Speech Recognition: A Pattern Recognition Problem

S. Mohanty, S. Bhattacharya, A.K.Senapati
RC-ILTS-Oriya
Department of Computer Science & Application
Utkal University, Bhubaneswar

Sangham1@rediffmail.com , suman1_bh@yahoo.com , ajayasenapati@yahoo.com

ABSTRACT

A recent study on Artificial Intelligence (AI) gives more emphasis on Speech Recognition (SR). SR is a complex task as parametric studies needs a lot of intelligence during the recognition of the human voices. Pattern Recognition (PR) is the scientific discipline dealing with methods for object description and classification. Since the early times of computing design and implementation of algorithms emulating the human ability to describe and classify objects has been found to be most intriguing and challenging task for SR. We take utterances of speakers for a particular character of Oriya language. The parameters like amplitude (dB), noise (dB), frequency (Hz), pitch (Hz), duration (ms), intonation (ms) and formants (ms) etc are studied and for each individual character classes, patterns and features are defined. The set of classes are states in which we can find certain studied entity. Corresponding to each class, there is certain state of representation, the pattern. From each pattern we can extract information characterizing the features. In the speech processing the features are related to wave measurements of amplitude, pitch, and duration. The features are calculated by taking certain mathematical formulations, which are elaborately described in the paper.