Transportation Distances and Their Application in Music-Notation Retrieval

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Abstract

This article introduces the representation of music notation as a weighted dot pattern and defines two distance measures—the Earth-Mover's Distance and the Proportional Transportation Distance. Their performance is compared in the ranking of melodic-match candidates.

Queries with both distance measures are evaluated and their applicability in music research is discussed. The research is related to the Orpheus project (*http://www.cs.uu.nl/centers/give/multimedia/music/*), which aims to develop efficient methods for content-based retrieval from large collections of encoded music notation producing meaningful results.