SIMILARITY MELODY ANALYZING USING THE EARTH MOVER'S DISTANCE

Wahyu Kusuma

Faculty of Computer Science & Technology Information, Gunadarma University
wahyukr@staff.gunadarma.ac.id

ABSTRAK

In music information retrival system, queries are generally in the text form information, such as song title, singer name, song or composer. Beside that queries can also be a music signal or signal vocal (vocal melody) like singing, humming of a part song. This objective of the research is to analyze the vocal melody as similarities vocal melody for query data with melody as the target data. Similarities method used is the Earth Moving Distance (EMD). To analyze the similarities accuration, so in this research needs to be done melody process representation through segmentation method with detection onset. Melody representation generated in the format of onset time, pitch intervals, and time ratio of interval onset. In onset detection, signal goes through filtering process, rectification, the formation of the signal contours, gradient detection, and the selection signal above the threshold value. Onset positions are used for signal segmentation, so that each segment contains only one note. Furthermore, each segment goes through the pitch exploration by frequency analysis with Fourier transformation and pitch estimation with a fundamental frequency distribution approach.
Based on results of distance value test used the EMD distance values, can be determined rank value and the mean reciprocal rank (MRR). Tests conducted on 30 query data (sing and hum) with 30 data document (piano) so obtained MRR values equal to 0479. In the performance calculation in rank-6 performance on the performance obtained equal to 93.3%. Test results show the accuracy similarities and retrival system performance using EMD was good.

Keywords*: extraction, representationf melody, similarities, music information retrival*

Categories*: H.5.Information Interface and Presentation | H.5.5.Sound and Music Computing | Signal Analysis, Synthesis, and Processing*