The International Digital ElectroAcoustic Music Archive
Marcia L. Bauman
Center for Computer Research in Music and Acoustics
(CCRMA)
Stanford University, Stanford, CA 94305
bau@ccrma.stanford.edu

Abstract

The International Digital ElectroAcoustic Music Archive (IDEAMA) is dedicated to collecting, preserving and disseminating internationally renowned electroacoustic music. Historically significant electroacoustic music works have been identified for the sake of the IDEAMA target collection.

Preliminary research into technologies for digital sound and text storage and retrieval systems has been conducted at the two IDEAMA founding institutions, the Center for Arts and Media Technology (ZKM), Karlsruhe, and the Stanford University Center for Computer Research in Music and Acoustics.

This paper describes the administrative structure, the target collection, the expansion of the IDEAMA through newly designated branch institutions worldwide, the catalog database, and technical research.

Introduction

The International Digital ElectroAcoustic Music Archive (IDEAMA) was co-founded in December, 1990, by Stanford University’s Center for Computer Research in Music and Acoustics (CCRMA), and the Center for Arts and Media Technology (ZKM), in Karlsruhe, Germany. The IDEAMA’s initial goal is to create a target collection of early electroacoustic music composed during the period of approximately 1940-1965. Much of this music now resides on deteriorating analog tape. In an effort to preserve this music, it will be transferred to digital storage media. A wide range of information about the music will be entered into the IDEAMA catalog database.

For its broadest possible accessibility, the database will conform to existing library cataloging standards and authority control by use of MARC format. Every effort will be made to design the database in such a way that libraries and other scholarly institutions will be able to integrate it into their existing on-line catalogs. User interfaces will be designed for access to scanned images of auxiliary paper materials such as scores and program notes, and to activate playback media for the sound. As a “paperless” archive, the IDEAMA will store all materials entirely in digital form. Once digitized, all materials will be returned to their owners.

Although a large number of important electroacoustic works are currently accessible on analog tapes at the centers where they were produced, access to them is limited. The same is
true for important works which are available through the private collections of individuals. Thus, one of the main challenges in developing the IDEAMA target collection is to identify and locate the desired materials so that an international collection of important electroacoustic music repertoire can be accessible at a single location.

Organization

Founding Institutions

The two IDEAMA founding institutions, CCRMA and ZKM, are jointly responsible for collecting archive materials on a regional basis. ZKM focuses on European electroacoustic music, while CCRMA is responsible for music from the Americas, Asia and Australia.

Both founding institutions will provide each other with the materials they collect so that the complete target collection will be available at each location. Stanford University will house the IDEAMA at the Braun Music Center Archive of Recorded Sound. In Karlsruhe, the IDEAMA will be the core of the music section at ZKM’s Mediathek, a media library where the different art forms and technology converge to create vital new relationships.

Boards

To identify, locate and choose materials for inclusion in the target collection, each founding institution has formed a selection committee comprised of eminent composers, musicologists and other individuals who are well-versed and active in the field. In addition, internationally renowned composers and researchers form an overall international advisory board which establishes the international scope and reputation of the archive.

IDEAMA Branches

Two other categories of IDEAMA institutions have been defined. A partner institution has a collaborative relationship with the founding institutions, contributing materials to the target collection and/or participating in research for the catalog database. Partner institutions will also house the target collection and the catalog. After the target collection has been established and the catalog database implemented at the founding and partner institutions, an organization may become an affiliate branch by housing the target collection and integrating the archive database into its existing format.

Presently, there are three formally designated partner institutions: the New York Public Library (NYPL); the National Center for Science Information Systems (NACSIS), in Tokyo; and the Groupe de Recherches Musicales de l’Institut National de l’Audiovisuel (INA/GRM).

The NYPL is planning an overall, electroacoustic music collection. IDEAMA activities will take place within this context. Initial efforts will be made to digitize the works of such composers as Paul Lansky, Pauline Oliveros and Charles Dodge. NYPL will contribute to IDEAMA these and other works more readily available to NYPL on the East Coast.

In Japan, NACSIS serves as the nucleus for the nationwide comprehensive Science Information System, which covers the natural and social sciences, and the humanities. NACSIS links university libraries, computer centers, information processing centers and national university research institutions via computer and telecommunication networks. Research and
development is carried out to compile databases and to create information systems.

