Transportation Distances and Their Application in Music-Notation Retrieval

Frans Wiering, Rainer Typke, Remco C. Veltkamp

Institute of Information and Computing Sciences
Utrecht University
P.O. Box 80.089
NL-3508 TB Utrecht
Netherlands
{frans.wiering,rainer.typke,remco.veltkamp}@cs.uu.nl

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.

Music Query: Methods, Models, and User Studies (Computing in Musicology 13), 113-128.
Published by CCARH and the MIT Press, 2004.