Image Mining With Lim Based Identifying Method For Finding Meningioma Tumours In Human Brains

G Rajesh Chandra[1], Dr.Kolasani Ramchand H Rao[2], Dr.V V Jaya Rama Krishnaiah[3]
[1]Dept of Computer Science
[2]Professor, Dept of Computer Science
[3] Associate Professor, Dept of CSE
[1]Acharya Nagarjuna University, India
[2, 3]ASN Engineering College for women, Tenali, Ap, India

Abstract- *In National Brain Tumour society of US, a research is going on discovery of better treatment for brain tumour patients. Meningioma is a very dangerous brain tumour disease for humans. Now a day's brain tumour patients are suffering with high expenditure for identifying the tumours condition in brain. Our main aim is to identify the exact condition of tumour in brain with low of cost. In this paper we have to generate gray scale images from new MRI scanning image by using MATLAB. From that image generate all histograms and Address of image method with LIM dependent Image matching method [1] for identifying about tumour's exact position in Human brain.*

Keywords- Image Histograms, Address of Image Method, LIM Dependent Image Matching Method

I. INTRODUCTION

Patients are suffering to identify the position of tumours in Brain. By brain imaging techniques only we can easily identify the diseases. Brain image analysis is possible by X-Rays, CT scans, PET Images, MRI Images, fMRI Images. MRI and fMRI images give detailed information about patient's brain and these are available in Digital Imaging and Communications in Medicine (DICOM) format. It contains detailed information of brain as a multimedia images.

Meningiioma [4] is a one of the Brain tumour that can easily damage the brain function and spinal card in a skull. From the radiation effect and genetic disorders of nervous systems human can get this type of tumours. In National Brain Tumour society of US a research work is going on meningioma [2].

Communication problems, lack of feeling, weakness in arms and legs, Vision problems, Recurrent Headache are the symptoms of this type of brain tumour. But it is slowly increasing tumour in brain and it is very difficult to identifying this position.

In this paper we are using different types of Mining methods to identify this tumour by comparing the new brain image with existing images. Generally we have different type of brain imaging techniques. MRI brain images are the input for this proposed topic.

II. RELATED WORK

Now a days, a lot of researchers attempted different types of algorithms on brain images in data mining. Lakshmi Devasena and Hemalatha 2011 developed LIM Based matching algorithm with The Discrete Cosine Transform technique for capering new image with existing images of datasets. Sharvari Tamane 2008 applied a Content Based Image Retrieval method using High Level Semantic Features on images. Geetha and Vasumathi Narayanan 2008, proposed A Survey of Content-Based Video Retrieval method on brain images for finding the tumour positions in brain . McMurray, T. Pearce, J.A. 2002 applied a new Theoretical and experimental comparison method of the Lorenz information measure, with entropy concept of data mining, and founded a mean absolute error values in images. they given detailed information about Lorentz Information Measurement in economics this LIM Technique is applied on wealth distribution to different parties for equality of distribution.

III. DATABASE

All MRI scanning images are stored in the data sets. Totally we are maintaining the 6 different types of datasets. As described above figure01. In each and every data set we are maintaining only 5 to 10 brain images and each image size is 256-by-256 and contains signed 16-bit data [5] In this work, we are maintaining three types of brain image datasets, those are young-aged, middle-aged and old-aged all these are categorised into two types those are male and female. Those datasets are drawn in the Figure 01.

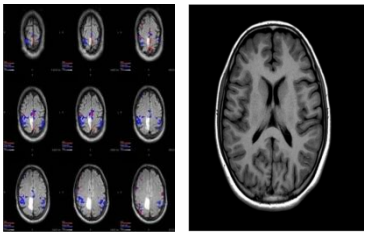
Meningiioma disease patients Existing Brain image data set					
Young-aged human brain dataset [age in between 1-15]		Middle-aged human brain dataset [age in between 16-44]		Old-aged human brain dataset [age in between 45-100]	
Male	Female	Male	Female	Male	Female
					

IV. RETRIEVING IMAGES FROM DATASETS

From the dataset, By using the following MATLAB Code[5] we can easily read the JPEG image files in a dataset

% Preallocate the 256-by-256-by-1-by-20 image array.

