COLUMBIA UNIVERSITY
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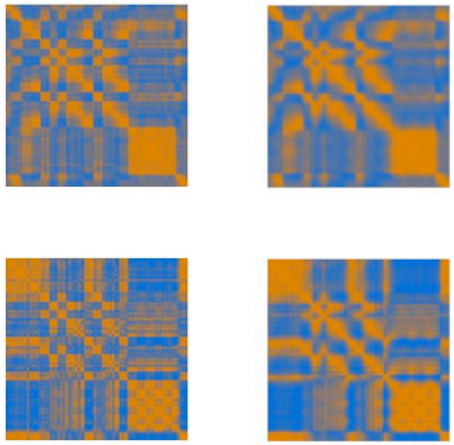
Electrical Engineering Signal and Information Processing Seminar Series

EESIP Seminar

Tuesday May 21st, 2013 • 11:00-12:00 • Interschool Lab, room 750, Schapiro CEPSR

Identifying Cover Songs Using Information-Theoretic Measures of Similarity



Peter Foster

Queen Mary University of London

This talk presents an evaluation of methods for determining similarity between pairs of audio tracks (Foster et al. 2013), where we consider the task of cover song identification. We consider tracks similar, if knowledge of one track facilitates predicting another with a low degree of uncertainty, as quantified using Shannon information.

We perform a comparison of discrete-valued approaches operating on quantised audio feature time series, against continuous-valued approaches. For the continuous-valued case, we compute pairwise information measures using statistics of the prediction error. We evaluate our methods on a data set of 300 Jazz standards. We observe that approaches based on the normalised compression distance are outperformed by approaches based on cross-prediction. In addition, we observe that continuous-valued approaches outperform discrete-valued approaches. In our chosen framework, the latter findings suggest that both representation and pairwise prediction strategy bear importance in determining time series similarity.

Peter Foster is a PhD candidate at the Centre for Digital Music at Queen Mary University of London, United Kingdom. His research focuses on evaluating measures of expectation and surprise as a means of determining musical similarity. His research aims to elucidate whether a music-cognitively inspired approach is useful in music content analysis.

Host: Dan Ellis <dpwe@ee.columbia.edu>

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