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CSCI 431

HW06

Abstract

We use convolution in order to use filters to process the image in different ways. Filters such as the Sobel filter uses differencing to find edges while Gaussian filters smooth the image out.

Questions

1. The results of the filters are the same except the one I created does not copy the edges in, since I initialize with the array of zeros instead of the original image.
2. The two filters create different types of images. The first filter is a differencing filter, emphasizing the edges of the image. The Gaussian filter smooths out the image instead and blurs some of the image.

Conclusion

To filter the image, I used for loops in order to go through every pixel and sum up the values by multiplying it by the filter, which uses more for loops to go through every value in the filter. The filter itself has different values to put more weight on some pixels than others. To compare the images, I used imabsdiff to see the differences between the expected answer and my algorithm. For the most part, it seemed to be pretty similar. One issue was trying to figure out how to get the pixel from the image relative to the matrix. I eventually solved that by doing some arithmetic with the values.