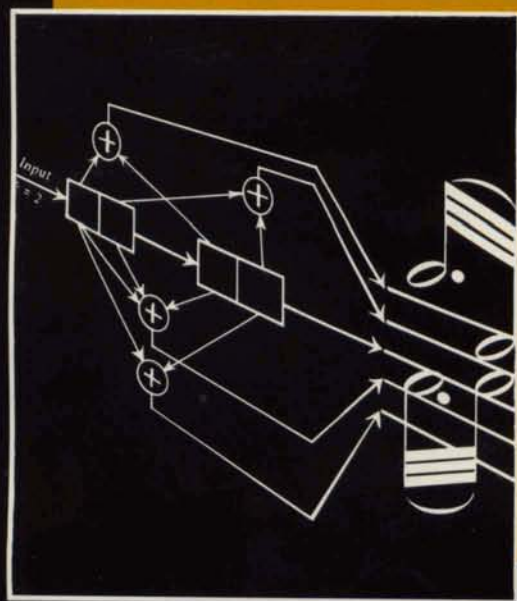


# ***THE PROCEEDINGS OF THE AES 7TH INTERNATIONAL CONFERENCE***

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## ***AUDIO IN DIGITAL TIMES***

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**KEN POHLMANN, CHAIRMAN**

**TORONTO, CANADA**

**1989 MAY 14-17**

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# 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

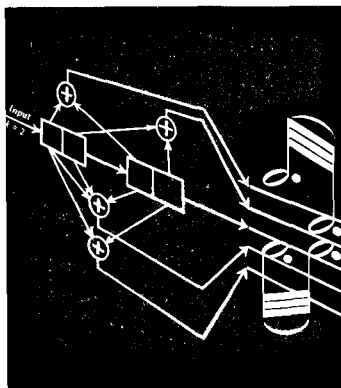
introduced computers, integrated devices, and software.

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



	<b>Preface .....</b>	<b>3</b>
<b>1</b>	<b>Conference Opening Remarks.....</b>	<b>9</b>
	Ken Pohlmann, <i>Chairman</i>	
<b>2</b>	<b>Digital Audio Tutorial.....</b>	<b>11</b>
	INTRODUCTION, Robert Finger, <i>Chairman</i>	
	<b>A HISTORICAL OVERVIEW OF THE DEVELOPMENT OF PCM/DIGITAL RECORDING TECHNOLOGY AT DENON.....</b>	<b>13</b>
	Takeaki Anazawa, Hideaki Hayashi, Keizo Inokuchi, Kouichi Oshinden, Yukio Takahashi, Akihiko Takasu, Kaoru Yamamoto, Shigeo Todoroki, Hiroyuki Yazawa and Almon H. Clegg	
<b>3</b>	<b>State of the Art and Trends in Basic Technology .....</b>	<b>19</b>
	INTRODUCTION, Bart Locanthi, <i>Chairman</i>	
	<b>MAGNETIC RECORDING OF DIGITAL AUDIO .....</b>	<b>21</b>
	James U. Lemke	
	<b>OPTICAL RECORDING TECHNOLOGY: CAN OPTICAL DISKS BE APPLICABLE TO DIGITAL AUDIO WORKSTATIONS?.....</b>	<b>27</b>
	Takeo Yamamoto	
	<b>MICROS AND MEMORIES IN DIGITAL AUDIO .....</b>	<b>39</b>
	Gene A. Frantz	
<b>4</b>	<b>Conversion Techniques and Performance Evaluation.....</b>	<b>43</b>
	INTRODUCTION, David Haynes, <i>Chairman</i>	
	<b>HUMAN AUDITORY CAPABILITIES AND THEIR CONSEQUENCES IN DIGITAL AUDIO CONVERTER DESIGN.....</b>	<b>45</b>
	Louis D. Fielder	
	<b>AN IC CHIP SET FOR 20-BIT A/D CONVERSION.....</b>	<b>63</b>
	Robert Adams	
	<b>TESTING 20-BIT AUDIO DIGITAL-TO-ANALOG CONVERTERS .....</b>	<b>79</b>
	Remy D. Fourre	
	<b>A DUAL MONOLITHIC 18-BIT ANALOG-TO-DIGITAL CONVERTER FOR DIGITAL AUDIO APPLICATIONS .....</b>	<b>81</b>
	Jimmy R. Naylor	
	<b>DIGITAL DITHER: SIGNAL PROCESSING WITH RESOLUTION FAR BELOW THE LEAST SIGNIFICANT BIT.....</b>	<b>87</b>
	John Vanderkooy and Stanley P. Lipshitz	
	<b>THE NEXT STEP TOWARD IDEAL A/D AND D/A CONVERTERS .....</b>	<b>97</b>
	E. C. Dijkmans and P. J. A. Naus	

TESTING DIGITAL AUDIO DEVICES IN THE DIGITAL DOMAIN ....105  
Richard C. Cabot

**5 Professional Digital Audio .....117**

INTRODUCTION, Stephen Lyman, *Chairman*

A BENCHMARK FOR DIGITAL AUDIO IN THE REAL WORLD  
OF 1989 .....119  
Bob Ludwig

DIGITAL AUDIO RECORDERS .....129  
John Watkinson

MULTICHANNEL RECORDING ON WINCHESTER DISKS:  
IMPROVING THE CHANNEL/MINUTE RATIOS .....141  
Jeffrey Kulick, Bruce Pennycook, Eric Pearson, and  
Marcel Guimond

A PROFESSIONAL DAT SYSTEM .....145  
Takafumi Ueno, Kiyotaka Nagai, Takahisa Aoi, and  
Makoto Okamasa

