EVIA Digital Archive Project

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Indiana University

IU Digital Library Brown Bag Series
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EVIA Digital Archive Project

- EVIA: Ethnomusicological Video for Instruction and Analysis
- Partnership between Indiana University and University of Michigan
- Funding support from the Andrew W. Mellon Foundation
Project Background

- Originated with ethnomusicologists
- Need for infrastructure to support ethnomusicology field video
- Two goals:
  - Provide means for archiving video
  - Provide access for use in teaching/learning and research
Project Timeline

• Planning Phase 2001-2002
  • Three meetings bringing together ethnomusicologists, archivists, librarians, IT professionals, video professionals, intellectual property experts

• Development Phase 2003-2005
  • Goal: Build tools and set up infrastructure to digitize, annotate, and provide access to total of 150 hours of video from 15 contributors
Units Involved at IU

- Department of Folklore and Ethnomusicology
  - Ruth Stone
- Archives of Traditional Music
  - Daniel Reed, Alan Burdette, Suzanne Mudge, Mike Casey, Anthony Guest-Scott
- Digital Library Program
  - Jon Dunn, Will Cowan, Priya Vaidya, Nick Hansen, Jenn Riley
- UITS Digital Media Network Services
  - James McGookey
Focus of This Presentation

- Digitization, annotation process
- Tools for segmentation/annotation
- Preview of tools for access
- Lessons learned
- Future directions
Application Development Environment

- Video Segmentation and Annotation application
  - Developed as Java application
  - With Borland JBuilder
  - Using an Oracle 9.2 database
  - Runs in Microsoft Windows
  - Uses QuickTime and QuickTime for Java
Metadata Standards and Schemas

- Metadata is collected by the application and stored as XML documents
  - METS 1.3 Schema
    - Structural metadata (METS structmap)
    - Container for descriptive and technical metadata
    - Pointers to digital files
  - MODS 3.0 Schema
    - Collection descriptive metadata
    - Video segment descriptive metadata
Creating the Digital Archive

- Original tape from contributor
  - Variety of formats, both analog and digital
- Dub to Digibeta tape
- Digibeta tape to 50 Mbps MPEG-2 digital file
- 50 Mbps digital file transcoded to MPEG-4 digital file
- 50 Mbps digital file stored in IU’s Massive Data Storage System
- Digibeta tape stored at IU Archives of Traditional Music (ATM)
- If collector chooses, original tape may be stored at ATM as well
Creating the Digital Archive: Some Statistics

- **Size of 50 Mbps digital master file**
  - 10 - 15 gigs per hour of video
  - 100 – 200 gigs per collection

- **Effort to create transcoded file**
  - 8 hours per hour of video
  - Includes: dubbing digibeta tape, MPEG-2 encoding, checksum generation, transmission and transcoding
EVIA Digital Archive Summer Institute 2004

- June 9 – 19, 2004 at Indiana University
- Collaboration of ethnomusicologists, technicians, programmers, catalogers
- Contributions of 10 hours of video from 11 ethnomusicologists spanning 4 decades of field work
- Ethnomusicologists segmented and annotated digital video, participated in workshops, presented their results
EVIA Digital Archive Controlled Vocabulary

- Predefined categories chosen by ethnomusicologists and catalogers
- Predefined values based on authority sources chosen by catalogers
- Predefined values stored in tables in Oracle database and available to be selected in annotation application
- As needed, new values would be added by catalogers during the Summer Institute
EVIA Digital Archive Controlled Vocabulary

- Language
- Culture Group
- Geographic Location
- Genre
- Instruments
- Venue
- Theme
- Performance Type
- Participant and Participant Role
EVIA Digital Archive
Controlled Vocabulary Authorities

