

Deferred slanted-edge analysis: A unified approach to Spatial Frequency Response measurement on distorted images and Colour Filter Array subsets

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**Abstract**

The slanted-edge method of spatial frequency response (SFR) measurement is usually applied to grayscale images under the assumption that any distortion of the expected straight edge is negligible. By decoupling the edge orientation and position estimation step from the edge spread function construction step, it is shown in this paper that the slanted-edge method can be extended to allow it to be applied to images suffering from significant geometric distortion, such as produced by equiangular fisheye lenses. This same decoupling also allows the slanted-edge method to be applied directly to Bayer-mosaicked images so that the SFR of the color filter array subsets can be measured directly without the unwanted influence of demosaicking artifacts. Numerical simulation results are presented to demonstrate the efficacy of the proposed deferred slanted-edge method in relation to existing methods.