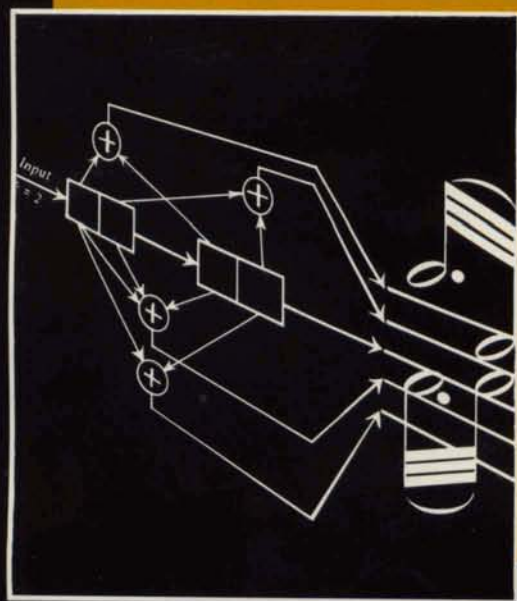


THE PROCEEDINGS OF THE AES 7TH INTERNATIONAL CONFERENCE



AUDIO IN DIGITAL TIMES

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TORONTO, CANADA

1989 MAY 14-17

Preface

The Audio Engineering Society's Premiere Conference, held in 1982, was the first technical meeting of its kind for the society. The topic of digital audio was treated individually with an examination of many aspects of the young science. The Premiere Conference represented a coming of age for digital audio technology and heralded its imminent and dynamic growth. Since then, AES conferences have studied diverse topics such as sound recording, stereo audio for television and video, music and digital technology, and sound reinforcement.

The AES 7th International Conference was held in Toronto, Ontario, Canada, May 14-17, 1989. It returned to the specific subject that concerned the first conference: digital audio. However the topics under discussion, as well as the way in which they impact the audio profession, have changed dramatically over the past seven years. Digital audio is no longer a specific area of discussion within the context of audio technology. Rather, digital audio increasingly represents the context in which all other topics in the audio industry are discussed. In short, digital audio technology has taken a central position in the profession. The title devised for the 7th International Conference, "Audio in Digital Times" attempted to portray the growing status of digital audio today.

The conference assembled some of the most insightful and articulate practitioners in the field of digital audio to deliver their views in a highly compacted group of sessions. Authors from inside and outside the audio community presented papers at many levels of sophistication. The careful choice of these authors, all invited, helped maximize the benefit to conference attendees. Great care was taken to present a balanced view of digital audio technology's role in the audio industry.

The program was specifically devised to show the diversity of digital audio technology and its influence on present and future developments in the audio industry. Equally important, was the need to show the growing interconnections between the audio industry and increasingly affiliated disciplines. Special attention was given to digital signal processing, an area of great interest to researchers and designers, and a technology primed for particularly dynamic growth. In addition, it was decided that paper selection

must seek to present both theory and applications. Only in this way could the conference demonstrate the range of digital audio technology's participation—from theoretical roots to commercial implementation. In particular, paper selection attempted to address the practical needs of end-users; it is ultimately through their support (and credit references) that digital audio will continue to prosper. Simultaneously, a tutorial element was included to demystify sometimes specialized information.

The sum total, the conference committee hoped, would be a comprehensive examination of the state of digital audio that was accessible to a large number of members. According to its self-evaluation, aided by a questionnaire completed by the 450 attendees, the conference was generally very successful in presenting timely information in the field of digital audio, and providing an overview of the entire range of digital audio's applications.

Although the conference event itself now enters into the AES annals, the information disseminated possesses a value that will benefit a much greater number of people for a considerable longer period. Specifically, this volume contains 46 papers of the 49 presented at the 7th International Conference. These proceedings follow the conference schedule. Thus, there are ten sessions in this volume mirroring those presented during the 3-1/2 day conference.

Session 1, the "Conference Opening Remarks," is included for the sake of completeness, and to convey the sense of occasion and excitement evident at the opening day (and subsequent days) of the conference.

Session 2, "Digital Audio Tutorial," contains two presentations: Dr. Takeaki Anazawa, et al., and Drs. Stanley Lipshitz and John Vanderkooy. The former paper provides a historical overview of the development of PCM technology, while the latter lecture/demonstration (not published) traverses the basics of the technology with a multimedia demonstration.

Session 3, "State of the Art and Trends in Basic Technology," establishes status and direction in magnetic, optical, and semiconductor storage. Clearly, developments in these fields will greatly affect digital audio's evolution.

Session 4, "Conversion Techniques and Performance Evaluation," examines the critical questions involved in

A/D and D/A conversion, including aspects of auditory and analytical testing capabilities of converter performance.

Session 5, "Professional Digital Audio," explores recent developments in studio equipment such as hard disk recorders, DAT, and stationary-head recorders. In addition, a survey of digital audio usage is presented.

Session 6, "Digital Signal Processing: Theory and Application," introduces the topic of DSP with papers covering tutorial aspects, as well as specific examples of DSP applications such as filters, processors, and low bit-rate coding.

Session 7, "Consumer Digital Audio," provides a reminder that consumer audio plays an important role in both promulgating the technology's acceptance and pushing its rapid development. Papers include applications such as recordable optical disk, and an architectural acoustical processor.

Session 8, "Digital Studio Design and Practice," examines studio requirements with an emphasis on the need to promote an integration of operations through interfacing and communication between digital audio devices, using MADI, and synchronization methods.

Session 9, "Digital Signal Processing: Architectures and Music Applications," addresses the role of DSP in audio computation, particularly for music-related synthesis and analysis. These papers include recently

introduced computers, integrated devices, and software.

Session 10, "Digital Audio in Film and Broadcasting," provides a look at digital audio application in those fields. Paper specifically examine topics such as radio, film, video, and transmission technology.

In summary, the 7th International Conference continued in the tradition established by the Premiere Conference. Along with the Collected Papers from the Premiere Conference, the Proceedings of the 7th International Conference should provide a view of the discipline that is both deep and wide ranging. In addition, particulars of the information presented will, undoubtedly, be valuable to practitioners and students for a number of years to come. Yet, of course, ultimately the fast pace of digital audio will obsolete these papers. Still, in that not too distant time, they will continue to serve as an important historical record of the dynamic growth of the discipline.

On behalf of conference committee members Joe Sunday, Robert Finger, John Vanderkooy, Neil Muncy, Gary Osborne, Paul Bryan, and Paul Bauman, I hope that you will profit from this look at the cutting edge of audio in digital times, circa 1989.

Ken C. Pohlmann
 Conference Chairman
 1989 June

