RHYTHMIC SIMILARITY OF MUSIC BASED ON DYNAMIC PERIODICITY WARPING

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ABSTRACT

This paper introduces a new way to measure rhythmic similarity between two musical pieces using periodicity spectra. In order to detect similarity for pieces of different tempi, the linearity of the warping path between their spectra serves as a measure of their rhythmic similarity. Using a modified kNN classification approach on two datasets, the proposed measure provides comparable classification accuracy (82.1%) to the best of widely used measures (85.5%) for the first dataset; For the second dataset, which is characterized by a large variance of tempi, the proposed measure outperforms all reference measures, reaching an accuracy of 69.0%, while the best of the other measures reaches 53.8%. Moreover, the presented technique works fully automatically.

Index Terms— Rhythm, similarity, music, information retrieval