The NACIS collaboration involves acquisition of electroacoustic music by Japanese composers as well as the development of the catalog database. A list of approximately 160 Japanese works has been compiled at NACIS, with bibliographic data in MARC format. Osaka University and Kunitachi College will support NACIS in the dissemination of the IDEAMA.

INA/GRM, formerly the Groupe de Musique Concrète at Radio-diffusion Télévision Française, was the first major location in the world for electroacoustic music production. Approximately 125 European works will be provided by INA/GRM.

The Target Collection

The original analog tapes for targeted works exist in a number of libraries, archives, radio stations, studios and private collections. Each founding institution has formulated a list of works based on their availability through these sources and upon the recommendation of each institution's selection committee. Approximately 800 works are presently being sought.

ZKM Selections

The European selection committee held its first official meeting at ZKM in May, 1992. At that time, committee members collectively recommended approximately 400 European works composed between 1930 and 1970. The two main criteria for selecting a work were its historical significance, and the urgency precipitated by the deterioration of the original analog tape on which it resides. Sources for the European works include major centers such as INA/GRM; Westdeutscher Rundfunk, Köln (WDR); and the Studio di Fondo Musicales presso la sede RAI-TV, Milan. In addition, works from the estate of Hermann Heiss will be included. The committee also decided to include, where possible, multiple versions of selected works and sound source materials, and later, film music and multi-media works.

CCRMA Selections

Several major centers have been contacted and arrangements are being made to digitize approximately 400 works and auxiliary materials. These centers include the Mills College Tape Music Center and the University of California, San Diego, which hold many of the pieces produced at the San Francisco Tape Music Center. Other centers include Columbia University's historic Electronic Music Center and the Library of Congress. The Library of Congress will provide works by Vladimir Ussachevsky which were moved there from Columbia University. A number of significant works by Canadian composers such as Hugh Le Caine and István Anhalt are available through the National Library of Canada. The Laboratorios de Investigacion y Produccion Musical (LLPM), the first major center for Latin American electroacoustic music, will digitize approximately 30 works for the target collection.

The personal collections of Ed Mathews and Gordon Mumma provide a wealth of historically significant electroacoustic music for the IDEAMA. Mathews has contributed tapes of the earliest computer sound and music developed at Bell Laboratories. CCRMA will contribute other early computer generated works. Gordon Mumma's collection includes taped performances by the ONCE Theater Group. The CCRMA selection committee will augment the
preliminary list with other works, including those by composers who were not necessarily associated with major centers, but whose contributions are no less significant.

NACSI is researching and acquiring Japanese works, while research at CCRMA has been initiated to identify Australian works for the target collection, beginning with the Australian National Film and Sound Archive. Once the target collection is completed, more recently composed works will be added in order to represent the field from its inception to the present day.

In the meantime, both funding institutions are faced with the complicated task of researching the copyright ownership for each targeted work. Permission will be requested to copy and distribute materials for the purposes of preservation, private research, classroom lectures/presentations and IDEAMA-sponsored performances.

Media

We intend to begin acquisition using rotary-head digital audio tape (DAT). However, the shelf life of a DAT tape is far too short to make it a candidate for long-range archival storage. We are considering commercial CD write-once systems for this purpose. A professional system would include a basic software package/audio card, a PQ editing package to set track and index information, an audio hard disk (1.6 gigabytes for 90 minutes of stereo sound), a least one CD printer/writer, a Mac II computer, and an A-to-D converter.

Although CD's have a low media cost (approximately $0.02 per minute), they are typically available only in large volumes. The economic and archival feasibility of CD write-once technology is currently being evaluated at ZKM.

We have not yet tackled questions posed by multi-channel works. Commercial multi-track digital recording systems are available, such as the Alesis ADAT Digital Audio Recorder. More extensive research will be conducted to determine storage and access of multi-channel works.

Database and Cataloging

Several categories of information have been established for a more comprehensive study of cataloged electroacoustic works. In addition to the basic details (e.g., titles, dates, durations), we hope to provide information regarding multiple versions of works, studio production techniques, equipment, sound source materials, and performance history. Every effort will be made to include as much information as possible within the given MARC format data fields. User interfaces will be developed to access scanned images (e.g., scores), to activate sound playback media such as CD players and jukeboxes, and for private access to administrative data.

Acknowledgements

At Stanford University, the International Digital ElectroAcoustic Music Archive is supported by the Andrew W. Mellon Foundation, and at ZKM by the state of Baden-Württemberg and the city of Karlsruhe.