳兩個的np.array型態
    filename_=[]
    stft=[]
    for (_,_,filenames) in os.walk(dirname):
        filename_.extend(filenames) #只取檔案名字,後續讀檔用

    for file_ in filename_ : #每個檔案依序轉換
        data, sampling_rate = read_data(dirname+'/'+file_) #讀檔
        stft_ = librosa.stft(data)#轉成stft
        #show_sprctrogram(stft_) #可以顯示每個stfft的頻譜
        stft.append(stft_)#將檔案一個一個丟進陣列
        print('number {:s} stft shape:{:s}' .format(file_,str(stft_.shape)))

    stft=np.array(stft) #list轉np.array
    print(stft.shape)
    return stft
```

Train

Train

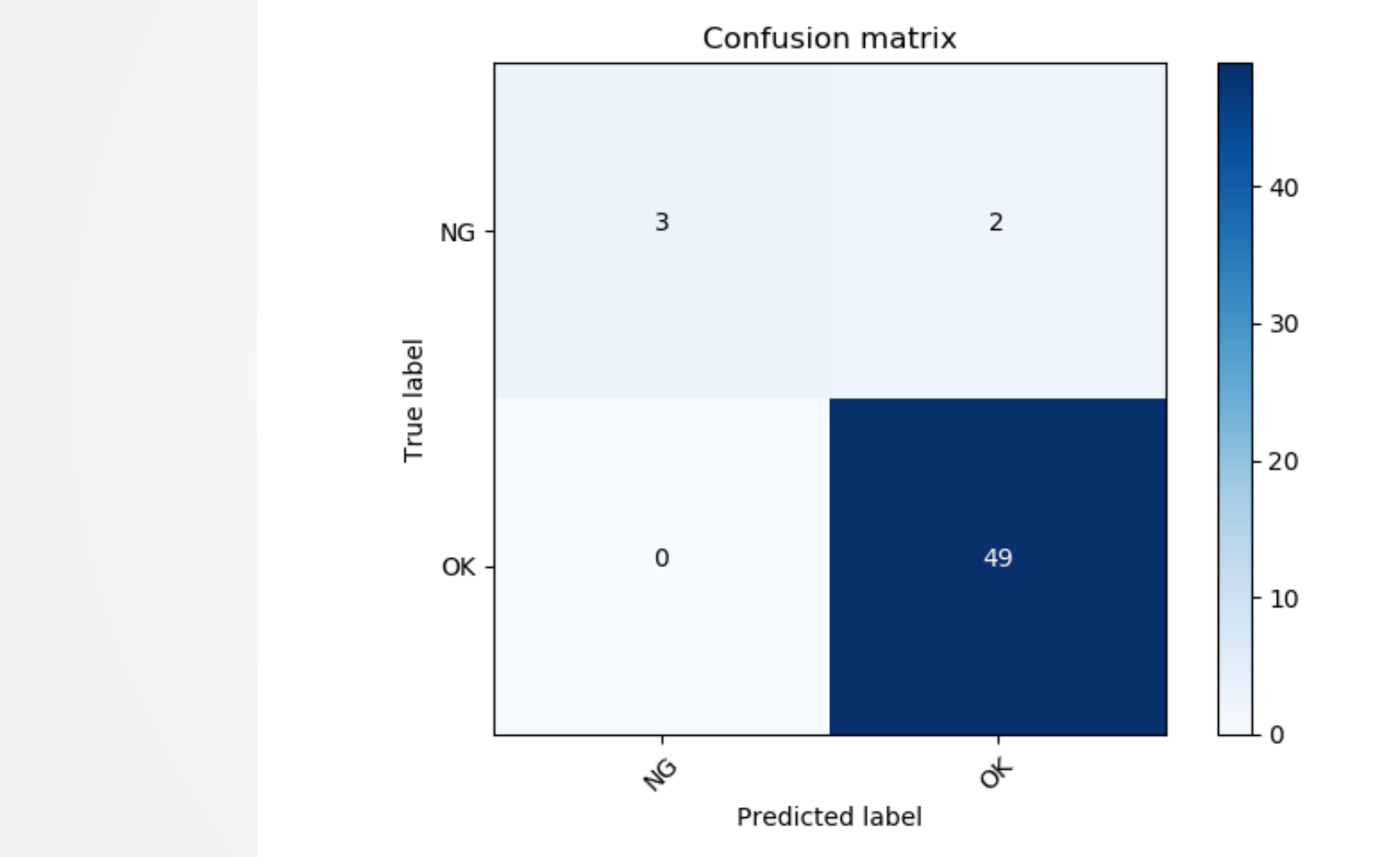
```
14/13 [==============================] - 4s 266ms/step - loss: 0.1542 - acc: 0.9639 - val_loss: 0.0696 - val_acc: 0.9815
Epoch 190/200
14/13 [==============================] - 4s 266ms/step - loss: 0.1181 - acc: 0.9709 - val_loss: 0.0905 - val_acc: 0.9722
Epoch 191/200
14/13 [==============================] - 4s 266ms/step - loss: 0.1307 - acc: 0.9639 - val_loss: 0.0625 - val_acc: 0.9815
Epoch 192/200
14/13 [==============================] - 4s 266ms/step - loss: 0.0857 - acc: 0.9619 - val_loss: 0.0656 - val_acc: 0.9815
Epoch 193/200
14/13 [==============================] - 4s 266ms/step - loss: 0.0738 - acc: 0.9709 - val_loss: 0.0755 - val_acc: 0.9815
Epoch 194/200
14/13 [==============================] - 4s 266ms/step - loss: 0.0562 - acc: 0.9731 - val_loss: 0.0561 - val_acc: 0.9815
Epoch 195/200
14/13 [==============================] - 4s 266ms/step - loss: 0.0890 - acc: 0.9754 - val_loss: 0.0556 - val_acc: 0.9815
Epoch 196/200
