

(54) Title of the invention : DEEP LEARNING BASED SMART DIAGNOSIS OF BRAIN TUMOR USING MRI IMAGES

<p>(51) International classification :A61B0005000000, G01N0033574000, G06T0007000000, G06K0009460000, G06T0007110000</p> <p>(31) Priority Document No :NA (32) Priority Date :NA (33) Name of priority country :NA (86) International Application No :PCT// Filing Date :01/01/1900 (87) International Publication No : NA (61) Patent of Addition to Application Number :NA Filing Date :NA (62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant : 1)Ingeniouz Address of Applicant :#23, Mosque Pallam, Saidapet Tamil Nadu India 2)Dr Bharat Bhushan Sharma,Banasthali Vidyapith 3)Dr Vijay Mohan,Banasthali Vidyapith 4)Bharti Panjwani,University of Delhi 5)Dr Anuj Banswar,Government Polytechnic, Puranpur 6)Dr Naveen Kumar Sharma,I. K. Gujral Punjab Technical University 7)Dr Ankur Singh Rana,National Institute of Technology, Tiruchirappalli 8)Dr Sujit Kumar,JAIN (Deemed-To-Be-University) 9)Kashif Javed,V-flow Tech Pte. Ltd 10)Mohit Pathak,Noida Institute of Engineering & Technology, AKTU 11)Aman Joshi,J. C. Bose University of Science & Technology</p> <p>(72)Name of Inventor : 1)Dr Bharat Bhushan Sharma,Banasthali Vidyapith 2)Dr Vijay Mohan,Banasthali Vidyapith 3)Bharti Panjwani,University of Delhi 4)Dr Anuj Banswar,Government Polytechnic, Puranpur 5)Dr Naveen Kumar Sharma,I. K. Gujral Punjab Technical University 6)Dr Ankur Singh Rana,National Institute of Technology, Tiruchirappalli 7)Dr Sujit Kumar,JAIN (Deemed-To-Be-University) 8)Kashif Javed,V-flow Tech Pte. Ltd 9)Mohit Pathak,Noida Institute of Engineering & Technology, AKTU 10)Aman Joshi,J. C. Bose University of Science & Technology</p>
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(57) Abstract :

Brain cancer is the leading cause of cancer deaths worldwide. One of the most reliable methods in cancer diagnosis is the examination of histological specimens under the microscope by a pathologist. Diagnosis of cancer is carried out by examining the glandular architecture of the specimen based on Deep Learning technique. Conventional histological practice in cancer diagnosis is prone to subjectivity and limited intra and inter-pathologist reproducibility, due to its heavy reliance on human interpretation. A few research efforts have been dedicated to the development of quantitative techniques in order to achieve accurate, robust, and reproducible diagnosis in histological images. An accurate diagnosis is critical for determining optimal treatment. In this invention automated method is designed and developed which helps in classification of brain tissue with more accuracy. Automated MRI (Magnetic Resonance Imaging) brain tumor segmentation is a difficult task due to the variance and complexity of tumors. In this invention, a statistical structure analysis-based tumor segmentation scheme is presented, which focuses on the structural analysis on both tumorous and normal tissues based on Deep Learning. Eight distinct invariant features are used for the prediction of tumor in a given MRI image. In order to choose an effective classifier, three neural networks are used to identify the focuses respectively, and their performance is compared.

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