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Behavior of Brain Components through Segmentation

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ABSTRACT: Neurobiology is to study of cells of the nervous system of human being and we can organize these cells into functional circuits. In turn it processes information and mediates behavior. This procedure can also be thought as a decision making process. Actually it is known that Neurons are cells that are specialized to receive, propagate, and transmit electrochemical impulses.The field of cognitive neuroscience concerns the scientific study of the neural mechanisms i.e. function of neuron underlying cognition and is a branch of neuroscience.This paper investigates behavior of cells in decision making process.

Key Words: Brain, Lobes, Mean, and Flip-Flop

I.INTRODUCTION

Cognitive psychologists have proposed heuristic mechanisms that will lead to judgments which sometimes violate sampling principles or other established rules. For example, people uses the probabilities based on how quicly he /she cancollect from memory. [2-4]

Human behavior comes from the human brain.The brain is divided into the two hemispheres, which forms the cortex (outer surface). The cortex is folded to get more surface area. It functions as if it was a flattened surface. It is at the surface that the cortex brain cell bodies are especially situated, while the internal parts of the cortex carry the connections between the cells.

The size of the modern human adult brain is about 1350 cc. The left side of a human brain is shown in fig 1 [3].

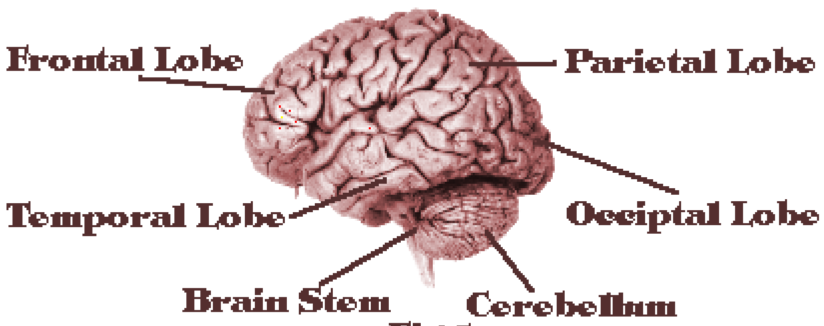

Fig 1

Our discussion focuses on two types of brain cells: *neurons* and *glial cells*. Although the brain has many other types of cells, these are the ones most involved in learning. The brain is contained within the skull, which protects it. Between the brain and the skull there are three layers of membrane. These completely cover the brain and spinal and help to protect it. Between two of these layers is a space called the subarachnoid space.[5-6].

The main parts of the brain are as below:

- the cerebrum (the forebrain)
- the cerebellum (the hindbrain)
- the brain stem.

CEREBRUM

This is the largest area of the brain and controls all higher mental functions, such as thinking and memory. It's made up of two halves, or hemispheres. The right cerebral hemisphere controls the left side of the body, and the left cerebral hemisphere controls the right side of the body. This is shown in Fig 2 [7].

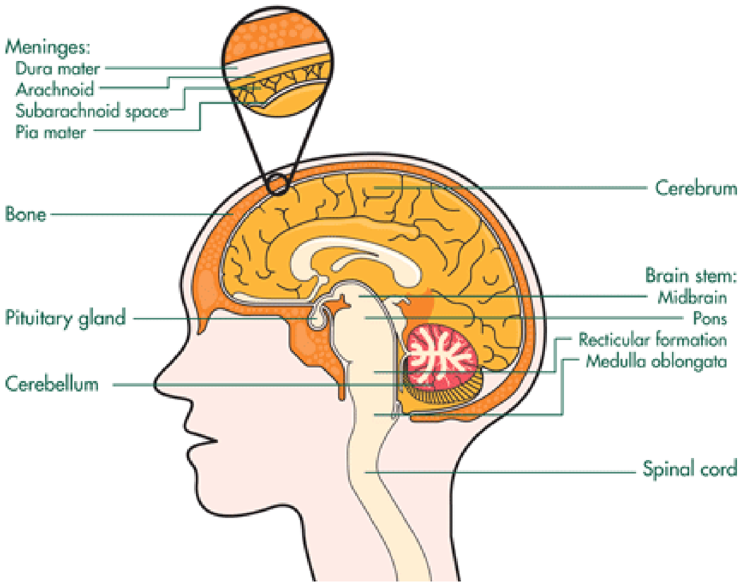

Fig 2: Diagram showing the different structures of the brain

Each cerebral hemisphere is divided into four areas, known as lobes:

A.Frontal lobe (red area in the diagram below)

This controls thought, memory, planning, problem solving and behavior.

B.Parietal lobe (blue area)

This is responsible for language, helping us form words and thoughts. It also deals with touch and how we recognize sensations, and helps us be aware of our body position.

C. Temporal lobe (yellow area)

This helps us understand and process what we hear. It's also involved with how we learn and organize information.The temporal lobe is also responsible for emotions and emotional memory.

D. Occipital lobe (green area)

This is where all visual information is processed, such as color, shape and distance.

E.Cerebellum (orange area)

This is the back part of the brain and is concerned with balance and coordination. These activities are carried out automatically (subconsciously) by this area of the brain and are not under a person's control.

