Resolution Enhancement and Denoising of Magnetic Resonance Images Using SWT

B Sridevi 1, Dr. T Anil Kumar2 and Prof. K. Kishan Rao3

1 Research Scholar, Department of Electronics and Communication Engineering,
JNT University, Hyderabad, Telangana.
2 Professor, Department of Electronics and Communication Engineering
3 Director, Vaagdevi College of Engineering, Warangal, Telangana
vaayvijj_1511@yahoo.co.in, tvakumar2000@yahoo.co.in, prof_kkr@rediffmail.com

ABSTRACT

To analyze the human body, Magnetic Resonance Imaging (MRI) has been playing an vital role since many years. MR images were used to find out the diseases in brain, lungs, liver, breast and etc., In order to detect the disease, the primary thing is that the image which is going to be diagnosis by the medical experts should be clean i.e., with out of any noise and the visual quality of image should be higher or enhanced quality from the original scanned images. For better diagnosis, we should improve the visual quality of the MR images, this process named as pre-processing techniques for MR images. Here in this thesis, we had introduced a denoising mechanism using various spatial filters to denoise the input MR images and improved the visual quality of image by enhancement using discrete wavelet transform (DWT). In this, the intensification is achieved by using a combination of discrete wavelet transform (DWT) and stationary wavelet transform augmented with Bicubic interpolation algorithm. The resultant sharpened high resolution images are used for better diagnosis.

Keywords: Denoising, DWT, SWT, MRI image, SUSAN Filter.