

JTS 2007

Joint Technical Symposium

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on JTS 2007 contact:*

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**AudioVisual Heritage
and the Digital Universe**

**June 28-30, 2007
Toronto, Canada**



World Day for Audiovisual Heritage

27 October

Sound recordings and moving images in any form are vulnerable, and easily discarded or deliberately destroyed. Too much of the world's 20th century audiovisual heritage is now lost, and much more is slipping beyond recovery because of neglect, natural decay and technological obsolescence. Unless public awareness of the importance of preservation is increased, this trend will continue.

In 2005 UNESCO's General Conference approved the proclamation of 27 October as the annual World Day for Audiovisual Heritage.

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Welcome to JTS 2007: AudioVisual Heritage and the Digital Universe

Program Co-Chairs

Grover Crisp And Michael Friend

At JTS 2004, our keynote speaker Leon Silverman spoke eloquently about the significance for archives and libraries of the coming shift from the prevailing analog, media-based paradigm to a data-centric universe. In years past, we were all strangers to the world of digital formats. Today, the digital transformation is unavoidable. Most of our major feature films have at their core not a film negative but a data file. And as facilities for film viewing become increasingly scarce, we will be confronted by a proliferation of media formats and venues that contain content of both economic and archival significance.

Nearly all new feature production is digital – or a hybrid of film and digital – and preservation, especially video and audio preservation, is increasingly finished on platforms that are primarily digital, virtual and platform independent. And we discover that we are increasingly challenged with new concepts of long-term data storage.

The 2007 edition of the JTS gives us the opportunity to examine the results of the first era of mass migration. We can examine the efficacy of the virtual archives we are building, and now that we understand the nature of conversions, we can focus on the degree to which we have rendered the critical aesthetic and technical qualities of the originals in data.

We would like to recognize and thank the Program Committee for their commitment and their time in bringing the 2007 edition of JTS together. The result is a roster of presentations addressing a wide range of critical issues now confronting technicians, asset managers and curators in our media world.

Importantly, we must acknowledge our many collaborators, speakers, technicians and the participant organizations for sharing their insights and expertise, and for supporting and making possible the on-going public discussion that is the Joint Technical Symposium.

The JTS 2007 Program Committee

Ken Weissman - AMIA
Alfonso del Amo - FIAF
Henry Lindqvist - FIAT/IFTA
Lars Gaustad - IASA
Andris Kesteris - ICA

Bruce Royan - IFLA
Mick Newnham - SEAPAVAA
Grover Crisp - Co-Chair
Michael Friend - Co-Chair

Welcome to JTS

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Dear Colleagues,

The Joint Technical Symposium is a project of the Co-ordinating Council of Audiovisual Archives Associations. As one of CCAAA's member organizations and as host-coordinator of JTS 2007, AMIA is pleased to welcome you to Toronto.

JTS is an opportunity for those concerned with the preservation of our audiovisual heritage to discuss issues of concern to the field. It is an opportunity to foster collaboration, build alliances, share information, learn from each other, and in so doing, work together to address the challenges that face our profession.

Sincere thanks to the Program Committee co-chairs, Grover Crisp and Michael Friend, for developing three days of sessions that address the wide range of issues confronting moving image archivists and technicians everywhere. Thank you to the speakers for sharing their knowledge and thank you to our sponsors for their support. I would also like to thank Joie Springer (UNESCO Information Society Division) and acknowledge the generosity of UNESCO for supporting the attendance of archival professionals from developing nations. This is a unique program that provides an invaluable learning opportunity that AMIA is proud to be part of. Thank you also Laura Rooney and her Planning Committee for all their hard work in organizing the event. Lastly, a special thank you to Crispin Jewitt who is retiring this year. Thank you Crispin for all of your work over the past years and the significant contribution you have made to the field in your capacity as CCAA Convenor. We will miss you.

Members of the AMIA Board of Directors, Staff and Association are available on-site to assist you in Toronto. We are here to ensure that your symposium experience is memorable, interesting and productive. It is a privilege to be part of JTS 2007.

Sincerely,
Janice Simpson
AMIA President

The Association of Moving Image Archivists is an international professional association established to advance the field of moving image archiving by fostering cooperation among individuals and organizations concerned with the acquisition, preservation, description, exhibition and use of moving image materials.

Website: www.amianet.org

Dear JTS 2007 participants,

The Association for Recorded Sound Collections is honored to contribute to JTS 2007, AudioVisual Heritage and the Digital Universe. Past Joint Technical Symposia have made significant contributions to ensure of the preservation of civilization's history as recorded on audio and moving image media. The program planned for this year's conference promises to help us meet the great challenges ahead.

The conference is aptly titled. The digital universe is rapidly expanding, if not at the rate of the cosmos, at a rate which exceeds what any one individual or institution can chart comprehensively. JTS 2007 provides a forum for its participants to keep abreast of the work and innovations made by the best thinkers and achievers in our field. The knowledge you will take home from the presentations will certainly assist you in charting your own course, help you preserve the collections under your care, and further develop tools and techniques to guarantee that future generations understand and appreciate 20th and 21st century culture.

I would be quite remiss if I didn't use this opportunity to invite you to learn more about our Association. ARSC, now in its 42nd year, is comprised of audio archivists and librarians, collectors, preservationists, and scholars. We publish an internationally-respected journal, hold an annual conference (to be hosted by the Archive of Recorded Sound at Stanford University in 2008), and work to further audio preservation, education, and scholarship through many active committees. I regret that I am unable to join you at JTS 2007 but hope that you will seek out the many ARSC members who are presenting and participating in the conference, get to know them, and meet with us at an ARSC event in the near future.

On behalf of the ARSC Board of Directors and members, I thank AMIA and CCAAA members for planning what promises to be an informative and valuable conference. Welcome to Toronto.

Sam Brylawski
ARSC President

Founded in 1966, the Association for Recorded Sound Collections (ARSC) is a nonprofit organization dedicated to the preservation and study of sound recordings, in all genres of music and speech, in all formats, and from all periods.

ARSC is unique in bringing together private individuals and institutional professionals—anyone with an interest in recorded sound.

Website: www.arsc-audio.org

Dear Colleagues,

Welcome, dear colleagues, to the 2007 Joint Technical Symposium in Toronto. The organizers have taken great care in making sure that the most urgent questions concerning the preservation and the accessibility of the world's audio-visual heritage are once more on the agenda.

Once again, they invited speakers from all over the world, from the archival field, as well as from industry and science to communicate the latest developments that advance our aims.

Once again, it will be a unique chance for the participating archivists to receive information, have lively discussions, and voice the concerns we are all faced with in our day to day work.

In the name of FIAF, I would like to thank the organizers for their efforts and to wish you all a very interesting and good time.

Sincerely yours,

Eva Orbanz
President FIAF
Fédération International des Archives du Film

The International Federation of Film Archives brings together institutions dedicated to rescuing films both as cultural heritage and as historical documents. FIAF is a collaborative association of the world's leading film archives whose purpose has always been to ensure the proper preservation and showing of motion pictures.

Website: www.fiafnet.org

Dear Colleagues,

Thank you for the opportunity to support the JTS 2007 "AudioVisual Heritage and the Digital Universe."

FIAT/IFTA is impressed with the program and the organisation of this conference. The issues that are on the agenda are essential for all national and broadcast AV archives. We are all confronted with the challenge of digitising our holdings in a "futureproof" way. But it will be even more important to connect with our users, with the professionals, with the educational users, and with the general public through the web and other media. The JTS conference addresses these issues with top speakers from around the world.

I hope you have a memorable conference!

Edwin van Huis
President of FIAT/IFTA
International Federation of Television Archives

The International Federation of Television Archives is an international professional association established to provide a means for co-operation amongst broadcast and national audiovisual archives and libraries concerned with the collection, preservation and exploitation of moving image and recorded sound materials and associated documentation.

Website: www.fiatifta.org

Dear Colleagues,

The International Association of Sound and Audiovisual Archives is pleased to welcome delegates to the 2007 Joint Technical Symposium. Since its inception the JTS meetings have brought together the best in current thinking on technological changes and developments in the sound and audiovisual world.

