

Vocal fold activity detection from speech related biomedical signals: a preliminary study

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Abstract

In vocal load estimation, detection of voiced speech regions is required in order to quantify the total time of vocal fold activity. This is a more difficult problem than voice activity detection, due to it involves the detection not only of the presence of speech but also of a periodic behavior at glottal level. In this work, we propose to use linear discriminant analysis in order to detect voiced speech periods. Here, three different signals, related to vocal fold activity, are considered: voice, electroglottogram and skin vibrations of the neck. For each signal, different sets of features are tested in order to find the corresponding optimal one. In this introductory study, the cross-validation procedures suggest that the proposed method is a suitable approach for voiced speech activity detection, independently of the considered signal, showing accuracies greater than 95 % and robustness to intersubject variability.