

Special Sessions



The 13th
International Conference
on Auditory Display
(ICAD)

June 26-29, 2007

Conference Homepage:

<http://www.music.mcgill.ca/icad2007/>

Special Sessions

A number of special paper sessions have been announced in the Call for Papers which are intended to focus on the following topics:

- **SS1: Analysis and Synthesis of Environmental Sounds**
- **SS2: Auditory Warnings and Alerts : Best Practices and New Approaches**
- **SS3: Auditory-Haptic Interaction in Information Display**
- **SS4: Binaural Technology for Auditory Display**
- **SS5: Effective Auditory Displays, Listening Abilities, and Learning**
- **SS6: The role of binaural reproduction in music, film, and radio-play productions**

Papers submissions for consideration as contributions to these sessions should be identified as such using the **SS#** code assigned to each at the time of submission. Here are brief descriptions for each of these special sessions:

SS1: Analysis and Synthesis of Environmental Sounds

Session Chair: Gary Scavone, McGill University

This technical paper session will focus on issues of auditory display of environmental sounds. Topics can include acoustic and/or signal analysis of such sounds, as well as the development of signal processing techniques to enable efficient synthesis using physically - or perceptually - informed approaches. We are also interested in multi-modal display systems where parametric sound synthesis is combined with either graphic and/or haptic feedback and a perceptual analysis of the effects of such coupling are evaluated. Sound synthesis approaches for generalized contact, friction-based, and/or rolling sounds are particularly appropriate. Further, demonstrations of software systems for the creation of sound "environments" are welcome.

SS2: Auditory Warnings and Alerts: Best Practices and New Approaches

Session Chair: Durand Begault, NASA Ames Research Center

Synthetic auditory warning signals (generic for non-speech caution and warning signals) are an everyday, integral part of any society, with fairly uniform characteristics from the perspective of sound design (pitch, timbre, loudness). Attention has only been given fairly recently in the research community towards making these signals discriminable, audible and tolerable; some high-stress human interfaces (e.g., military, aviation) has also been concerned with increasing the 'richness' of the semantic content of these alarms. Topics for this special session may include assessment of current international standards; new approaches to forming the sound design of alarms; exploring the 'sonification' possibilities of such signals; and defining what best (or worst!) practices might be. We may obtain an idea of how the soundscape of the future decades would sound like, (or what we would like it to sound like).

SS3: Auditory-Haptic Interaction in Information Display

Session Chair: TBA

Details to follow.

SS4: Binaural Technology for Auditory Display

Session Chair: William L. Martens, McGill University

This technical paper session will focus upon the evaluation of spatial auditory display technology. Emphasis is placed on reports of research evaluating binaural

cue simulation designed to spatially position auditory images associated with sound sources presented via earphones. The motivation for this call is to attempt to provide clarification regarding some of the issues and assumptions that underlie research-driven binaural technology development. After an introduction presenting current directions in binaural technology development, including a general discussion of research goals and methods, presentations are desired that address some of the difficult questions posed by the application of binaural technology for auditory display. These might include the question of how best to evaluate the performance of generic Head-Related Transfer Functions (HRTFs), in contrast to those that are measured for the use of a specific individual. At the heart of this session should be a focus on the methods that are most appropriate for the evaluation of auditory imagery resulting from synthetic sound spatialization. While a primary goal for binaural synthesis is to spatially position an auditory image at a specified direction and distance, submissions are encouraged that attempt to address other issues that are important to the development of adequate spatial auditory display technology, such as those related to the rendering of realistic-sounding virtual acoustic environments.

SS5: Effective Auditory Displays, Listening Abilities, and Learning

Session Chair: René Quesnel, McGill University

The focus of this session will be on the design of effective auditory displays, with an emphasis upon the evaluation of how well auditory displays take human listening skills into account. Of particular interest in this session are reports on research addressing issues related to the ecological validity of user tests and the study of listening abilities in real-world contexts with complex sound stimuli. Candidate listening skills that might be addressed include the following: Auditory streaming, discrimination, identification, and categorization tasks involving loudness, timbre, pitch, tempo, duration, location in space, and distance. Highly welcome will be papers that examine the role of individual differences in listening abilities and the characteristics of listeners that can be used to predict their performance, and the impact of those characteristics upon the efficacy of auditory displays. Also of interest would be research investigating higher-level cognitive aspects such as working and long-term memory, selective and divided attention, and the role of expectations and listening experience. In addition, reports of research on training procedures designed to optimize the performance and comprehension of listeners in auditory display tasks, cross-modal (auditory and visual) interactions effects on listener performance, and the generalization of listening abilities across auditory display tasks and fields of application will be quite relevant to this session.

SS6: The role of binaural reproduction in music, film, and radio-play productions

Session Chair: Jonas Braasch, Rensselaer Polytechnic Institute, USA

In this session, both historic and contemporary art will be presented that incorporate binaural reproduction -- pieces in which sound was presented via headphones to create spatial imagery that preserved natural localization cues. Although the first recordings of this kind were so-called dummy-head recordings, which were obtained by inserting two microphones into a manikin of a human head at the positions of both eardrums, in the 1980's and 90's computerized methods for creating auditory virtual environments allowed a more natural reproduction with head-tracking headphone displays using realtime adjustment of head-related transfer functions. Currently, computer technology has become advanced enough to make auditory virtual environments commercially viable for home entertainment, which could bring back more interest to binaural art work.

During ICAD 2007, we will have one of the rare opportunities to present binaural art work to a larger audience. Submissions of contemporary binaural art are encouraged. We will be able to reproduce the following formats with a substantial number of headphone sets: CD audio, DVD video (stereo plus DVD video), and AVI files. The length of the contributions has to be restricted to pieces or excerpts of 15 min or less. A short technical description about the recording process should be submitted as well (200 words or less).