

ACOUSTICS2008/3262
Sound feature extraction to distinguish between grand and upright pianos

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The sound of grand pianos differs from that of upright pianos. In order to find what characterizes the produced sound, an instrument recognition system capable of producing a model of the sound features should be created. Feature extraction can be performed with the use of the Mel Frequency Cepstral Coefficients (MFCCs). Statistical modeling can be further applied using the Gaussian Mixture Model (GMM) so as to train the system. In order to decide whether the under test instrument is a grand or an upright piano the log-likelihood should be calculated. This study could assist in the identification of the parameters defining the sound of grand and upright pianos.