

LAB 7- Feature Extraction Using Segmentation and Edge Detection- Chapter 8- MATLAB for Image Processing

Lab Report Due: - March 30, 2006.

In this Lab. we do experiments in Chapter 8, pages 8-1 to 8-4. We look at

Image thresholding
Edge detection

You can read the material on Image Segmentation, but we will not be doing that in this Lab.

1. Image Thresholding

Do the following:

- Do the experiments on page 8-3.
- See if you can figure out how `imadjust` works; but don't spend more than 5 minutes on it.
- Load "images" as you have done before and find the estimate of its pdf using `imhist`. (Note that you may have to convert to `uint8`). Since many image processing, computer vision and statistical signal processing tasks entail estimating pdfs or at least some low order statistics, just get a sense of the pdf of natural images. Is it Gaussian?

2. Edge Detection

- Do the experiments on page 8-4.
- Invoke `edgedemo` and look at the effects of the various popular edge detectors. Use one image, say `vertigo` and see how the various edge detectors handles corners. Does Canny do better or worse than the others? (Keep $\sigma = 1$) for Canny. Just get a simple qualitative sense of edge detector behavior since it is difficult to generate a quantitative measure of performance.
- Now invoke `edge`. Work with `cameraman`. Try `canny` and different thresholds and see how that affects edges.
- Now add noise using `imnoise` and try `canny` again.

REPORT

1. Comment on 1.
2. Comment on 2.

Reference: Feature Extraction using Segmentation and Edge Detection, Chapter 8 from MATLAB for Image Processing. Programs from IPO1.

Class notes:mirchand/ee276