14/13 [==============================] - 4s 266ms/step - loss: 0.0757 - acc: 0.9754 - val_loss: 0.0542 - val_acc: 0.9815
Epoch 197/200
14/13 [==============================] - 4s 266ms/step - loss: 0.0840 - acc: 0.9821 - val_loss: 0.0565 - val_acc: 0.9815
Epoch 198/200
14/13 [==============================] - 4s 270ms/step - loss: 0.0793 - acc: 0.9709 - val_loss: 0.0736 - val_acc: 0.9815
Epoch 199/200
14/13 [==============================] - 4s 266ms/step - loss: 0.0586 - acc: 0.9821 - val_loss: 0.1196 - val_acc: 0.9630
Epoch 200/200
14/13 [==============================] - 4s 266ms/step - loss: 0.0643 - acc: 0.9798 - val_loss: 0.1421 - val_acc: 0.9630
Train loss: 0.08119199791813797
Train accuracy: 98.13084106579005
Test loss: 0.14212239107227256
Test accuracy: 96.29629607553835
dict_keys(['val_loss', 'val_acc', 'loss', 'acc'])
c:\Users\chian\Desktop\Tien\data\stft_model.py:164: UserWarning: You have mixed positional and keyword arguments, some input may be discarded.
  fig.legend([acc,vacc,loss,vloss],labels=['Acc','Val_Acc','Loss','Val_Loss'],loc='upper right',borderaxespad=0.1) #所有子圖的圖例
C:\Users\chian\anaconda3\envs\MVA\lib\site-packages\numpy\core\numeric.py:538: ComplexWarning: Casting complex values to real discards the imaginary part
  return array(a, dtype, copy=False, order=order)
Prediction: [1 1 1 0 1 1 1 1 1 1]
Answer: [1 1 1 0 1 1 1 1 1 1]
Confusion matrix, without normalization
[[ 3  2]
 [ 0 49]]
PS C:\Users\chian> []
```

Train


model accuracy
Acc
Val_Acc
Loss
Val_Loss
accuracy
epoch
model loss
loss
epoch

Test

Test- Confusion Matrix



THANK YOU
FOR WATCHING