noise level of 5%. When the level of noise is very high its results are the worst. Our proposed clustering-based edge detector produces as good result as Canny at lower level of noises. But it shows more resilience to very high level of noise. From the figures, we can observe that result by our method at 30% of noise level is better than that by Canny. However, we acknowledge that our method incurs some small islands of false edges that Canny does not.

For the images corrupted with Gaussian noises, Sobel fairs better but Canny performs worse than before. However, the performances of both methods are worse than our proposed method as can be clearly observed in the figures.

5 Conclusion

The results presented in this paper are preliminary but are sufficient enough to show that using variance, entropy, gradient, and busyness values of the image pixel as features for k-means clustering coupled with silhouette analysis is a good method for detecting edge for noisy images. As for future work, we will try to find out better filtering techniques to remove the small islands of false edges from our results. We also plan to modify our algorithm to detect edges from color images directly without converting it to grayscale.

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