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Neural Network Based Brain Tumor Detection Using Wireless Infrared Imaging Sensor

P. MOHAMED SHAKEEL[1], TAREK E. EL. TOBELY[2], HAYTHAM AL-FEEL[3], GUNASEKARAN MANOGARAN[4], AND S. BASKAR[5]

[1]Faculty of Information and Communication Technology, Universiti Teknikal Malaysia Melaka, Durian Tunggal 76100, Malaysia
[2]Computer Engineering and Automatic Control Department, Faculty of Engineering, Tanta University, Tanta, Egypt
[3]Faculty of Computers & Information, Fayoum University, Fayoum, Egypt
[4]University of California at Davis, Davis, CA 95616, USA
[5]Department of ECE, Karpagam Academy of Higher Education, Coimbatore 641021, India

Corresponding author: P. Mohamed Shakeel (shakeelji@ieee.org)

ABSTRACT Now-a-days image processing placed an important role for recognizing various diseases such as breast, lung, and brain tumors in earlier stage for giving the appropriate treatment. Presently, most cancer diagnosis worked according to the visual examination process with effectively. Human visual reviewing of infinitesimal biopsy pictures is exceptionally tedious, subjective, and conflicting due to between and intra-onlooker varieties. In this manner, the malignancy and it's compose will be distinguished in a beginning time for finish treatment and fix. This brain tumor classification system using machine learning-based back propagation neural networks (MLBPNN) causes pathologists to enhance the exactness and proficiency in location of threat and to limit the entomb onlooker variety. Moreover, the technique may assist doctors with analyzing the picture cell by utilizing order and bunching calculations by recoloring qualities of the phones. The different picture preparing steps required for disease location from biopsy pictures incorporate procurement, upgrade, and division; include extraction, picture portrayal, characterization, and basic leadership. In this paper, MLBPNN is analyzed with the help of infra-red sensor imaging technology. Then, the computational multifaceted nature of neural distinguishing proof incredibly diminished when the entire framework is deteriorated into a few subsystems. The features are extracted using fractal dimension algorithm and then the most significant features are selected using multi fractal detection technique to reduce the complexity. This imaging sensor is integrated via wireless infrared imaging sensor which is produced to transmit the tumor warm data to a specialist clinician to screen the wellbeing condition and for helpful control of ultrasound measurements level, especially if there should arise an occurrence of elderly patients living in remote zones.

INDEX TERMS Wireless infrared imaging sensor, infra-red sensor, principal component analysis gray level covariance matrix, machine learning based neural networks.

I. INTRODUCTION

In the developing technology normal-abnormal classification of MRI brain images proposes, a level based approach, and compares the result with the existing methods. The existing works does not consider the anatomical structure of the brain slices for the classification of MRI brain images [1], [2]. In the aspect of image processing, the anatomically similarity of the brain slices can be treated as the similarity of brain slices in the viewing aspect along with the actual anatomical structure. This work aimed to prove that the consideration of the anatomical structure for the normal– abnormal classification will improve the result of the classification. In [3] the existing work shows that the feature vector, gray level co-occurrence matrix (GLCM) statistical features alongside support vector machine (SVM) and Back Propagating Neural Network (BPNN) produce better results than other methods. It uses multifractal segmentation along with intensity features as feature vector and classifier. Related works in current literatures for the normal/abnormal classification of MRI images does not consider the anatomical structure of the brain slices. Because of the dissimilarity in the anatomical structure, it may produce undesirable results.

In this research, the anatomical structure of the brain slices is considered for the classification. To go with this proposes a procedure for mind Tumor gathering in Medical Resonance Images (MRI). In this paper, CAD (Computer Aided