X = repmat (int16 (0), [256 256 1 20]);
Figure 02: 3-D array with the image data and a plot of the MR slices appears



Apply the same above process and read all the images from a 6 dataset S and store all new images As a JPEF images with 256 by 256 sizes.

V. DESIGN AND METHODOLOGY

HISTOGRAM TECHNIQUE

In this paper we have to identify the similarities between new brain images with Meningioma patient brain images .first we are applying histogram technique [9] on new brain image. We are applying the following MATLAB code on the new human brain image. After Appling below code on the new brain image then we can get output. the output image is shown in the Figure 04.

```
imhist(I)
imhist(I,n)
imhist(X,map)
[counts,binLocations] = imhist(I)
[counts,binLocations] =
imhist(gpuarrayI,___)
```

Figure 03: Syntax for Histogram of a image

imhist(I)
imhist(I,n)
imhist(X,map)
[counts,binLocations] = imhist(I)
[counts,binLocations] = imhist(gpuarrayI,___)

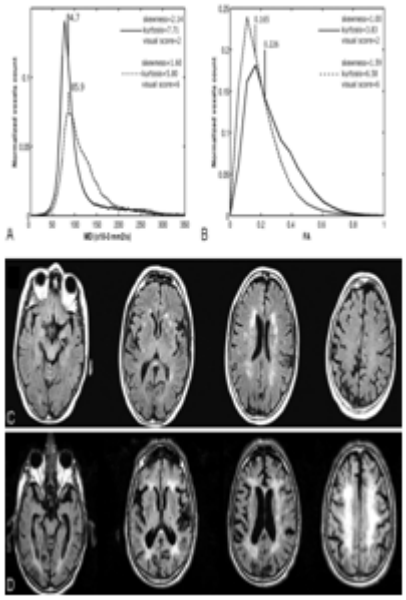


Figure 04: Sample image and its corresponding Histogram

After reading the all images of dataset we can apply same histogram concept on all images then we can get histograms of all images [1].

VI. IMAGE MATCHING TECHNIQUE WITH LIM

Actually, The Lorenz information Measure (LIM) [1] method is belongs to economics subject. It is developed by Max O Lorenz in 1905 and is used to presenting variation of assets allocation. Mr.Rorvig first said that use of general features extracted from the images for retrieval and represented as LIMs. in this paper we are using this concept as to extract the general features of image. This method (P1,….,Pn) is used to be the area under the LIM Curve[6]. The value of this method is in between 0 to 0.5. the given image's histogram intervals are arranged from low to high, and the resulting off-diagonal shape measured through differentiation. The Histogram intervals are arranged are arranged from low to high and the resultant curve [10] represents the difference between the two images.

Inputs:

1. New Unknown MRI Scanning Brain image.
2. 5 Meningioma tumour's brain images of male and 5 images of female and their age in between 1 to 15.
3. 5 Meningioma tumour's brain images of male and 5 images of female and their age in between 16 to 44
4. 5 Meningioma tumour's brain images of male and 5 images of female and their age in between 45 to 100

Algorithm

1. Read the new MRI scanning image.
2. Create the data base with the existing Meningioma tumour's brain images
3. Generate the gray scale image from 1.
4. Apply 1 and 3 steps on entire database

If any similarities are identified in between new image and existing images then we can say that new image has tumour and that patient is suffering with tumour in brain.

