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ABSTRACT

This report summarises music information retrieval-related research produced by staff, student and associated members of RMIT University for the past year.

1. INTRODUCTION

The main research topics explored by RMIT's Music Information Retrieval Technology research group in the past year include: matching misheard lyrics, searching audio collections with symbolic music queries, classification according to musical instrument timbre and mood, and monophonic search of polyphonic symbolic collections. This report summarises key results.

2. LYRIC MATCHING

We studied the effectiveness of several pattern matching techiques for finding lyrics where the queries were incorrectly heard [1]. The three techniques tested, including a simple edit distance, were inseparable statistically with our experiments.

3. MUSICAL INSTRUMENT TIMBRE

Recent work has involved the classification of groupings of instruments [3]. Success was somewhat limited, which led to an exploration of current monaural source separation algorithms. Three were tested perceptually on a small set of musical samples of two to three instruments: nonnegative matrix factor 2-D deconvolution (NNMF2D), projected gradient methods for non-negative matrix factorization (PNMF), and average harmonic structure modeling (AHSM). NNMF2D was selected by listeners most of the time as the best technique for separating sources, however, our preliminary exploration of classification using features from separated sources has not been successful [4].

4. PERCEPTIONS OF MOOD

Subjects were asked to indicate the mood associated with each snippet of music. Intensity, tempo and beat strength

were strongly associated with mood responses, whereas pitch and tonality were not [5].

5. SYMBOLIC QUERIES AGAINST AUDIO

Our exploration of musical queries against an audio collection has led to an effective technique based on longest common subsequence of pitch class representations of automatically transcribed audio and symbolic query [2].

6. MONOPHONIC QUERIES

We revisited the pitch versus pitch and rhythm problem in symbolic melody matching against a polyphonic collection. We found that it is possible to improve effectiveness by a small but statistically significant amount when inter-onset interval strings are matched in addition to pitch strings [6].

7. REFERENCES

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