

ECE 5470 Digital Image Processing Homework # 12

Due Date: May 13, 2020 4:00 pm

1. Edge Detection

Download the images Fig12-1.tif. Write MATLAB code to detect edges using the following algorithms. If you need to apply smoothing (5x5) before edge detection, that is fine too.

a. Sobel

| | | | | | |
|----|----|----|----|---|---|
| -1 | -2 | -1 | -1 | 0 | 1 |
| 0 | 0 | 0 | -2 | 0 | 2 |
| 1 | 2 | 1 | -1 | 0 | 1 |

Sobel

b. LoG

| | | |
|----|----|----|
| -1 | -1 | -1 |
| -1 | 8 | -1 |
| -1 | -1 | -1 |

- c. Take the threshold of LoG output and display the result
- d. Zero crossing of LoG and display the result

2. Thresholding

Download the images Fig7-2.tif. The image is corrupted by sinusoidal shading.

Write MATLAB code to eliminate the sinusoidal shading and apply thresholding to make the text in the image clear.