

Abstract Submitted
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A Novel Method of Line Detection without Noise Interferences using Pixel Voting DANIEL LIN, BO SUN, Oregon State Univ — Images generated by machines are often plagued with noises, or unwanted signals generated by machines, that might degrade the visibility of the images and thus make objects on them such as lines hard to be detected by computers and the naked eyes. Existing line detection algorithms, such as Canny Edge Detection, pre-processes the image using filtering algorithms such as Gaussian Smoothing to perform noise removal. However, most filters require the user to adjust their input parameters, which can add computational complexities to the algorithm depending on the parameter size. We designed a versatile line detection algorithm that can detect lines on images without the need of filters. The algorithm accepts a raw, unprocessed image, generates a noise-free reference image of the same size, and overlaps the reference image to the raw image. Our algorithm successfully detected fiber structures in the real confocal reflection images of collagen gel that was filled with various image noises.

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