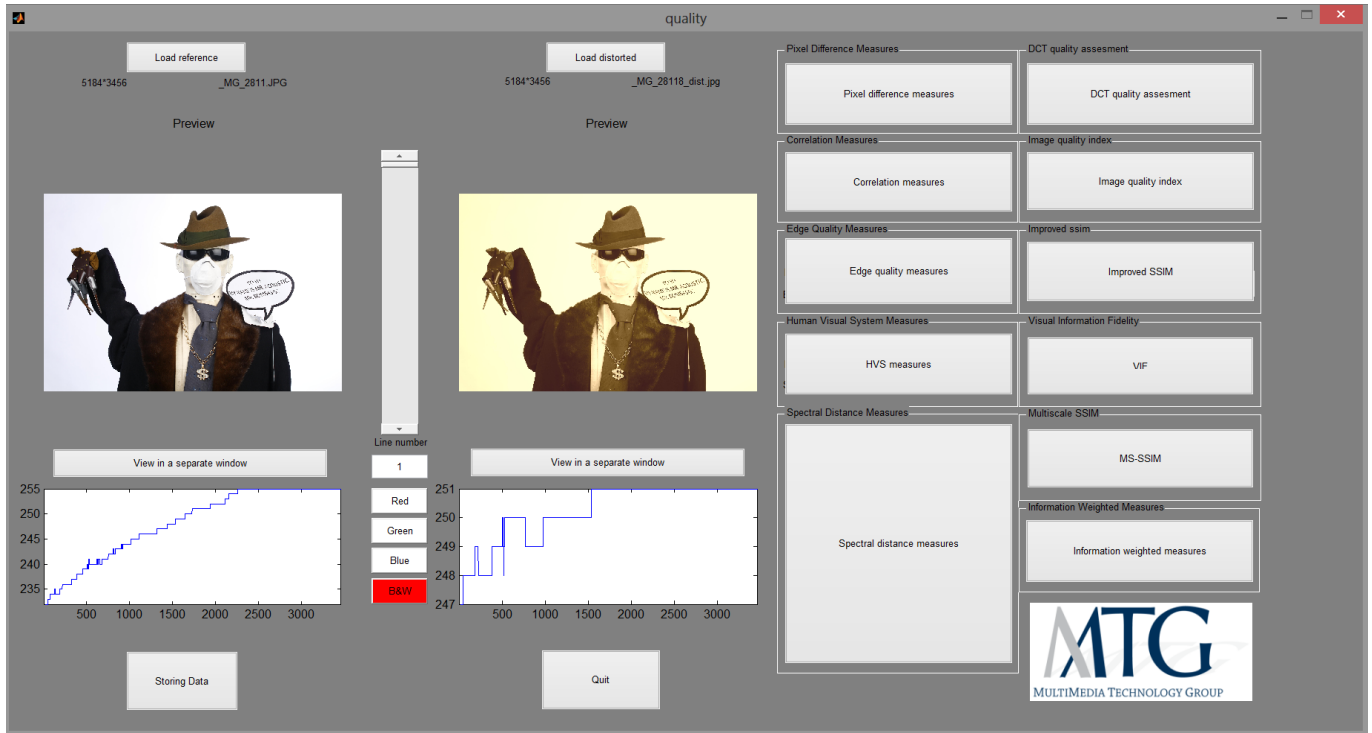


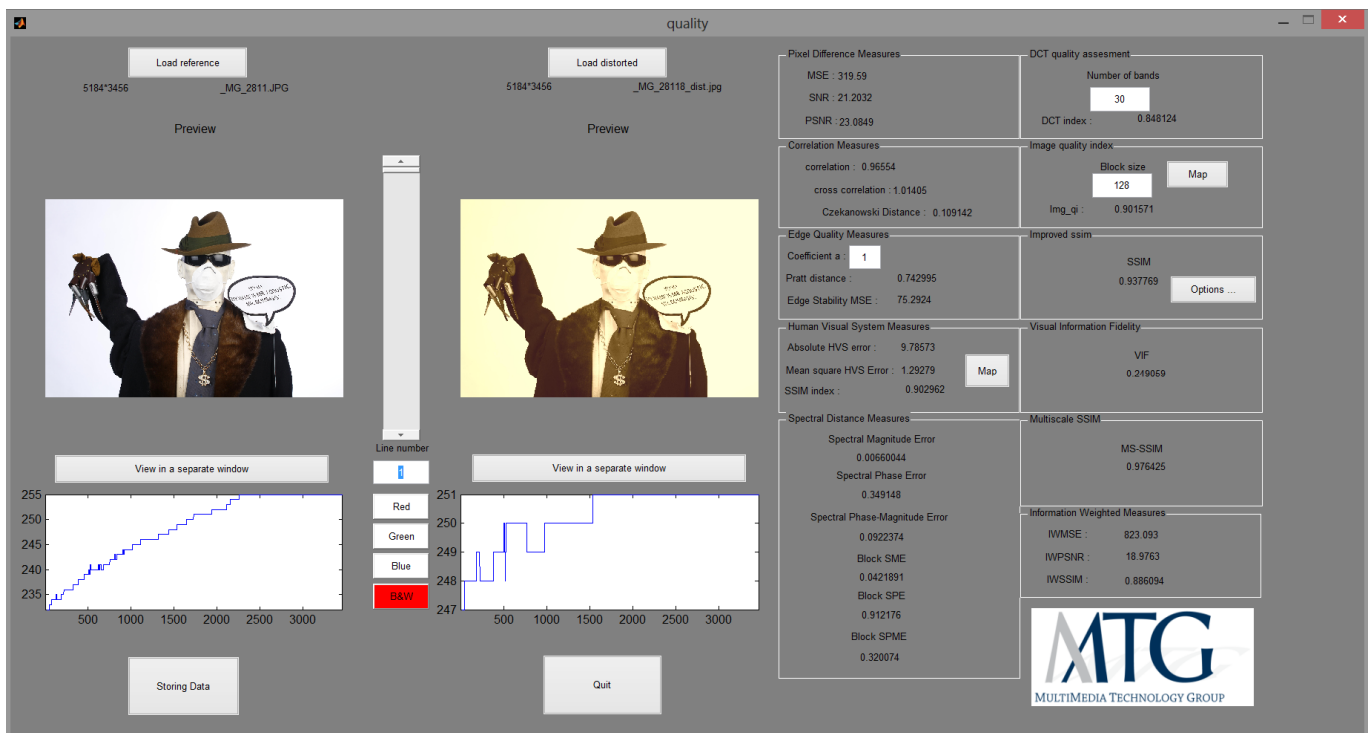
Full-Reference Image Quality Assessment Tool

This simple MATLAB-based quality assessment tool enables the user to comfortably calculate a number of image quality metrics' values. It provides an intuitive graphical interface for loading the images, calculating selected metrics and storing the data in a text file.

After loading the reference and the distorted image, the following screen appears.



The metrics' values can be calculated in luminance or any of the RGB color channels (the button of the selected channel is red). By clicking on the buttons on the right, the particular metric (or groups of metrics) will be calculated.



Clicking on “Storing Data” button will open a dialog enabling to save the results as a text file in the user specified location.

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Implemented metrics:

Mean Squared Error – MSE
 Signal to Noise Ratio – SNR
 Peak Signal to Noise Ratio – PSNR
 Correlation
 Cross-Correlation
 Czekanowski Distance
 Pratt Distance [1]
 Edge Stability MSE [2]
 Absolute HVS Error [2]
 HVS MSE [2]
 SSIM [3]
 MS-SSIM [4]
 Spectral Magnitude Distortion [2]
 Spectral Phase Distortion [2]
 Weighted Spectral Phase-Magnitude Distortion [2]
 Block Spectral Magnitude Distortion [2]
 Block Spectral Phase Distortion [2]
