Abstract

Sometimes, while learning an instrumental music, had to face the difficulties in getting the exact timing when they have to play the notes. With digital signal processing, we can offer a solution by doing a sound separation from a musical instrument record, so students can learn how to get the exact timing easily. This process is called Blind Source Separation (BSS). One method which can be used is Independent Component Analysis (ICA).

This thesis is doing a sound separation from an audio file consist of two types of sound instrument which played together. The recording process is done by using two microphone without knowing the distance between source, distance between microphone and distance between source and microphone. The separation process is done with ICA combined with ARMA model.

From the simulation can be concluded that ICA's performance which combined with ARMA model in separating mixing signal is done well. In the first scenario can be concluded that the ICA's performance is getting worse when the source is getting near to the microphone. From the second scenario, can be conclude that the best performance with RMSE 0.1172 and correlation 7.05×10^{-12}

Keywords: BSS, ICA, ARMA