

Age and Gender Estimation of Unfiltered Faces – Eran Eiding, Roe Enbar and Tal Hassner

- **Work told:**
 - Detect a face in given **oriented** image assuming that there is a face in it.
 - Output the proper frontal orientation image of the inputted image.
 - Extract the face.
- **Work Completed:**
 - Libraries used: *numpy*.
 - Dataset used: *haarcascade_frontalface_alt.xml*.
 - Rotation of inputted image.
 - Indications of detected face at some rotation of image.
- **Portion Pending:**
 - Considering the array of indications we need to find the **median of the largest contiguous rotations** in which face was detected.
 - Extract the face from the image by rotation of image by median.
- **Creating my own test dataset** that consists images in rotated form with 5 degrees of difference i.e., 72 copies of an image in rotated form.
- Designing my own **algorithm to align face in frontal view** which is oriented in by some angle.
Algorithm:
 - Rotate image by incrementing the angle by 5 degrees.
 - Check at each rotation if there is a face in that rotation.
 - If there is a face, mark the rotated image.
 - If face was not found, leave the image.
 - Now find the initial and final positions of longest consecutive rotations in which face was detected.
 - Find the median of these rotations.
 - Extract the face from this image.
- **Applications of above algorithm:**
 - Face Recognition.
 - Automatic Attendance maintenance.
 - Gender and Age Estimation can be improved.
 - Any other application involving face can be improved.

Implementation:



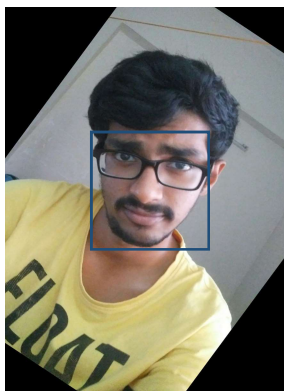
The image is rotated with a phase change of 5 degrees between each consecutive rotations and if face was detected in that rotated image then we mark the image at that particular rotation.



Finally we get the 1D mark array for the above image as follows:

[illegible]

Now find the largest contiguous subarray of 1's and find the median. Finally orient the image to the median.



Finally extract the rectangular portion of the face.