

Intro to Computer Vision - Assignment #1

Edge Detection

Due: Friday, April 18

For this programming assignment you will implement Canny's edge detection algorithm as described in class and the handout available on the webpage.

Your program should take as input a grayscale image and the edge detection parameters. The edge detection parameters are the sigma for the gaussian convolution and the gradient magnitude threshold. The output of your program should be a binary image.

Note that you should implement gaussian convolution as a sequence of horizontal and vertical convolutions.

Also note that if you implement the peak/ridge detection step correctly the output of your program should NOT have fat edges!

You should turn in your source code and the result of running your program on the test images that are on the class webpage. You should also turn in a small write-up explaining what each part of your code does.

There are some C++ image manipulation routines on the webpage that implement a simple image datatype and take care of loading/saving images. You can use other programming languages as long as you have a way to load and save images. Note that some languages such as Matlab have lots of image processing utilities built-in. For this assignment you should not use any predefined image processing routines, except for the I/O functions.