

Brain Image Mining in Cloud based services

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Abstract

To identify the present position of a human brain by comparing its images with illness brain images those are already in our data base by using MAT Lab and to predict future behaviour of it after that we can create it as a software as a service.

Keywords — Alzheimer, Pick, Post-Traumatic Stress, Brain Imaging, Agnes Clustering Algorithm, Feature Vector Algorithm.

I. INTRODUCTION

Now a day's people are not only suffering with the different deceases of human body, they are suffering with Medical bills also. Particularly in Indian rural areas so many medical labs and doctors are taking lot of money for identifying the deceases. Our research main aim is to provide a cloud that will help the rural peoples also for identifying the deceases in human body

In this paper we are doing our research on human brain. People are suffering from different Deceases in mentally health condition we have some diseases under Neuro degenerative conditions like Pick's Disease, Alzheimer's disease, Post-traumatic stress disorder

1.1 PICK DISEASE [6]

Pick's disease is a rare, progressive and irreversible form of dementia [6]. Dementia means that the brain does not function normally and patients can have difficulty with language, behavior, cognition (thinking), judgment, and memory [6].

A. SIGNS AND SYMPTOMS [6]

- *Enormously irrational physical/ mental/ emotional behavior (may be totally inappropriate for the situation); lack of power and awareness, sexual hyperactivity, or absence of sexual drive, tendency to roam/ wander away*
- *Complete failure of social discomfort, social abilities, and withdrawal[5]*
- *Changes on the whole personality; absence or regression of logic/rationale, delusions, depression, agitation, aggression[5]*

- *Progressive decline of the senses, loss of memory, message difficulties, incoherence (difficulty speaking or unable to speak)[6]*
- *strength rigidity, contraction, difficulty on foot, maintaining balance, performing basic and regular activities becomes very tough; loss of basic motor (physical and spatial) skills[6]*

1.2ALZHEIMER DISEASE [7]

It is an unrelieved neurodegenerative pattern that regularly starts gradually and get bad over time [7]. In the premature, symptom is darkness in recall recent actions (short term recollection crash) as the infection move on, symptom can include: troubles with oral communication, perplexity, mood rock, failure of enthusiasm, not control self care, and behavioral matter [7]. As a person's form refuse they often withdraw from the civilization. Frequently, physical function is gone, at last primary to passing away. While the speed of progress can vary, the sufficient life expectancy following conclusion is three to nine years [7].

A. SIGNS AND SYMPTOMS OF ALZHEIMER DISEASE [7]

- *Anger and irritability*
- *Guilt, shame, or self-blame*
- *Substance abuse*
- *Feelings of mistrust and betrayal*
- *Depression and hopelessness*
- *Suicidal thoughts and feelings*
- *Feeling alienated and alone*
- *Physical aches and pains*

2. BRAIN IMAGING [9]

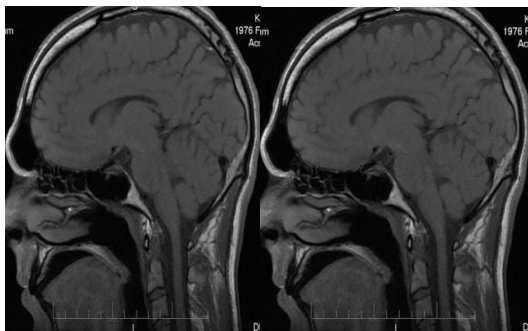
Magnetic resonance imaging Magnetic resonance imaging (MRI) uses magnetic fields and radio waves to produce high quality two- or three-dimensional images of brain structures without use of ionizing radiation (X-rays) or radioactive tracers [9]. Automated tomography of the intelligence (stock image)[9]. Dr. John Gabriela of the Massachusetts Institute of Technology in Cambridge and his contemporaries describe the analytical power of brain imaging crosswise a variety of unlike future behaviors, as well as infants' later presentation in reading, students' later presentation in math, criminals' similar to lihood of becoming replicate

offenders, adolescents' future medicine and alcohol use, and addicts' likelihood of degeneration [10].

We collected more than 100 medical images of brain from different hospitals. First we used mat lab for compressed all images into same size because all images are not same size.

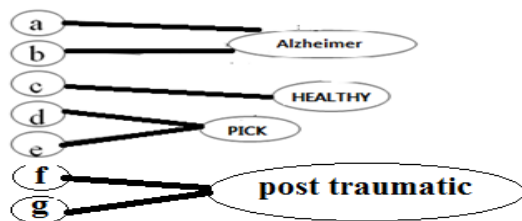
```
wcompress('c',X,SAV_FILENAME,COMP_METHOD)
wcompress(...,'ParName1',ParVal1,'ParName2',ParVal2,...)
```

```
[COMPRAT,BPP] = wcompress('c',...)
XC = wcompress('u',SAV_FILENAME)
XC = wcompress('u',SAV_FILENAME,'plot')
XC = wcompress('u',SAV_FILENAME,'step')
```



Fig[1]: differences between original images and compressed images[1].

