

# Improved Back propagation neural network for the diagnosis of pathological voices

## Abstract

Most of vocal and voice diseases cause changes in the voice. ENT clinicians use acoustic voice analysis to characterize the pathological voices. Nowadays, voice diseases are increasing dramatically due to unhealthy social habits and voice abuse. This paper presents a neural network classifier for the diagnosis of vocal and voice disorders. Two simple schemes, such as Back propagation with slope parameter and BP with Proportional, Integral and Derivative (PID) controller concepts are proposed. BP with slope parameter and PID controller concepts improve the convergence ability of BP algorithm, the training time, and generalization of the network. A simple scheme is also proposed to fix the slope parameter of a bipolar sigmoidal activation function. The proposed algorithms provide very promising classification rate than conventional back propagation algorithm.