

Special Issue on Signal Models and Representations of Musical and Environmental Sounds for IEEE Transactions on Audio, Speech and Language Processing

This is a call for papers for a special issue on Signal models and representations of musical and environmental sounds, to be published in mid-2009 in the IEEE Transactions on Audio, Speech and Language Processing.

The non-stationary nature, the richness of the spectra and the mixing of diverse sources are common characteristics shared by musical and environmental audio scenes. It leads to specific challenges of audio processing tasks such as information retrieval, source separation, analysis-transformation-synthesis and coding.

When seeking to extract information from musical or environmental audio signals, the time-varying waveform or spectrum are often further analysed and decomposed into sound elements. Two aims of this decomposition can be identified, which are sometimes antagonist: to be together adapted to the particular properties of the signal and to the targeted application.

This special issue is focused on how the choices of

- a low level representation (typically a time-frequency distribution with or without probabilistic framework, with or without perceptual considerations)
- a source model
- a decomposition technique,

may influence the overall performance.

Specific topics of interest include but are not limited to:

- factorizations of time-frequency distribution
- sparse representations,
- Bayesian frameworks,
- parametric modelling,
- subspace-based methods for audio signals,
- representations based on instrument and environmental sources signal models,
- sinusoidal modelling of non-stationary spectra (sinusoids, noise, transients)

applied to complex audio scenes such as polyphonic music (that may include singing voice) and environmental sounds.

Typical applications considered are (non exclusively): source separation/recognition, mid or high level features extraction (metrics, onsets, pitches, ...), sound effects, audio coding.

Important Dates:

Submission deadline: 15 December, 2008

Notification of acceptance: 15 June, 2009

Final manuscript due: 1st July, 2009

Tentative publication date: 1st September, 2009

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