The International Digital ElectroAcoustic Music Archive

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Abstract

The survival of important works of electroacoustic music is threatened by the deterioration of the equipment and materials used to create, play and store them. The International Digital ElectroAcoustic Music Archive (IDEAMA) is dedicated to collecting, preserving and disseminating this repertoire. IDEAMA is a collaborative effort between Stanford University (CCRMA) and Zentrum für Kunst und Medientechnologie (ZKM) in Karlsruhe, Germany.

An initial target collection of electroacoustic works and auxiliary materials will be established within three years. An international advisory board participates in the formulation of the archive's policies. Regional selection committees at each archive branch will help identify and locate music for inclusion in the archive.

As a "paperless" archive, IDEAMA will store all materials entirely in digital form. Recordings, scores, and other auxiliary materials will be digitized and returned to their owners. The IDEAMA collection will be publicly accessible in compliance with the rights of the owners.
Purpose

The International Digital ElectroAcoustic Music Archive was founded in December of 1990 to collect, digitize, preserve, catalog and provide access to internationally renowned electroacoustic music works. The survival of many of these works is threatened by the deteriorating condition of the analog tapes on which they were originally produced. As its first objective, the archive will set up a target collection of approximately 450 of these works chosen on the basis of their historical significance and the extent of their deterioration. After this core collection has been established, more recently composed works will be added in an ongoing effort to represent a complete history of the field.

A large number of important electroacoustic musical works are currently accessible only on analog tape at the centers where they were composed. Few of these centers are able to offer access to their materials on a broad scale, if at all. By contrast, the archive will house an international collection of important electroacoustic music repertoire at a single location.

Organization

The archive's two founding institutions, Stanford University's Center for Computer Research in Music and Acoustics (CCRMA) and the Zentrum für Kunst und Medientechnologie (ZKM) is Karlsruhe, Germany, are jointly responsible for collecting, cataloging and disseminating archive contents on a regional basis. ZKM will focus on European electroacoustic music, while CCRMA will be responsible for electroacoustic music from the Americas, Asia and Australia. All materials at the CCRMA branch will be housed at Stanford University's Archive of Recorded Sound. ZKM and CCRMA will furnish each other with copies of the materials they collect so that a complete collection will be available at each institution.

The archive's collection will include works for tape alone and works for tape and live performers, as well as such auxiliary materials as scores, program notes, and biographies. No original materials will be kept—everything will be digitized and the originals returned to their owners.

Access to the collection will be provided through listening facilities at each institution. The archive materials themselves will be non-circulating. Individuals may obtain copies for scholarly purposes in compliance with the legal rights of their owners.

To identify, locate and choose materials appropriate for inclusion in
the archive, each branch has formed a selection committee comprised of eminent composers and other individuals who are well-versed and active in the field. An overall international advisory board whose members are renowned composers, scientists and musicologists has been formed to help establish the international scope and reputation of the archive.

Other institutions may become archive branches in either of two categories. A partner institution collaborates with the founding institutions by providing specified materials for the archive and will house a copy of the target collection and the catalog database. After the target collection has been established and the catalog database has been 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 own existing catalog format.

Media

The technology of digital recording is changing so rapidly that many sound archivists recommend postponing its adoption until industry converges on some acceptable standard. There is, however, no guarantee that this convergence will ever take place. In the meantime, the fragile condition of early analog tapes will continue to worsen. Fortunately, however, digital recording has a major advantage over its analog counterpart. With proper error-detection and error-recovery schemes, a digital recording can be copied over and over from one medium to another without loss of sound quality. Thus, unlike analog technology, the digital archive need not commit to any one storage medium for the lifetime of the archive. We believe that an all-digital archive must be capable of managing a wide variety of media-types and of adapting to new storage technologies as they become available.

We intend to begin acquisition using rotary-head digital audio tape (DAT). Costing approximately $0.10 per minute for CD-quality stereo sound, DAT is currently the most cost-effective means for storing high-quality digital audio. The development of the Digital Data Storage format (DDS) has made possible the storage of non-audio data, such as text and scanned images, on DAT.

The lifetime of a DAT tape, while it may be prolonged by careful handling and storage procedures, is nonetheless far too short to make it a candidate for long-range archival storage. For this reason, we will continue to monitor emerging technologies with a view to storing the col-
lection on more permanent media in the near future. It may, for example, become economically feasible to house the collection entirely on compact disks (CDs). CDs have a very low media cost (approximately $0.02 per minute) and, if carefully manufactured, promise exceptional longevity. Unfortunately, they are typically available only in large volumes. Our colleagues at ZKM are currently evaluating the archival feasibility of CD write-once technology, which can be produced economically in low vol-

ume.

Database and Cataloging

Cataloging an all-digital archive strongly suggests certain departures from standard cataloging procedure. The physical medium on which a composition resides, for example, while of critical importance to the archive’s internal operations, is of little importance to the researcher. For this reason, we have made the main cataloging unit the individual composition rather than the medium on which that composition is stored. This allows us to transfer recordings from medium to medium with a minimum of modification to the database itself.

IDEAMA is committed to making its catalog accessible through existing on-line library catalogs and to conforming to existing library cataloging standards and authority control. At the same time, the international scope of the project makes it difficult to decide just which set of standards and controls to adopt. We have designed a database which will be maintained identically at all branches of the archive, and plan to solve the problems of producing such formats as US-MARC, UNIMARC, and MAB on a branch-by-branch basis. The database is built upon the relational model, and works by translating user requests into standard (ISO/ANSI conforming) SQL queries.

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