ADDRESS OF IMAGE CREATION:

The following figure demonstrates the process of address creation of image

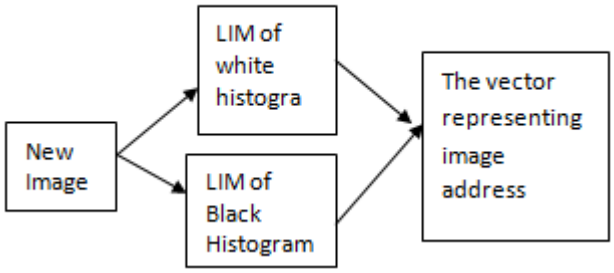


Figure 05: Address generation of image

Image address means the histograms of our new image that contains black histogram and white histogram the combination of these histograms gives a new histogram that is called the address of the image similarly we have to generate the address of all images of database

VII. LIM BASED IMAGE MATCHING MODEL

After generating address of all images of our dataset and new image, then we can match the new image address with the all images of our dataset. This process is demonstrated in the below Figure. The address of image contains the combination of black and white histograms of image

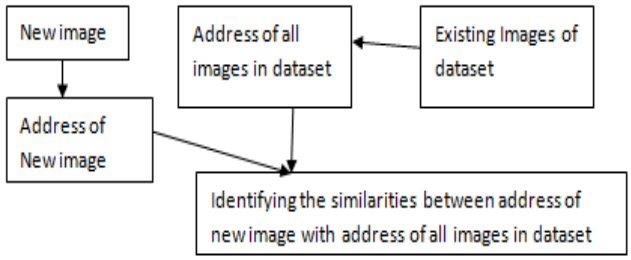


Figure 06: identifying the similarities between new image with existing images in dataset

When we want to apply our concept then first of all we have to take one new image with some background knowledge that contains the patient's sex, age. Then we are easily selecting our exact dataset because we have 6 types of datasets. Then we have to generate the gray scale image of a patient from the DICOM file of a patient, Then we can generates the black and white histograms of new image and similarly we have the black and white histograms of all datasets. Then we can create the address of new image and create the address of all images in dataset. Then we can match the address of new image with existing dataset's all images if any matches are identifying in between new image and existing image. Then we can select the existing image then automatically we have the background knowledge of existing image so we can easily identify the position of new image. So we can easily identify the patient condition

VIII. OUTPUTS

If the numbers of similarities are 0 in between new unknown image and any image in entire database then patient did not have Meningioma tumour in brain.

SNO	Number of similarities in between new image and any existing image in database	Patients condition
1	In between 0 to 20	Tumour size is very small and treatment will be small time with medicines
2	In between 20 to 60	Tumour size is heavy and treatment will be taken long time with medicines
3	More than 60	Situation is in critical and may be treatment will be done by major operation

IX. CONCLUSION

In this paper representation for creation of new dataset and identified the similarities between new image with existing images and generation of a gray scale image from DICOM format's MRI image files and after then create the different types of histograms of new image and generates the address of images are explained. Then applied the LIM based curves on address of all images in our dataset and new image. Identified the differences and similarities in between existing images with new image. by depending on this results, we can easily identifying the position of a tumour. in this work if the number of similarities in between new image and existing images are zero means brain condition is good. If the number of similarities are high means that patient have Meningioma tumour in brain.

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Gogineni.Rajesh Chandra is born in 1981 at coastal Andhra Pradesh, India and graduated from JNTUK University and post graduated from JNTUA University. Now part time research scholar of Acharya Nagarjuna University under guidance of Dr.K.Ramchand H Rao

Dr.Kolasani Ramchand H Rao graduated from Gulbarga University and received his doctoral Degree from Acharya nagarjuna University. And he is working as Principal and Professor in Computer Science Department ASN Degree and PG College ,Tenali ,Guntur(Dt),Andhra Pradesh and presently under his guidance 8 members are doing their doctoral degree in Acharya Nagarjuna University. He has published 23 research papers in IEEE & ACM Conferences.

Dr.Vemula Venkata Venkata Jaya Rama Krishnaiah graduated from Acharya Nagarjuna University and received his doctoral Degree from Acharya Nagarjuna University. And he is working as Assoc Professor in Computer Science Department ASN Engineering College for Women, Tenali ,Guntur(Dt),Andhra Pradesh and presently under his guidance 8 members are doing their doctoral degree in Acharya Nagarjuna University. He has published 20 research papers in IEEE & ACM Conferences.