

Visualization

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Imaging has become an important part in many fields of medical, laboratory research and clinical practice. MR imaging has established itself as a major diagnostic and research tool in a variety of medical and scientific fields. Image processing on three-dimensional MR brain images, is an essential component for neuroimaging and neurosurgical community to understand the brain organization and function and identify the abnormalities. Therefore analyses of these MR images require sophisticated computerized quantification and visualization tools. Until recently, 3D visualization of medical images and quantitative analysis could only be performed using expensive UNIX workstations and customized software. This paper introduces an extensible, platform-independent, MATLAB based image processing and visualization program specifically designed for MR brain images. Using this newly produced software's standard user interface and analysis tools, researchers and clinicians can easily share research data and analyse MR images, thereby enhancing their ability to study, diagnose, monitor and treat brain disorders. The MR image processing tool provides many functions including the basic image operations such as noise removal and image enhancement, edge detection, segmentation and visualisation. One MRI (Magnetic Resonance Imaging) volume contains number of 2D MRI slices. The system reads each and every slice and displays the axial, sagittal, and coronal view of the brain. In addition every slice can be enhanced by filtering, histogram equalization, edge detection, and thresholding techniques to have a more quality image. This software system is capable to segment abnormal regions of brain from the MRI images, so the users can easily analyze the abnormal portions and identify its proper pattern.