Deep Belief Networks for Kannada Phoneme Recognition

Abstract

In this paper, a baseline phoneme recognition system for Kannada language is built using MFCC and Deep Belief Networks (DBNs). Phonemes are segmented from continuous Kannada speech and MFCC features are extracted from each speech frame. These features are further used as input to the recognizer. DBNs are probabilistic generative model which are constructed by stacking Restricted Boltzmann machines (RBMs). The learning procedure of DBN undergoes pre-training phase followed by fine-tuning phase. Evaluations are also carried out on conventional speech recognition methods such as Multi-Layer Feed Forward Neural Networks (ML-FFNNs) and Support Vector Machines (SVMs). The Experimental result shows that DBN's performance is superior to the conventional methods for recognition of Kannada phonemes using MFCC features.

References

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Index Terms

Computer Science

Pattern Recognition

Keywords

Kannada Phoneme Recognition  Mfcc Features  Deep Belief Networks (dbns)  Multi-layer Feed Forward Neural Networks (ml-ffnns)  And Support Vector Machines (svms).