This year's theme, AudioVisual Heritage and the Digital Universe is timely and challenging. Digitization, and the changes it has brought, affect, not only the ability to store, preserve, and provide access to the world's sound and audiovisual heritage, but bring new pressures and perspectives to the organizational structure of our archives and their place in the larger cultural and political environment. The digital universe implies that an institution is part of a larger world that goes beyond the doors of the archive. Today's archive must see the broader picture of how the audiovisual heritage is, and must be, integrated into the fabric of contemporary memory, national institutions and international cooperation.

The JTS presents a unique opportunity to bring together colleagues from all parts of the sound and audiovisual community. Through our own activities, and with our partners in the Coordinating Council of Audiovisual Archives Associations, IASA has always been an active participant in defining the agenda for technological change and for the JTS. All the IASA members present at the conference welcome this opportunity to exchange knowledge, experience and thinking on the ever evolving world of sound and audiovisual technology and heritage.

As a Canadian, I would invite all the delegates from around the world to explore Toronto, one of Canada's great cities. I hope that you will have the time to discover this exciting and diverse city.

*I look forward to meeting you all during the JTS.
Welcome to Canada.*

*Richard Green
President, International Association
of Sound and Audiovisual Archives*

*The International Association of Sound and Audiovisual Archives was established in 1969 to function as a medium for international co-operation between archives that preserve recorded sound and audiovisual documents. IASA supports the exchange of information and fosters international co-operation between audiovisual archives in all fields, especially in the areas of: acquisition and exchange; documentation and metadata; resource discovery and access; copyright and ethics; conservation and preservation; and, research and publication.
Website: www.iasa-web.org*

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I hope you have a memorable conference!

*Edwin van Huis
President of FIAT/IFTA
International Federation of Television Archives*

The International Council on Archives is dedicated to the advancement of archives worldwide. Archives, by providing evidence of human activities and transactions, underlie the rights of individuals and States, and are fundamental to democracy and good governance. Archives safeguard the memory of mankind by preserving records of its past. In pursuing the advancement of archives, ICA works for the protection and enhancement of the memory of the world.

Website: www.ica.org

Dear Colleagues,

As President of the International Federation of Library Associations and Institutions, I would like to convey my greetings to the Joint Technical Symposium on AudioVisual Heritage and the Digital Universe.

IFLA is the leading international body representing the interests of library and information services and their users. It is the global voice of the library and information profession. IFLA has 1700 Members in 150 countries and celebrates its 80th anniversary this year.

The Audiovisual and Multimedia Section of IFLA is a relatively small, specialised section of this large organisation. AVMS is the international forum for persons working with non book media in every kind of library and information service.

During the course of the year, AVMS published the IFLA Guidelines for Audiovisual and Multimedia Materials in Libraries and other Institutions, which have now been translated into Arabic, Bahasa Melayu, Catalan, Chinese, Croatian, English, Farsi, French, German, Italian, Korean, Latvian, Norwegian, Portuguese, Romanian, Russian and Spanish, all of which are online at: <http://www.ifla.org/VII/s35/pubs/avm-guidelines04.htm>

We have also been working to improve multilingual access to moving image collections by helping to localise the AMIA/Library of Congress' Moving Image Collections (MIC) website. This will enable users in communities that speak languages other than English to have access and contribute to that important resource. A toolkit has been constructed to show members of other language groups how to research local collections and build versions of the MIC site for their language group. This has been tested by constructing versions of the site in French and Spanish (an Arabic version is under development), and it is hoped that these sites will be launched on the "World Day of AudioVisual Heritage", 27th October 2007.

Also for the World Day, IFLA is supporting an international expert meeting on AudioVisual Material and Heritage, in Zagreb, Croatia on 26 October 2007. As you may see, IFLA continues to be fully committed to AudioVisual and Multimedia issues and to the work of CCAAA, and I wish all a very successful meeting at JTS2007 Toronto.

Alex Byrne
IFLA President

The International Federation of Library Associations and Institutions is the leading international body representing the interests of library and information services and their users. It is the global voice of the library and information profession. The Audiovisual and Multimedia Section of IFLA is the international forum for persons working with non book media in every kind of library and information service.

Website: www.ifla.org

Dear Colleagues,

The South East Asia Pacific Audio Visual Archive Association (SEAPAVAA) joins the Co-ordinating Council of Audiovisual Archives Associations (CCAAA) in welcoming colleagues, friends and guests who all came to participate in this year's Joint Technical Symposium.

This year's JTS, with the theme, Audiovisual Heritage and the Digital Universe, provides everyone a glimpse of the latest innovations and upcoming projects, primarily focusing on Digitization, as related to our field's aims of preserving our audiovisual heritage. We wish that everyone will take advantage of this rare event where colleagues from around the globe gather and share their technical expertise and gain insight on what is happening within our field.

I would also like to congratulate the organizer – the Association of Moving Image Archivists (AMIA) – for its commendable efforts for making this year's event a success. We hope that this JTS would be as fruitful, or even more fruitful, than our last JTS in 2004.

Thank you.

Belina SB Capul
SEAPAVAA President

The Southeast Asia-Pacific Audiovisual Archive Association aims to provide a regional forum for addressing common issues and concerns related to the collection and preservation of, and provision of access to, the audiovisual heritage of member countries.

Website: www.geocities.com/seapavaa/

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Welcome: UNESCO

Dear Colleagues,

UNESCO sends greetings to the participants in the 7th JTS to examine the enormous challenges of preserving memory. Huge gaps in memory occur due to the physical nature of the fragile carriers on which it is recorded, but technological developments, ignorance as well as natural or man-made factors also play their part.

Audiovisual media have become the primary means of recording the present. Yet, although modern carriers and documents are far more endangered than conventional carriers, there is little awareness of the fact that we are in danger of losing the records of the twentieth and twenty-first centuries.

UNESCO has assumed the mantle to remedy this situation at the international level. It plays a federative role in coordinating and managing global initiatives that preserve documentary heritage conserved in archives, libraries and museums. Through the World Day for Audiovisual Heritage, to be celebrated annually on 27 October from this year, UNESCO will draw attention to the vulnerability of audiovisual carriers and to the need for urgent measures to ensure that the world's documentary heritage which belongs to all, is preserved, protected and made permanently accessible.

Joie Springer
Information Society Division
UNESCO

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is mandated by its Member States *inter alia* to promote the free flow of ideas by word and image, to foster international co-operation in the fields of communication and information in order to narrow the gap between the "information rich" and the "information poor" in these areas and to promote access for all to ICTs.

Website: www.unesco.org/webworld

WEDNESDAY - JUNE 27, 2007

3:00pm Tour of Film Reference Library
3:00pm Registration Desk Opens

THURSDAY - JUNE 28, 2007

7:30am Registration Desk Opens
8:00am Coffee available in the Bader Lobby
8:30am Welcome & Introduction
9:00am Film Archives: Needs and Requirements in the D-Cinema Age
9:30am The EDCINE Project for Archives
10:00am Spatial Resolutions: Restoring Motion Pictures at 4k Resolution
10:30am BREAK
11:00am Images for the Future
11:30am Video Archiving: On the Way to the IT World
12:00pm Metamorphosis of a Digital System
12:30pm BREAK
2:00pm Rethinking the Selection of AV Materials for Preservation and Access
2:30pm Assessment and Prioritization: Recent and Current Research and Development Projects
2:30pm PrestoSpace/CRC DG
3:00pm The Preservation of Magnetic Tape Collections – One Perspective
3:30pm The Preservation of Magnetic Tape Collections – Another Perspective
4:00pm BREAK
4:30pm Assessment and Prioritization: Part II - Prioritization
4:30pm The Field Audio Collection Evaluation Tool (FACET)
5:00pm Special Collections Material Survey Instrument
5:30pm The Task Force on Selection For Digital Transfer
8:15pm Special Restoration Screening:
Dr. Strangelove, or How I Learned to Stop Worrying and Love the Bomb

FRIDAY - JUNE 29, 2007

8:00am Registration Desk Opens
8:00am Coffee available in the Bader Lobby
8:30am Preserving Digital Public Television: Part I - An Overview
9:30am Preserving Digital Public Television: Part II - Designing the Repository

