JTS

JOINT TECHNICAL SYMPOSIUM

October 3-5, 2019 | Hilversum, Netherlands

CCAAA

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WELCOME FROM JTS

Welcome to the Joint Technical Symposium 2019!

PRESERVE THE LEGACY | CELEBRATE THE FUTURE

I am delighted to welcome you to the 10th iteration of the Joint Technical Symposium (JTS). In existence since 1983, it has been hosted annually by various Co-Ordinating Council of Audiovisual Archives (CCAAA) organizations or related member institutions. Over the years the JTS has enabled our combined audiovisual archival communities to share the latest, most innovative technological advancements in our fields.

Consistently, the symposium offers the newest and best preservation practices and tools in our fields and introduces the technological breakthroughs that are being developed at that time. Throughout each event and at its core the JTS has been a dedicated symposium focused on the international scientific and technical issues pertaining to audiovisual archives and archivists. A review of the past 36 years of the JTS programs reveals that the changes in symposia have reflected current technological advancements while maintaining a focus on efforts to preserve the collections: film, audio, video, and now digital. And, most importantly, we have consistently looked to the future.

Even when we look back at the first JTS and the theme of "Archiving of the Moving Image in the 21st Century," we find the ever present undercurrent of future technological advancements. However, that very first JTS which was held in 1983 in Stockholm, and co-hosted by FIAF (International Federation of Film Archives) and FIAT (International Federation of Television Archives) during the annual FIAF conference, primarily included papers that were motion picture film and video focussed with some of the newest storage, reformatting options thrown in as well. As the symposium has evolved, discussions of digital storage and reformatting options appear more frequently, yet always looking to the future, with more and better ways to transfer, digitize and improve the process of duplication which will lead to the long-term preservation of our cultural heritage on various moving image and sound formats.

Now that we are here and collectively celebrating the tenth JTS, we are exploring ever more technological advances. One of the most intriguing and potentially impactful developments in the field is the prospect of using artificial intelligence to assist in multiple aspects of our fields, primarily in the human labor intensive tasks that allow us to describe and provide access to our vast collections. This year's JTS will be fruitful with many new innovations offered; this

suggests, of course, that future JTS symposia hold the promise of new developments that we most likely cannot fathom today.

The core topics from these previous symposia have consistently focused on those mentioned above. However, it is important to note that from the beginning, the primary purpose of the JTS has been to assemble representatives from the various organizations that operate with similar goals for the purpose of addressing technical issues commonly encountered in our ever more frequently overlapping worlds. The earliest JTS was, after all, created by the very group that would eventually become the CCAAA (by 2000), and all following JTS symposia have been sponsored by CCAAA and hosted by its member organizations.

Pre-CCAAA, this group was simply known as the Roundtable of Audiovisual Records. This original Round Table, (held at the 1983 meeting in Stockholm) was the result of a 1980 UNESCO report entitled 'Recommendation for the Safeguarding and Preservation of Moving Images'; it evolved into CCAAA. As the umbrella organization for its member groups, it has now produced nine Joint Technical Symposia (and with Hilversum, we have ten!) over 36 years in different global locations. Moreover, it hosts World Day for Audiovisual Heritage, Archives at Risk, and many other initiatives through efforts by partnering international organizations. At this year's event in Hilversum, almost all CCAAA organizations are represented either through presentations or through the intense preparation for such a significant international conference.

This year, we are especially honored to be holding JTS in tandem with the 50th anniversary of CCAAA member organization, the International Federation of Sound Archives (IASA) and their annual conference. And, as an additional bonus for all of us involved in JTS 2019, we are delighted to honor Dietrich Schüller, an individual who has contributed enormously to our many fields and to IASA and JTS in particular. The fact that we can celebrate his 80th birthday here during our IASA/JTS event is a gift in itself.

I am thrilled to announce that we will be presenting new awards at the conclusion of JTS 2019. With these first ever awards we will recognize outstanding contributing members of our field in the area of technology. These awards were selected after CCAAA colleagues nominated an individual, project or organization who has been instrumental in and/or had an impact on our field.

