

Applications of cascade-forward neural networks for nasal, lateral and trill arabic phonemes

Abstract

In the field of speech recognition using Artificial Neural Network (ANN) system, a lot of research has been done and ongoing research is looking for better algorithm to improve the existing recognition methods. In this paper, we monitored and analyzed the performance of multi-layer feed-forward with back-propagation (MLFFBP) and cascade-forward (CF) networks on our phoneme recognition system of Standard Arabic (SA). This study focused on Malaysian children as test subjects. It is focused on four chosen phonemes from SA, which composed of nasal, lateral and trill behaviors, i.e. tabulated at four different articulation places. The highest training recognition rate for multi-layer and cascade-layer network are 98.8 % and 95.2 % respectively, while the highest testing recognition rate achieved for both networks is 92.9 % for all four phonemes under study.