- Library of Congress Subject Headings
- MARC Code Lists for Relators
- Getty Art and Architecture Thesaurus
- Getty Thesaurus of Geographic Names
<table>
<thead>
<tr>
<th>Authority ID</th>
<th>Authority Desc</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>37 //delhigovt.nic.in/hwdelhi/dept/obc/CC.doc</td>
</tr>
<tr>
<td>2</td>
<td>40 //tribal.nic.in/ragasthanareas.html</td>
</tr>
<tr>
<td>3</td>
<td>25 Getty Art and Architecture Thesaurus</td>
</tr>
<tr>
<td>4</td>
<td>26 Getty Thesaurus of Geographic Names</td>
</tr>
<tr>
<td>5</td>
<td>27 Hombostel &amp; Sachs</td>
</tr>
<tr>
<td>6</td>
<td>29 Library of Congress Name Authority File</td>
</tr>
<tr>
<td>7</td>
<td>24 Library of Congress Subject Headings</td>
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<tr>
<td>8</td>
<td>28 Local</td>
</tr>
<tr>
<td>9</td>
<td>31 MARC Code Lists for Relators, Source, Description Conventions</td>
</tr>
<tr>
<td>10</td>
<td>30 Pending</td>
</tr>
<tr>
<td>11</td>
<td>33 Pending (Garland)</td>
</tr>
<tr>
<td>12</td>
<td>32 Pending (Modern Language Association Thesaurus)</td>
</tr>
</tbody>
</table>
Video Segmentation Hierarchy
Creating Video Segments and Annotations

- Creation of initial METS XML file for each ethnomusicologist
  - Basic Data
  - Points to Transcoded Files on file server
- Event segmentation
  - Continuous video stream of all digitized video for the contributor
  - Contributor Segments continuous video stream into significant events.
Events Defined in this Collection

- Sinba Theatre Performing at Nyanya ya Senza
- Tanzanian One Theatre (TOT) Christmas Day Performance
- Nolaa Kasheha and Kasongo Majali Claydon in an interview and Performance
- Mr. 1 Album Release Concert
- Honza Kalala Interview and Performance
- St. Joseph’s Choir
- African Stars Band Performs in Mniezi Mmoja
- Nviwa Dancing Troupe Perform Michiniku Music
- Classic Dandi Music Performed by Nolaa Kasheha, Ngazu Viling, and King Kiki
- Rappers, R&B Artists, and Ngonma Groups Perform in a Nightclub

Short Collection Description

Alex Perullo is an assistant professor at Bryant College. He received his Ph.D. from the Department of Folklore and Ethnomusicology at Indiana University in 2003. The video deposited in the EVIA Digital Archive is drawn from his dissertation research in Dar es Salaam, Tanzania, carried out between 1998 and 2002. Many details about the history and current situation of Dar es Salaam popular music scene can be found in his dissertation “The Life That I Live: Popular Music, Agency, and Urban Society in Dar es Salaam, Tanzania.” Perullo is currently working on an ethnography of Tanzanian popular music, and has written several articles on Tanzanian hip hop and copyright issues.

Collection Level Controlled Vocabulary

**GEOGRAPHY:**
Tanzania, Dar es Salaam Region, null, Dar es Salaam,

**INSTRUMENTS:**
Electrophones, Programmed (Electrophone), Boom box, Redi Aerophones, Blown (Aerophone), Organ, Kinanda, Electrophones, Programmed (Electrophone), Drum machine, Aerophones, Blown (Aerophone), Trumpet, Tarabula, trumpet, Chordophones, Struck / Plucked (Chordophone), Bass guitar, Chordophones, Struck / Plucked (Chordophone), Electric guitar, Membranophones, Struck (Membranophone), Ngonma (Drum), Membranophones, Struck (Membranophone), Drum set, Drum
Events in this Collection

<table>
<thead>
<tr>
<th>Event</th>
<th>Description</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event 1</td>
<td>Simba Theatre Performing at Nyumba ya Sanae</td>
<td>01:02:29:983</td>
</tr>
<tr>
<td>Event 2</td>
<td>Tanzanian One Theatre (TDT) Christmas</td>
<td>01:44:11:947</td>
</tr>
<tr>
<td>Event 3</td>
<td>Ndala Kachobu and Kassongo Mapili Clayt.</td>
<td>03:47:22:562</td>
</tr>
<tr>
<td>Event 4</td>
<td>Mr. II Album Release Concert</td>
<td>00:59:35:123</td>
</tr>
</tbody>
</table>

Descriptive Metadata

- **Heading**: Simba Theatre Performing at Nyumba ya Sanae
- **Description**: Simba Theatre is a popular group that performs ngoma music from all over Tanzania. In this video, they perform for an audience of mostly foreign tourists.

