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HW4 Report

1)
For part 1 I am using the 'test2.jpg' image

Magnitude of gradient vector
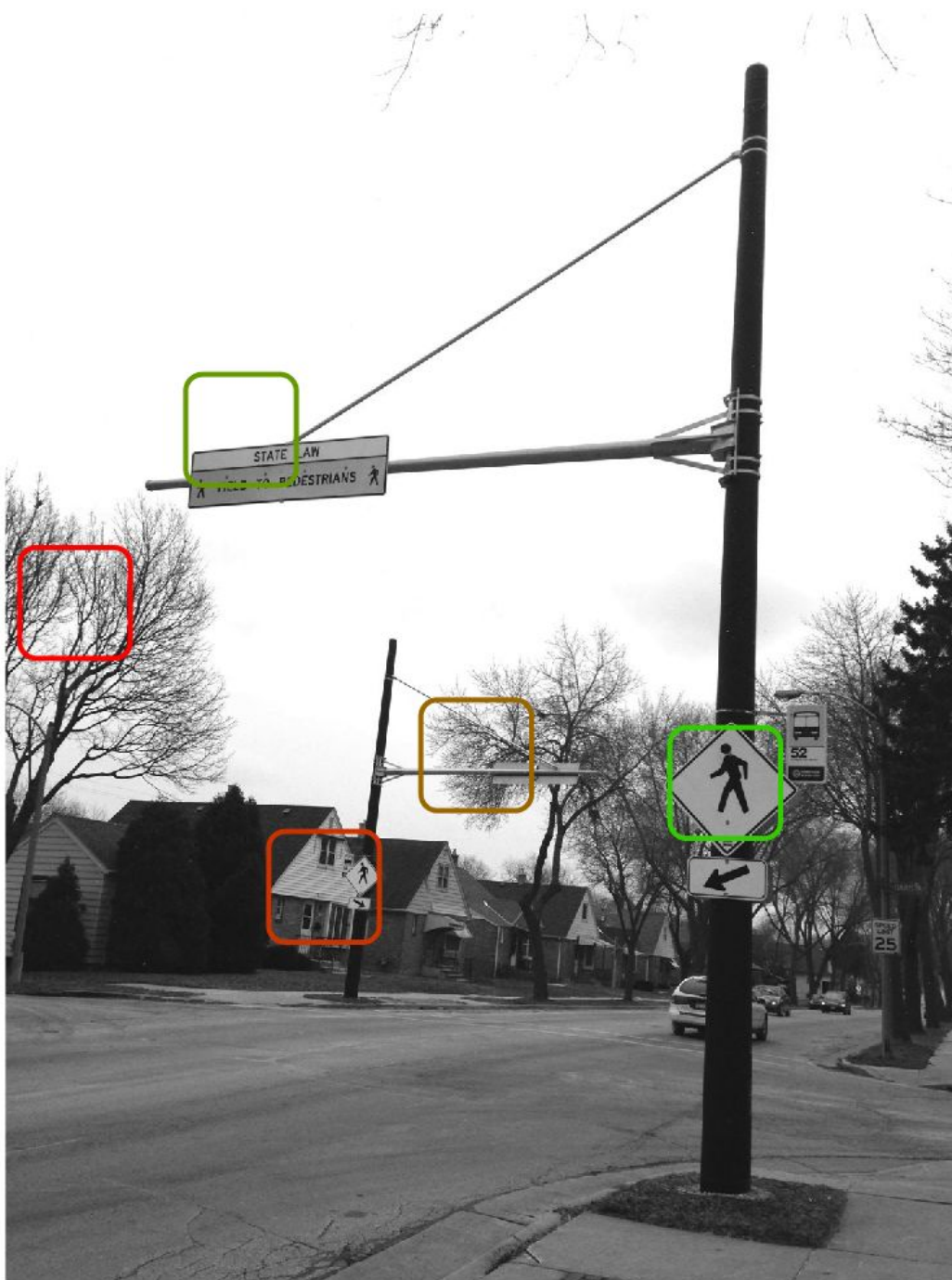

Orientation of gradient vector
