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AUDIO engineering society, Inc.
Pacific Northwest Section
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June 10, 1995 Meeting Notice

"Perceptual Audio Coding of Wide Band Audio Signals: Basic Principles and Current Applications"

Dr. Marina Bosi, Dolby Laboratories

DATE: Saturday, June 10, 1995 - 2:00 PM
PLACE: Mackie Designs, 16220 Wood-Red Road, Woodinville, 98072.
DIRECTIONS: From Interstate 405 - Get off at exit 23 (23A if coming from the north), hwy 522, Monroe-Woodinville. Take the first Woodinville exit, hwy 202, Woodinville-Redmond. Stay to the right at the exit, and go past the Dairy Queen, under the RR tracks to a light. The Armadillo BBQ should be across the street to your left. At the light, turn right (follow signs for hwy 202). At the top of the short hill (173rd NE/Hwy 202), turn left. Go south on Hwy 202 / Wood-Red Road about 3/4 mile. Look for a concrete building with a vacant lot to its north, with a broad green stripe at the roofline. (SR 520 bridge may be closed on this weekend)

The need for a significant reduction in bit-rate for wide-band digital audio signal transmission and storage has led in the last years to the development of psychoacoustics-based data compression techniques. In this approach, the audio frequency range is subdivided into sub-bands which are approximations of human auditory critical bands. The frequency representation of audio signals is accomplished using a filter-bank implemented as a time to frequency transform or as a sub-band filter. Frequency-domain masking properties of the human auditory system are exploited in order to maximize perceived fidelity of a steady-state signal at a given bit-rate. In a similar way, temporal masking effects are very important in the bit-rate reduction process of transient signals.

In this talk, the basic principles of perceptual audio coding will be reviewed. An adaptive transform coding technique will be presented in which both frequency-domain and temporal masking properties of human hearing are exploited during bit-rate reduction. Dolby's current and future applications of this coding technology will be discussed

Marina Bosi graduated from the National Conservatory of Music in Florence Italy and received a doctorate in physics from the University of Florence, completing her thesis in Paris at the Institut de Rechrche et Coordination Acoustique/Musique (IRCAM). A recipient of the "I. Veneziani" fellowship from the Italian Accademia Nazionale dei Lincei, she carried out research in sound localization at Stanford University's Center for Computer Research in Music and Acoustics (CCRMA) where she is still a staff member. Dr. Bosi worked for Digidesign developing audio digital signal processing (DSP) technology including dynamic range controller and music analysis/synthesis algorithms. She is currently employed by Dolby Laboratories working on high quality, low bit rate audio coding. Dr. Bosi is involved with the development of international standards on low bit rate coding and is a US representative in the ISO/IEC WG11 (MPEG), and ITU-R (formerly CCIR) standardization committees. The author of a number of publications on source coding for transmission and storage, her current area of interest is low bit rate coding with applications in music. She has served the AES San Francisco Section as committee person, vice-chair, and chair, and she is currently a member of the AES Board of Governors. She was co-chair of the AES 97th Convention, for the success of which she received the AES Board of Governors Award. In addition to the AES, Dr. Bosi is a member of ASA and IEEE.

NOTE: Another meeting has been tentatively set for June 19, with Del Eilers of 3M, about magnetic tape. Details to come.

NON-MEMBERS ARE WELCOME TO ATTEND

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