Abstract

Development of low cost, non-invasive applications is one of the most challenging tasks in the field of biomedical signal processing. Present work focuses on detection of glottal pathology with the knowledge of prominent speech processing and machine learning techniques. This paper addresses the discriminative characteristics of speech signal like, pitch, jitter, linear prediction residual and cepstral source excitation to aid such an identification system. Back-propagation Neural Network model is developed for various feature combinations to classify the glottal pathologic voice from normal voice. Accuracy of the developed system is evaluated considering different feature sets. Work also concludes the efficiency of such
Vocal Features for Glottal Pathology Detection using BPNN

acoustic features for various combinations using objective measures like confusion matrix, true positive rate i.e. sensitivity, specificity i.e. true negative rate and accuracy. The results show promising development in identification of pathological individual from normal person using voice samples.

References

- Lc C Quilty, Km M Godfrey, and S H Kennedy. Harm avoidance as a mediator of treatment response to antidepressant treatment of patients with major depression. Psychotherapy and, 8:1–7, 2010.
- V Sellam and J Jagadeesan. Classification of Normal and Pathological Voice Using...


**Index Terms**

Computer Science  
Signal Processing

**Keywords**

Pitch  
Jitter  
LPC residual  
Source excitation  
Short time energy  
Confusion matrix