Abstract

Magnetic resonance spectroscopy is a technique for imaging modality used for the metabolite detection in the various parts of our body (e.g. Kidney, prostate, kidney, heart, muscle, brain) for any human being suffering from different types of disorders. It provides us the valuable information for the therapeutic monitoring of a patient as well as any diagnosis. Over the period there has been a huge amount of progress in the MRS signal processing techniques for neurometabolites quantization.

This paper presents the idea of developing a software which could be helpful to the medical experts in obtaining a classified study about diseases like brain tumor, migraine, Alzheimer’s etc. with the help of magnetic resonance spectroscopy and machine learning algorithms like ID3 and Bayesian Probability. The software could easily detect the changes in the behavior of
metabolites and their required functions. It will use history of patient data as training set for the application to learn on and predict the most accurate disease in the future.

References

2. Grzegorz L. Chadzynski, Uwe Klose, Chemical shift imaging without water suppression at 3T, University hospital Tuebingen, 72076Tuebingen, Germany.
5. Barker PB, Soher SJ, Blackband SJ, Chatham JC, Mathew VP, Bryan RN. Quantification of proton NMR spectra of the human brain using tissue water as an internal concentration reference. NMR is biomed 1993;6:89-94.
7. Marion D, Ikura M, Bax A. Improved solvent suppression in one- and two dimensional spectra by convolution of time-domain data, J magn reso n 1989;84:425-30

Index Terms

Computer Science Biomedical

Keywords

Magnetic Resonance Spectroscopy, Metabolites, MATLAB, ID3 algorithm, Pandas, scikit Learn.