SIGNAL AND SYSTEMS ASSIGNMENT-3 REPORT

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In this project we aimed to find a given face in a bigger picture where there are at least 3 faces. Our goal was to do this by using the recently teached “convolution” method and applying this throught matlab.

First, we took both pictures in with “`imread`” function and named them. Then we turned them to gray using “`rgb2gray`” function and printed them all one by one and also showed their pixel values by using “`whos`” function.

And then, these values were taken by using “`size`” function.

The code given in the assignmet3.pdf was used. And the “`Correlation`” function was written as requested.

In the Corr matrix, we located the point where the correlation value is the maximum and then we managed to draw the 4 lines which eventually created the rectangle that was asked to be drawn.

And after that, we cleared the location of the drawn face by assigning all of them 0 by specifying the column and row values of the picture and using the “`zeros`” function which is provided to us by matlab.

We did this, total of 3 times, meaning only the most alike 3 faces will be found. Using a loop in this part of the code seemed very necessary but then it caused some problems, like not knowing the total number of faces in the beginning, because if we keep going with this, eventually the program will mark places that do not contain a face. At first asking the user to enter the number of faces in the picture sounded reasonable, that was not what we were asked and then we recanted.

I had to take a photo of my one hand and two hands of a family member. I didnt have any available family member at that moment and i had to take it with a my phone’s camera which is pretty good, but caused the photographs to be so high quality which pushed my very old computer into near of complete failure.

But with the enough time and a modern processor executing these photos should be ok, however the user can change the photos as needed.

At the end we once again used our function and showed the updated photo to our screen and managed.

Note that the second picture is not cropped from the other one.

Output result:

First Image with drawed rectangles