PRML Minor Project - Masked Face Recognition

TEAM NAME :- GridSearch

TEAM :-
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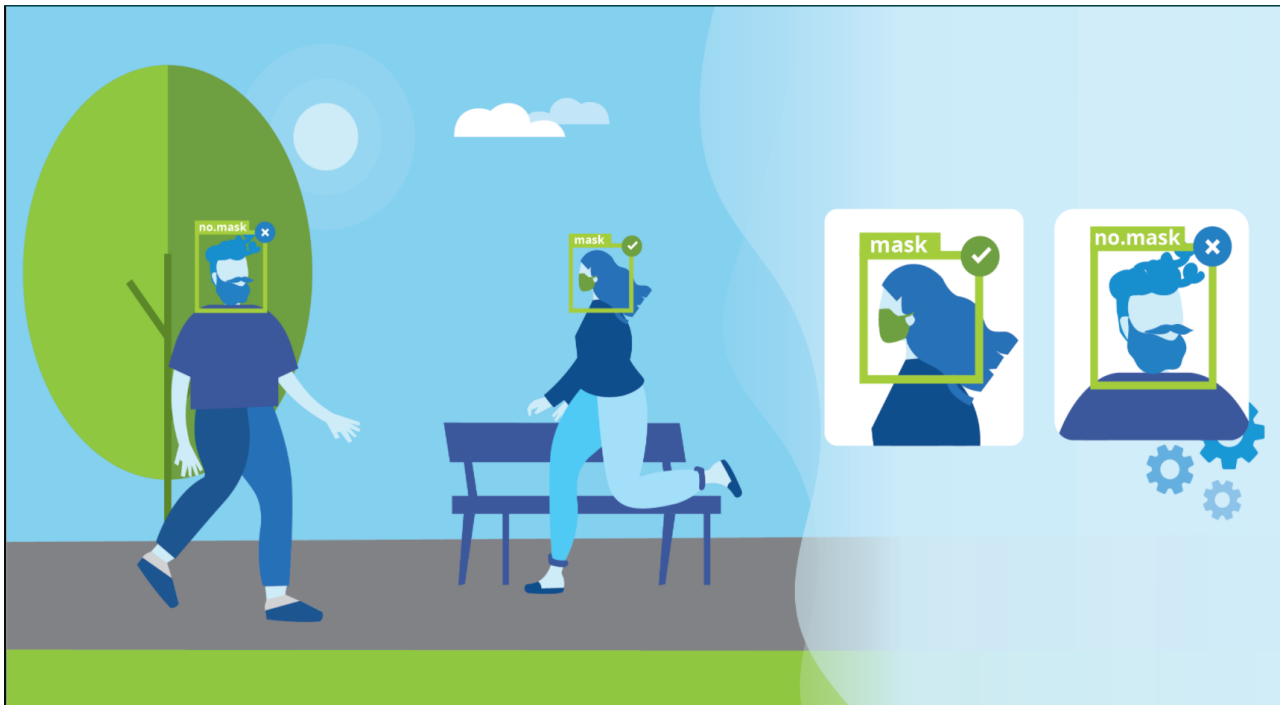

Introduction :

We are given two datasets which contain images of people either wearing a mask or not wearing a mask.

We have assigned labels to the classes of masked and unmasked and on the basis of that we predicted the labels by applying the classifiers.

Requirements :

We are building CNN model for masked image detection and also use of open cv to read and preprocess those images and hence some libraries are required to be pre installed in your system or you can install by

1. pip install tensorflow
2. pip install keras
3. pip install opencv-python
4. pip install --user opencv-contrib-python

Libraries required for Data Processing and Building the model:

1. Keras.models - Sequential
2. Keras.layers - Dense,Activation,Flatten,Dropout,Conv2D,MaxPooling2D
3. Sklearn.metrics - accuracy_score,confusion_matrix, classification_report,plot_confusion_matrix,roc_curve
4. Importing cv2 and os

Classifiers Used :

1. Convolutional Neural Network (CNN)
2. SVM (linear and gaussian)
3. Logistic Regression
4. KNN

Reading Images :

Sorted the masked and unmasked images and created a directory named ‘dataset’ which contains two folders named as masked and unmasked which contains images corresponding to their classes.

Process of Execution :

1. Reading the directory having the images using os.
2. Converting images to the numpy array using cv.imread for reading and converting into grayscale images.
3. Then we are creating data and target numpy arrays by resizing the image using cv.resize.
4. Then we scale the images and on target we used to_categorical function from np.utils.
5. We applied the CNN model, SVM model, KNN and Logistic Regression.

We have done all this in a **ipynb file** i.e, in a python notebook.

Contribution of Members :

Code Part :

1. Mohit :- CNN model, SVM (linear + gaussian) ,open cv2, ROC plots

2. Mayank :- KNN,Logistic Regression,data preprocessing,confusion matrices.

Equal contribution in Report.