ABSTRACT

Reverberation is a phenomenon in which characteristics of original audio signal mixed with noise signal that is emerged due to reflection effect. Reverberation characteristic of a signal is corresponding room impulse response that cause reflected signal to have certain delay times related to room dimension. This reverberated can be hardly cleaned since the reverberation signal is correlated to the original signal, so the method used to clean this reverberated signal is different from usual noise reduction method. Method used for cleaning this reverberated signal is called dereverberation..

Dereverberation is a method to reduce the reverberant signal so that the signal quality improved. One kind of dereverberation method that is discussed in this final assignment is spectral subtraction method. Input that is used in analysis is noiseless music signal, and the expected output is signal with less reverberant so that the signal quality can be improved. The dereverberation method is various, the one that used this time is Spectral Subtraction method

From simulation process using spectral subtraction method some good performance value are obtained. The performance consists of several parameters which is Mean Square Error (MSE), Energy to Late Reverberation Energy Ratio (ELR), Early to Total Reverberation Energy Ratio (ETR). For small room simulation maximum MSE performance is 0.000067, maximum ELR performance is 2.921, and maximum ETR performance is 2.921.

For medium room simulation maximum MSE performance is 0.09, maximum ELR performance is 0.5737, and maximum ETR performance is 0.5731. For large room simulation maximum MSE performance is 0.38, maximum ELR performance is 3.0745, maximum ETR performance is 3.0713, and maximum MOS is 3,8333. Those maximum performances are mostly obtained by single instrumental music, while in some cases it's obtained by triple instrumental music.

Keywords: music signal, reverberation, dereverberation, spectral subtraction