

COUNT THE NUMBER FACES

(Using Viola-Jones Algorithm Through Image processing)

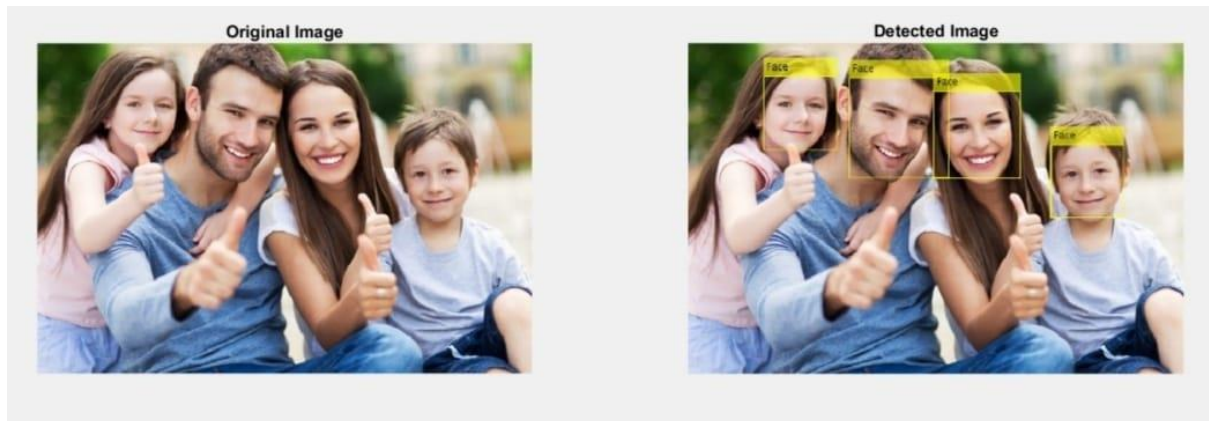
```
clc;
close all;
clear all;
I=imread('family.jpg');
%read the image

FaceDetector=vision.CascadeObjectDetector();
%Cascade Object Detector
%BBOX=step(FaceDetector,I);
BBOX=FaceDetector(I);

B=insertObjectAnnotation(I,'rectangle',BBOX,'Face'
);
%Annotation
subplot(1,2,1),imshow(I),title('Original Image');
subplot(1,2,2),imshow(B),title('Detected Image');
%Display the result
n=size(BBOX,1);
%string concatenation
str_n=num2str(n);
str=strcat('Number of Detected Faces Are =
',str_n);
disp(str);
%display the string
```

Given Image(true colour|grayscale) As input and
return the output count the number of faces Image

```
Command Window
Number of Detected Faces Are =4
fx >>
script Ln 1!
```



- **Cascade Object Detection**

Vision.CascadeObjectDetector

The cascade Detector uses the viola-Jones Algorithm to detect people's Faces, Noses, Eyes, Mouth or upper body part.

Detector=**vision.CascadeObjectDetector()**;

Uses

Bbox=detector(I); % I is image

Input Argument

Any Image (Grayscale or true colour)

Output Argument

Mx4 Matrix for rectangle

[x , y , Width, height] x,y Are upper left corner

- **insertObjectAnnotation**

RGB= insertObjectAnnotation(I,shape,position,label);

Input Argument

➤ **I**

True colour ,grayscale image

➤ **Shape**

'rectangle'| 'circle'

Data types char

➤ Position

Location and size of the annotation shape

Mx4 Matrix for rectangle

[x, y, Width, height] x,y Are upper left corner

Mx3 Matrix for circle

[x, y, r] x,y Are upper left corner, r=radius

- **String Concatenation**

```
n=size(BBOX,1);  
str_n=num2str(n);  
str=strcat('Number of Detected Faces Are ='  
,str_n);  
disp(str);
```