

Abstract

Speech signals have unique characteristics. Various studies in the voice signal processing also has been developed one of which is the application of Speech to Text. This application is a branch of the voice recognition application that processes the speech signal, recognizes it, and turn it into a textual representation.

Hidden Markov Model method has been widely researched and proven success in speech recognition. Likewise with the Hybrid between the HMM and one of optimization methods, namely Genetic Algorithms. Hence in this final, will be tested using the Hybrid GA-HMM method to optimize the HMM system with parameters that produce the worst level of accuracy in recognizing Indonesian utterance.

The process of speech recognition is in essence compares the incoming speech with various models of speech contained in the system. In a speech recognition system using HMM and the hybrid GA-HMM, there are two main processes of modeling and recognition. In the modeling process will be made a model of HMM and hybrid GA-HMM of a word by calculating the value of existing parameters in the HMM. Having obtained the values of the optimum of these parameters, then formed a model that is expected to improve the accuracy of the HMM method.

By using a Hybrid GA-HMM method for optimizing Baum-Welch method obtained the percentage increase in the level of accuracy of 20% to 41%. This proves that the Hybrid GA-HMM method is more optimal when compared with HMM training is only using Baum Welch method alone.

Keywords : Speech Recognition, Speech To Text, Hidden Markov Model, Hybrid GA-HMM, Genetic Algorithm, Baum Welch.