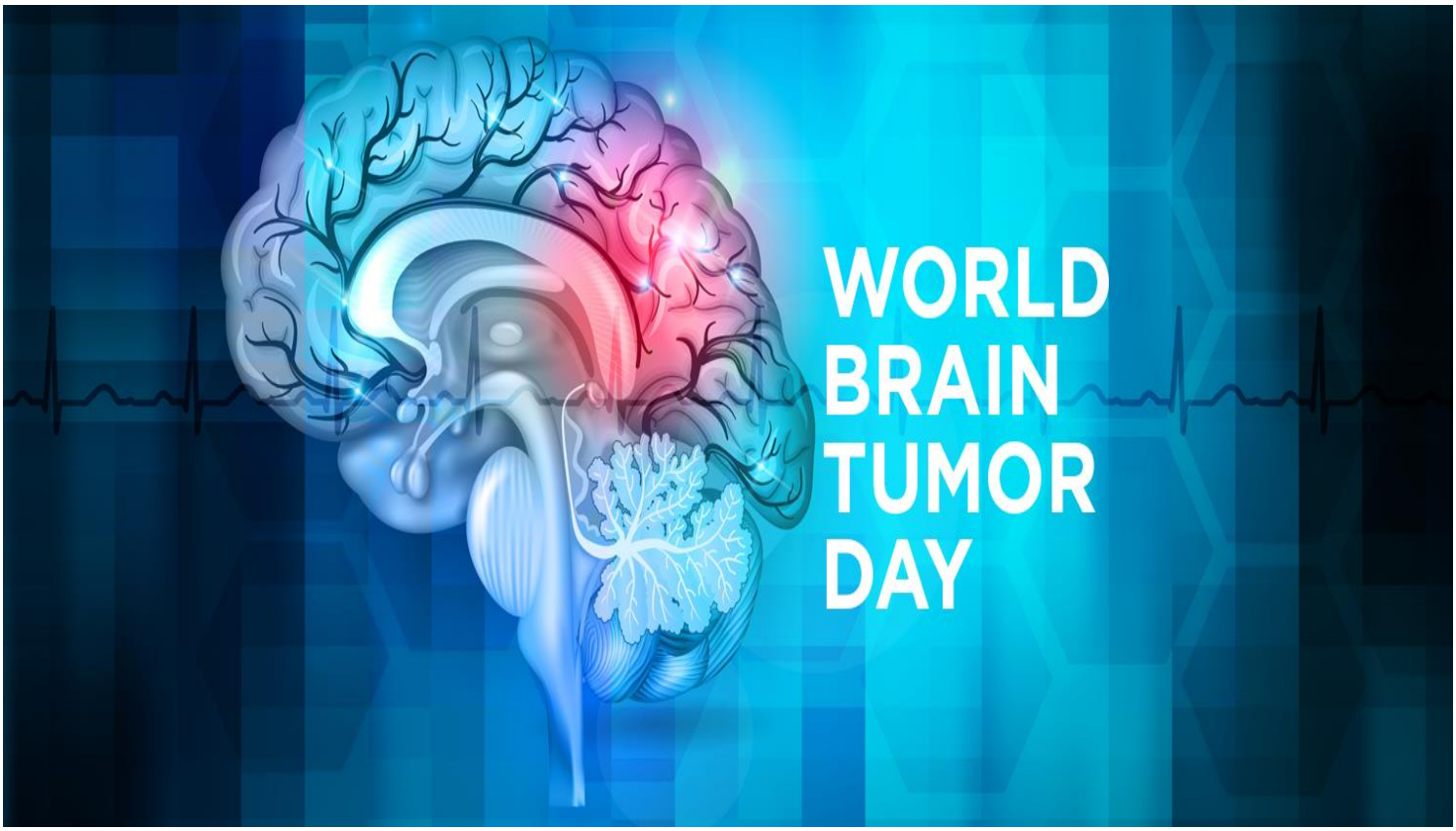

Brain Tumor Detection.

MEDICAL IMAGE PROCESSING

By

Omnia Nasser Abd Elfttah
Fatma Nabil Ebrahim Zaki
Fatma Hamdy Mohamed

SUPERVISED BY

PROF. HALA ZAYED
ENG. NADA BAHAA

Abstract

Processing magnetic resonance images are very complex and constantly studied by the researchers to give doctors better ability to diagnose the patients. In order to detect automatically suspicious regions or tumors, we present a new approach inspired by threshold segmentation and based on morphological operations in this paper. The advantages of our approach come from the complementarities between these two approaches. The morphological operations extract roughly the tumor region and eventually can affect healthy while the threshold segmentation method gives a clear picture of the structure of the different brain and therefore these two approaches improve significantly the threshold segmentation and detection and extraction of the tumor zone based on morphological operations.

Introduction

What is a brain tumor?

A brain tumor is a collection, or mass, of abnormal cells in your brain. Your skull, which encloses your brain, is very rigid. Any growth inside such a restricted space can cause problems. Brain tumors can be cancerous (malignant) or noncancerous (benign). When benign or malignant tumors grow, they can cause the pressure inside your skull to increase. This can cause brain damage, and it can be life-threatening. Brain tumors are categorized as primary or secondary. A primary brain tumor originates in your brain. Many primary brain tumors are benign. A secondary brain tumor, also known as a metastatic brain tumor, occurs when cancer cells spread to your brain from another organ, such as your lung or breast.

What are the symptoms of a brain tumor?

Symptoms of brain tumors depend on the location and size of the tumor. Some tumors cause direct damage by invading brain tissue and some tumors cause pressure on the surrounding brain. You'll have noticeable symptoms when a growing tumor is putting pressure on your brain tissue.

Methodology

1- Image Pre-Processing

2- Histogram equalization image

3- image Histogram

4- threshold segmentation image

5- Enhancement by applying High pass filter

6- Morphological operations image.

7- labeling each area image

Conclusion

we presented a method for image acquisition, image pre-processing using median and high pass and label filtering, image enhancement using histogram equalization, segmentation using threshold and morphological operations therefore the detection of the tumor. Some of the features of the tumor are detected which will be helpful in medical applications. The future works involve the segmentation and detection of more images with more features which help in classifying several types of the tumors.