

A

Major Project Report II

On

Tumor detection in MRI image using SVM

Submitted in Partial fulfillment of the requirement

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Submitted by

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DECLARATION BY THE CANDIDATE

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I hereby declare that the work presented in this dissertation entitled “**Tumor detection in MRI image using SVM**” has been carried out by me under the guidance of **Mr. M.S. Choudhary**, Associate Professor, Department of Electronics & Communication Engineering, Delhi Technological University, Delhi and hereby submitted for the partial fulfillment for the award of degree of Master of Technology in Signal Processing & Digital Design at Electronics & Communication Department, Delhi Technological University, Delhi.

I further undertake that the work embodied in this major project has not been submitted for the award of any other degree elsewhere.

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It is to certify that the above statement made by the candidate is true to the best of my knowledge and belief.

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ABSTRACT

The aim of this work is to present an automated method that assists diagnosis of normal and abnormal MR images. The diagnosis method consists of four stages, pre-processing of MR images, feature extraction, dimensionality reduction and classification. The features are extracted based on discrete wavelet transformation (DWT) using Haar wavelet. We have emphasised on reducing execution time for classification by taking less number of features selected by principal component analysis (PCA) without degrading performance of system so much. In the last stage classification method, Support Vector Machine (SVM) for multi class data is employed. Our work is the modification and extension of the previous studies on the diagnosis of brain diseases, while we obtain better classification rate with the less number of features and we have used larger and rather different database to classify tumors in different classes on the basis of location in different parts of brain.

Keywords:- Magnetic resonance imaging (MRI), Feature Extraction, Feature Reduction, Classification, Discrete wavelet transform (DWT), Principal Component Analysis(PCA), Support vector machine (SVM).

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