By using Agglomerative Nesting (AGNES) clustering concept we store the medical images of human brain in different clusters. Those are healthy cluster, pick cluster, Alzheimer's cluster and post-traumatic cluster.



here a, b, c, d, e, f, and g are images

Fig 02: AGNES clustering algorithm

2.1 Method 1:

In the above Figure Alzheimer, Healthy and Pick are clusters similarly we have to construct different clusters by using different medical images of human brain with the names of PICK, HEALTHY, ALZHEIMER AND POSTTDO. Then we have to take one brain image, we don't know the present condition of that brain. Now we have to predict the present condition of this brain and future behavior of it compare the new brain image to a brain image of a pick dieses from our cluster by using Mat Lab.

Image is nothing but a group of pixels. Pixel is nothing but a data which is in binary form. Binary in the scene 1 and 0's. in order to compare the images this binary data is to be executed with the code written in Mat Lab using some simple statements. The image is thus computed and obtains result in the form of binary data with bits contains in it. The healthy image is also computed in the same way, as the computed result is compared with the unhealthy image we will be knowing the difference.

A. Let us consider some examples

if a healthy brain image is computed using math lab code the result obtained will be some (11111), and the other images compared to be are also executed in the same way , let the results obtained will be 10110,11011,10101,10100,00110,00010 etc..... . on comparing these results with the healthy brain image thus the results will be obtained

if a healthy brain image is computed using math lab code the result obtained will be some (10100), and the other images compared to be are also executed in the same way , let the results obtained will be 10110,11011,10001,10101,00110,00010 etc..... . on comparing these results with the healthy brain image thus the results will be obtained.

if a healthy brain image is computed using math lab code the result obtained will be some (10000), and the other images compared to be are also executed in the same way , let the results obtained will be 00110,01011,00101,00100,00110,00010 etc..... on comparing these results with the healthy brain image thus the results will be obtained.

if a healthy brain image is computed using math lab code the result obtained will be some (10110), and the other images compared to be are also executed in the same way , let the results obtained will be 10100,11011,10101,10111,00110,00010 etc..... . on comparing these results with the healthy brain image thus the results will be obtained.

if a healthy brain image is computed using math lab code the result obtained will be some (00010), and the other images compared to be are also executed in the same way , let the results obtained will be 10110,11011,10101,10100,00110,00000 etc..... . on comparing these results with the healthy brain image thus the results will be obtained In this process we have to calculate the differences between the current image with all images of our database. We can identify the current image's brain position by identifying the similarities between the other images of our data base with the Mat Lab techniques

2.2 Method 2: (Feature vector)

First we have to convert an color image to gray image by using mat lab `rgb(value;value;value)`



Fig 03: conversion of color image of Alzheimer's infection to gray image of Alzheimer's infection

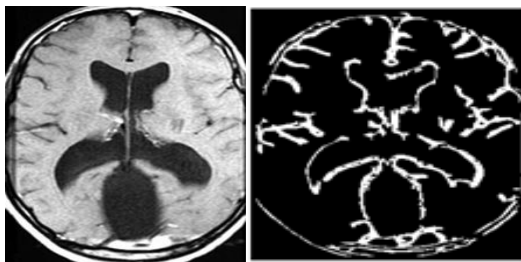


Fig04: conversion of ordinary X-Ray Image of Pick Disease to gray image of X-Ray image

A feature vector is just a vector containing multiple elements (features) which describes object's important characteristics. A feature may take many forms and the representation of an image is the raw intensity value of each pixel. The features may be like color components, length, area, circularity, gradient magnitude, gradient direction, or even gray-level intensity value. We may also use image processing, computer vision techniques or pixel intensities as features.

For suppose let's take two different images in MATLAB and give two features to each of the image as feature1, feature2. At first, the index pairs should be matched and then the feature value values are matched. The features may be like name of the image, value etc... The feature value is index paired to get the input features of both the images. When the feature1, feature2 are matched then the detachment between the similar features are indexed by index pairs. In addition we can add name, value to the features to get additional options than the specified features.

By applying Harris algorithm and related interest points among pair of images using local neighborhood, interpret the images as I1 and I2 to rectifying both the images as left and right to get the difference between both the images. Later fix to points to detect the corner of the images I1 and I2 and then extract the neighborhood features of both the images. The index pairs are matched with features and the locations of the subsequent points for each image are retrieving. To visualize the

corresponding points the images are matched and the output is displayed

The sample code can be as follows:

Syntax:

```
indexPairs=matchfeatures (features1, features2)
[indexpairs,matchmetric]=matchfeatures (features1,
features2)
[indexpairs,matchmetric]=matchfeatures (features1,
features2, name, value)
```

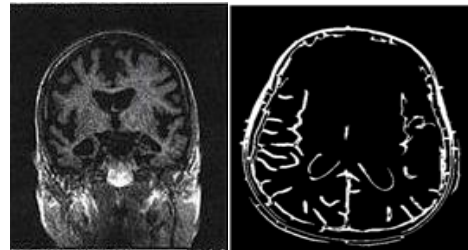


Fig 05: differences between two images by using feature vector and Harris algorithm

Finally in this method we can identify the some similarities between two images. If our new image is matching with any image of pick data base or Alzheimer 'data base or post traumatic database or healthy database. Then we can identify that the current position of new image

3. CONCLUSION AND FUTURE WORK

In our research work we can easy identify the differences and similarities in between two brain images if new image and existing brain image are similar then we can express the new image position by depending on the existing image's data we can apply this same concept on human hearts to avoid heart attacks

In our future work we have to create a cloud and storing the images in it and that cloud is available to public

4. REFERENCES

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