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# Audio event detection

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Abstrak

This paper presents an audio event detection method by using the Maximum Likelihood techniques. The project's algorithm uses Gaussian Mixture Model (GMM) to provide a model of several types of sound. The Maximum Likelihood methods will give an estimation of all the parameters of the Gaussian Mixture Model that can be used to identify what event(s) happen in audio signals. The focus of this work is on the ability of modelling different types of audio files and identifying what events occur regarding the models that were previously constructed. A complete experimental evaluation of the Gaussian Mixture Model is conducted on 150 audio files under 12 particular conditions for the training process. And 15 audio files under the same 12 conditions for the identification process. Different audio files will be used for the detection process where each audio file consist several events. In order to improve the performance of the classifier, Expectation Maximization algorithm is applied. From the experimental evaluation that has been done, it can be concluded that the accuracy could be improved slightly through the trial number of the convergence criteria (LLH Convergence) and the number of mixture. The programming of this project is using MATLAB Version 7.0.1 and also using an additional Toolbox from Voicebox.