

Artifact Evaluation on Noisy Contents

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Abstract. In this article, we present a novel artifact evaluation method. This article firstly begin with 2D discrete wavelet transform explanation. Then, the proposed evaluation method is presented based on Donoho's wavelet method. The result section informs that the proposed algorithm yields favorable results with good performance.

Keywords: mean, noise, CFA, artifact, variance, image.

1 Introduction

Images can be corrupted by noise in many ways with different stages such as obtaining, storage and transmission [1]. The artifacts level evaluation corrupted by noise are crucial topic in image and video processing [2,3]. There have been several techniques that planned noise removal issue [4-33].

This article presents artifact evaluation method. The remaining of this article is organized as follows. In Section 2, noise model is explained. Sections 3 and 4 explain 2D discrete wavelet transform and the experimental results. Finally Section 5 concludes the article.

2 Model Design

It is known that an image is contaminated by zero-mean, additive white Gaussian noise with anonymous deviation σ_n . Then the noisy image can be modeled as,

$$I(n)=S(n) \eta(n)+ \tag{1}$$

Here, $I(n)$ is the supervised noisy contents, $S(n)$ is the original contents without any noise, and $\eta(n)$ is the noisy contents at time instant n . To evaluate artifact level of noisy CFA contents, one can supplement noise in the procedure before white balance.

3 2D Discrete Wavelet Transform

Figure 1 shows the outline of 2D wavelet transform.

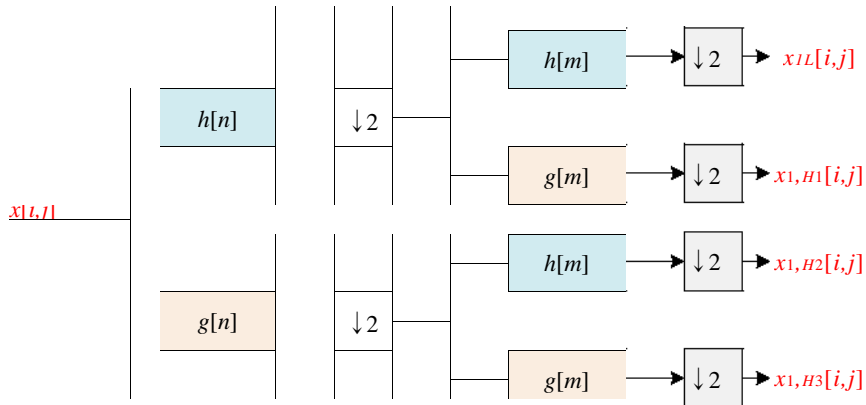


Fig. 1. The outline of 2D wavelet transform.

4 Experimental Results

Figure 2 shows the simulated average results of 10 LC images [34].

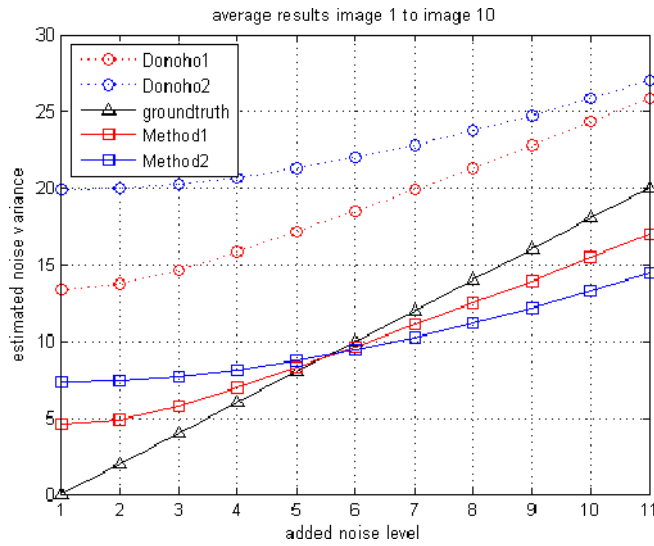


Fig. 2. Simulation results on 10 LC images: average results of 10 images.

5 Conclusions

We present a novel artifact level evaluation method. The presented method is an advanced version of Donoho's approach.

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