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Auditory model based analysis of polyphonic music

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This study is about the use of an auditory model to extract multiple pitches from polyphonic music signals. One goal was to identify the conditions where pitch analysis using an auditory model is advantageous over more conventional time or frequency domain approaches. It is shown that these conditions include especially the processing of bandlimited signals or signals where important parts of the audible spectrum are corrupted by bandlimited interference. An efficient implementation strategy is described which reduces the computational complexity of the auditory model roughly by factor 10. Further prospects of bandwise processing and redundant signal representations in general are discussed.