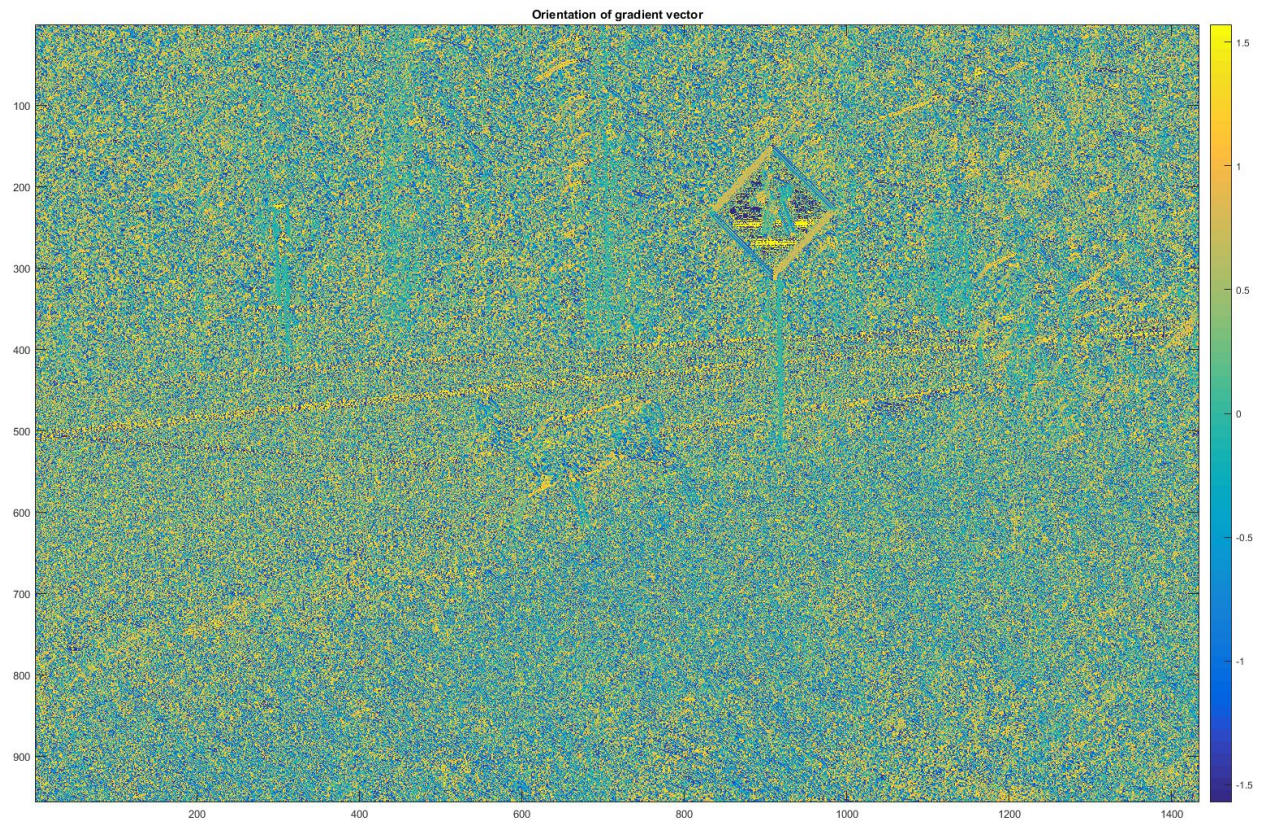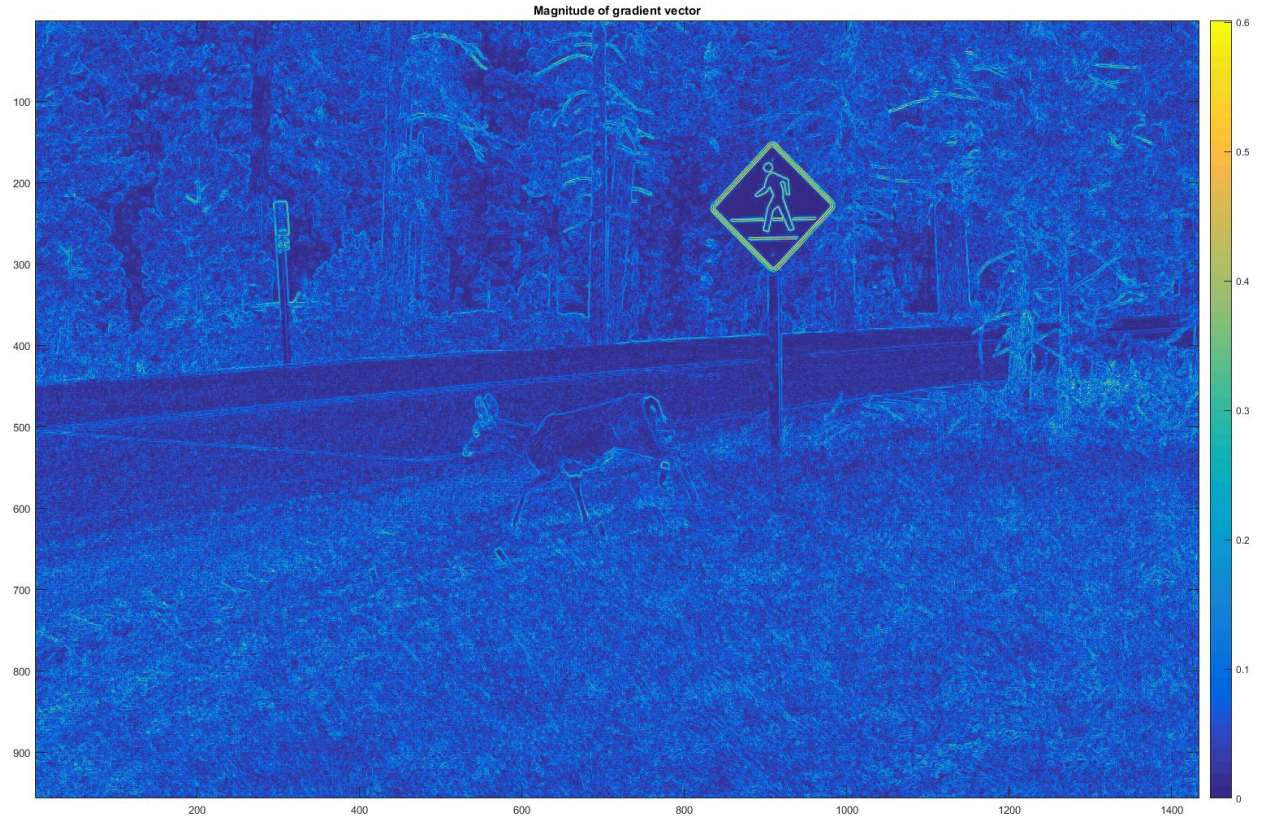
2) Here is the chosen patch from the training image

