Brian Dinh
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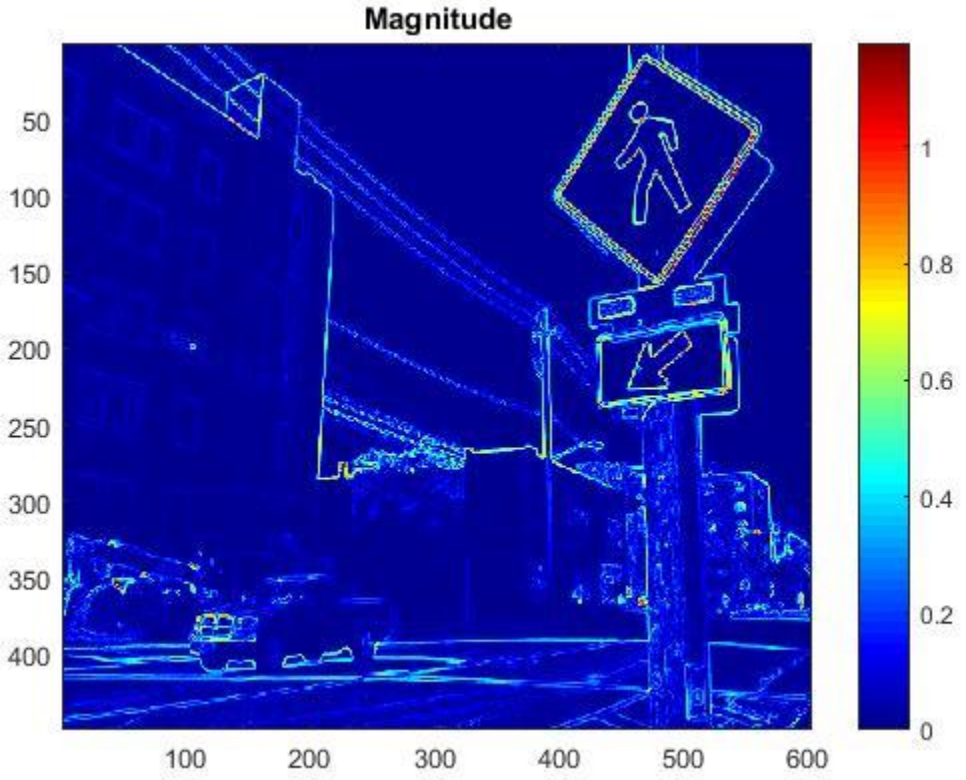
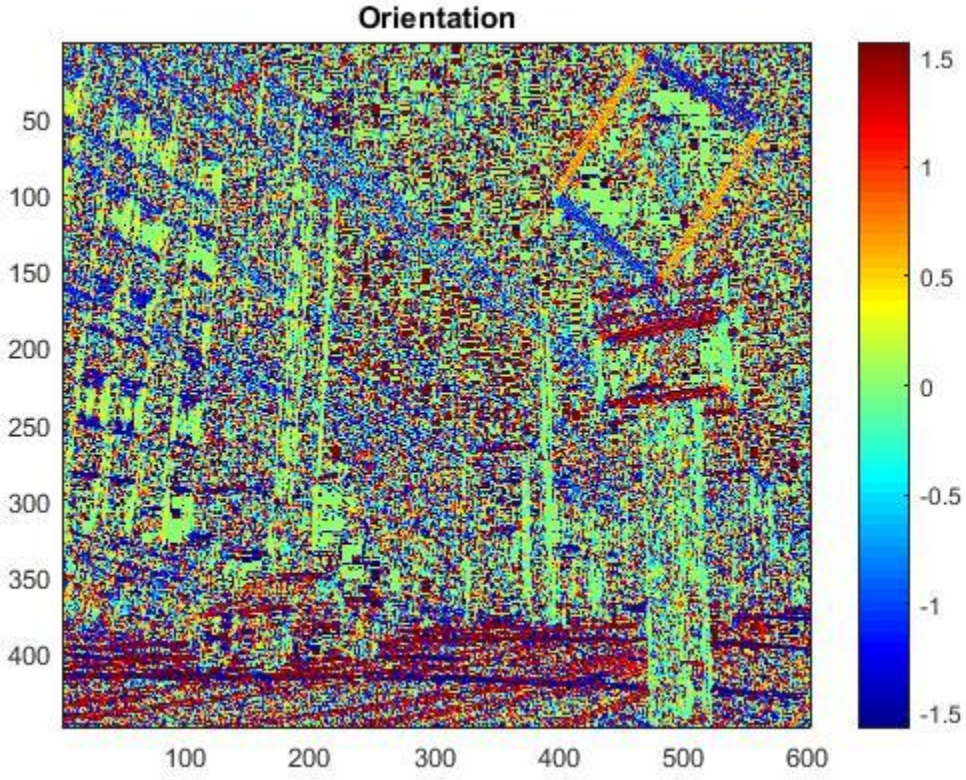
Homework 4

