A Methodical Approach for Detection and 3-D Reconstruction of Brain Tumor in MRI

Abstract

It always takes a skilled neurologist to detect a tumor in the MRI scans, which the numerologist does with the naked eye. Doctors have had only 2D cross sectional images for viewing the tumor in the MRI scans. This research presents a method for automatic tumor detection with an added feature of reconstructing its 3D image. The research involves implementation of various steps of detecting and extracting the tumor from the 2D slices of MRI brain images by Seeded region growing technique along with automatic seed selection and designing software for reconstructing 3D image from a set of 2D tumor images. The seeded region growing method is very attractive method for semantic image segmentation which involves high level knowledge of image components during the seed selection procedure. The volume of the tumor is also estimated based on the computation of these images to assist the radiologist.

References

- Anantatamukala, A. Gole, A. and Karunakar, Y. A Systematic Algorithm for 3-D Reconstruction of MRI based Brain Tumors using Morphological operators and Bicubic Interpolation. Proceedings of 2nd International Conference on Computer Technology and
development (ICCTD). (2010), 305-309.
- Xu, T. Mandal, M. Automatic Brain Tumor Extraction from T1- Weighted Coronal MRI Using Fast Bounding Box and Dynamic Snake. Proceedings of IEEE Int. Conf. on EMBS. (August-September 2012), 444-447.
A Methodical Approach for Detection and 3-D Reconstruction of Brain Tumor in MRI

- Measurement of Tumor &quot;Size&quot; in Recurrent Malignant Glioma: 1D, 2D, or 3D? http://www.ajnr.org/content/26/4/770/T1.expansion.html 25/03/2015

Index Terms

Computer Science
Image Processing

Keywords

Brain Tumor Segmentation and 3D visualization.