10:30am BREAK
11:00am Automated Workflows in Mass Audio Archiving
11:30am New Tools for Film Sound Restoration
12:00pm HF-Bias Signal Pick-Up
12:30pm BREAK
2:00pm A Practical Approach to Audio Recording, Preservation and Delivery
2:30pm Quality Control in Digital Cinematography
3:00pm Archival Cylinder Box: An ARSC Design and Engineering Project
3:30pm BREAK
4:00pm Archiving and Delivery of Student Portfolios
4:30pm Digital Storage Options: A Transitional Perspective
5:30pm Open Forum

SATURDAY - JUNE 30, 2007

8:00am Registration Desk Opens
8:00am Coffee available in the Bader Lobby
8:30am Digital Archiving of Motion Pictures
9:00am The Motion Picture Archive: A Real World Implementation
9:30am Open Source Archiving Repositories
10:00am MEMORIES: Design for an Audio Advanced Acquisition and Semantic Indexation System
10:30am BREAK
11:00am Research Report on JPEG2000 for Video Archiving
11:30am Tools for Audio Preservation: The Sound Directions Project
12:00pm New Web-based Technology for Environmental Monitoring of Moving Image Collections
12:30pm BREAK
2:00pm Save Our Audiovisual Memory (SAM)
2:30pm Archiving Meets Automatic Speech Recognition - Curse or Blessing
3:00pm Using Audio Description Text for Shot-by-Shot Indexing of Films
3:30pm BREAK
4:00pm Non-Contact Surface Metrology
4:30pm Migration of 1.5 Million Hours of Audiovisual Material at the Swedish National Archive
5:00pm Open Forum

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Special Screening!

**Dr. Strangelove
or: How I Learned to Stop Worrying
and Love the Bomb**

Thursday, June 28, 2007 - 8:15 pm - Isabel Bader Theatre

A 4K Digital Cinema Presentation of the new restoration.

Stanley Kubrick's Cold War masterpiece. Based on the novel "Red Alert" by Peter George, the film is set at the height of the tensions between Russia and the United States, when all it would take to destroy the world was one push of a button. And General Jack D. Ripper (Sterling Hayden) is just the man to do it.

Convinced that the Russians have infiltrated America's "vital essence," the crazed Ripper gives the go code to the 843rd bomb wing to attack Russia, setting in motion a series of darkly hilarious vignettes involving gung-ho soldiers, wacky generals, spying Russians, drunken premiers, battles with soda machines, fights in the War Room, and the Russians' top-secret Doomsday Machine. Shot in black and white, the film has three main centers of action: one of the B-52 bombers, on which a group of loyal men know they are about to start World War III; Burpelson Air Force Base, where Group Captain Lionel Mandrake (Peter Sellers) is trying to convince everyone that Ripper has gone mad and the bombing must be stopped; and the War Room, where President Merkin Muffley (Sellers again) is trying to make peace with the Russians. The finale featuring Sellers as Dr. Strangelove is a comic gem. Hayden, George C. Scott, Slim Pickens, Keenan Wynn, and Sellers (in three roles) are especially terrific in what may be the funniest, most poignant black comedy ever made, a vicious satire on the farcical aspects of the military and the cold war.

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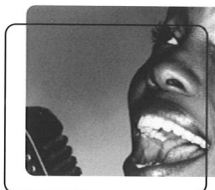
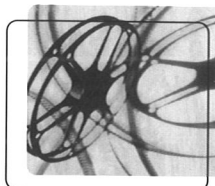
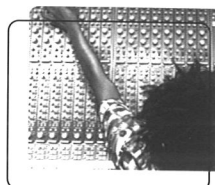
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Film Archives: Needs and Requirements in the D-Cinema Age

Nicola Mazzanti

*Consultant, Film Archiving and Preservation
FIAT Technical Commission*

Paul Read

*M.Sc., Ph.D., FBKSTS. Paul Read Associates (UK)
Consultant Film and Digital Cinema Post-Production
FIAT Technical Commission*

Journalists, technologists and now chief executives of film manufacturing organizations are predicting the demise of film in favour of digital cinema projection within a few years. When that will occur is still uncertain, but when it does the increased cost of print making, even if still possible, will increase the intrinsic value of all film elements and restrict archives (and all distributors) to digital formats for virtually all access and display.

With this change come several new imperatives and the archive members of ACE (the European Association of Film Archives) engaged in defining challenges and issues in finding potential practical solutions to some of these problems.

A remaining issue still waits for an answer: when film in archives finally decays and no alternative preservation route is available the transfer to a digital version for its long term preservation will be essential. There is at present no alternative technology, and this technology has no long term security in any way comparable to the storage in optimum conditions of analogue photochemical film.

Thursday - 9:00 am

The EDCINE Project for Archives: A System for Conservation and Access Based on MXF and JPEG 2000

Arne Nowak
Fraunhofer Institute for Integrated Circuits, Germany

Luís Nunes
MOG Solutions, Portugal

Ernesto Santos
MOG Solutions, Portugal

Digital technologies can be used to ease and facilitate access to archived material. Digitally stored images and sound can be used to distribute films in a wide variety of different formats for different needs. Access copies for individual viewings, internet streaming, HDTV and even digital cinema presentation can be produced automatically and delivered without the costly movement of precious physical items.

Besides the problems of how to store such large amounts of data securely and how to ensure accessibility over a very long time, a key challenge for long term preservation is the definition of digital data formats suitable to this aim. In the course of the European EDCine project a system for conservation and access for digital film archives is developed, which is based on the open standards MXF and JPEG 2000. In this presentation we describe how film archives can take advantage of digital technologies without dependencies on proprietary software and file formats.

The presentation describes a flexible system that makes use mainly of these two open standards and provides a scalable architecture that allows film archives to find a smooth transition into the digital film era and to exploit the benefits of digital technologies even for their existing access copy by making them available on- and off-line easily

Spatial Resolutions: Restoring Motion Pictures at 4K Resolution

Daniel DeVincent
Director of Digital Imaging, Cineric, Inc

This paper will outline the challenges of restoring motion pictures in a complete 4K digital workflow environment. There will be four specific areas for discussion:

A brief description of an all-4k digital workflow. A true 4k workflow means maintaining 4k spatial resolutions without downsizing to 2K or less during the data management work process. Once sampled at 4k resolution, the image is never resized and therefore less chance of incurring reconstruction artifacts or loss of natural sharpness.

The challenges of 4k vs. 2k regarding storage, time and resources. This would involve an explanation of the differences in the amount of storage needed, and the workstation time and data management necessary to work at very high resolutions.

Working with black and white images in 4k. Current film scanners and recorders are optimized for working with color film. This will cover the difficulties in re-engineering for working in black and white.

A comparison of the same images at both 4k and 2k. This will include a discussion of the extra time and costs involved at differing resolutions. Additionally, we will show comparisons of 35mm prints from recorded-out negatives produced from the 4K workflow versus the 4K digital file projection.

Images For The Future

Giovanna Fossati
Curator, the Nederlands Filmmuseum

On September 19th 2006 the Dutch government announced that it will fund an ambitious joint project by a number of Dutch archives under the name Images for the Future.

The project aims at preserving, digitizing and making accessible some 285,000 hours of film and video material, and almost three million photos. The digitized content will be accessible for educational use, but also for professionals and the general public. The plan also includes the creation of an infrastructure for distribution and the settlement of copyrights, where applicable, through Creative Commons licenses.

The partners in the project are Nederlands Filmmuseum, Institute for Sound and Vision, Nationaal Archief, Centraal Discotheek, Association of Public Libraries and the foundation Kennisland.

The Images for the Future project is now in the preparation phase. The execution phase will start in the summer of 2007 and is expected to be completed by the end of 2014. The project's budget, granted by the Dutch government, amounts to 154 million euros.

This presentation will outline the project's goals and will address, in particular, the strategies that are going to be adopted for film preservation and digitization. It will also promote a discussion on quality criteria and standards needed for such an ambitious project. The discussion at JTS 2007 is expected to give precious feedback to the project, whose scope and magnitude will hopefully set an example for the audio-visual sector.

