

Algorithm for jitter and shimmer measurement in pathologic voices

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Abstract

An algorithm to measure the jitter (jitta, jitter, rap and ppq5) and shimmer (ShdB, Shim, apq3 and apq5) parameters was developed. These parameters can be used in an intelligent system to diagnose voice pathologies. The algorithm is sensitive to the fundamental frequency and determines the parameters based on maximum and minimum functions applied to each glottal period of the signal. The algorithm was previously tested with synthesized speech signals with very high accuracy, but several improvements had to be included for the analysis of pathologic voices. A comparison using real, control and pathologic voices was made between the developed algorithm and other software program to evaluate the consistency of measures between different algorithms. Based on this comparison it can be said that the algorithm improved the accuracy with synthetic speech signal and showed consistent measures for pathologic speech signal.

Keywords: Jitter; Shimmer; Voice analysis; Pathologic voice diagnose; Voice clinics.