 Block Weighted Spectral Phase-Magnitude Distortion [2]
 DCT Index
 Universal Image Quality Index – UIQI [5]
 Visual Information Fidelity – VIF [6]
 Information Weighted MSE – IWMSE [7]
 Information Weighted PSNR – IWPSNR [7]
 Information Weighted SSIM – IWSSIM [7]

Reference:

- [1] W. K. Pratt, *Digital Image Processing*, Wiley, New York (1978).
- [2] İ. Avcıbaşı, B. Sankur, K. Sayood, “Statistical evaluation of image quality measures,” *Journal of Electronic Imaging*, Vol. 11, No. 2, Apr 2002, pp. 206-223.
- [3] Z. Wang, et al., “Image quality assessment: From error visibility to structural similarity,” *IEEE Transactions on Image Processing*, Vol. 13, No. 4, April. 2004, pp. 600-612.
- [4] Z. Wang, E. P. Simoncelli, A. C. Bovik, “Multi- Scale Structural Similarity for Image Quality Assessment,” in *IEEE Asilomar Conference on Signal, Systems and Computers*, Vol. 2, November 2003, pp. 1398–1402.
- [5] Z. Wang, A. C. Bovik, “A Universal Image Quality Index,” *IEEE Signal Processing Letters*, March 2002, vol. 9, no. 3, p. 81-84.
- [6] H. R. Sheikh, A. C. Bovik, “Image information and visual quality,” *IEEE Transaction on Image Processing*, vol. 15, no. 2, February 2006.
- [7] Z. Wang and Q. Li, “Information Content Weighting for Perceptual Image Quality Assessment,” *IEEE Transactions on Image Processing*, vol. 20, no. 5, pp. 1185–1198, May 2011.