

Devaney, J. (2014). "Estimating onset and offset asynchronies in polyphonic audio-to-score alignment." *Journal of New Music Research* 43(3): 266–275.

i. MIDI-Audio Alignment:

Onsets and offsets of all notes, mono- and polyphonic have to be identified in order to guide signal processing algorithms, examine expressive performances or use score audio alignment. For more description see iii.

ii. Techniques used for MIDI-Audio Alignment:

Dynamic Time Warping, Hidden Markov Models

iii. The difference between Online and Offline Alignment:

Online alignment is realtime following of solo live-performance creating a responsive accompaniment as opposed to the offline alignment which follows a symbol representation, for example a midi version of monaural recording of a polyphonic performance.