*For more info on Images for the Future see:
www.beeldenvoordetoeekomst.nl/documents/Beeldenvoordetoeekomst_summary.pdf*

Video Archiving: On the Way to the IT-World

Franz Pavuza and Julia Ahamer
Phonogrammarchiv, Austrian Academy of Sciences, Vienna

At the JTS 2004 the Vienna Phonogrammarchiv reported the start of it's - at this point of time rather adventurous - new enterprise of linear video file archiving. Meanwhile, the archive looks back to a labour-intensive but in general successful project, many hours of valuable analogue footage have been transferred to the digital domain, using uncompressed data representation. While in some areas some tasks remain to be optimised, the archive considers linear archiving to be a viable and future-proof solution.

So video archiving is on its way to a new technical environment. The achievements of the omnipresent Information Technology (IT) opened the doors for video archivists that have already been passed by their combatants of the audio community. The possibility to work freely and independent of proprietary chains, combined with emerging standards and recommendations of major institutions and experts groups set up an exciting new world for the technically oriented archivist.

Furthermore, the dramatically shrinking costs and the comparatively bright outlook for well-defined, technically sound and broadly supported storage media encourages the video archivist to approach the undisputed ideal of preserving the footage in a linear way, avoiding lossy compression and undesirable data reductions originally provoked by limited storage space. In the long run, even for broadcast companies - who still heavily rely on proprietary structures - this development may lead to rethinking their preservation strategies.

The paper compares conventional and IT-based strategies from the technical and financial perspective and outlines benefits and possible drawbacks of the latter.

Metamorphosis of a Digital System: A Retrospect to Seven Years of Growing Experience for Audio Digitizing

Hermann Lewetz
Austrian Mediathek, Vienna

With the start of the new millennium, the Austrian Mediathek installed a complex digital system consisting of several modules: digitising station (supported by a job data base), catalogue database combined with a special audio player, automatic procedures, mass storage system etc.

The system is ever changing, however, and especially the digitising has been improved considerably since the initial start of the system. At first, we digitised with a ratio of more than 1 to 7. The documentation was done manually, that is without the metadata produced automatically by the recording application. The quality control was imperfect.

There have also been developed defined workflows which consist of separated action modules. Some of them are automated while others have to be executed manually. This allows splitting the whole workflow in quick and slow steps. The workflows do not have to be completed one after the other. Therefore, complicated steps can be collected and executed at another time perhaps by another person without interrupting the working processes.

The recordings can be done parallel up to four carriers at once. There is an automatic analysing tool. Lots of different metadata - including the workflow steps, used parameters and comments - are collected.

There are several other features of the system, which had to be improved; especially the controlling of the enormous amount of interrelated files the system is handling now. The paper will identify these developments in our system and other critical fields in which practice still forces us to change or to improve our workflow

Rethinking the Selection of AV Materials for Preservation and Access

James Lindner
Media Matters

The sheer volume of legacy Analog electronic media stored in various formats and in a variety of conditions is a large obstacle in providing access to the content contained therein. This paper presents some alternative ideas in the Selection of AV material for Preservation and Access. Selection is one step in the very important process of determining what archives and collections keep, and what they do not keep. Productivity is important in the Selection process because of the sheer volume of materials. Accuracy of the eventual appraisal is important because materials retained represent a significant financial commitment - essentially forever. Content not chosen for retention will likely be destroyed. The presentation will examine the current workflow for Selection of legacy analog AV materials, and explores changing the workflow so that digitization occurs earlier. The result of this change is to allow many different tools, not available in an analog environment, to allow the Selection process to proceed faster and with higher accuracy. The approach offers potentially large benefits both in productivity and in the quality and accuracy of the results of the selection process.

Assessment and Prioritization: Recent and Current Research and Development Projects Part I: Assessment

PrestoSpace/CRCDG

Léon-Bavi Vilmont

*Project Manager, PrestoSpace "Media Condition Assessment"
Work Package CRCDG - Centre de Recherches sur la Conser-
vation des Documents Graphiques*

The PrestoSpace project consists of many in-depth projects that seek to enable and support mass migration. One of these projects under the Work Package 06 set forth the following tasks for "Media Condition Assessment" to understand the way video tapes degrade over time and become unplayable to develop a method to measure the deterioration level in order to anticipate playback problems.

These objectives were seen as particularly important considering the financial and time impact of mass transfer operations of audiovisual tapes for preservation and access purposes. Optimization of the preservation workflow requires effective prioritization of the media according to technical considerations.

Magnetic tape deterioration is a difficult notion to define because numerous parameters are involved: operator tape handling, tape player, original media quality, materials formulations, and chemical decay. As a consequence, the magnetic tape deterioration study requires multidisciplinary fields of investigation from mechanical player considerations to organic chemistry analysis. The CRCDG used a comprehensive study strategy involving all aspects of the problem. The deliverable of the project, D6.1: Report on video and audio tape deterioration mechanisms and considerations about implementation of a collection condition assessment method reflects this approach.

The first part of the report (Part A) provides an overview of the reasons why a tape becomes unplayable and to identify specific chemical deterioration issues. The second part of the report (Part B) is based on the results and data obtained from laboratory investigations in order to propose a condition assessment method for archival magnetic tape collections based on a statistical approach. A knowledge database and its management system and applications are presented in detail to represent a recommended software tool.

A primary contributor on this project from the CRCDG will discuss the project, their findings and offer an update on recent follow up activities.

Assessment and Prioritization: Recent and Current Research and Development Projects Part I: Assessment

The Preservation of Magnetic Tape Collections - One Perspective

Jean-Louis Bigourdan

*Image Permanence Institute, Rochester Institute of Technol-
ogy*

In 2003, the U. S. National Endowment for the Humanities, Division of Preservation and Access, awarded funding to the Image Permanence Institute (IPI) for a research project dealing with the preservation of magnetic tape collections. The main objective was to study the feasibility of developing a nondestructive diagnostic tool for magnetic tape collections analogous to A-D Strips®, acid-detector strips for acetate-based film, previously developed by IPI. IPI's research focused on investigating three indicators of tape binder decay: free acidity, acetone extraction, and friction tests. The study was designed as the primary step in the development of a simple field diagnostic test. After extensive testing, it was determined that the data cast doubt on the feasibility of creating an easy-to-use diagnostic device for assessing magnetic tape condition. Although the number of materials tested was necessarily limited, differences in their behavior were repeatedly observed, and this inconsistency was considered to be a significant obstacle to the development of a diagnostic device.

Therefore, during the course of the project, the primary objective of the research shifted toward providing a perspective outlining a possible strategy for preserving magnetic records, addressing, in short, (1) the need for optimizing tape storage, (2) the need for facilitating the emergence of new automated tape transfer technology, and (3) the creation of a decision-making tool for implementing prioritized transfer programs.

This presentation will summarize experimental data developed during IPI's research and discuss its practical significance to the preservation of magnetic tape collections.

**Assessment and Prioritization: Recent and Current Research and Development Projects
Part I: Assessment**

**The Preservation of
Magnetic Tape Collections
– Another Perspective**

Tanisha Jones
New York University

For the past several years, efforts have been underway to develop strategies for assessing magnetic media preservation needs, ranging from the work of the National Media Lab and the Smithsonian Institution to such projects as FACET and TAPE and, most recently, the IPI study. Informed in large part by these groundbreaking initiatives, New York University has embarked upon a related project funded by the Andrew W. Mellon Foundation to develop methodologies for assessing the condition of archival magnetic media based on visual and playback inspection in order to prioritize the relative need and appropriate pathways toward preservation.

As was recommended by IPI, a preservation decision-making tool in the form of a database is being developed as a component of the NYU project. This presentation will focus on the design of the tool and the particular challenges it presented, explaining how prioritization ratings were devised and calculated, and presenting recommendations for reformatting decision-making based on data gathered using the tool. Finally, the preliminary results of research into the use of random sampling as a methodology for assessing archival audio/visual materials will be discussed.

