

Thesis Proposal

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This is a draft outline for my thesis. A possible title:

Labelling audio objects in real time

Outline

We aim at labelling and segmenting a complex audio streams into notes objects, within as few delay as possible. Applications range from automatic midi transcription to object based coding.

The approach is to determine the temporal boundaries of our objects – onsets and offsets – and to characterize these objects according to their content. By using only the very beginning of their contents, we are trying to obtain a robust identification of the ongoing event.

Recent Music Information Retrieval techniques are to be used and adapted to work within these constraints: onset detection functions, pitch tracking, voicing confidence, percussion labelling.

Various tasks, such as data normalisation and parameter smoothing, which are crucial for offline algorithms to work, become more complex in a real time environment. We will propose new algorithms to address the specific issues implied by the real time perspective. Application prototypes will also be developed.

Status

Onset detection and their modifications are implemented. Pitch has been evaluated on monophonic signals, is being trained on polyphonic music. The algorithms are developed as a C library and available as GPL.