New Media for Musicological Research and Education - The Country Blues in HyperMedia

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Introduction

The high cost of authoring tools, mastering and delivery platforms has limited the development of Hypermedia projects where music is the primary subject material. We have developed a low cost authoring platform, based on readily available components, for research on new media for musicological research and education. We will describe this platform and a pilot Hypermedia project on the Country Blues, which we are using to simultaneously learn about the medium and develop authoring tools.

Authoring Platform

The authoring system to create the first version of *Country Blues in Hypermedia* consists of a Macintosh computer, Dyaxis hard disk recording system, HyperCard and SoundBase. Sound material was transferred to a hard disk drive using the Dyaxis system. Most of the material was from records which were releases of material originally from 78 rpm recordings. Material on Compact Disk can be transferred digitally with Digital Dyaxis. The MacMix program was used to edit the sound material and identify sound bites of interest. Graphical material was scanned onto disk, edited and touched up with conventional Macintosh paint programs. Textual material was typed in using a conventional word processor. We also had success scanning in text from books and using Optical Character Recognition (OCR) software. Text and graphical elements were imported into HyperCard. A set of external command modules were used to control Dyaxis sound playback from HyperCard.
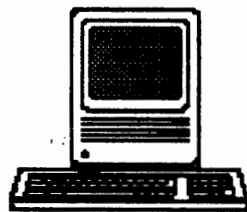
Low End CPU

Dyaxis

Hard Disk

Scanner

All these tools are readily available products, so, once mastered, the major effort in the project is selecting and organizing the material itself in HyperCard.

The Multimedia Work

The Country Blues MUSICAL HYPERMEDIA DEMO

The navigation and play buttons on the lower left of every page of this work form a control panel similar to the transport control of a tape recorder. Because this work is about music, it should be possible to hear a musical illustration of every page of the book, therefore there is a transport available on every card. Also, there should always be something available for the visual and auditory communication channel. We believe in user centered design therefore sound is only played when explicitly requested by the user. The musical illustration for the first page of the book is a representative and recognizable song (*Crossroads*, Robert Johnson). Clicking the mouse over the guitar causes a guitar break in the song to be played. Clicking the mouse over the bluesman's head plays a verse starting with Robert Johnson's distinctive falsetto howl.

The next chapter in this multimedia "book" is on Blues artists. Two different artists are covered in the first project: Skip James and Robert Johnson:

Clicking the play button in this case results in a segue to a page in the next chapter on the book which is a collection of songs of these artists. Many different strategies are possible for these transitions. For example, a song can be chosen randomly or by the HyperMedia author. If the work is installed for access by the public, it is interesting to explore strategies that use information about which songs are referenced the most, such as emphasizing interesting features of songs that are not well received.

Prose can be used to explain how the railroad theme figures musically and lyrically in blues music . Using a button to connect an image of a railroad (above) to the appropriate song materials is a concise, effective way of communicating the same idea that makes no assumptions of the users command of a particular written language.
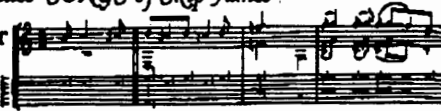
The Country Blues SONGS of Skip James

Special Rider

Recorded c Feb 1931[1]
(Paramount 13098)
and 1964[1].
Open G tuning.

©1969 Wynwood Music

Characteristic octave playing[1]
during guitar break[1].

2 step rhythm[1]

I ain't got no special rider here
I ain't got no special rider here
I ain't got nobody to love and feel my care

I woke up this mornin', looked at the special risin' sun[1]
I woke up this mornin', looked at special risin' sun[1]
An' I prayed to the Lord that my special rider would come[1]

I sing this song to ease your trouble in mind
Sing this song, ease you trouble in mind
And you stay worried, yeah, and bothered all the time

Hey, hey, what more can I do?
Hey, hey, what more can I do?
Honey, you must want me keep singin' these special blues

The dagger † is used in the text above to flag links between the text and the rest of the work. Each line of the song is indexed to the recording of the song. Selecting any line of the song will cause that line to be played. Clicking the play button for the page plays the whole song. Clicking "2 step rhythm" causes a fragment of sound to be repeated while the mouse button is held down. The fragment was chosen to highlight the rhythmic basis of the song. Likewise, a particular feature of the guitar playing (octave slides) and the whole guitar break, can be immediately heard. The first recording of the song is available by selecting the date: 1931.

Future Directions

We are working on addressing two obvious weaknesses of the song pages in this first experiment: the score is difficult to read and it is not indexed to the sound. The illegibility of the display stems from the fact that music notation requires much higher display resolutions than text. This resolution can be achieved in two ways: using deeper pixels (greyscale) and more pixels per inch. We are working on both, since the additional hardware cost for greyscale is small and we need a larger page size to display the whole song on one page. We want to do more than display scanned images of the music. We are experimenting with representations which enable more interaction with the music, such as midi performance data, PostScript and representations of musical analyses. Different images from these representations can then be created according to context: e.g. lead sheet, simple melody, arrangements for many instruments in different keys.

Other extensions to the work include indexing a map of Mississippi to the artists' birthplaces, travels and songs. Conventional hypertext links to a blues vernacular dictionary would be very helpful. The major challenge though is finding a cost effective way of making a lot more sound and graphic material available. We are using a new authoring and delivery platform to address this problem:

Nubus DSP board

CD/ROM Drive

Hard Disk Drive

Syquest 45M removeable
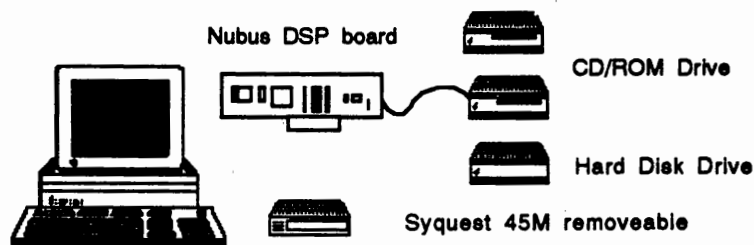
CD/ROM's can contain standard compact disk audio tracks. Apple's CD/ROM drive plays these audio tracks and also plays compact disks. We use the HyperCard CD Audio Toolkit to control sound playback from the CD/ROM drive.

Compact disks are the most inexpensive way of storing quality audio. However, they are much slower than hard disks to access and can only be read at a constant rate. By connecting a NuBus Digital Signal Processing board to the CD/ROM drive we are able to combine the advantages of hard drives and optical drives. When we want to access material quickly, for editing and looping, sound is transferred from CD to hard disk through the DSP board. Sound can be played from the hard disk, from CD, or the two may be mixed. Removeable hard drives, such as the 45Mbyte Syquest, are very convenient because the cartridges serve as an inexpensive archive medium and they fast enough for stereo playback. By using sample rate conversion algorithms on the DSP board, we can use less storage space for recordings of 78's, which require less bandwidth than available on compact disk. Also they only need to be stored monophonically.

We are using these new tools to expand the *Country Blues in HyperMedia* and for new works on other musical material.

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Resources

Dyaxis/MacMix
Studer Editech (formerly IMS)
1370 Willow Road
Menlo Park, CA 94025
(415) 326 7030
Fax: (415) 326 7039

HyperCard CD Audio Toolkit
HyperCard VideoDisk Toolkit
APDA
Apple Computer Inc.,
20525 Mariani Avenue,M/S:33G,
Cupertino, CA 95014-6299
(800) 282 2732   (408) 562 3910
Fax: (408) 562 3971

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Interactive Multimedia,
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