{tag}   {/tag}

IJCA Proceedings on National Conference cum Workshop on Bioinformatics and Computational Biology

NCWBCB - Number 3

Year of Publication: 2014

Authors:

Indrajeet Kumar

Rahul Shankar Jha

Sujit Kumar

Samarjeet Borah

{bibtex}ncwbcb1426.bib{/bibtex}

Abstract

Brain abnormality is a major of cause disability and death in human being. Brain Abnormality is

an abnormal growth of cells within the brain. It is the mass of tissue in which some cells grow uncontrollably. For early diagnosis of Abnormality in tissue samples research and development activities are concentrated on the exploration of automatic image analysis. Magnetic Resonance Tomography (MRT) or Magnetic Resonance (MR) imaging is one of the major techniques used by radiologist to diagnose brain internal structure. This technique uses radio frequency pulses of magnetic field to examine different organs. The output of this technique is MR image in DICOM format that can be viewed on computer. This paper reviews some remarkable works from literature along with the basic concepts related to automatic brain abnormality detection techniques. It also includes suggestions for developing a system that can locate brain abnormality in real time. In today's world many clinical centers or hospitals that maintain large database of MR images, finds the task of indexing the available database according to size or location or other attributes very difficult.   To date, automated brain abnormality segmentation from MR images remains a challenging, computationally intensive task.   The set of MR slices of a patient is taken as input. In this paper we consider abnormality detection problem as change detection problem, our approach is to   identify the most dissimilar region between the left and right halves of brain.

References

- K. Somasundaram and T. Kalaiselvi, "A Comparative Study of Segmentation Techniques Used for MR Brain Images", inProc. International Conference on Image Processing, Computer Vision and Pattern Recognition – IPCV'09,WORLDCOMP'09, Los Vegas, Nevada, USA, vol. II, pp. 597–603, 2009

- R. Gonzalez and R. Woods, Digital Image Processing, 3rd Edition. Prentice Hall, 2008.

- Ray, Nilanjan, Saha, and Brown. "Locating brain tumors from Mr Imagery using symmetry. " Signals, Systems andComputers, 2007. ACSSC 2007. IEEE, 2007
- J. Zhou1, K. L. Chan1, V. F. H. Chong, S. M. Krishnan ,"Extraction of Brain Tumor from MR Images Using One-Class Support Vector Machine", Proceedings of the 2005 IEEE, Engineering in Medicine and Biology 27th Annual Conference, pp6411-6414, 2005

- C. Xu and J. L. Prince, "Snakes, shapes, and gradient vector flow," IEEE Transactions on Image Processing, vol. 7, no. 3, pp. 359-369, 1998.
- Rodrigues, Isabel, Joao Sanches, and Jose Bioucas-Dias. "Denoising of medical images corrupted by Poisson noise. " Image Processing, 2008. ICIP 2008 ,15th IEEE International Conference on. IEEE, 2008.
- M. Cap1, E. Gescheidtova1, P. Marcon1, and K. Bartusek2. "Automatic Detection and Segmentation of the Tumor Tissue, PIERS Proceedings", Taipei, March 25-28, 2013.
- Rachana Rana, H. S. Bhadauria, Annapurna Singh,"Comparative Study of Segmentation Techniques for Extracting Brain Tumor from MRI Image",Proc. of the second Intl. Conf. on Advances in Electronics ,Electrical and Computer Engineering –EEC 2013.

- Pankaj Sapra, Rupinderpal Singh, Shivani,"Brain Tumor Detection Using Neural Network", International Journal of Science and Modern Engineering (IJISME), ISSN: 2319-6386, Volume-1, Issue-9, August 2013
- http://www. google. co. in/imgres?safe=off&hl=en&biw=1366&bih=664&tbm=isch&tbnid=3Js3NFnaqsgZvM%3A&imgref url=http%3A%2F%2Fwww. uofmhealth. org%2Fhealth-library%2Fzm6243&docid=I3VdmbxEOnb53M&imgurl=http%3A%2F%2Fwww. uofmhealth. org%2Fsites%2Fdefault%2Ffiles%2Fheal
- http://www. google. co. in/imgres?safe=off&hl=en&biw=1366&bih=664&tbm=isch&tbnid=gwV2l3eq6upp0M%3A&imgref url=http%3A%2F%2Fwww. webmd. com%2Fbrain%2Fopen-magnetic-resonance-imaging-mri-machine&docid=UApETRjUzgLDkM& imgurl=http%3A%2F%2Fimg. webmd. com%2Fdtmcms%2Fli
- K. Fukunaga, Introduction to statistical pattern recognition, Academic Press, 2nd ed. , 1990. .
- M. Schmidt, Automatic brain tumor segmentation, M. Sc. Thesis, UniversityAlberta, 2005.
- Sudipta Roy and Samir K. Bandyopadhyay, "Detection andQuantification of Brain Tumor from MRI of Brain and it's SymmetricAnalysis," International Journal of Information and CommunicationTechnology Research, Vol. 2, No. 6, June 2012.
- Pedoia, Binaghi, Balbi, Benedictis, Monti, "Glial brain tumor detection by using symmetry analysis," CProc. SPIE8314, Medical Imaging 2012: Image Processing, 831445. February 23, 2012
- Ray, Nilanjan, Saha, and Brown. "Locating brain tumors from mr imagery using symmetry. " Signals, SystemsandComputers, 2007. ACSSC 2007. Conference Record of the Forty-First Asilomar Conference on. IEEE, 2007

Index Terms

Computer Science   Image Processing

Keywords

Magnetic Resonance Tomography (mrt)   Dicom   Magnetic Resonance (mr) Imaging