MUSIC PROCESSING: VoSA – Voice Separation Analyzer

VoSA, Voice Separation Analyzer, is a Java application that can separate musical voices (or parts) in MIDI files and evaluate the voice separation results. The application currently contains an implementation of the contig-mapping algorithm for voice separation described in Chew & Wu (2004). Algorithm outcomes are shown in the piano-roll view, and selected voices can be exported as MIDI files. Once the algorithm makes its voice assignments, the GUI will highlight any errors in the machine assignments, and display measures of the algorithm’s performance. The application was implemented using Java2 SDK, Standard Edition.
UNIQUE OR DISTINGUISHING CHARACTERISTICS RELATIVE TO STATE-OF-THE-ART

- Contig-mapping algorithm was invented for voice separation.
- Adaptive quantizing technique was developed to pre-process MIDI.
- Universal measures were introduced to evaluate voice separation.
- Algorithm’s result: 90% precision on Bach’s pieces.

APPLICATIONS

- Music information retrieval
- Computer analysis of music
- Automatic transcription of music

RECENT HIGHLIGHTS, LEVEL OF DEVELOPMENT, UPCOMING MILESTONES

- Testing on more music pieces to evaluate and improve the algorithm.
- Studying the cases of voice-crossing.
- Testing if pattern matching technique can improve the precision.
- Integrating VoSA to music retrieval systems.

UNDERLYING TECHNOLOGIES

- Uniqueness: Contig Mapping Approach.
- Software: developed under Java SDK1.4.2 SE

LIST OF PUBLICATIONS, REFERENCES, URLS


For additional information, please contact the Principal Investigator listed above via email, or contact

Isaac Maya, Ph.D., P.E. 213-740-2592
Director, Industry and Technology Transfer Programs imaya@imsc.usc.edu

Integrated Media Systems Center
3740 McClintock Avenue, Suite 131
Los Angeles, CA 90089-2561
213-740-8931 (fax)

For additional information on the Integrated Media Systems Center (IMSC), please visit our Web site at http://imsc.usc.edu