

PROJECT STATUS

Problem Statement:

Gender Recognition system from audio files using FFT with Artificial Neural Networks.

Status:

9. New Predictions with user interface

The Modules used:

```
import math
import pandas as pd
import numpy as np
import sys,os
from colorama import init
from termcolor import cprint
import termcolor
from pyfiglet import figlet_format
import keras
import h5py
from keras.models import Sequential
from keras.models import load_model
from keras.layers import Dense
from sklearn.preprocessing import StandardScaler
```

The main interface file actually uses exceptional handling to install the dependencies if it is not installed.

Script:

```
if __name__ == '__main__':

    try:

        os.system("pip3 install -r requirements.txt")
        os.system("reset")
    except exception as e:
        print("there is a missing package .\n Error Occured :{}".format(str(e)))
```

Prediction:

```
#infinte loop for infinite prediction
while True:

    #asking for input
    prCyan("\n\nThere are list of extracted values from ranges 0 - 3167 audio files
consist of 12 fetures")
    print("\n\nPlease select from the above extracted data usng serial number as 0 -
3167 \n")
    prRed("Please enter the number:")
    #taking input values
    resp = int(input())
    #displaying response feature
    print(dataset.iloc[:, :-1].values[resp])
    #loadng classifier
    classifier = load_model("classifier/clf.h5py")
    #scaler
    scaler = StandardScaler()
    datas = (dataset.iloc[:, :-1].values[resp].reshape(-1,1).T)
    #predicting data
    res = (classifier.predict(datas))
    #printing value
    print(res)
    #making descision
    if res > 4.3*10**-6 :

        print("Predicted Gender is : {}".format("Female"))
    else:
        print("Predicted Gender is : Male")

    #printing the actual label
    print("The actual gender is : {}".format(dataset.iloc[:, -1].values[resp]))
```

We have actually trained the classifier , now we can use the pre trained classifier to predict new outcomes with simple terminal based interface which also included ascii art.

Main Interface:

