The main focus of this special issue is on the application of digital signal processing techniques for music information retrieval (MIR). MIR is an emerging and exciting area of research that seeks to solve a wide variety of problems dealing with preserving, analyzing, indexing, searching, and accessing large collections of digitized music. There are also strong interests in this field of research from music libraries and the recording industry as they move towards digital music distribution. The demands from the general public for easy access to these music libraries challenge researchers to create tools and algorithms that are robust, small, and fast.

Music is represented in either encoded audio waveforms (CD audio, MP3, etc.) or symbolic forms (musical score, MIDI, etc.). Audio representations, in particular, require robust signal processing techniques for many applications of MIR since meaningful descriptions need to be extracted from audio signals in which sounds from multiple instruments and vocals are often mixed together. Researchers in MIR are therefore developing a wide range of new methods based on statistical pattern recognition, classification, and machine learning techniques such as the Hidden Markov Model (HMM), maximum likelihood estimation, and Bayes estimation as well as digital signal processing techniques such as Fourier and wavelet transforms, adaptive filtering, and source-filter models. New music interface and query systems leveraging such methods are also important for end users to benefit from MIR research.

This issue contains sixteen papers covering wide range of topics in MIR. In the first paper, Diniz et al. introduce new spectral analysis methods that may be useful for pitch and feature extraction of music. In the second paper, Lacoste and Eck make an important contribution in detecting where a note starts, which is fundamental to many of higher-level MIR tasks.

The next two papers, by Peeters and Alonso et al. deal with the challenge of finding tempo in music. The subsequent two papers by Kitahara et al. and Woodruff and Pardo consider the problem separating and identifying instruments in music with multiple instruments playing together while Poliner and Ellis focus on the difficult problem of piano transcription. To enhance queries based on sung melodies, Suzuki et al. use both lyric and pitch information. The problem of segmenting music into large sections is refined in the two papers by Jensen and Müller and Kurth. The issue of key finding in music is nontrivial and is covered by Chuan and Chew. The next three papers by West and Lamere, Cataltepe et al., and Barbedo and Lopes address the problem of music similarity and genre classification.

A paper by Rossant and Bloch contributes to the advancement of optical music recognition systems, which help to create large symbolic music databases. The last paper by Goto et al. makes a worthy contribution by converting the emerging music notation standard MusicXML to Braille music notation.

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