JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

BRAIN TUMOR SEGMENTATION USING RESNET50 ALGORITHM: REVIEW

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***Abstract*-Brain tumor is one of disease type that attacks the brain in the form of clots. There was a way to see brain tumor in detail required by an MRI image. There is difficulty in distinguishing brain tumor tissue from normal tissue because of the similar color. Brain tumor must be analyzed accurately. The solution for analyze brain tumor is doing segmentation. Brain tumor segmentation is done to separate brain tumor tissue from other tissues such as fat, edema, normal brain tissue and cerebrospinal fluid to overcome this difficulty. In this study, we performed pre-processing using the bilateral filter for removal of the noises that are present in an MR image. This was followed by the Convolution Neural Network (CNN) segmentation technique for reliable detection of the tumor region. The resultant outcomes will be examined through various performance examined metrics that include accuracy, precision, and specificity. It is desired that the proposed work would exhibit a more exceptional performance over its counterparts.**

Index Terms: **Brain Tumor, MRI image, Bilateral Filtering, Convolutional Neural Network.**

I. INTRODUCTION:

The medical imaging processing refers to handling images by using the computer. This processing includes many types of techniques and operations such as image gaining, storage, presentation, and communication. This process pursues the disorder identification and management. This process creates a data bank of the regular structure and function of the organs to make it easy to recognize the anomalies. This process includes both organic and radiological imaging which used electromagnetic energies (X-rays and gamma), magnetic, scopes, and thermal and isotope imaging. There are many other technologies used to record information about the location and function of the body. Those techniques have many limitations compared to those modulates which produce images.

An image processing technique is the usage of a computer to manipulate the digital image. This technique has many benefits such as elasticity, adaptability, data storing, and communication. With the growth of different image resizing techniques, the images can be kept efficiently. This technique has many sets of rules to perform in the images synchronously. The 2D and 3D images can be processed in multiple dimensions.

Fig: Brain Tumor present in brain

II. LITERATURE SURVEY:

1. A NOVEL APPROACH FOR EXTRACTION OF BRAIN TUMOR IN MRI IMAGES USING SOFT COMPUTING TECHNIQUES:

A. Siva Ramakrishnan et al. (2013) [1] projected an efficient and innovative discovery of the brain tumor vicinity from an image that turned into finished using the Fuzzy C approach grouping algorithm and histogram equalization. The disintegration of images is achieved by the usage of principal factor evaluation is done to reduce the extent of the wavelet coefficient. The outcomes of the anticipated FCM clustering algorithm accurately withdrawn tumor area from the MR images.

2. IMPROVED EDGE DETECTION ALGORITHM FOR BRAIN TUMOR SEGMENTATION:

M. M. Sufyan et al. [2] has presented a detection using enhanced edge technique for brain-tumor segmentation that mainly relied on Sobel feature detection. Their presented work associates the binary thresholding operation with the Sobel approach and excavates diverse extents using a secure contour process. After the completion of that process, cancer cells are extracted from the obtained picture using intensity values.

3.IMAGE SEGMENTATION BY CLUSTERING METHODS:

Sathya et al. (2011) [3], provided a different clustering algorithm such as K-means, Improvised K-means, C-means, and improvised C-means algorithms. Their paper presented an experimental analysis for massive dat=asets consisting of unique photographs. They analyzed the discovered consequences using numerous parametric tests.

4.IMAGE SEGMENTATION FOR EARLY STAGE BRAIN TUMOR DETECTION USING MATHEMATICAL MORPHOLOGICAL RECONSTRUCTION:

B. Devkota et al. [4] have proposed that a computer-aided detection (CAD) approach is used to spot abnormal tissues via Morphological operations. Amongst all different segmentation approaches existing, the morphological opening and closing operations are preferred since it takes less processing time with the utmost efficiency in withdrawing tumor areas with the least faults.

5. INTELLIGENT BRAIN TUMOR LESION CLASSIFICATION AND IDENTIFICATION FROM MRI IMAGES USING A K-NN TECHNIQUE:

K.Sudharani et al. [5] presented a K- nearest neighbour algorithm to the MR images to identify and confine the hysterically full-fledged part within the abnormal tissues. The proposed work is a sluggish methodology but produces exquisite effects. The accuracy relies upon the sample training phase.

IV. FUTURE WORK:

It is observed on extermination that the proposed approach needs a vast training set for better accurate results; in the field of medical image processing, the gathering of medical data is a tedious job, and, in few cases, the datasets might not be available. In all such cases, the proposed algorithm must be robust enough for accurate recognition of tumor regions from MR Images. The proposed approach can be further improvised through in cooperating weakly trained algorithms that can identify the abnormalities with a minimum training data and also self-learning algorithms would aid in enhancing the accuracy of the algorithm and reduce the computational time.

V. ACKNOWLEDGEMENT:

I would like to thank our guide Sri. C. Hari Prasad, our project Co-ordinator Dr. B. P. Santosh Kumar and Dr. S. Shafiulla Basha, Department of ECE, YSR Engineering college of YVU, Proddatur for their continuous guidance. Also, I would like thank my team members for their support in my research work.

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