**Assessment and Prioritization: Recent and Current Research and Development Projects
Part II: Prioritization**

**The Field Audio Collection
Evaluation Tool (FACET)**

Michael Casey
Indiana University

The Field Audio Collection Evaluation Tool (FACET) is a point-based tool for ranking the level of deterioration that collections exhibit and the amount of risk they carry. It assesses the characteristics of, preservation problems with, and modes of deterioration of various formats. This tool helps collection managers construct a prioritized list of collections by the level of risk they represent, enabling informed selection for preservation. This presentation will discuss the logic and planning behind the tool. The speaker will also walk through the tool to demonstrate its functionality and features.

**Assessment and Prioritization: Recent and Current Research and Development Projects
Part II: Prioritization**

**Special Collections Material
Survey Instruments**

Janet Gertz
Columbia University

In 2005 the Andrew W. Mellon Foundation generously provided support to the Columbia University Libraries for a two-year project to develop and test a survey instrument to inventory and assess the physical condition and intellectual control of audio and moving image materials.

The tool provides a mechanism for (1) recording quantities and types of materials in detail, (2) documenting physical condition, (3) collecting information about intellectual control and intellectual property rights, and (4) evaluating potential research value.

Both survey-wide reports and collection-specific reports can be generated, as well as reports ranking collections by research importance, degree of physical damage, and lack of intellectual control, and a preservation priority ranking based on these factors to enable institutions to set priorities and establish long-term plans.

The survey instrument is being thoroughly tested in a survey of all the rare and unique audio and moving image materials held by Columbia. As of March 2007 almost 26,000 items had been surveyed. Janet Gertz will discuss the logic behind the tool as well as her experience in using it since 2003. She will also walk the audience through the use of the survey tool and exhibit its features and functionality.

**Assessment and Prioritization: Recent and Current Research and Development Projects
Part II: Prioritization**

**The Task Force on Selection
for Digital Transfer**

Dietrich Schueller
Director, Phonogrammarchiv of the Austrian Academy of Sciences
IASA Technical Committee

The Task Force on Selection for Digital Transfer was commissioned by the IASA Executive Board in February 2000 to examine the issues underlying the process of setting priorities for the digital transfer of analogue and digital audio content, and to deliver a statement of principles for use by sound archives in their planning for digitisation. The members of the Task Force were drawn from IASA's Cataloguing and Documentation, Discography, and Technical Committees, and its National Archives and Radio Sound Archives Sections. The Task Force released a document meeting the charge of the Executive Board in 2003.

This document examines the issues underlying the process of setting priorities for digital transfer. It analyses the various criteria which can be applied in the institutional, national, and international context, and identifies strategies for co-operation and co-ordination to avoid duplication of expenditure where institutions have overlapping holdings. It delivers a statement of principles which can be used by different kinds and sizes of sound archive in planning and setting priorities for digitisation. The issues examined include the following:

- Cultural, scientific, or academic significance of content
- Fragility of existing analogue carriers
- Primary institutional responsibilities
- Technical obsolescence of existing analogue platforms
- Present and future level of demand for use and access
- Restrictions on archival activity arising from intellectual property law
- The resource required to generate metadata to support the digitised recordings

The speaker will discuss the complex set of issues and principles based around institutional objectives and the intrinsic nature of audiovisual materials addressed by the Task Force.

**Assessment and Prioritization: Recent and Current Research and Development Projects
Part II: Prioritization**

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Preserving Digital Public Television

Part One: An Overview of MXF and the Search for the Video File Wrapper

Dave MacCarn
WGBH-TV

Thomas Edwards
PBS

Carl Fleischhauer
Library of Congress

The Society of Motion Picture and Television Engineers (SMPTE) has released the Material Exchange Format (MXF) format for the interchange of audio-visual material. Many open source projects for video codecs have appeared. Has the technology caught up with the proposal for a "Universal Preservation Format (UPF)?" This presentation will evaluate if the union of these "standards" can lead us to a digital moving image preservation format. It will detail the creation of MXF AS/PBS for video distribution and the extension of MXF for use in video archiving, including new collaboration between U.S. public television and Turner Broadcasting to create an MXF wrapper for video production. It will also include a look at the availability of open source codecs and look at an example of storing digital moving image material with the application of these available technologies.

Friday - 8:30 am

Preserving Digital Public Television

Part Two: Designing the Repository

James Bullen, Unni Pillai and Brian Hoffman
Digital Library Team, New York University

New York University is currently developing a digital preservation repository, built around DSpace, which is intended to archive materials in many different formats. This development provides the basis for designing the model repository for preserving digital public television.

Our prototyping has raised some interesting challenges, such as; dealing with very large video files, working with proprietary file formats and acquiring metadata from production work flows. In this session we will outline the repository design and discuss our approaches to some of these problems, including the use of Storage Resource Broker, Kepler, MXF, METS and PBCore.

Automated Workflows in Mass Audio Archiving

Rob Poretti
Sascom, Toronto

Migrating large audio archives represents a daunting task. Once the archive is cataloged, assessed and prioritized for preservation activities, managing an efficient transition to a digital carrier poses its own sets of challenges. This paper investigates computerized solutions for the mass-migration of analog and digital archival media, to mass-storage systems.

Processes covered include:

- Importing legacy data to generate work-flows and system jobs.
- Digitization of analog material with quality analysis.
- Using quality analysis meta-data to drive automatic batch processes.
- Using batch-processing to generate multiple derivatives.
- Reporting and Exporting meta-data to the Preservation database.

Some archival media lend themselves to more efficient ingest strategies. For example, by their nature, optical media archives can be transferred at many times "real-time". New technologies now allow for faster than real-time transfers for analog media as well. The paper will investigate the ramifications of:

- Multiple stream digitization - up to 8 simultaneous devices.
- Ingest speeds from 1/8th to 8x real time
- Forward/Reverse digitization for cassettes and 1/4 track reels.
- Multi-channel digitization up to 8 channels per stream

Mass digitization strategies have their own sets of challenges. Operators need specialized tools to manage multiple streams simultaneously, especially when they originate from different media types. Purpose built monitoring functions required for digitizing in reverse, or high-speed ingest, will be investigated.

When the digital master is created, browsing copies and other derivatives may be required on a timely basis or in an automated fashion. This paper examines an approach to an extensible automated batch processor for digital archives that integrates into the entire archive system

New Tools for Film Sound Restoration

Robert Heiber
President, Chace Audio

Removing pops, crackle and hiss are well known sound restoration technologies and are as ubiquitous for sound restoration as wet-gate printing is in the laboratory. However, developers are continually working on new and more powerful tools to address more difficult problems with a narrowly focused solution. These new developments offer opportunities to correct more severely distressed or damaged audio or make more successful repairs. Additionally, improvements in existing technologies offer new methodologies for film sound preservation and restoration work.

The development of these new tools has also created new responsibilities for archivists. The ability to rescue materials thought once unrecoverable can present quite a dilemma for determining the end of the useful life for legacy sound elements, like 35mm magnetic and optical sound.

Another issue facing archivists is whether to revisit earlier sound restorations that might now benefit from these new methods. With limited budgets, re-doing a program must be balanced against preserving and restoring other at-risk content that remains unprotected.

New Tools for Film Sound Restoration examines the "improvement-in-the-art" that has occurred since the late 1980s and the issues that this improvement brings.

Examples of the results that can now be achieved will be demonstrated with before and after examples of recently completed work on *Vigter oss (We are Getting Married)* 1951, for the Norwegian Film Institute.

HF-Bias Signal Pick-Up and Pre-processing for Wow and Flutter Correction of Analogue Magnetic Tape - Analyses and Limitations in Practical Application

Nadja Wallaszkovits
Phonogrammarchiv, Austrian Academy of Sciences, Vienna

Heinrich Pichler
Audio Consultant, Vienna

In conventional transfer processes of analogue magnetic audio tape, the main focus is set on the reproduction of the signal band carrying the primary audio content. Due to various limitations of standard playback systems, some additional technical information is lost, like the information possibly provided by the HF bias signal recorded on the original tape.

