ECS7006 Music Informatics 2023: Lab 2

Date and Time: Thu 16 Feb 10:00-12:00
Location: ITL 2F

Implement the following onset detection functions (ODFs) as described in lectures: RMS energy, HFC, SF, CD, RCD, PD and WPD. Rather than processing the audio separately for each function, calculate them together, storing the resulting ODFs in an $N \times 7$ matrix, where N is the number of frames, and there are 7 ODFs. You can use the tutorial solution from lecture 3 as a starting point.

Compare the performance of the ODFs on the given audio examples. An evaluation function is supplied in the file `evaluate.py` to count the number of correctly detected onsets (true positives) within a given threshold (default 50 ms), as well as false positives and false negatives. Note that the performance is strongly dependent on the peak picking, thresholds and any other postprocessing you perform. If you have time, experiment with different parameters and types of normalisation (e.g. z-score, which converts to zero mean and unit standard deviation, median filtering, low-pass filtering).