Detection of Pulmonary Nodules in Thoracic CT images using Image Processing and Data Mining Techniques

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Abstract

Pulmonary nodules are soft tissue masses present in the lung that can be seen in thoracic CT images. When the size of the nodules is large, immediate attention is required. Automatic detection of these large nodules would be appreciated by the medical professionals as it reduces labor and time. The lung nodules are usually extracted through image processing and classification techniques. In this work, lung nodules are detected through image clustering followed by classification of candidate nodules as either nodules or non-nodules. K-Means clustering is performed to delineate the candidate nodules. The features of the candidate nodules are extracted and fed as input to bagged random tree classifier for classification of nodules as true or not. The proposed system was tested on ELCAP dataset and an accuracy of 95.31% was achieved. The system has a social cause.

References

In Machine Vision and Image Processing (MVIP), 2012 International Conference on (pp. 149-152). IEEE.


Index Terms

Computer Science Pattern Recognition

Keywords

Lung nodules, K-Means Clustering, Classification, Random Tree, Data Mining, Image Processing