Since the audio, signal as well as the HF bias signal, are similarly affected by wow and flutter, these deviations from the standardised tape speed are reflected in the HF bias signal, provided the bias frequency is constant. The correction of wow and flutter has already been discussed in theory, mostly referring to the signal processing part. Practical implementations of signal processing have already been developed, using various automated and semi-automated detection routines in combination with non-uniform re-sampling methods.

The paper describes the problems and limitations of the practical implementation of HF bias signal pick-up from analogue magnetic tape at original replay speeds, to be implemented in a standard archival workflow, using slightly modified standard playback facilities. The signal pre-processing in analogue as well as digital domain are compared, and basing on analyses of bias signals from professional as well as semi-professional recordings, the various practical problems are discussed: level instability and unknown frequency of the recorded HF bias signal, frequency variations mainly with semi-professional devices of older generations due to the instability of the bias oscillator, as well as effects of signal distortions, interferences and ultrasonic artefacts.

A Practical Approach to Audio Recording, Preservation and Delivery at Indiana University's Jacobs School of Music

Konrad Strauss
Indiana University, Jacobs School of Music

The Indiana University Jacobs School of Music has been making live concert recordings since the 1940s and continues to record and archive approximately 600 concerts per year. These recordings are archived in the Cook Music Library and consist of more than 2,000 lacquer transcription discs, 50,000 analog reel to reel tapes, 8,000 digital audio tapes, and 5,000 CD-Rs.

Given the limited life span of recording media, we have been investigating the possibility of creating digital files rather than continuing to use physical media to archive our recordings. Our goal was to develop a system for the creation, access, and long-term preservation of high-resolution audio recordings and associated metadata that conforms to emerging standards for digital audio preservation. In the spring of 2006 we began investigating the possibility of instituting a file-based system of archiving rather than continuing to use physical media.

This paper will give an overview of the development process, present hardware and software solutions, and discuss workflow and data management issues.

Quality Control in Digital Cinematography

John Galt
Senior Vice President, Advanced Digital Imaging, Panavision

The photo-chemistry involved in the manufacture and processing of silver halide film emulsions has always required careful process control. Inherent in the technology has been the requirement for quality control at every stage from negative manufacture to chemical development of camera negative, intermediate film elements, through final release printing. Over the past 100 years of the evolution of this technology a close collaboration between the film manufacturers, the film laboratories, and the end users, has evolved to the point where this process is almost taken for granted and although various problems can and do arise, the system has evolved to where problems are quickly identified and remedied.

Mainly through television broadcasting, electronic motion imaging technology has been a major part of our entertainment and information systems for more than half a century. Yet, it has been less than a decade since electronic imaging systems have been developed that rival the image quality of the silver halide-based motion picture film technology first developed over a century ago. The vigilant quality control process that we take for granted in film-based imaging systems must now be re-invented to encompass the new world of digital image capture, post production and archiving.

This paper will explore the various issues and problems involved in developing an adequate quality control process for this nascent technology.

Archival Cylinder Box: An ARSC Design and Engineering Project

Bill Klinger
Association for Recorded Sound Collections

The world's oldest sound recordings have yet to benefit from objectively calibrated audio extractions.

Cylinder records dominated the U.S. recording industry throughout its first 23 years (1889 to 1912). However, in 2007, the 82,000 titles known to have been commercially issued on cylinders, worldwide, still await proper archival transfer and preservation.

Promising advances in non-contact playback methods, now in development, may eventually provide the necessary calibrated extractions. In the meantime, at least one million surviving cylinder records are housed in historical containers that threaten the continued survival of the audio information carried on those cylindrical artifacts.

Commissioned by the Library of Congress National Recording Preservation Board, the Cylinder Subcommittee of the ARSC Technical Committee is developing an Archival Cylinder Box (ACB). The objective of the project is to define, design, and produce an optimized, low-cost, archival-quality container for use in safely storing and transporting a single "standard-size" cylinder phonograph record.

This talk presents 3-D CAD models, renderings, and animations that illustrate the advanced tools, processes, and materials employed to meet the technical challenges posed by the demanding ACB requirements. A prototype ACB will be available during the symposium, for review and comment.

Archiving and Delivery of Student Portfolios

Dirk Matthews
*Assistant Director, Portfolio Center
Columbia College Chicago*

One of the challenges facing institutions of higher education is archiving student work while assisting students in the creation of electronic portfolios. The Portfolio Center of Columbia College Chicago uses a digital archiving system compatible with a web publishing system that creates standalone student websites for display of student work. The web publishing system also generates XML files of student portfolios and metadata for archival purposes. Since 2004, the Portfolio Center has assisted graduating seniors prepare their work for portfolios and reels that will help them secure post-graduate opportunities in their field of study.

The presentation will discuss the development of the system, outline current methods used for archiving and web publishing, and discuss future goals.

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Digital Storage Options - A Transitional Perspective How Current Storage Technologies Can Facilitate Longevity and Access

Richard Hess
Vignettes Media

John Spencer
President, BMS/Chace

Jim Wheeler
Media Forward

A continued debate still reigns within the archival community – whether Gold CD-R, HDD, or data storage tapes are the "best" choices for small digitization projects. This session will present the challenges of small archival digitization projects and offer examples of current technologies to provide a transitional approach of cost-effective, robust interim storage solutions.

Additionally, the concept of a "transitional repository" will be discussed, as there are many parts of a migration project that are not readily available to small archives, such as:

- Structured metadata databases and templates for technical and descriptive documentation
- Creation of checksums and data tape writing
- Workflow consultation
- Grant proposal review with an emphasis on the resultant digital files
- Other tools/ hardware/ etc. not available to a small archive

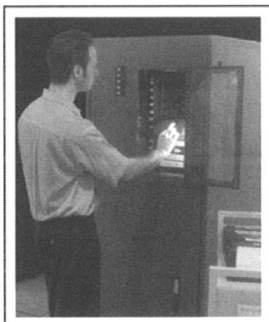
The panel will discuss the current market trends that shape the digital environment, and provide insightful real-world solutions, as well as examples of how small archives have created a digital preservation file and metadata strategy to ensure their longevity as we continue to learn and understand the benefits and risks of digital technology.

Friday - 4:30 pm

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Digital Archiving of Motion Pictures

Dave Cavena

Engagement Architect, Sun Microsystems

Filmed entertainment quickly is moving to digital files from analog film for capturing and displaying images. When completed, this move will catch-up to the decade-old move to digital for post production workflows. Archiving of this invaluable, irreplaceable content, however, still is primarily reliant on outputting the images to film and storing the film in a vault under controlled environmental conditions, a process little changed by technology for over a century. Archiving of motion pictures, however, is coming under increased scrutiny as analog film quickly is being replaced by digital bits in all phases of the imaging process, from capture to post-production, to projection in the theater, to distribution to the consumer over the internet, in packaged media or via digital television, whether broadcast, satellite or cable. Archiving for long-term preservation remains the only part of the workflow still reliant on film.

This paper will explore methods of using digital technology to archive motion pictures. Areas of discussion will include:

- Capturing, digitizing and storing the image
- Ensuring data integrity algorithmically
- Bit error detection
- Bit error correction
- Archive management software development
- Cost differentials - film vs. digital archive
- Long-term retrieval of digitized images

The goal in presenting this paper is to initiate serious discussion, examine and improve the model, and assist archivists and content creators in creating viable, scalable, cost-effective methods for digitally archiving filmed images.

Saturday - 8:30 am

The Motion Picture Archive: A Real-World Implementation

Paul Collard
Vice President, Film and Digital Services, Ascent Media Group

Craig German
*Vice President, Program Management for Digital Services,
Ascent Media Group*

This presentation describes the development approach, implementation details, and operations of a working system for a digital data media archive. Although the system was initially developed for the media and entertainment sector, it provides a state-of-the-art solution that can be applied to the preservation of digital data for the media industry and public sector archives at large. As the motion picture industry accelerates adoption of digital intermediate and file-based repurposing workflows, members of the media and entertainment community are moving toward file-based archives for the preservation and use of important media assets.

