

## ABSTRACT

Dubbing is one important process of making animated films that are still using the original voices of famous artists. In the process of manufacture of problems such as busy schedules artist, emotionally unstable, and others that are still common error or discrepancy to the expected results, the processing time becomes longer. It required a system that can mimic the sounds of someone with a high level of similarity.

The most important part in Voice Conversion process lies in how to model the target signal to be emulated by the new input signal. It has been observed many modeling methods such as Hidden Markov Model (HMM) [1][5][7], and the Gaussian Mixture Model (GMM) [3][9][12]. In the previous studies, proved HMM can be used to model the signal dynamic characteristics. And in[12], the application of GMM optimization is done using Genetic Algorithm and produces a MOS value is higher than before optimized. Therefore, in this thesis the application of Hidden Markov Model optimization in speech signal modeling using Genetic Algorithm.

The highest increase of Cepstral RMSE values after optimization is equal to 7.08% and an average of 2.75%. In terms of similarities, MOS testing for HMMAG have an average value of 3.26 while the MOS testing for HMM has an average value of 3.07. In terms of quality, MOS testing for HMMAG have an average value of 2.89 while the MOS testing for HMM has an average value of 2.78.

Keywords: Genetic Algorithms, Dubbing, HMM, Voice Conversion