Homework 4 Write-up

Gradient results for ‘test1.jpg’ :





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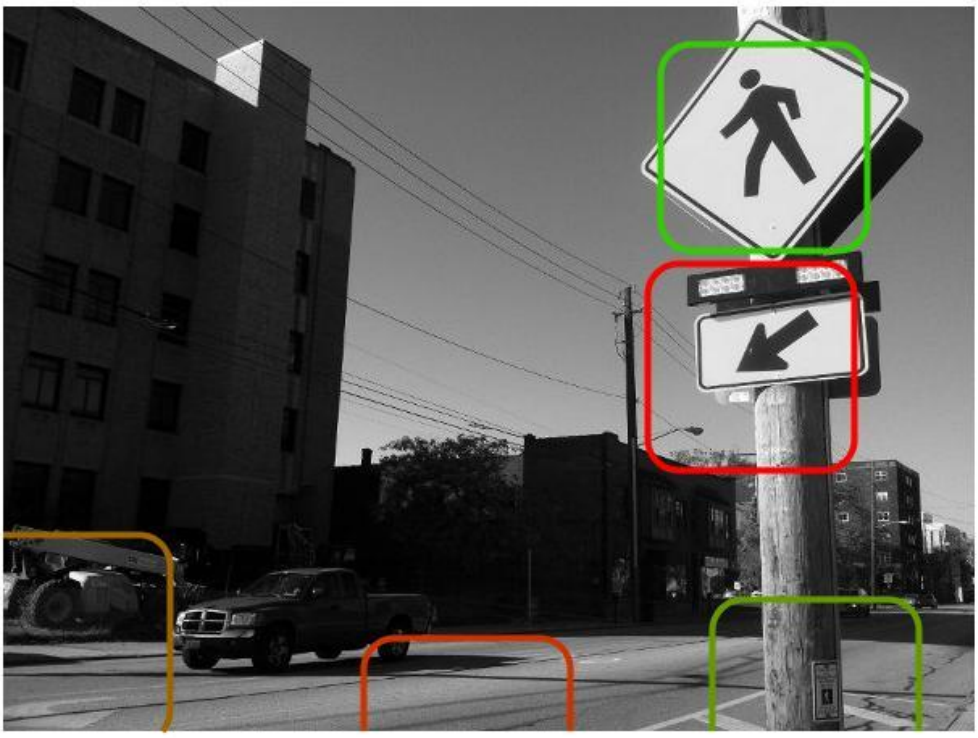
Training image: ‘test2.jpg’

Template:

Top 5 detections for ‘test1.jpg’ :



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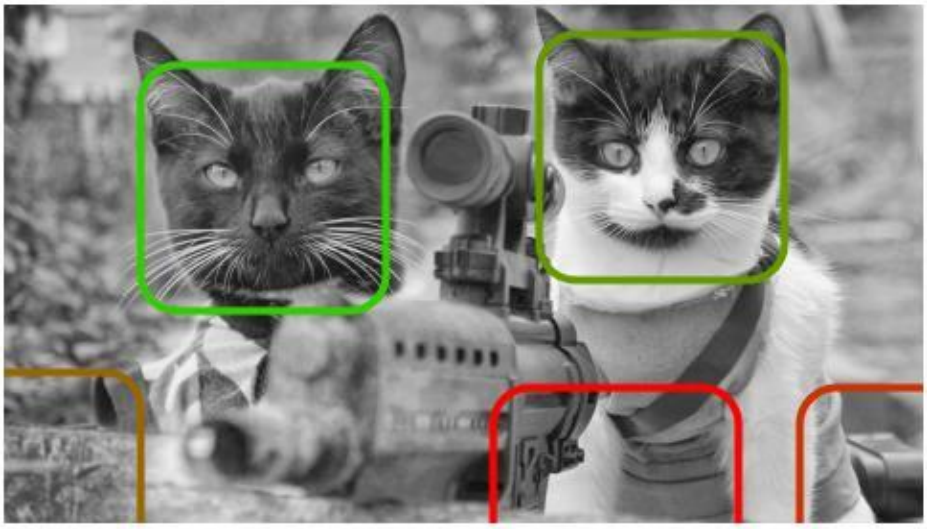
Cat faces:

Training image:

Templates:

Top 5 Detections:



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The detector works well when the objects are relatively the same size as the template, which by default is given as a 128x128 square. When I tried to test it on larger pictures (1920x1080 wallpapers of cats) the template fails because the 128x128 region did not capture the entire detail of the cat face. To get around that, I resized the training and test images of the cats to around the same size as the template and got a good result. The template also works better when the object being detected is mostly oriented the same way as the training example. For street signs that were too angled, etc., the detector fails to recognize the object. We can improve the detector by allowing the user to draw a rectangle around the objects they want to detect, and have the program dynamically resize the template according to the rectangle dimensions. We can also implement the spring concept for objects, so that the detector can recognize different orientations of it.