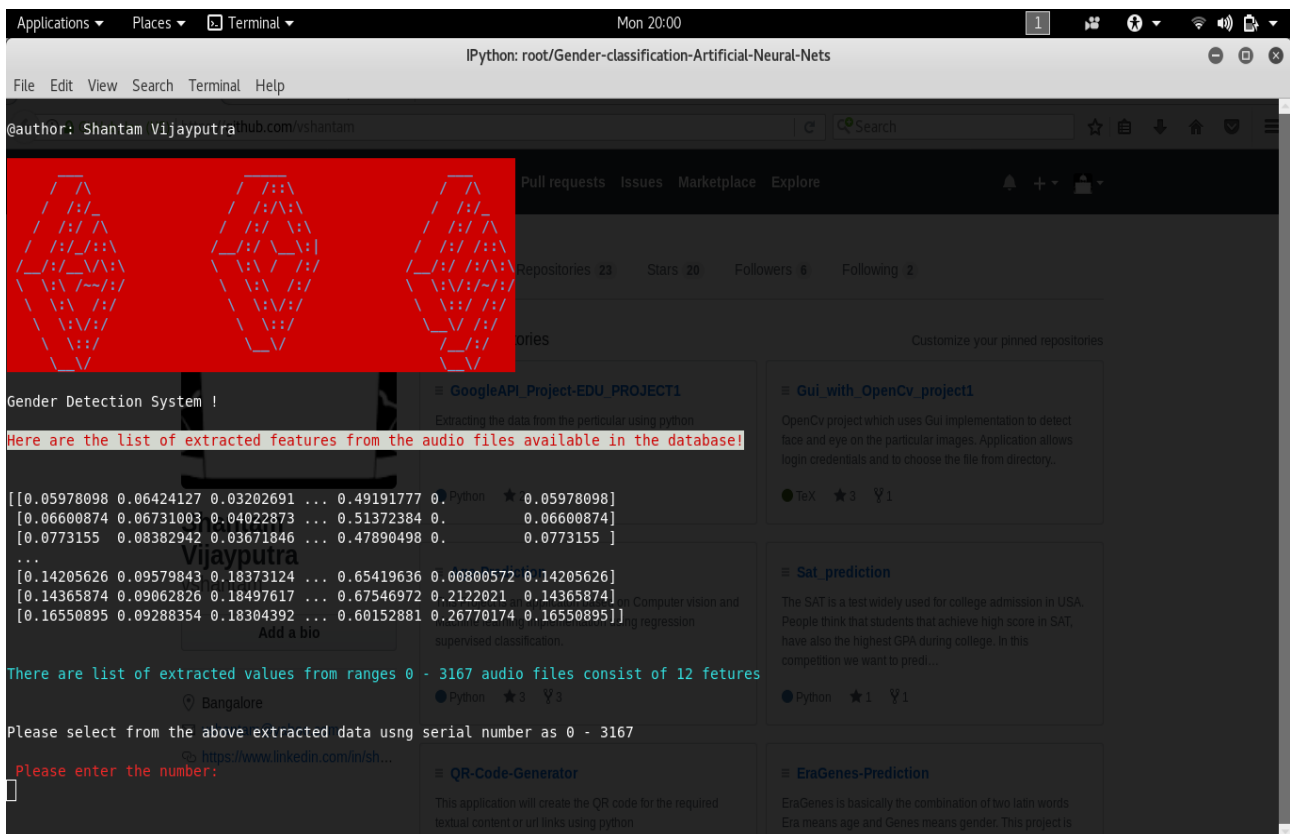


Illustration 1: Main Interface

This interface displays pre extracted features in array format of the audio files exist in the databases. To make the prediction all we have to do is to enter the number of array index the it will display the prediction.

The prediction will be compared with the actual label of the audio so that we can compare the result.

Prediction snapshot:

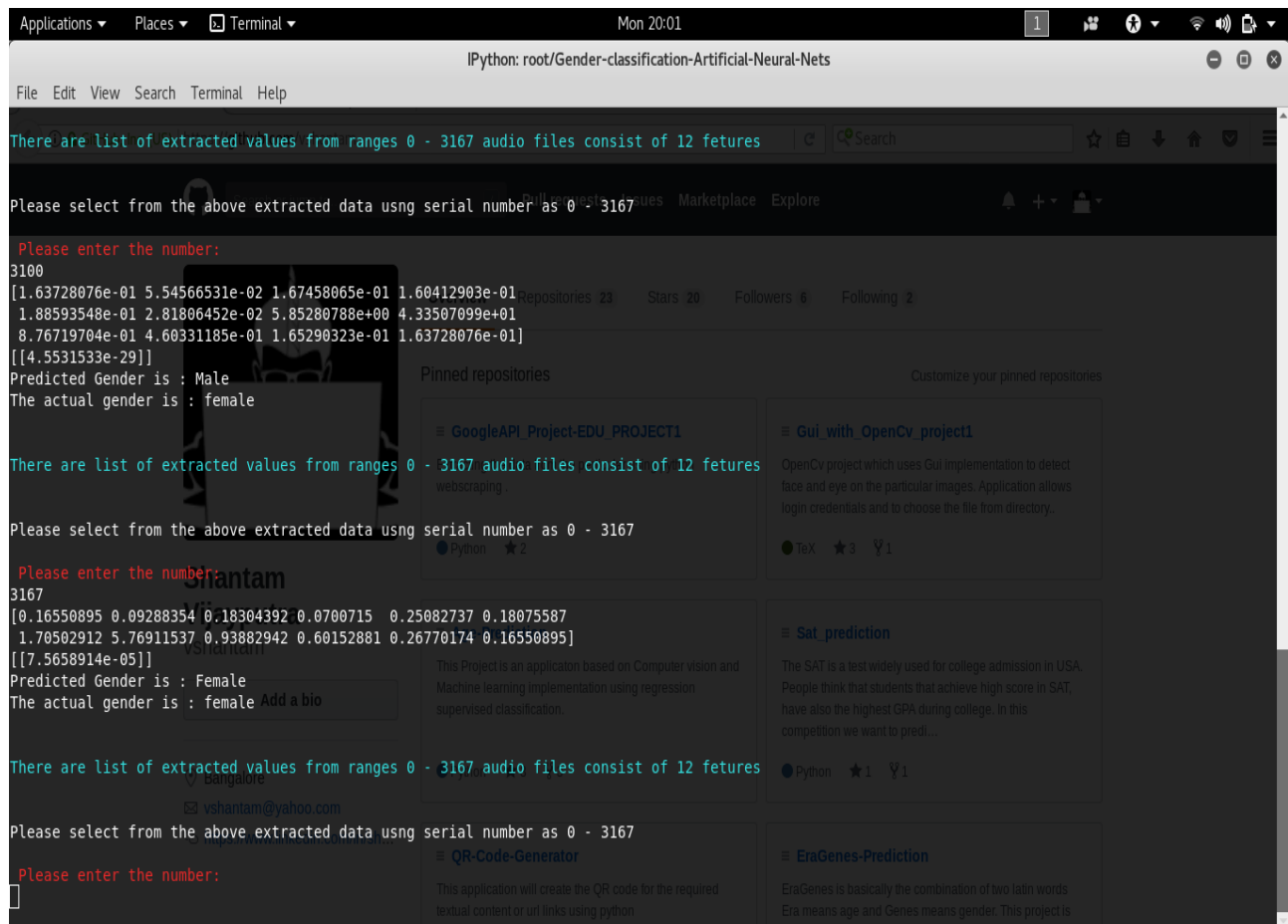


Illustration 2: Correct prediction (female)

