Artificial Intelligent Algorithm Methodology for the Human Brain Image Segmentation & Classifier in the Medical Application Domain

Swati Mangesh Khandare[1]

[1]*Research & Training Department, Standard Electricals, Mumbai.*

Corresponding Author: swatimkhandare@gmail.com

Abstract: - Artificial Neural Network has the application in classification domain. Intelligent algorithm will work in the practices where human can control the anger & it will work in the segmentation domain to check the level of the anger.

Intelligent algorithm will extract the images of human brains for certain region where the brain image will classified in the certain area and the classifier will the area for the stimulation of the anger.

Intelligent algorithm will give the solution on the segmentation & classification methods to reduce the anger of human being.

The methodology is the classification & segmentation of human brain images.

Key Words — Intelligent Algorithm, Human Brain Image, Segmentation, Classifier

I. INTRODUCTION

The human brain is resembles the control of the human nervous system & control the activities human performs on his own. The human brain nervous system may be depicted in three stage system. Human brain represented by the neural (nerve) net, the stimulus is given and taken by receptors, effectors is taking input from the neural net which is electrical pulses & converted into the output response. The effectors will generate the final response. The block diagram of a nervous system is given in figure 1.
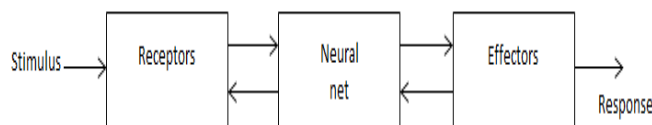

Figure 1 Figure shows block diagram of a nervous system

The human brain has two anatomical organizations and works in two functions at lower & higher levels.
The synapses represent the fundamental level that is moderate the interactions between neurons. AXON has a smoother surface, the connecting branches; greater length with a dendrite resembles a tree. The synapses are depending on molecules and ions for their action. The detailed structure of a pyramid cell of a human brain is shown in figure 2.
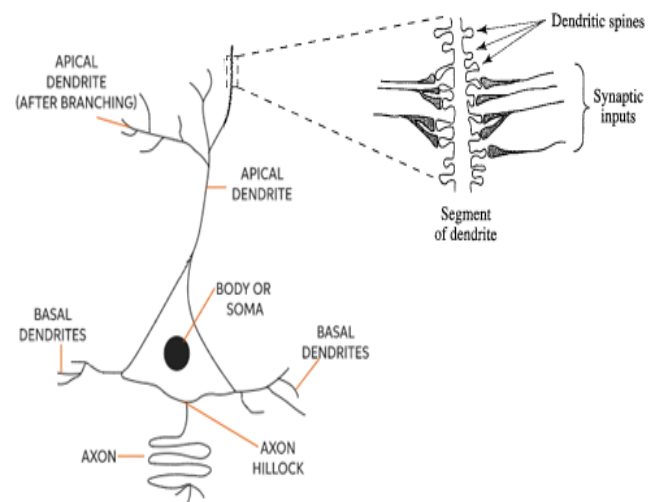

Figure 2 Figure shows diagram of a structure of a pyramid cell of a human brain

The output response of human brain nervous system is depends on the neural net action which is mapped in effectors.
The intelligent algorithm has work in the two methodologies first is segmentation and another is classification. The intelligent algorithm will segment the brain in three different segments and the algorithm will

perform the mapping of output response with the input stimulus in classification domain. Here the plane is one dilatational plane which is a smooth plane where the algorithm will perform the method of segmentation & classification. In the figure no. 2 the AXON is the smooth plane will be given the action to be performed on it. The task is segmentation is important in the mapping process here the figure 2 shows the APICAL DENDRINE to form a tree at the end of the brain structure which will present with two segments first is dendrite and another is dendritic spines with synaptic inputs.

II. SEGMENTATION OF THE ANATOMICAL ORGANIZATIONS OF HUMAN BRAIN

The intelligent algorithm will work in segmentation in to level of the human brain that is in lower level and the higher level. The apical dendrite is dividing the human brain structure into two levels. The lower level will give basal dendrite, axon, axon hillock & soma. The higher level of the pyramid cell structure of the human brain will give apical dendrite after branching and segment of dendrite has two stages one is dendritic spines and synaptic inputs.

