Computational Cognitive Science (CS786), Spring 2019
Indian Institute of Technology Kanpur
Homework Assignment Number 2

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Date: March 8, 2019

QUESTION 1

Original images:

We used different angle parameters of gabor filter and used that filter which gave high intensity response for triangle image and lower intensity response for square image. We used threshold value on sum of intensity of the output generated by the filter. The following results were obtained:

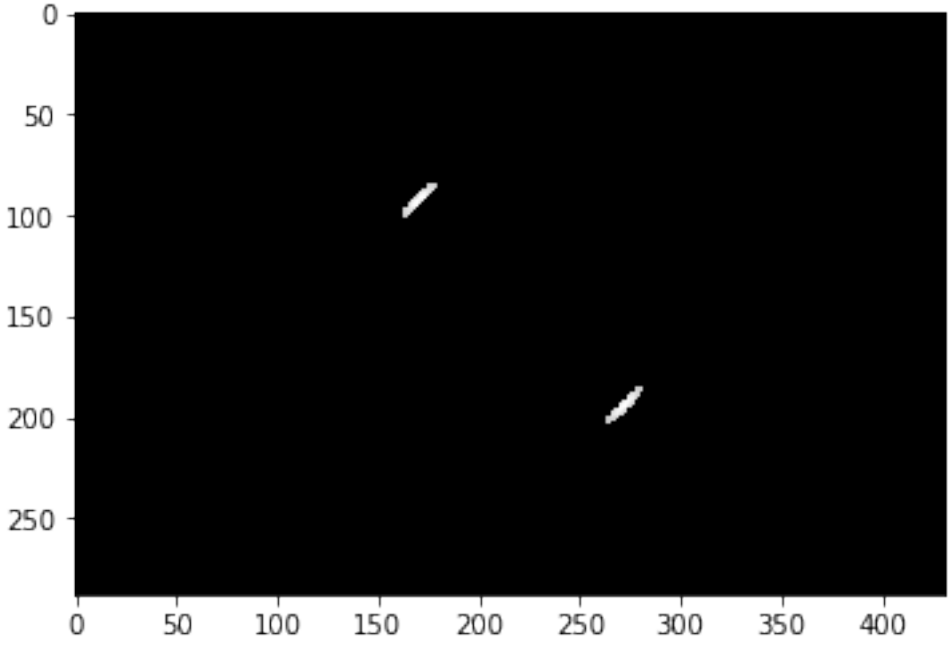

Figure 1: Gabor Response for Square Image

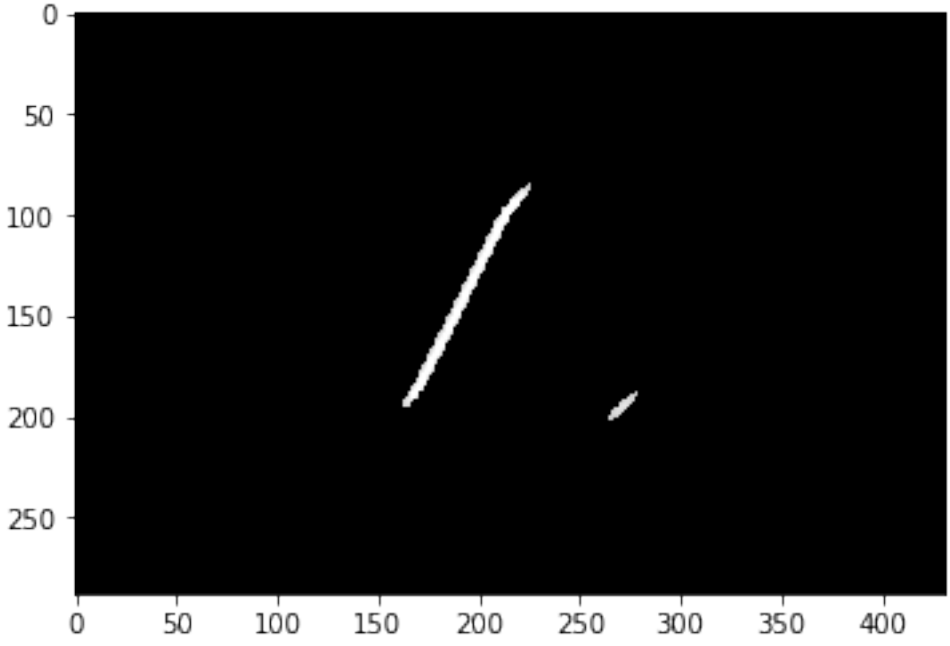

Figure 2: Gabor Response for Triangle Image

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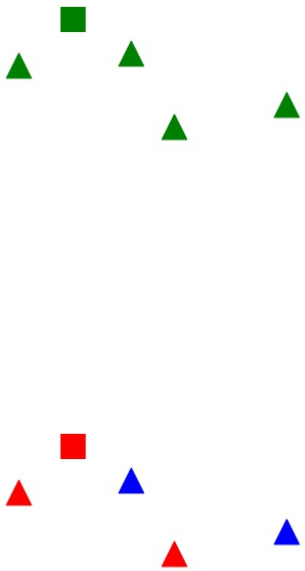
QUESTION 2

In this problem we had to simulate both feature search and conjunction search of feature integration theory. We used matplotlib and opencv library for the same. In feature search we had to consider only one feature that is shape of the object while in case of conjunction search we consider combination of features that is color and shape.For 4 objects the plots are given by:



After that we binary thresholded the image to find the contours and bounding box around that contour.

Individual image frames were also obtained which are compressed in the zip file.

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QUESTION
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In this part we simulated both the feature and conjunction search paradigm for different no of object. In case of feature search only shape feature was considered whereas in conjunction search both shape and color was used. The response time was generated using the noisy timer. The response time vs no of object plot is given as follows: