BEYOND CHROMA: THE OCTARINE FEATURE FOR CHORD RECOGNITION

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ABSTRACT

Chord recognition from music audio has emerged as a popular and useful task in the past few years. Almost all systems are based on so-called chroma representations, where the signal spectrum is collapsed onto a single octave (typically with just twelve bins) to achieve invariance to octave, instrumentation, and inversion of chords. However, chroma representations eliminate information on the height (octave) of constituent notes that is important to the identity of chords, particularly when we venture beyond the minimal set of major and minor triads. In this paper, we investigate chord recognition based on a representation of the full spectrum, so that differences in octave may be preserved. We investigate derived representations that attempt to normalize broad spectral variation, then remove redundancy in the features by learning efficient bases from the training data. We evaluate variations on these features in comparison to traditional chroma features using an HMM chord recognizer on a standard chord database. [1]

1. INTRODUCTION

Contemporary popular music relies heavily on the conventions of Western harmony.

2. CONCLUSIONS

We have presented a new approach to representing the tonal content in music, the octarine. By being based on the full log-frequency scaled spectrum, the octarine can capture relationships between notes that extend outside of one octave, and thus form a richer description of chords and harmonic content than the traditional chroma. These advantages have been illustrated with respect to a simple chord recognition evaluation, but we anticipate their usefulness in a wide range of music audio analysis tasks.

3. REFERENCES

[1] Authors appear in alphabetical order.