Abstract

This paper is concerned with critical performance analysis of spatial linear restoration techniques for still images from various fields (Medical, Natural and Arial images). The performances of the linear restoration techniques are provided with possible combination of various additive noises and images from diversified fields. Efficiency of linear restoration techniques according to difference distortion and correlation distortion metrics is computed. Tests performed on monochrome images, with various synthetic and real-life degradations, without and with noise, in single frame scenarios, showed good results, both in subjective terms and in terms of the increase of signal to noise ratio (ISNR) measure. The comparison of the present approach with previous individual methods in terms of mean square error, peak signal-to-noise ratio, and normalized absolute error is also provided. In comparisons with other state of art methods, our approach yields better to optimization, and shows to be applicable to a much wider range of noises. We discuss how experimental results are useful to guide to select the effective combination.
References

- Jean Tarel, Nicolas, "Fast visibility restoration from a single gray level images," LCPC-INRETST (LEPSIS), Paris France.
Performance Analysis and Optimization of Linear Restoration in Spatial Domain


Index Terms

Computer Science

Image Processing

Keywords

Linear image restoration  Correlation distortion metrics  Wiener filter  Monochrome image denoising

Additive noise