

A COMPUTER AIDED DIAGNOSTIC SYSTEM FOR CLASSIFICATION OF BRAIN TUMORS USING TEXTURE FEATURES AND PROBABILISTIC NEURAL NETWORK

SONALI PATIL¹ & V. R. UDUPI²

¹Ph. D. Scholar, Shivaji University, Kolhapur, Associate Professor, Department of IT, KJSCE, Mumbai, India

²Professor, Department of Electronics and Communication Engineering, GIT, Belgaum, India

ABSTRACT

This research aims at detection of tumor blocks and classifying the type of tumor using Probabilistic Neural Network (PNN) in MR images of different patients with Astrocytoma type of Brain Tumor. The proposed technique consists of different stages, namely, preprocessing, segmentation, feature extraction and classification. The image processing techniques such as histogram equalization, thresholding, square based segmentation, component labeling and feature extraction have been developed for detection of brain tumor in the MRI images of cancer affected patients. The GLCM features are extracted from the detected tumor. These features are compared with stored features in knowledge base. Finally, a probabilistic Neural Network has been developed to classify the tumor. The developed system classifies the image into a Grade of tumor for Astrocytoma type of Brain Cancer. The system is found efficient in classification of these samples and responds on any abnormality noticed.

KEYWORDS: MR Images, Astrocytoma, Square Based Segmentation Gray Level Co-Occurrence Matrix, Probabilistic Neural Networks