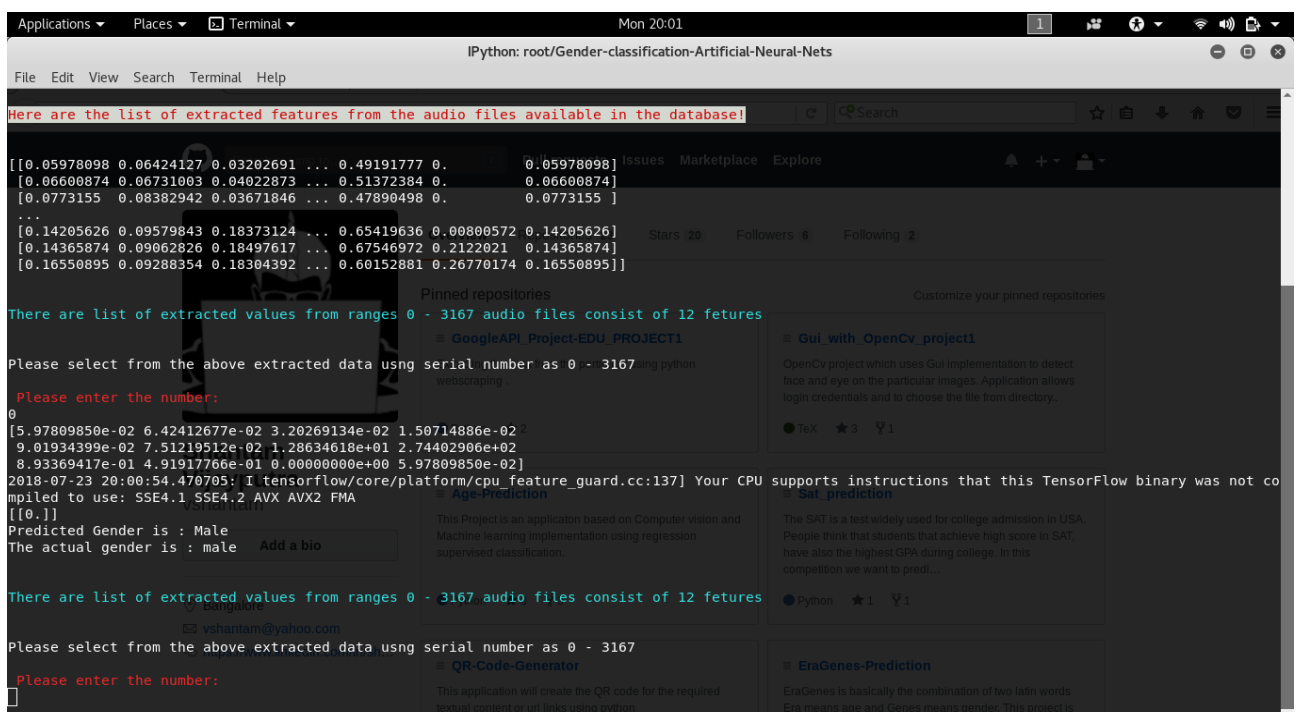


Illustration 3: correct prediction (male)

we can see that above predicted value is same as actual label hence the prediction was accurate and correct. but some time we may not be able to get the correct prediction due to some bad feature or noisy value, which can be seen in the next snapshot.

```

Applications ▾ Places ▾ Terminal ▾ Mon 20:01 1
IPython: root/Gender-classification-Artificial-Neural-Nets
File Edit View Search Terminal Help

Please select from the above extracted data using serial number as 0 - 3167

Please enter the number:
0
[5.97809850e-02 6.42412677e-02 3.20269134e-02 1.50714886e-02
 9.01934399e-02 7.51219512e-02 1.28634618e+01 2.74402906e+02
 8.93369417e-01 4.91917766e-01 0.00000000e+00 5.97809850e-02]
2018-07-23 20:00:54.470705: I tensorflow/core/platform/cpu_feature_guard.cc:137] Your CPU supports instructions that this TensorFlow binary was not co
mpiled to use: SSE4.1 SSE4.2 AVX AVX2 FMA
[[0.]]
Predicted Gender is : Male
The actual gender is : male

There are list of extracted values from ranges 0 - 3167 audio files consist of 12 fetures

Please select from the above extracted data using serial number as 0 - 3167

Please enter the number:
3100
[1.63728076e-01 5.54566531e-02 1.67458065e-01 1.60412903e-01
 1.88593548e-01 2.81806452e-02 5.85280788e+00 4.33507099e+01
 8.76719704e-01 4.60331185e-01 1.65290323e-01 1.63728076e-01]
[[4.5531533e-29]]
Predicted Gender is : Male
The actual gender is : female Add a bio

There are list of extracted values from ranges 0 - 3167 audio files consist of 12 fetures

Please select from the above extracted data using serial number as 0 - 3167

Please enter the number:
0

```

Illustration 4: false prediction

Like in this snapshot we can see that the classifier predicted as “Male” but the actual label is “Female”. there are some reason which may causes the bad prediction value such as :

- 1.High Bias and High Variance.
- 2.Low Precision and Low Recall.