Haar cascade algorithms.

The Haar Cascade algorithm is a popular computer vision technique used for object detection. It was first proposed by Viola and Jones in 2001 and has since become a standard method for detecting faces in images and videos.

The algorithm works by using a set of pre-defined Haar-like features, which are simple rectangular patterns that capture local image intensity differences. These features can be applied to different scales and positions of an image to identify regions that may contain an object of interest.

While the Haar Cascade algorithm was originally developed for face detection, it has since been used for a variety of other applications, such as detecting pedestrians, vehicles, and even animals.

Overall, the Haar Cascade algorithm is a powerful tool for object detection in images and videos. Its simplicity and effectiveness make it a popular choice for many computer vision applications.

- A model which will detect the face and boundary it using blue box (rectangle) by importing haar cascade algorithms for face detection in ide (.xml)

```
Import numpy as np

import cv2

face_cascade = cv2.CascadeClassifier('haarcascade_frontalface_default.xml')

image = cv2.imread(r"C:\Users\ADMIN\Desktop\trump.jpg")
```

```
gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

faces = face_cascade.detectMultiScale(gray, scaleFactor=1.3, minNeighbors=5)

for (x, y, w, h) in faces:

    cv2.rectangle(image, (x, y), (x + w, y + h), (255, 0, 0), 2)

cv2.imshow('Face Detection', image)

cv2.waitKey(0)

cv2.destroyAllWindows()
```