عنوان مقاله:

Subjective and Objective Quality Assessment of Image: A Survey

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خلاصه مقاله:

With the increasing demand for image-based applications, the efficient and reliable evaluation of image quality has increased in importance. Measuring the image quality is of fundamental importance for numerous image processing applications, where the goal of image quality assessment (IQA) methods is to automatically evaluate the quality of images in agreement with human quality judgments. Numerous IQA methods have been proposed over the past years to fulfill this goal. In this paper, a survey of the quality assessment methods for conventional image signals, as well as the newly emerged ones, which includes the high dynamic range (HDR) and ۳-D images, is presented. A comprehensive explanation of the subjective and objective IQA and their classification is provided. Six widely used subjective quality datasets, and performance measures are reviewed. Emphasis is given to the full-reference image quality assessment (FR-IQA) methods, and ۹ often-used quality measures (including mean squared error (MSE), structural similarity index (SSIM), multi-scale structural similarity index (MS-SSIM), visual information fidelity (VIF), most apparent distortion (MAD), feature similarity measure (FSIM), feature similarity measure for color images (FSIMC), dynamic range independent measure (DRIM), and tone-mapped images quality index (TMQI)) are carefully described, and their performance and computation time on four subjective quality datasets are evaluated. Furthermore, a brief introduction to ۳-D IQA is provided and the issues related to this area of research are reviewed.

کلمات کلیدی:

Image Quality Assessment (IQA), en, High Dynamic Range (HDR) Images, Full-Reference (FR), Reduced-Reference (RR), No-Reference (NR)

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