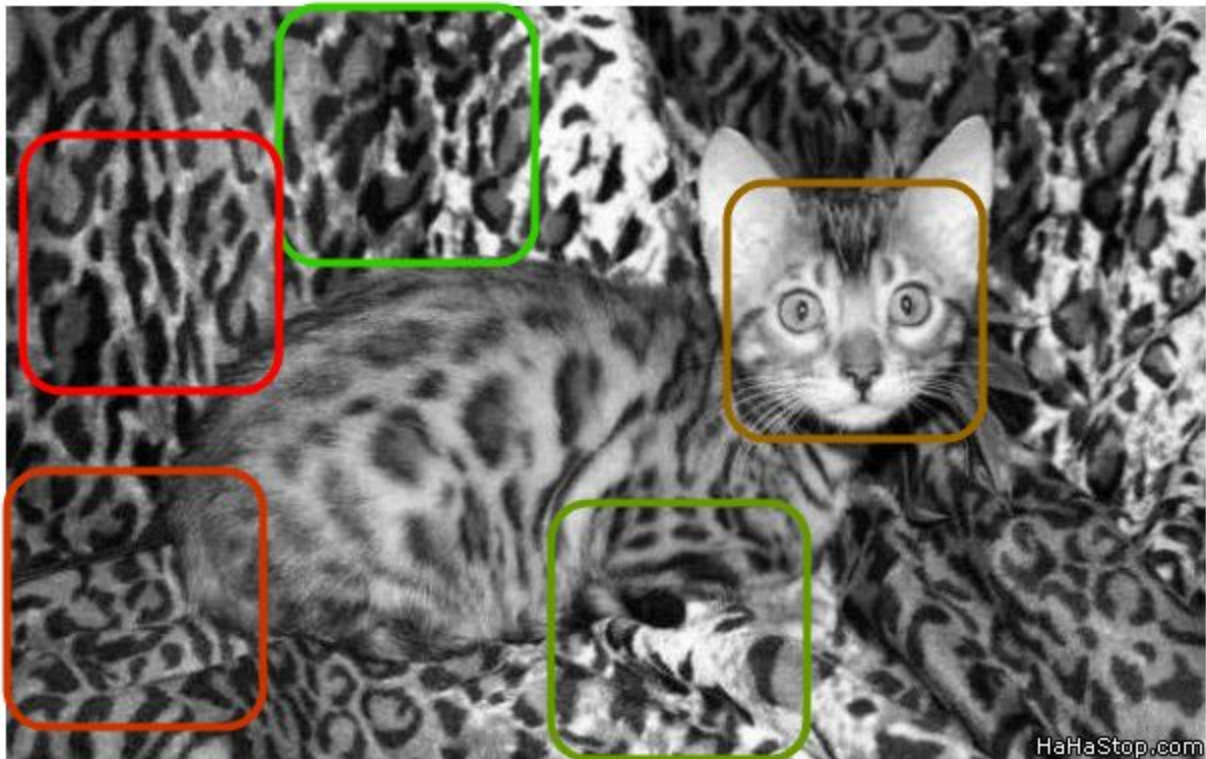And here is the detected objects on the test image (test3.jpg)

