

Jack Melcher
67574625
EECS 101
HW5

I take the SGM binary image and find points that are considered part of an edge. I then loop through all values of theta (0 to 179) and substitute that value into the line equation to find rho.

The voting array is size [180][400]. The 180 is for theta in degrees from 0 to 179 degrees. The max and min value of rho for the 640 by 480 image is -800 to +800 but the voting array is of size 400, -200 to +200. So because the resolution is 4 steps, I divide rho by 4 and then add 200. I then increment the appropriate voting slot of [theta][rho].

After normalizing the voting array, I use a hough threshold of 150 as it eliminates all the noise and leaves behind the local maximas.

To reconstruct the image using the voting array, I loop through voting array to find the local maximas. When one is reached, I loop through and substitute in every x and y value of the original image size and substitute them into the line equation with the corresponding rho and theta. If the x, y, rho, and theta make the equation equal zero, then a white pixel is drawn in the reconstructed image. This results in a reconstructed image with lines being drawn that correspond to the edges present in the original image.