Deep Learning Approach for Image Denoising and Image Demosaicing

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Abstract

Color image normally contain of three main colors at the each pixel, but the digital cameras capture only one color at each pixel using color filter array (CFA). While through capturing in color image, some noise/artifacts is added. So, the both demosaicing and de-noising are the first essential task in digital camera. Here, both the technique can be solve sequentially and independently. A conventional neural network based de-noising technique has applied for the removal of noise/artifacts. Afterwards, frequency based demosaicing with the convolutional neural network based image reconstruction algorithm is apply to acquire another two missing color component. The result analysis presented in this paper demonstrate that our proposed de-nosing and demosaicing exhibits the better performance and it is applicable for a large variety of images.

References


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Index Terms

Computer Science Image Processing

Keywords

Demosaicing, Color image, Color filter array (CFA), Digital camera, Conventional neural network (CNN)