3)
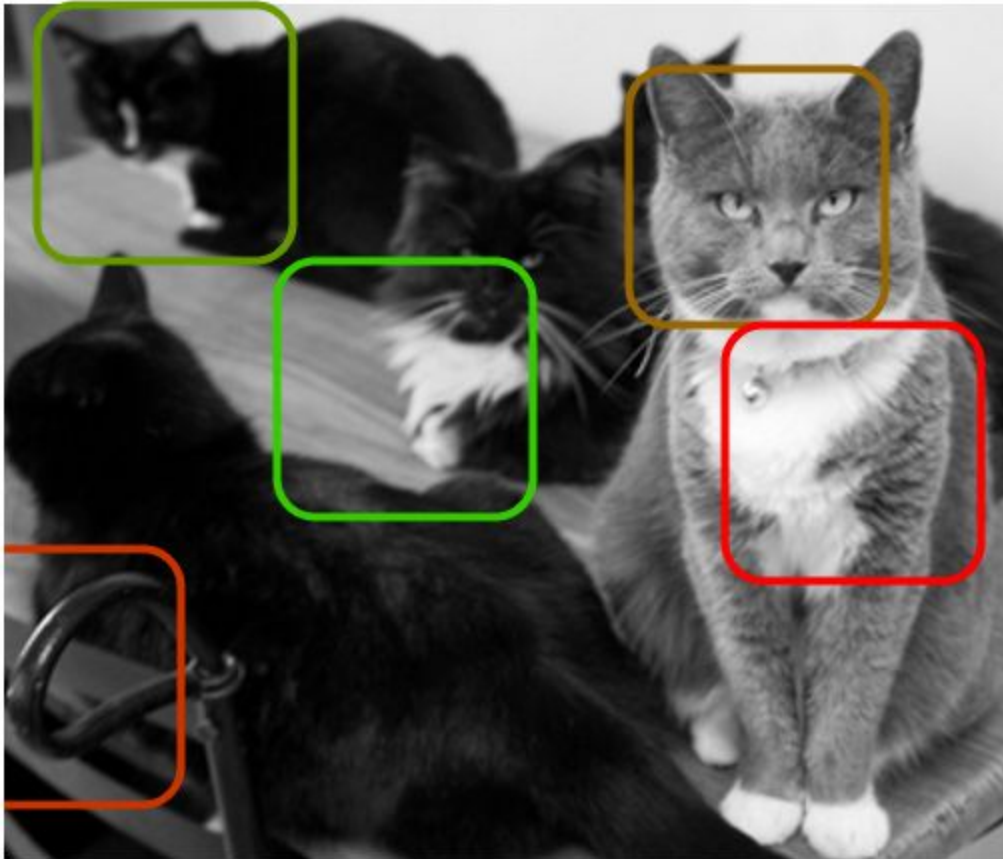I used this image as my cat training image
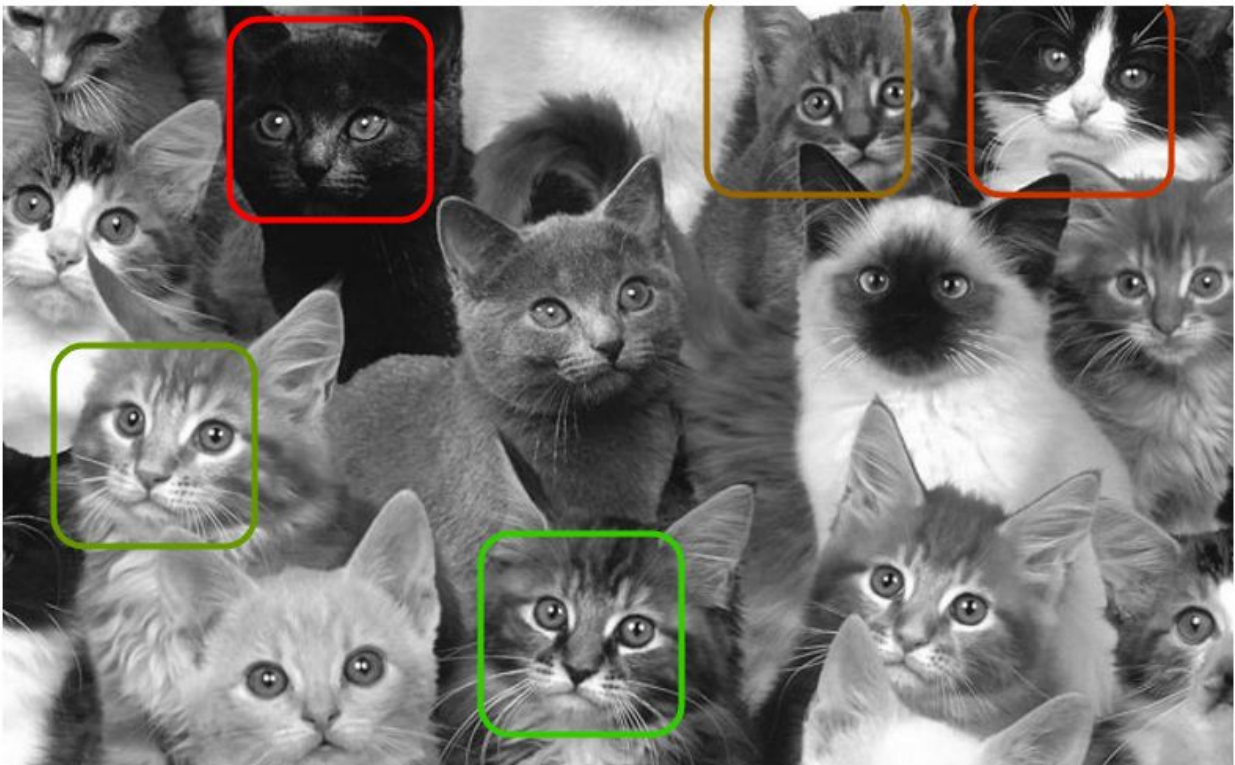
Here is the patches I trained on

And here is the result. I tried to find an image that would be difficult, it scored the cats face here 3rd out of the 5 candidates.

I also tested on this image with a similar template

Lastly I tried this setup of train, template, and test, as a best case scenario.

I think this kind of detector works best when you are searching for objects with sharp edges or that are very consistent in shape. It seemed to have a harder time with cat pictures than with the signs which it did well with most of the images. Cats have a lot fuzzier edges and have more shape/brightness variations than the sign pictures did. To make it better I would try to implement something that allows the templates to check the test image at different sizes because it is a strict stipulation that the size of objects needs to be very close to get good results because that is very uncommon in reality. Also I would like to try the keypoint alignment technique which seems very useful for faces especially!

Thank you