

A Survey of Prostate Cancer Using Data Mining Algorithms

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ABSTRACT

Prostate cancer is one of the top three cancers amongst men. Data mining techniques are generally used in prostate cancer research. Prostate cancer are easy to be happened in men when the man is older than 50 years old. Prostate cancer is major health problem, and the most frequently diagnosed growth among men and remains the second leading cause of cancer death in the American male population. These data mining techniques are employed to explore the hidden knowledge amongst the various types of diagnoses and tests of prostate cancer and try to find some solutions by giving the best cancerous treatment according to the stages.

KEY WORDS:

Prostate cancer, c4.5 algorithm, t2 weighted graph, apirori algorithm,k-means algorithm.

INTRODUCION:

Data mining is the process of sorting through large data sets. Data mining the taking out of hidden predictive information from large datasets data mining. Techniques are the result of a long process of research and product development. Data mining is the search and analysis of large datasets to discover meaningful patterns and rules. Data mining can be applied successfully in many fields particularly for health care purpose. Now a day's cancer research is one of the hottest topics for researchers and various data mining approaches can be applied effectively for better result. So this paper used one of the best data mining as the decision tree classification can be consider as effective it is power full method of classification. Prostate cancer is one of the top three cancers amongst men especially in developed western countries. Prostate cancer is easy to happen in men when the man is older than 50 years old. This type of cancer is a major health problem and the most frequently diagnosed growth among men. Several traditional techniques can be used to detect prostate cancer such as a digital rectal exam. Using biopsy which involves collecting a tissue sample

from the prostate. As the death rate of cancer patients increases quickly therefore correct detection stages and proper treatment will surely help in curing prostate cancer. The data mining techniques are widely used the prostate cancer research. The data mining techniques are employed to explore the hidden knowledge amongst the various type of diagnoses and test of prostate cancer and try to and some solutions by best cancerous treatment according to the stages.

REVIEW AND LITURATURE SURVEY

Prostate detection using image:

In this paper, our ultimate purpose is to extract prostate from a T2-weighted image for easily detection of prostate cancer. Therefore, we present an algorithm of the prostate extraction by using a graph-based unsupervised and Semi-supervised learning. An image is made up of inhomogeneous regions. Only the homogeneous region of an image can be segmented in image processing technologies. Existing work as the cannot segment the prostate from the T2 weighted graph.proposed work as the segment theregions.First entire inhomogeneous regions are detected by the graph based unsupervised graph. Secondly the placement of the stokes as the homogeneous regions in a semi-supervised learning. Finally the prostate is extracted based on the stokes by the semi-supervised learning. Detection of prostate cancer is diagnosed by regions extracted from the T2 weighted image by the unsupervised and semi supervised learning.

Prostate segmentation using level set model:

In this paper ahmed shalaby said early detection the prostate cancer from attractive reasoning imaging (MRI). The proposed approach as the consist three steps: the prostate is localized and segmented based on a new level-set model. Second one as the calculate the coefficient of the segmented prostate volume is mathematically calculated for different values. Finally a deep learning auto-encoder is used to classify the prostate cancer. we presented an image based computer aided diagnosis system for early detection of prostate cancer

using diffusion weighted MRI. The framework includes segmentation system for early detection of prostate cancer by calculates coefficient b values.

Prostate cancer diagnosis feature selection method:

In this paper dheep albashish said the main aim of this paper is to develop computer aided diagnosis(CAD) utilizing supervised machine learning techniques for gleason grading of prostate histology. Existing work as extracted texture features contribute to the improvement of the classification performance of the support there fore, to select the more informative features from set is a critical issue. Proposed work as the a new multi scoring features selection method based on SVM-REF and conditional mutual information is proposed.

Characterization of prostate cancer:

This paper presents the results of a new approach for selection of RF time series features based on joint independent component analysis for in vivo characterization of prostate cancer. This paper result as the in a leave one patient out cross validation an area under receiver operating characteristic curve 0.93 and classification accuracy of 84% are achieved.

Early detection of prostate cancer:

In this paper ahmad firjani said we evaluate the diagnostic ability of diffusion weighted imaging and dynamic contrast-enhanced imaging for the detection of prostate cancer at early stage. The diagnostic performance was calculated for 100% accuracy.

Prostate cancer stages and treatments:

In this paper nazeena rahman said c4.5 decision tree construction algorithm used in medical field but this algorithm does not perform large calculation. So in this paper has been made to combine k-means and apirori algorithm results as the inputs of c4.5 algorithm to get better result and to discover proper stages and treatments for the prostate cancer. So this is one of the best algorithm as comparison of others. Using this algorithm and steps of algorithm.

C4.5 algorithm using cancer treatments:

C4.5 classification algorithm is applied to find out stage and also the best treatment. This algorithm is particularly used to solve cluster analysis problem. This algorithm is

implemented particularly in prostate cancer patients. We try to develop a new method by capturing the important attributes influence to get more accurate result. Here we use the k-means algorithm. We know that it is always difficult to predict k-value.

Performance evaluation:

Applying c4.5 algorithm directly on the dataset an applying the proposed c4.5 method on the dataset the efficiency is more in this technique as the rules that are generated from this new method are more accurate an practically feasible. In reality when we use the c4.5 algorithm directly on the data set, we get some ineffectual rules because the results depend on some less significant attributes. So alternatively this classification technique (c4.5). it is increase the important attributes influence.

Verification of c4.5 technique:

Accuracy measures: The K-fold cross validation technique helps in accuracy measure and model selection in this paper evaluate proposed method naive Bayesian, random forest, support vector machine along with c4.5.

Conclusion:

In this paper this proposed method performs well particularly in prostate cancer datasets. Which method using in this paper k-means clustering and apiori algorithm as the inputs for c4.5 classifier and apply on prostate cancer datasets to find accurate result. In this paper modify the existing algorithm so that work will get fixed number of redundant free best association rules according to the requirement rather than all the rules whose utility exceeds a given threshold. Future work will try to evaluate proposed algorithm on other biological datasets with some recent methods.

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