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ECE 533
Project Proposal

Project Description:

The goal of my project is to explore the image denoising algorithm of wavelet thresholding and comparing it to predefined image denoising algorithms. An original image will have noise introduced into it and then multiple image denoising algorithms from OpenCV will be implemented. Each algorithm will then be compared to one another and then finally to the wavelet thresholding denoising algorithm.

Implementation:

I plan to implement the wavelet thresholding denoising algorithm myself, and then using the existing OpenCV library to implement the other denoising algorithms.

Programming Language:

I intend to use Python 3 for this project.

Testing:

Each algorithm will be tested by quantitatively comparing the signal to noise ratio to the other image denoising algorithms, as well as visual quality of the images.

References:

Survey of Image Denoising Techniques

<https://www.cse.unr.edu/~fredh/papers/conf/034-asoidt/paper.pdf>

Denoising functional MR images: a comparison of wavelet denoising and Gaussian smoothing

<http://ieeexplore.ieee.org/abstract/document/1269883/>

Image Database

http://www.imageprocessingplace.com/root_files_V3/image_databases.htm

OpenCV Documentation

https://docs.opencv.org/3.3.1/d5/d69/tutorial_py_non_local_means.html