STATIONARY-HEAD DIGITAL RECORDING: PROGRESS AND  
DIRECTIONS.....155  
Roger Lagadec

**6 Digital Signal Processing: Theory  
and Applications.....161**

INTRODUCTION, R. Moses, *Chairman*

DIGITAL SIGNAL PROCESSING IN AUDIO .....163  
Martin Snelgrove

THE IMPLEMENTATION OF DIGITAL FILTERS FOR HIGH-  
FIDELITY AUDIO .....165  
Jon Dattorro

DIGITAL FIR FILTERS FOR LOUDSPEAKER CROSSOVER  
NETWORKS II: IMPLEMENTATION EXAMPLE .....181  
Peter L. Schuck

PRACTICAL PROCESSORS AND PROGRAMS FOR DIGITAL  
REVERBERATION .....187  
David Griesinger

DIGITAL DITHER IN MUSIC AND SOUND SYNTHESIS .....197  
David Rossum

LOW BIT RATE CODING OF HIGH-QUALITY DIGITAL AUDIO:  
ALGORITHMS AND EVALUATION OF QUALITY .....201  
Karlheinz Brandenburg and Dieter Seitzer

**7 Consumer Digital Audio .....211**

INTRODUCTION, Leonard Feldman, *Chairman*

A MAGNETOOPTICAL DISK DIGITAL AUDIO RECORDER.....213  
Stephen Mascenik

A NEWLY DEVELOPED DIGITAL SIGNAL PROCESSING.  
TECHNOLOGY FOR CONSUMER PRODUCT APPLICATIONS....217  
K. Yamamoto

REPRODUCING ARCHITECTURAL ACOUSTICAL EFFECTS  
USING DIGITAL SOUNDFIELD PROCESSING .....227  
Irwin Zucker

A COMPRESSED DIGITAL AUDIO TRANSMISSION SYSTEM ..233  
Stanley B. Quinn, Jr. and Jeffrey Frederiksen

**8 Digital Studio Design and Practice ...239**

INTRODUCTION, Mel Lambert, *Chairman*

<b>SYNCHRONIZATION OF DIGITAL AUDIO .....</b>	<b>241</b>
Tim Shelton	
<b>THE MADI FORMAT: APPLICATIONS AND IMPLEMENTATION IN THE DIGITAL STUDIO.....</b>	<b>251</b>
P. S. Lidbetter	
<b>COMMUNICATIONS IN THE DIGITAL AUDIO STUDIO.....</b>	<b>263</b>
James H. Wilkinson	
<b>TIME CODE AND SYNCHRONIZATION ISSUES FOR A RANDOM-ACCESS AUDIO RECORDING ENVIRONMENT.....</b>	<b>269</b>
Mark Goldstein and Alan Goldwater	
<b>HARDWARE AND SOFTWARE INTERFACE DESIGNS FOR DIGITAL AUDIO WORKSTATIONS .....</b>	<b>275</b>
William Cavanaugh	
<b>INTEGRATION IN THE DIGITAL AUDIO STUDIO .....</b>	<b>283</b>
Charles W. Anderson and John B. Britton	

## **9 Digital Signal Processing: Architectures and Music Applications.....289**

<b>INTRODUCTION, Jeffrey Borish, <i>Chairman</i></b>	
<b>DYNAMIC MODELING OF INSTRUMENTS FOR SOUND SYNTHESIS .....</b>	<b>291</b>
Jean Marie Adrien and Eric Ducasse	
<b>MUSIC SYSTEM ARCHITECTURE ON THE NeXT COMPUTER™ .....</b>	<b>301</b>
Julius Smith, David Jaffe, and Lee Boynton	
<b>VLSI ARCHITECTURES FOR DIGITAL AUDIO SIGNAL PROCESSING .....</b>	<b>313</b>
Kevin L. Kloker, Brett Lindsley, and Charles D. Thompson	
<b>MULTIPROCESSOR DSP ARCHITECTURES AND IMPLICATIONS FOR SOFTWARE.....</b>	<b>327</b>
John M. Snell	
<b>USING MULTIPLE PROCESSORS FOR REAL-TIME AUDIO EFFECTS .....</b>	<b>337</b>
Ken Bogdanowicz and Robert Belcher	
<b>EXPERIENCES WITH THE AT&amp;T DSP32 DIGITAL SIGNAL PROCESSOR IN DIGITAL AUDIO APPLICATIONS .....</b>	<b>343</b>
Daniel P. Weiss	

## **10 Digital Audio in Film and Broadcasting 353**

<b>INTRODUCTION, Randy Hoffner, <i>Chairman</i></b>	
<b>DIGITAL AUDIO APPLICATIONS IN RADIO BROADCASTING ..</b>	<b>355</b>
Skip Pizzi	
<b>FEASIBILITY OF DIGITAL SOUND ON MOTION-PICTURE FILM ..</b>	<b>359</b>
Ronald E. Uhlig	
<b>DIGITAL SOUND POSTPRODUCTION FOR TELEVISION AND THEATRICAL MOTION PICTURES.....</b>	<b>367</b>
Doug McKenzie and Bob Predovich	
<b>TRANSMISSION SUITE FOR DIGITAL BROADCASTING .....</b>	<b>371</b>
Benjamin Bernfeld, Daniel Weiss, and Stephen Widmer	
<b>A SOUND REPRODUCTION SYSTEM AND TRANSMISSION SYSTEM FOR HDTV .....</b>	<b>377</b>
Eiichi Miyasaka	
<b>DIGITAL AUDIO FOR VIDEO PRODUCTION AND POST-PRODUCTION .....</b>	<b>381</b>
B. Lilly	