

A
Major Project Report II
On
**NOVEL SCHEME OF FEATURES EXTRACTION &
CLASSIFICATION OF BRAIN TUMOR INFECTED MRI
IMAGE USING NEURAL NETWORK**

Submitted in Partial fulfillment of the requirement

For the award of the degree of

MASTER OF TECHNOLOGY

In

(Signal Processing and Digital Design)



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DECLARATION BY THE CANDIDATE

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I hereby declare that the work presented in this dissertation entitled “**Novel Scheme of Features Extraction & Classification of Brain Tumor Infected MRI Image using Neural Network**” 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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ACKNOWLEDGEMENTS

At this point I would like to thank the people that helped me producing this dissertation. First, I thank **Dr. Rajiv Kapoor** Head of Department (Electronics and Communication Engineering, DTU), and **Mr. M.S. Choudhary** for giving me the opportunity to write this dissertation and supporting me along the way. Next, I would like to say thanks to all my seniors and friends for their goodwill and support that helped me a lot in successful completion of this dissertation.

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ABSTRACT

Magnetic resonance (MR) imaging has been playing an important role in neuroscience research for studying brain images where MR's soft tissue contrast and non invasiveness are clear advantages. MR images can also be used to determine normal and abnormal types of brain. Moreover, the MRI characteristics will help the doctor to avoid the human error in manual interpretation of medical content. Computer-based classification has remained largely experimental work with approaches. Here a work is done by simulating a method in Matlab using artificial neural network to automatically classify brain MRI images. The diagnosis method consists of three stages firstly feature extraction using discrete wavelet transforms. Wavelets seem to be a suitable tool for this task, because they allow analysis of images at various levels of resolution. Then the features are reduced using principal component analysis (PCA). In the last stage artificial neural network (ANN) is used as a multi class classification technique to classify between normal & brain tumor infected MRI Images & also classify different brain tumor images according to the different location of Tumor in the brain. We obtain good classification rate with the less number of features. The results show that the method is robust and effective.

Keywords–Magnetic Resonance Imaging, wavelet transform, classification, neural network.

CONTENTS

Acknowledgements	iii
Abstract	iv
1. Introduction	1
1.1 Magnetic Resonance Imaging.....	3
1.1.1 MRI Analysis using Image Processing.....	7
1.2 Previous Work.....	9
1.3 Thesis Objective.....	10
1.4 Thesis Outline.....	11
2. The Basics of MRI	12
2.1 The Brain in a magnetic field.....	12
2.2 Application of the radiofrequency pulse	14
2.3 Relaxation	15
2.4 When it all comes together	15
2.5 T2* and the spin-echo pulse cycle	16
2.6 Overview of MRI Imaging sessions	20
2.6.1 Preparation	20
2.6.2 Acquisition.....	20
2.6.3 Processing.....	23
3. MRI Image Processing	24
3.1 Wavelet Transform.....	24
3.1.1 Continuous Wavelet Transform.....	26
3.1.2 Discrete Wavelet Transform.....	28
3.1.3 Segmentation & Features Extraction Using Discrete Wavelet transform in 2-D Image	32
3.1.4 Wavelet Families.....	36
3.2 Principal Component Analysis.....	37
3.2.1 PCA Theory.....	38
3.2.2 PCA algorithm.....	40
3.3 Artificial Neural Network.....	41
3.3.1 Activation Function.....	43

3.3.2	Neural Network Architecture.....	45
3.3.3	Neural Network Learning.....	46
3.3.4	Back propagation Learning.....	48
3.3.5	Multi-class pattern classification using neural networks.....	49
4.	Simulation Results	52
5.	Conclusion & Future Scope	62
	Bibliography	63

LIST OF FIGURES

1.1	MRI machine	4
1.2	A sequence of MR image slices	5
1.3	Normal & Abnormal MRI images	6
1.4	Brain Tumor Infected M.R.I Image	7
2.1	Precession of the MDM	13
2.2	Tipping of an MDM into x-y plane during application of the RF-pulse	14
2.3	Cycle of precession of 3 MDM.s that are in phase & not in phase	17
3.1	Morlet Wavelet	25
3.2	Two channel filter bank	29
3.3	Three level analysis filter bank	31
3.4	Three level synthesis filter bank	32
3.5	Sub-images generated at two levels	33
3.6	The analysis filter banks of discrete wavelet transform	34
3.7	Discrete wavelet transform of one example MR image	35
3.8	DWT schematically	35
3.9	Wavelet families.....	36
3.10	Biological neuron	42
3.11	A Non linear model of a neuron as a processing device	42
3.12	Single-hidden-layer feed forward neural network with one output.....	45
3.13	Perceptron, computing unit of ANN, analogous to a biological neuron.....	47
3.14	A Feed-forward network with back propagation learning.....	49
3.15	Different neural network architectures for implementing K-class pattern classification	50
3.16	Schematic Diagram of Brain MRI classification overview	51
4.1	Training data set.....	56
4.2	Testing data set.....	60
4.3	Confusion Matrix.....	61

LIST OF TABLES

2.1	Overview of imaging sessions for MRI data collection	20-21
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