A Practical Evaluation Model for the Improvement of the Quality of Image Contrast

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Abstract. The principle of image enhancement is based on increasing the contrast between adjacent pixels, enabling viewers to visually perceive images with greater detail in the textures and edges. Many contrast enhancement methods have been proposed to improve the quality of images and most of these methods are based histogram equalization (HE); however, the actual results remain uncertain due to the lack of an objective evaluation procedure with which to measure them. This paper proposes a quantitative analysis method for the assessment of image quality, named the practical image contrast enhancement quality index (PIQI), based on several subjective and objective evaluation metrics. This study used PIQI to evaluate various contrast enhancement methods, outlines the effects and discusses the implications.

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