Abstract

Medical image denoising is the main step in medical diagnosis, which removes the noise without affecting relevant features of the image. There are many algorithms that can be used to reduce the noise such as: threshold and the sparse representation. The K-SVD is one of the most popular sparse representation algorithms, which is depend on Orthogonal Matching Pursuit (OMP) and Discrete Cosine Transform (DCT) dictionary. In this paper, an algorithm for image denoising was designed to develop K-SVD by using Regularized Orthogonal Matching Pursuit (ROMP) over log Gabor wavelet adaptive dictionary. To evaluate the performance of the proposed techniques, the results were compared with the results of DCT and Gabor wavelet dictionary. The numerical results show that the performance of our algorithm is more efficient in medical image denoising.


Index Terms
Computer Science Image Processing

Keywords
Sparse representation (SR), K-SVD, log-Gabor wavelet dictionary, regularized orthogonal matching pursuit and orthogonal matching pursuit.