Abstract

This paper presents the comparative analysis of various quality metrics for medical image processing. Measurement of image quality is vital for numerous image-processing applications. Image quality measurement is closely related to image resemblance and assessment in which quality is based on the differences (or similarity) between a degraded image and that of the original image i.e. unmodified image chiefly in mammographic images. We have employed simple verifiable techniques for representing the image quality rather than difficult mathematical procedures, which are costly, time consuming and observer dependent. In this paper, the images have been subjected to various degrees of blur, noise, compression, contrast levels. Based on these factors, the quality has been measured in terms of metrics like Mean Squared Error (MSE), Peak Signal-to-Noise Ratio (PSNR), Maximum difference (MD) including new metric of image qualities such as Structural Similarity Index Metrics (SSIM) for low cost medical image analysis.

References

Assessment of Diverse Quality Metrics for Medical Images Including Mammography

- American Cancer Society; &quot;Breast Cancer Facts & Figures&quot;, Inc. 2009-2010.
- H. B. Kekre, T. K. Sarode, S. M. Gharge; &quot;Tumor Detection in Mammography Images using Vector Quantization Technique&quot;, International Journal of Intelligent
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Keywords

Image quality analysis  Mean Square Error (MSE)  Structural Similarity Index Metric (SSIM)  Peak Signal to Noise Ratio (PSNR)

Mean Absolute Error (MAE)