Today, content owners and archivists are interested in using centralized, "virtual" methods for archiving, searching and deploying content via integrated IT systems. Such systems offer the possibility of eliminating many undesirable physical aspects of preservation and archival, and also much of the uncertainty in providing high quality content to the end user. The archival systems address two classes of assets: "born digital" material such as digital intermediates (where the most original and highest resolution form of the media exists in the form of digital files), and the digital surrogates of legacy film and television elements (that is, film elements scanned to high-definition or higher resolution formats and digitally optimized for distribution in electronic media). The potential for improvements in efficiency, control, and cost reduction has stimulated active investment in file-based archival initiatives.

This presentation describes a system developed to provide a long-term digital archive for major media assets (including digitized data files made from legacy film elements, DI-generated motion picture data, ancillary and added-value material, video masters, and the versions derived from these primary resources for distribution). This solution for long-term archival retention is part of a larger initiative with content owners and archives to provide a file-based archive of all elements that are part of the content lifecycle. The presentation essentially covers the design, implementation, and operation of a first-generation virtual archive.

Open Source Archival Repositories and Preservation Systems

Kevin Bradley
*Curator of Oral History and Folklore and
Director of Sound Preservation at the National Library of
Australia*

The problem of digital preservation has captured the attention of collection managers all over the world. Predominately large institutions with archival responsibilities or well funded projects with research concerns have supported loose cooperative arrangements amongst themselves and driven the digital preservation agenda with remarkable results, addressing a range of very complex and increasingly convoluted problems. The needs of many archival institutions are more prosaic. They require reliable, sustainable, preservation standard, archival digital storage that is affordable and appropriate to their needs. The priority is for managing and preserving simple, discrete digital objects; images, audio, video and text.

There are a finite number of functions an archival digital repository must be able to perform. These are defined in the Reference Model for an Open Archival Information System (OAIS) as; Data Management, Ingest, Access, Administration, Preservation Planning and Archival Storage. It would appear that affordable hardware and open source software exists to support many of these functions, but not completely, and not in a single form. The UNESCO Memory of the World Sub Committee on Technology (MoW SCoT), commissioned a report to test this hypothesis and identify development gaps, the resolution of which might be encouraged. The report was funded jointly by UNESCO MoW and the Australian Partnership for Sustainable Repositories (APSR), and submitted to UNESCO in April 2007. This paper describes the reports findings and proposes a method for carrying it forward.

MEMORIES: Design for an Audio Advanced Acquisition and Semantic Indexation System Allowing Information Retrieval for the Access to Archive Content in Open Archival Information Systems

Jean-François Cosandier
Radio Suisse Romande

Dorothee Degimbe
Memnon Audio Archiving Services S. A.

Eric Lesage
Guy Maréchal
Thierry Leroy

Acquiring media contents, structuring and attaching metadata and controls (ontology and semantics), archiving and exploiting in various modes (i.e. organising an easy accesses and powerful searches for the users) are complex processes for which many approaches have been developed. The present project intends to contribute to the elaboration of solutions to that challenge.

The project will demonstrate the three innovations on a prototype system.

It will generate two "General Software Libraries", one for "source separation," one for "advanced searches." The results of the "open system" development will be made freely available under an "Open Licence" a "AXIS tool kit" covering the "Architectural definition", the "Technical specification [based exclusively on standards and norms] of the interchanges" and a "Software Development Kit" helping the usage of that open interchange.

Research Report on JPEG 2000 for Video Archiving

Ian Gilmour
Media Matters LLC

A report on recent original research conducted in New York used actual production video footage from several different agencies. The primary aims of the project were to investigate and compare file sizes and data rates of mathematically reversible [lossless] and irreversible [lossy] encoding.

The report discusses quality and performance of JPEG 2000 along with other popular CODECs, with a focus upon a newly-developed real-time hardware encoder which wraps JP2 video and audio in MXF along with selected metadata.

Data is also presented on secondary savings and the business case for improved network transfer times, reduced costs for backup and disaster recovery, and in a simplified system architecture.

This paper will also follow-up the evolution of digital storage issues raised in JTS 2004.

Tools for Audio Preservation: The Sound Directions Project

David Ackerman
*Lead Engineer for the Harvard College Library's
Audio Preservation Service*

Mike Casey
*Co-chair of the ARSC Technical Committee and Associate
Director for Recording Services, Archives of Traditional Music,
Indiana University*

Sound Directions is a research and development collaboration between Harvard University and Indiana University funded by the National Endowment for the Humanities in the U.S. The project is charged with developing detailed best practices and testing emerging standards for the preservation of audio in the digital domain. One output from the project has been the development of software tools to aid and automate parts of the preservation process. Harvard has developed a suite of 40+ cross-platform command line software utilities, designed to be interfaced together through batch/shell scripts. The resulting scripts form audio and metadata processing workflows that automate routine and mundane tasks in the audio preservation process. Indiana University has created FACET—the Field Audio Collection Evaluation Tool—to assess the preservation condition and level of risk carried by recorded sound collections. Indiana has also developed a technical metadata collection tool to gather and store data on source audio objects, digital files created during transfer, and the preservation transfer process.

New Web-Based Technology for Environmental Monitoring of Moving Image Collections

James M. Reilly
*Director, Image Permanence Institute
Rochester Institute of Technology*

An important aspect of preserving moving image collections and their associated documentation is maintaining an appropriate environment. Archivists face a number of difficult challenges in gathering environmental data, determining what it means for their collections and planning for improvements. The requirements for a practical system include simple to use, inexpensive datalogger hardware, standardized and meaningful interpretive algorithms for temperature and humidity data, and easy access to reports and conclusions for archivists, facility managers, and collection administrators. The Image Permanence Institute at Rochester Institute of Technology has developed an integrated approach to environmental assessment that addresses these requirements by creating a new type of datalogger and shifting data storage, interpretation and reporting to a web server rather than local computers. This presentation describes the design philosophy and technical rationale for the major elements of this system, which include:

The PEM2, a datalogger designed to be a pipeline of data direct to the web. The PEM2 has no software. It writes the data in plain text to a USB flash drive.

A web server application where each institution stores and analyzes its data. Interpretation of data is performed using standard metrics for chemical change, physical damage, mold risk, and metal corrosion risk.

Automated reporting in the form of pdf documents generated on the web server. The presentation will show examples of the uses of such a system in dealing with moving image collection storage problems.

Save Our Audiovisual Memory (SAM)

Frédéric Dumas
French National Audiovisual Institute (INA)

FIAT/IFTA has been commissioned by the Group to take over the running and coordination of its activities. Since November 2006, Emmanuel Hoog, special envoy of FIAT and CEO of Ina (Institut National de l'Audiovisuel), is the chairman of the Group. Sue Malden is the executive coordinator. The Group consists of:

- United Nations, represented by Lily Chau, Antonio da Silva
- UNESCO, represented by Joie Springer
- WBU - World Broadcasting Union, represented by David Baylor
- EBU/UER - European Broadcasting Union, represented by David Wood
- FIAT/IFTA - International Federation of Television Archive, represented by Emmanuel Hoog, Sue Malden, Dominique Saintville
- Matt White (independent)

The Group was created in February 2006, following the session on endangered archives held at the World Electronic Media Forum - WEMF, on the occasion of the World Summit of the Information Society - WSIS (Tunis, 15-16 November 2005)

At the WEMF closing session, the recommendations were presented to Kofi Annan, General Secretary of the UN. They included the creation of an ad hoc group. The group would have the task of proposing and implementing an action plan for the preservation of endangered archives, particularly for the developing world.

Furthermore, in its message to the heads of state and government attending the WSIS, the WEMF II rapporteur requested them to "provide support for urgent action to preserve the world's audiovisual heritage, enabling future generations to access archives on their own social and cultural history, and for the establishment of an international ad hoc group on audiovisual archives comprising the world's broadcasting unions, UNESCO, specialist organisations and financing agencies."

The Group has launched a world survey, sent by each of the eight regional broadcasting unions to their members, intended to estimate the magnitude of the issue and identify archive preservation / digitisation projects that may benefit from an international support.

Based on the first results of the survey, a project has been designed. This presentation will detail technical issues related to the project.

Archiving Meets Automatic Speech Recognition - Curse or Blessing?