F. Brain stem (purple area)

This controls the basic functions that are essential for maintaining life, including breathing, body temperature, heart rate and blood pressure. It also controls eye movements and swallowing. It's a very sensitive and important part of the brain, and it connects the cerebral hemispheres to the spinal cord.

G. Pituitary gland

Just below the base of the brain is the pituitary gland . This is a small gland that makes lots of different hormones that control and regulate the other hormone-producing glands of the body. Like every other organ in the body, the brain is made up of cells. There are about 40 billion nerve cells, called neurons, within the brain. Everyone is born with a similar amount. Nerve cells communicate with each other, and other parts of the body, by sending messages (nerve impulses) through a system of nerve pathways or networks.

II.PROPOSED METHOD

Muscles are the most common effectors that translate neuronal activity into behavior. Nowhere is behavior more restricted by the limits of muscle performance than at the upper range of high-frequency movements. In our work it is found that rapid oscillations like Astable Multivibrator model creates a wave throughout the human body after viewing a thing which is supposed to not come at that time. Such behaviors are seen in human being, and are powered by both synchronous and asynchronous muscles.[7]

In synchronous muscles, each contraction/relaxation cycle is accompanied by membrane depolarization and subsequent repolarization, release of activator calcium, attachment of cross-bridges and muscle shortening, then removal of activator calcium and cross-bridge detachment. To enable all of these to occur at extremely high frequencies a suite of modifications are required, including precise neural control, hypertrophy of the calcium handling machinery, innovative mechanisms to bind calcium, and molecular modification of the cross-bridges and regulatory proteins. [8]

In our study it is observed that behavior of brain cells movement will make outer behavior of the human and any in operating cell would create some problem In turn normal human nature. Side effects are low force and power output and low efficiency, but the benefit of direct, neural control is maintained.

In Asynchronous muscles, between neural activation and contraction, are a radically different design. Rather than rapid calcium cycling, they rely on delayed activation and deactivation, and the resonant characteristics of the wings and exoskeleton to guide their extremely high-frequency contractions. Resonant effects will create shrink in the human body.

In later edge of life some problems like arthritics, Parkinson, etc. It is our observations dying of brain cells may be one of the criteria. In this paper it is our attempt to segment parts of the brain components and in our future work these components are to be observed along with their behavior through prediction model of economics.

An 'unsharp' filter (3x3) is generated by using the negative of the laplacian filter with parameter 'alpha', where the 'alpha' controls the shape of the laplacian and must be in the range 0.0 to 1.0.
The problem of image segmentation is nothing but a classical clustering problem where the range of image grey values is clustered in some fixed number of clustered grey values.

Now an algorithm is presented for division components of both the hemisphere of the brain.

1. Input is the image of the human brain and EEG Signal of a particular human

2. Separate both the hemisphere from the brain and find out two images as left and right hemisphere

3. Depending on the EEG and draw a behavor pattern of each part of brain components.

4. Find the centroide of left hemisphere and formed initially left anf right half of centroid for finding components.

5. This process is i.e. step 4 has been doing for right half.

6. Find the Intensity of each component and highest intensity nearly 1.25 will be isolated for component.

   The selection for 1.25 is taken from observation.

7. Stop

The output obtained as follows:

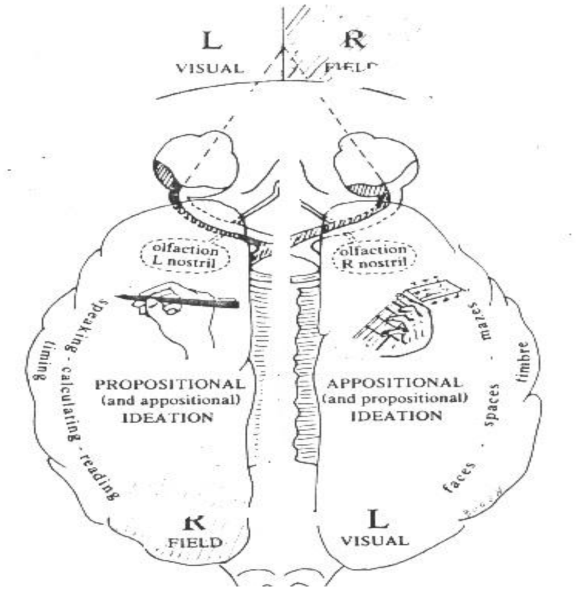

Fig. 3 Components of Each Part of brain

IV.**CONCLUSIONS**

In computer vision, segmentation of components refers to the process of separation a digital image into multiple segments (sets of pixels, also known as super pixels). More specifically, image segmentation is the procedure of transmission a label to each pixel in an image such that pixels with the similar label share convinced visual characteristics. Every of the pixels in a section are similar with respect to some computed property or characteristic, such as color, intensity, or texture. Neighboring regions are appreciably dissimilar with compare to the similar characteristic(s). The effect of image segmentation is a set of segments that communally cover the entire image, or a set of contours remove from the image. The results obtained are more or less satisfactory and further brushing has been needed.

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