# 16-720 Computer Vision Spring 2016

# Azarakhsh Keipour (akeipour@andrew) Assignment 5

## Q 1.1 Image gradients

The ‘mygradient’ function implements computation of the image gradients using  filter[[1]](#footnote-1). The visualization of the magnitude and orientation of test images ‘test0’ and ‘test1’ is shown in Fig. 1 and Fig. 2 respectively.

|  |  |
| --- | --- |
| C:\Users\Azarakhsh\Desktop\CMU\Vision\Homework 5\My Code\results\q1.1_test0_mag.png | C:\Users\Azarakhsh\Desktop\CMU\Vision\Homework 5\My Code\results\q1.1_test0_ori.png |

Figure 1. Visualization of the magnitude (left image) and orientation (right image) of test image ‘test0.jpg’.

|  |  |
| --- | --- |
| C:\Users\Azarakhsh\Desktop\CMU\Vision\Homework 5\My Code\results\q1.1_test1_mag.png | C:\Users\Azarakhsh\Desktop\CMU\Vision\Homework 5\My Code\results\q1.1_test1_ori.png |

Figure 2. Visualization of the magnitude (left image) and orientation (right image) of test image ‘test1.jpg’.

## Q 1.2 Histograms of gradient orientation

The visualization of the histograms of gradient orientations of test images ‘test0’ and ‘test1’ is shown in Fig. 3.

|  |  |
| --- | --- |
| C:\Users\Azarakhsh\Desktop\CMU\Vision\Homework 5\My Code\results\q1.2_test0.png | C:\Users\Azarakhsh\Desktop\CMU\Vision\Homework 5\My Code\results\q1.2_test1.png |

Figure 3. Visualization of histograms of gradient orientation of test images ‘test0.jpg’ (left) and ‘test1.jpg’ (right).

## Q 1.3

1. As suggested in:

   N. Dalal and B. Triggs, "Histograms of oriented gradients for human detection," Computer Vision and Pattern Recognition, 2005. CVPR 2005. IEEE Computer Society Conference on, San Diego, CA, USA, 2005, pp. 886-893 vol. 1. [↑](#footnote-ref-1)