Christophe Kummer
NOA Audio Solutions

The present paper examines general concepts behind automatic speech and language processing technologies set against the requirements of audio archives. It is argued that current technologies in automatic speech recognition, text-analysis and speaker-technologies may be a good starting point to index speech from digitized speech archive audio material to create low-level descriptors for basic text mining. Together with semantic annotations created the traditional way, the additional information may be the key to an extended archival mining approach

Using Audio Description Text for Shot-by-Shot Indexing of Films

James M Turner
Université de Montréal

Suzanne Mathieu
Université de Montréal

The E-inclusion Research Network has a goal of "creating powerful audio-video tools... to improve the richness of the multi-media experience for the blind, the deaf, the hard of hearing, and the hard of seeing". Project 3.1 of the research network involves identification of types of information needed by the visually handicapped to understand moving images. By analysing the audio description provided in a number of films, we identified the types of information described for the visually handicapped, and developed a classification of these types. We analysed the text of the audio description of individual shots, as well as that of user descriptions of the shots. By comparing the two, we can estimate the possibility of automatically deriving indexing to individual shots in a film. Indexing individual shots greatly increases the possibilities for studying films, but it is too expensive to produce such indexing other than automatically. By "recycling" the keywords in the audio description text as indexing terms, access to films at the shot level can be provided.

Non-Contact Surface Metrology for Preservation and Sound Recovery from Mechanical Sound Recordings

P. J. Boltryk, M. Hill, J. W. McBride, A. Nascè
School of Engineering Sciences, University of Southampton, Southampton, UK

N. Bewley, W. Prentice
British Library Sound Archive, London, UK

In recent years there has been a significant quantity of research aimed at developing optical measurement systems for mechanical recordings for non-contact sound recovery. 2-D imaging systems using high-resolution photography have been developed for flat disc recordings where the sound modulations are encoded as lateral undulations of the sound-carrying groove. However, in cylinder recordings and some 78s the modulations are in a vertical plane relative to the groove, in so-called "hill and dale" modulations. To measure these features requires 3-D surface profiling using optical sensors that measure the surface topology by determining the displacement distance between the surface and the sensor.

An alternative transfer strategy being developed through collaboration between the University of Southampton, the British Library Sound Archive, and TaiCaan Technologies Ltd, uses optical sensors to measure the recording's surface in its entirety. A significant outcome from this approach is the full high precision digital record of the artefact's surface form for preservation, which is available for future research. The post-measurement processing of the surface topology data makes use of image and signal processing to reconstruct the audio content of the recording. This aspect of the research is aimed at facilitating access to the audio content of culturally-important artefacts by current generations. In this paper we provide a detailed overview of the scanning process for cylinder recordings, the data processing techniques used to recover the audio from the data and describe the high sensor precision required for measuring the surface for successful audio extraction. We show examples of groove damage thought to originate from repeated stylus playback, and highlight the advantages offered by this scanning strategy for application to damaged or even broken recordings.

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Saturday - 4:30 pm



World Day for Audiovisual Heritage

27 October

Sound recordings and moving images in any form are vulnerable, and easily discarded or deliberately destroyed. Too much of the world's 20th century audiovisual heritage is now lost, and much more is slipping beyond recovery because of neglect, natural decay and technological obsolescence. Unless public awareness of the importance of preservation is increased, this trend will continue.

In 2005 UNESCO's General Conference approved the proclamation of 27 October as the annual World Day for Audiovisual Heritage.

What are you doing October 27?

www.avheritage.org
Coming Soon



The United Nations Educational, Scientific and Cultural Organization (UNESCO) is mandated by its Member States to promote the free flow of ideas by word and image, to foster international cooperation in the fields of communication and information in order to narrow the gap between the "information rich" and the "information poor" in these areas and to promote access for all.

UNESCO has provided funding for nine archivists from around the world to attend JTS this year.

Muhammad Arif

*Department of Library and Information Science
Allama Iqbal Open University - Pakistan*

The Allama Iqbal Open University is the only distance learning university which is providing LIS education to the community, preferably females residing in different cities and far-flung areas of the country. The present enrollment in different programmes is approximately 2.5 million - 62% of which are women.

Clara Ines Casilimas Rojas

Archivo General de la Nación - Colombia

The mission of the Archivo General de la Nación, created in 1992 as a public entity, is to rescue, preserve and safeguard the documentary heritage of Colombia. As a rector of archivist policy in the country it must be advisor to both national and territorial institutions. Today, Archivo General recognizes the primary necessity in preserving and recovering the sound and audiovisual documentaries, and is developing guidelines regarding the management of these records.

Francois Vianou Godonou

Ecole du Patrimoine Africain - Benin

The Ecole du Patrimoine Africain is a university institution with a regional vocation for training as well as specialised research in the preservation and promotion of immovable and movable cultural heritage.

Lynn Lucas

Barbados Government Information Service - Barbados

The BGIS is a public relations body responsible for projecting the plans, proposals and projects of the Barbados government. It has two main divisions - press and broadcasting. The latter includes television and radio. The department is equipped with its own video and stills photographers unit. Our archives date back to the 1950s and include film, audio, video and stills.

Caleb Ouma*Nation Media Group - Kenya*

Nation Group is a media company concerning itself with broadcast of news and entertainment programs in print (newspapers and magazines), radio and television. The print section has been in existence for more than 50 years, with the radio and television sections launched in 1999.

Emma Muñoz Rey*Congressional Library Bureau**House of Representatives - Philippines*

The Congressional Library Bureau supervises the Legislative Archives Service, which is the depository of legislative records on paper and audiovisual materials. The archives preserves the sound recordings, video tapes and CDs of legislative proceedings of the House of Representatives. The collection dates from 1961 with reel tapes and cassette recordings.

Perla Olivia Rodriguez*Fonoteca Nacional - México*

The National Phonotec, opening in November, is a public archive with the mission of the entire preservation of sound wealth, so that current and future generations can access Mexico's heritage. The National Phonotec creation demanded more than five years of intensive and specialized work. The final project attends the recorded sound alalogue heritage preservation as well as the conservation, catalogue, documentation and digitization activities. The National Phonotec of Mexico is also the first of its kind in Latin America and will not only preserve, keep and document the archive's sound recordings, but specialized research will be deployed and many activities will take place that will turn the institution into a living organism in constant relation with society.

Maria Salinas*Pontificia Universidad Catolica del Peru - Peru*

Pontificia Universidad Catolica del Peru focuses on audiovisual heritage in a number of departments: The Center of Andes Ethnomusicology, works for the cultural heritage of indigenous and mixed people of the Andes through study and audiovisual documentation of their music within the local cultural context. The Documentation Center is specialized in Human Rights and transitional justice issues. In addition, there is a film library and an audivisual archive, and the Central Library holds a collection of more than 1500 videos on various themes.

Ishumael Zinyengere*National Archives of Zimbabwe - Zimbabwe*

The National Archives of Zimbabwe is a state archive. Its mission is to acquire, preserve and provide access to the documentary heritage on or about Zimbabwe, in any format.

The *Carolyn Hauer International Fund* was established in 2003 to promote internationalism within the Association of Moving Image Archivists (AMIA). This fund awards non-profit institutional AMIA memberships, AMIA Newsletter subscriptions and helps panelists from countries outside of the Americas to attend the Annual AMIA Conference. This year, a portion of the fund was used to bring a delegate to the Joint Technical Symposium.

The purpose of this fund is to provide assistance to programs that encourage the flow of archival ideas (in both directions) across national boundaries and continents. The award has been established thanks to the generosity of an anonymous AMIA member.

The recipient of the Carolyn Hauer International Fund:

Rémi Ndofène Ndour*Centre Africain d'Etudes Supérieures en Gestion
Senegal*

Centre Africain d'Etudes Supérieures en Gestion was created in 1985 by the defunct Economic Union of West African States. In 1995, the management and funding of CESAG was taken over by the West African Economic and Monetary Union (UEMOA). Since that time CESAG has reestablished its reputation as a quality provider of a full range of training (degree granting and continuing education), research and consulting services in the West Africa region.

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To June 15, 2007

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United States

Jonathan Wise
Canadian Museum of Civilization
United States

Adrian Wood
Inkulla Media
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