

**CSCI 5561: Computer Vision**  
**Prof. Hyun Soo Park**

HW1 Report | Name: Abinash Sinha | x500: sinha160



Figure 1

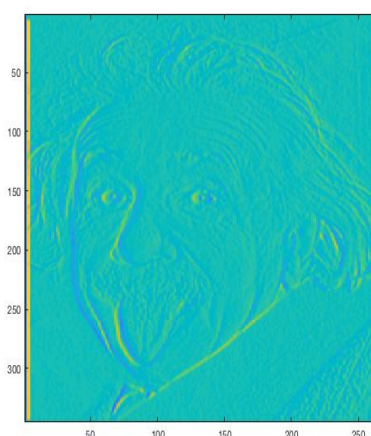


Figure 2

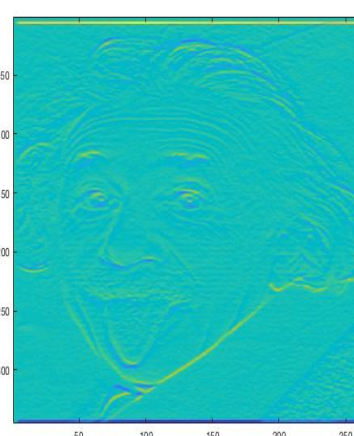


Figure 3

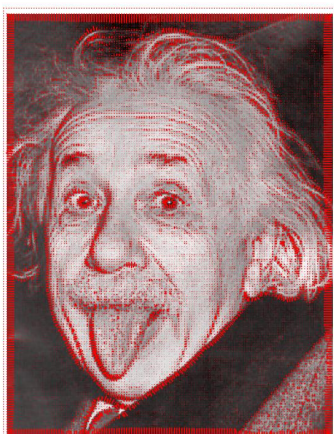


Figure 4

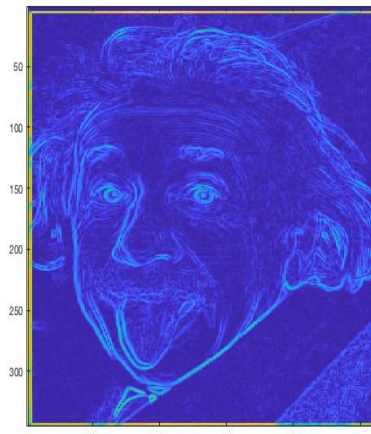


Figure 5

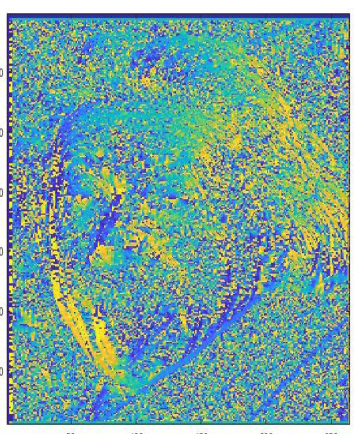


Figure 6

Figure 1 shows the orientation and relative magnitude of red lines which represent the perpendiculars to the gradients (which are basically the mid-point of each of the 6 bins in the histogram of each cell of size  $\text{cell\_size} \times \text{cell\_size}$ )

Figure 2 and Figure 3 show the image filtered along horizontal and vertical axes respectively using filters,  $\text{filter\_x} = [1 \ 0 \ -1; 1 \ 0 \ -1; 1 \ 0 \ -1]$  and  $\text{filter\_y} = [1 \ 1 \ 1; 0 \ 0 \ 0; -1 \ -1 \ -1]$  respectively.

Figure 4 represent the gradients (which are basically the mid-point of each of the 6 bins in the histogram of each cell of size  $\text{cell\_size} \times \text{cell\_size}$ ).

The intersecting 6 lines in Figure 1 and Figure 4 have been drawn at the center of cell calculated as  $\text{cell\_starting\_index} + \text{floor}(\text{cell\_size}/2)$  of particular cell.

Figure 5 and Figure 6 show the magnitudes of gradients and angles of gradients of the image.

The values represent the last 6 values of hog vector for  $\text{cell\_size} = 8$  and  $\text{block\_size} = 2$ .

0.4026

0.0833

0.0331

0.4357

0

0.0359