Controlled Vocabulary

- **Genre**
  - Membranophones
  - Struck (Membranophone)
  - Ngoma (Drum)
  - Ngoni
- **Performance**
  - Idiophones
  - Struck (Idiophone), Rattle (Musical instrument), Kayamba
  - Idiophones, Struck (Idiophone), Xylophone, Marimba (chande)

Event Time Span

- **Event 1**
  - [00:00:00:00 - 01:02:29:983]

Collection Timeline
Creating Video Segments and Annotations

- Contributor now segments events into scenes and actions
  - Open an Event
  - Segment as Scene
  - Descriptive text
  - Controlled vocabulary
- Segment Scene into Actions
### Scenes and Actions in this Event

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scene 1</td>
<td>Practicing Before Concert</td>
<td>00:00:00:000 - 00:03:23:183</td>
<td>00:03:23:183</td>
</tr>
<tr>
<td>Scene 2</td>
<td>Introductory Song with Drums and a Marimba.</td>
<td>00:00:23:103 - 00:07:40:970</td>
<td>00:04:17:797</td>
</tr>
<tr>
<td>Scene 3</td>
<td>Performance of Mask and Stilt Dancing</td>
<td>00:07:40:970 - 00:13:02:036</td>
<td>00:05:21:960</td>
</tr>
<tr>
<td>Scene 4</td>
<td>Courting Dance</td>
<td>00:13:02:930 - 00:16:37:872</td>
<td>00:03:34:942</td>
</tr>
<tr>
<td>Scene 5</td>
<td>Group Ngoma Dancing</td>
<td>00:16:37:872 - 00:24:23:069</td>
<td>00:07:46:137</td>
</tr>
</tbody>
</table>

### Descriptive Metadata

**Heading:** Practicing Before Concert

**Description:** The musicians of Simba Theatre warm up on their instruments before the concert begins.

### Controlled Vocabulary

- **Geography:**
- **Genre:**
- **Instrument:**
- **Participant:**
- **Theme:**

**Summary:**

INSTRUMENTS:

Membranophones, Struck (Membranophone), Ngoma (Drum), Nogo, Idiophones, Struck (Idiophone), Rattle (Musical Instrument), Kayamba, Idiophones, Struck (Idiophone), Xylophone, Marimba (chondo).

**Culture:**

**Language:**

**Performance:**

**Venue:**

- **Refresh Summary**

### Scene or Action Time Span

**Scene 1:**

[00:00:00:000 - 00:03:23:183]

### Event Timeline

[Timeline representation]
EVIA Digital Archive Demo

- EVIA Digital Archive Demo
- Sample METS and MODS XML
  - METS Header / MODS Collection
  - METS File Section
  - METS Struct Map
  - MODS Descriptive Metadata
  - MODS Controlled Vocabulary
EVIA Digital Archive
Current Development

- Web access to annotated video segments
  - [EVIA Digital Archive Web Access Prototype](#)
- Storing and Retrieving XML Documents from Oracle 9.2 XDB (native XML database)
- Indexing, searching and retrieving XML from the XDB
- Interaction between Archives of Traditional Music MARC cataloging and EVIADA MODS metadata
- Tools for technical/administrative metadata capture
Lessons (Being) Learned

- A lot of effort to create digital video
  - Highly skilled work
  - Need for clearly defined production processes and procedures
- Goals of preservation and access sometimes in conflict
  - Collection development policies
  - Metadata
  - Digitization
Lessons (Being) Learned 2

- True digital video preservation not yet possible
  - No established standards or good format choices
  - Compromises on video formats necessary
  - See Jerry McDonough’s presentation from DLF Fall Forum 2003:
    - [http://www.diglib.org/forums/fall2003/fallforum03.htm#p13](http://www.diglib.org/forums/fall2003/fallforum03.htm#p13)
- Much more work needed on technical/administrative metadata
  - Technical attributes of original source and physical and digital derivatives to support management and future migration
- Collaboration with other audio and video DL projects at IU and elsewhere
Lessons (Being) Learned 3

• More discussion
  • Evolving working relationships between scholars, librarians, archivists, technologists, video engineers
Possible Future Directions

• Tools and Technology
  • Open Source METS/MODS Video Segmentation/Annotation Tool
  • Field version of Segmentation/Annotation Tool
  • Further work with native XML databases
  • Integration into teaching/learning environments, course management systems

• Sustainability
  • Examining options: IU ATM, institutionally distributed, new nonprofit organization?
For More Information

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- Will Cowan: wgcowan@indiana.edu
- http://www.indiana.edu/~eviada/