Recent trends indicate that instances of chronic respiratory diseases are on the rise in India mainly due to vehicular pollution, air and dust pollution, habit of smoking and also increased population. A World Health Organization report indicates that India has a ranking number one in the world for lung disease deaths. Respiratory diseases like asthma, chronic obstructive pulmonary disease (COPD), Interstitial Lung Disease (ILD), pneumonia, tuberculosis (TB) are emerging as most important health problems in the country. The proposed work is aimed at establishing more advanced diagnostic strategy for lung diseases using CT scan images. Lung diseases such as Emphysema, Pneumonia, Bronchitis are classified using CT scan images which is collected from National Biomedical Imaging Archive (NBIA). A total of 366 images are used, out of which 300 images are used for training and 66 images are used for testing. The classification task carried out with classifier support vector machine (SVM) using Histogram of Oriented Gradient (HOG) –global descriptors and Local Binary Pattern (LBP) – local descriptors. The performance of the model built using Support Vector Machine indicates that it is effective in the prediction of lung disease with 98% predictive accuracy.
References

1. Lung Disease & Respiratory Health Center. 2014. WebMD, LLC.

Index Terms

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Chronic Obstructive Pulmonary Disease, Histogram of Oriented Gradient, Local Binary Pattern, Support Vector Machine.