

CAP5415 Computer Vision
Programming Assignment # 2

1. Implement Canny Edge Detector for gray scale images. This would include
 - a. Convolution with partial derivatives of gaussian in x and y (you can use the convolution function from the last assignment). You may also want to write separate functions to generate derivatives of Gaussian Kernels for different values of σ).
 - b. Finding the gradient magnitude image.
 - c. Non-Maximum Suppression. (The input of this module will be the output image of part (b))
 - d. Hysteresis Thresholding (The input of this module will be the output image of part 'c' and the output will be a binary image).

Experiment with different values of σ and thresholds for input images.

2. Implement Hough Transform algorithm for line detection (may be multiple lines) from binary images. The output of this module would be a binary image with fitted lines. Experiment with different quantizations and thresholds.
3. Implement Least Square Fitting algorithm for line detection (single line) from binary images. Once again, the output would be a binary image with fitted line.
4. Implement Maximum likelihood line fitting algorithm (single line) from binary images. (You are allowed to use MATLAB function or other libraries for computing Eigen Vectors.)

Deliverables:

1. Report including Input and Output images (Soft Copy)
2. Code (Soft copy)

Send your assignments by email to rcen@cs.ucf.edu or webct.

Submission Deadline: March 6, 2003 (23:59)