Removing mixture of Gaussian and Impulse noise of images using sparse coding

ABSTRACT

Real images contain different types of noises and a very difficult process is to remove mixed noise in any type of them. Additive White Gaussian Noise (AWGN) coupled with Impulse Noise (IN) is a typical method. Many mixed noise removal methods are based on a detection method that generates artificial products in case of high noise levels. In this article, we suggest an active weighted approach for mixed noise reduction, defined as Weighted Encoding Sparse Noise Reduction (WESNR), encoded in sparse non-local regulation. The algorithm utilizes a non-local self-similarity feature of image in the sparse coding framework and a pre-learned Principal Component Analysis (PCA) dictionary. Experimental results show that both the quantitative and the visual quality, the proposed WESNR method achieves better results of the other technique in terms of PSNR.