In artificial intelligent algorithm the neurons performs the task of synaptic inputs. The information signal is coming from the synaptic inputs. In intelligent algorithm neuron will give information input to the next layer of network. A set of synapses will act as the connection for the dendritic spines. The connecting links characterized by the weight of the input information coming from neuron. The connecting links has strength to characterize with the significant load in the artificial neural network. Dendritic spines has own weight in spines which is specified by bias in the neural network. After synaptic inputs to the dendrite spines the weight is branching in apical dendrite.

The synaptic weight in the in intelligent neural network is represented by w_k applied by the input signal represented by x and the output is represented by y_k. The intelligent algorithm has bias is represented by b_k. The synaptic weights of the connection points or links are given by strength and represented by $w_{k1}, w_{k2}, \ldots w_{km}$. The input signals of the intelligent neural network is represented by the $x_1, x_2, \ldots x_m$.

III. CLASSIFICATION OF THE ANATOMICAL ORGANIZATIONS OF HUMAN BRAIN

In this algorithm classification has to have three classes when it comes to the application domain. Intelligent algorithm will work in different area of the human brain map of the cerebral cortex. The different cortex of the human brain are motor cortex has motor strip, in the figure 3 it is shown in area 4, premotor area is area 6, frontal eye fields has area 8, somatosensory cortex has areas 3,1 & 2, visual

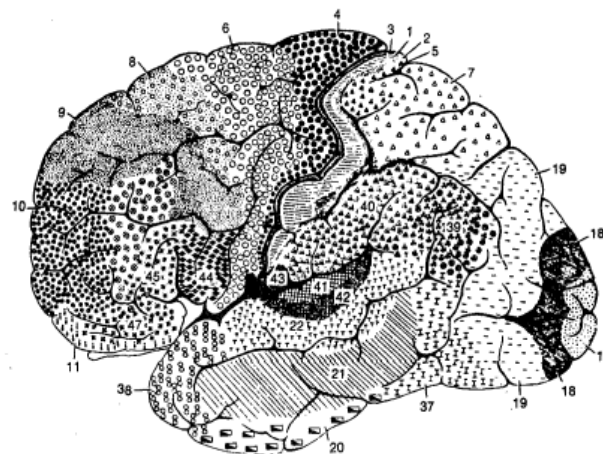cortex has areas 17,18 & 19, auditory cortex has area 41 & 42.

Figure 3 Figure shows input signal stereo plot for ten seconds

IV. INTELLIGENT ALGORITHM

Intelligent algorithm will work in two methodologies first is segmentation & another is classification. The model of the intelligent algorithm is working in the neural network. The algorithm will have input node, connection points, and neuron. The network has the response to take from the.

This domain has lot of development of medical image methodologies, new application and analysis. The detailed methodology to implement the intelligent algorithm is discussed in above sections.

V. RESULTS AND CONCLUSION

Image has many important features & segmentation will give the actual application in medical domain. By implementing segmentation methodology in artificial intelligence the measurements and analysis of human brain is possible.

The Classification of the anatomical organization of human brain will give more analysis on the different class in the artificial intelligent algorithm.

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[3]. Artificial Intelligent Algorithm for the Analysis, Quality Speech & Different Sound Signals in the Application Domain Swati Mangesh Khandare1, D. P. Rathod1 1Research & Training Department, Standard Electricals, Mumbai. 1Electrical Engineering Department, VJTI, MumbaiArtificial Intelligent Algorithm for the Analysis, Quality Speech & Different Sound Signals in the Application Domain Swati Mangesh Khandare[1], D. P. Rathod Research & Training Department, Standard Electricals, Mumbai. Electrical Engineering Department, VJTI, Mumbai, International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056 Volume: 09 Issue: 01 | Jan 2022 www.irjet.net p-ISSN: 2395-0072