(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :12/06/2024

(21) Application No.202441045212 A

(43) Publication Date : 21/06/2024

(54) Title of the invention : EFFICIENT CLASSIFICATION OF BRAIN TUMOR IMAGES USING NEURAL NETWORK TECHNIQUE

(51) International classification : G06N0003080000, G06N0003040000, G06K0009620000, G06T0007000000, G16H0050200000	(71)**Name of Applicant :** **1)Dr.P.Srinivas** Address of Applicant :Associate Professor Department of CSE-CS, Malla Reddy Engineering College(Autonomous), Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. State:Telangana Email ID : srinivasp3@gmail.com Contact no: 9849430732 Secunderabad ----------- ----------- **2)Malla Reddy Engineering College** **Name of Applicant : NA** **Address of Applicant : NA** (72)**Name of Inventor :** **1)Ms. T. Swathi** Address of Applicant :Email ID : swachasrinish@gmail.com Contact Number: 9704314042 Secunderabad ----------- ----------- ----------- **2)Ms. K. Suma** Address of Applicant :Assistant Professor Department of CSE-CS , Malla Reddy Engineering College(Autonomous), Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. State:Telangana Secunderabad ----------- ----------- **3)Mr. G.Varahagiri** Address of Applicant :Assistant Professor Department of CSE-CS , Malla Reddy Engineering College(Autonomous), Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. State:Telangana Email ID : varahagiri.g@gmail.com Contact Number : 8309367275 Secunderabad ----------- ----------- **4)Ms. V. Pranathi** Address of Applicant :Assistant professor :Email ID : vpranathi@mrec.ac.in Contact Number: 8121449141 Secunderabad ----------- ----------- **5)Mr M. Naresh** Address of Applicant :Assistant professor Department of CSE-CS , Malla Reddy Engineering College(Autonomous), Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. State: Telangana Email ID : vpranathi@mrec.ac.in Contact Number: 8121449141 Secunderabad ----------- ----------- **6)Mr M. Naresh** Address of Applicant :Assistant Professor Department of CSE-CS , Malla Reddy Engineering College(Autonomous), Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. State:Telangana Email ID : naresh.mt@gmail.com Contact Number: 9618191611 Secunderabad ----------- ----------- **7)Ms D.Rabiya Begum** Address of Applicant :Assistant Professor Department of CSE-CS , Malla Reddy Engineering College(Autonomous), Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. State:Telangana Email ID: rabiya1262011@gmail.com Contact Number: 9398276059 Secunderabad ----------- ----------- **8)Ms R. Mounika** Address of Applicant :Assistant Professor Department of CSE-CS , Malla Reddy Engineering College(Autonomous), Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. State:Telangana Email ID : rudrapatimounika889@gmail.com Contact Number: 9182651992 Secunderabad ----------- ----------- **9)Ms. N. Sireesha** Address of Applicant :Assistant Professor Department of CSE-CS , Malla Reddy Engineering College(Autonomous), Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. State:Telangana Email ID : sirineerukonda04@gmail.com Contact Number: 6303887858 Secunderabad ----------- -----------
(86) International Application No : NA Filing Date : NA	
(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	

(57) Abstract :
ABSTRACT For prompt medical intervention and patient care, brain tumor diagnosis and classification are essential. This research uses deep learning to provide an innovative method for efficiently classifying photos of brain tumors. We propose automating brain tumor picture classification using neural network methods, particularly Convolutional Neural Networks (CNNs), to increase diagnostic efficiency and accuracy. To assure consistency and quality, we start our investigation by gathering and pre-processing a sizable dataset of images of brain tumors. The dataset has been meticulously separated into test, validation, and training sets. The foundation of our procedure is a carefully chosen neural network architecture that has been improved by adjusting hyperparameters. We include crucial architecture elements like convolutional layers, pooling layers, fully connected layers, dropout and batch normalization to guarantee strong model performance. The neural network is trained by monitoring validation metrics and minimizing an appropriate loss function, like cross-entropy, to avoid overfitting. An independent test dataset is used to extensively assess the performance of our model using a range of metrics, including accuracy, precision, recall, F1-score, and confusion matrices. Extensive visualization and post-processing capabilities aid in further refining the classification outcomes. By offering a quick and accurate way to identify brain tumor photos, this study hopes to increase medical image analysis and assist medical practitioners in making better decisions. We ultimately concluded that, when compared to multiple other CNN models, our suggested Vgg-19 model attained more accuracy after carrying out a number of experiments on it. Keywords:Brain Tumor, Machine Learning, Deep Learning, Convolutional Neural Networks (CNNs),Optimizing Clinical Operations.

No. of Pages : 6 No. of Claims : 2