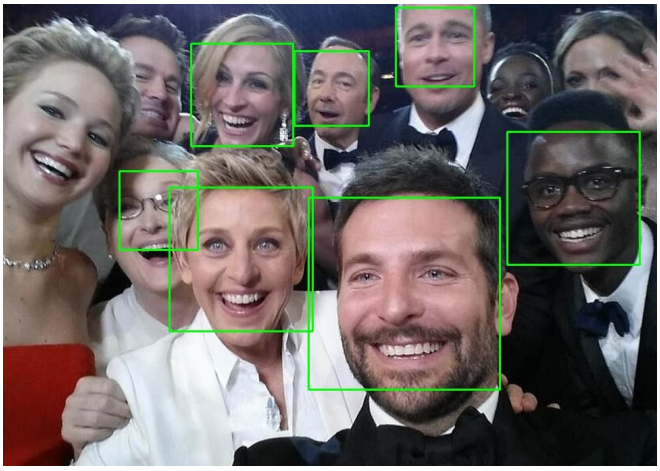
Face Detection on Ellen DeGeneres Oscar Selfie 2014

The provided code performs face detection on the given image using OpenCV. This code uses HaarCascade Classifier for face detection provided by the OpenCV library. Haar Cascade is trained by superimposing the positive images over a set of negative images. Positive images are ones that we want our classifier to identify and Negative images contain images of everything else, which we don't want to detect. It is basically based on the Viola Jones detection algorithm[1] which is trained on given input faces and non-faces to train a classifier which identifies a face. To perform this task OpenCV was built from source on the system and code is written in Jupyter Notebook.

In the code, section 1.2 reads the input image and converts it to grayscale so that it becomes a single channel to reduce the processing overhead as compared to a three channel image(RGB). Next two sections load the predefined HaarCascade classifier and specify the parameters to get optimum results. Sections 1.4 to 1.6 print the number of detected faces and draw a bounding box around the same and finally save the resulting image as "faces.jpg". The model manages to detect 7 faces from the image, leaving an open avenue for improvements. The reasons for not being able to detect other faces include tilted face, occlusion and clutter.

Input(img.jpg)



Output(faces.jpg)

References

1. *Rapid Object Detection using a Boosted Cascade of Simple Features* by Paul Viola and Michael Jones, CVPR, 2001