Lastly, let us acknowledge and express our gratitude to our gracious Dutch hosts. I am extraordinarily delighted that we are able to hold our symposium at Beeld en Geluid (Netherlands Institute for Sound and Vision). Not only have so many members of Sound and

Vision been fantastic partners while preparing for the symposium over these last 18 months, but as one of the leaders in archiving, technology, digitization and access, it is a delight to be here in such a forward thinking institution. With these gorgeous facilities and a colorful building filled with stunning treasures, this is the perfect place for our shared event. Our gracious hosts have been a great pleasure to work with, and I think I can speak for all of us and say that we are extremely grateful for their efforts to make this year's event special.

I am thrilled to welcome you to what will be an engaging few days at the JTS 2019, here at Beeld en Geluid.

Rachael Stoeltje
CCAAA Chair
JTS 2019 Co-organizer

ACKNOWLEDGEMENTS

I am immensely grateful to a number of people without whose dedication and hard work, JTS 2019 would not be happening!

LOGISTICS/OPERATIONS TEAM

First, it is impossible to express an adequate level of thanks to the multi-talented organizers, who served as the core logistics/ operations team. I want to express my eternal gratitude to Laura Rooney, from AMIA and CCCAA and Erwin Verbruggen and Rasa Bocyte, from the Netherlands Institute for Sound and Vision, who joined me, Rachael Stoeltje from FIAF and CCCAA on this crucial front to do everything that had to be done to produce this event. From promotion to making a registration site; from launching the travel grants to creating the honorary JTS awards; from launching everything required for the host institution to successfully pull off this symposium, there is truly too much to mention here as the list goes on and on. Suffice it to say that these individuals have been great project partners all around here on the 'do everything there is to do (and more) to make JTS 2019 happen team'! Enormous thanks Laura Rooney, Erwin Verbruggen and Rasa Bocyte!

THEMEWORK- TEAMWORK!: PRESERVE THE LEGACY | CELEBRATE THE FUTURE

Big thanks to Kara Van Malssen who was there at the beginning, back in June of 2018, when she visited Bloomington, Indiana and together we came up with this the JTS 2019 theme.

PLANNING COMMITTEE

Next up, we have the awesome Planning Committee, all of whom were so great to work with. (A special shout out to the IASA conference planning committee for working with us so nicely when they already had a conference to plan themselves!) The JTS 2019 Planning Committee list of individuals includes (listed alphabetically by organization):

Laura Rooney, *AMIA*
Rachael Stoeltje, *FIAF*
Brecht Declerqc, *FIAT/ IFTA*
Brid Dooley, *FIAT/ IFTA*
IASA President Toby Seay, *IASA*
Richard Ranft, *IASA*
Zane Grosa, *IASA*

Erwin Verbruggen, *Netherlands Institute for Sound and Vision*
Eleni Tzialli, *Netherlands Institute for Sound and Vision*
Rasa Bocyte, *Netherlands Institute for Sound and Vision*

PROGRAMMING COMMITTEE

Additionally, big thanks to the Program Committee who created a program representing the many and varied voices of our broad field. All of these members assisted in the production

of a program that reflected current issues and concerns in preservation and access globally. Together this group developed the core streams for the program, evaluated the proposals and selected those for our program today. Huge thanks to this group for their time, thoughts, expertise.These individuals, and the organizations that they represent are as follows in organization alphabetical order:

Kara Van Malssen, *AMIA*
Laura Rooney, *AMIA*
Rachael Stoeltje, *FIAF*
Brecht DeClercq, *FIAT/ IFTA*
Kate Murray, *IASA*
Nadja Wallaszkovits, *IASA*
Lars Gaustad, *IASA*

Pio Pellizzari, *representing the IASA conference planning team*
Etienne Marchand, *ICA*
Erwin Verbruggen, *Netherlands Institute for Sound and Vision*
Mick Newnham, *SEAPAVAA*

JTS 2019 HOST NETHERLANDS INSTITUTE FOR SOUND AND VISION

Special thanks to so many individuals at our gorgeous host institution, the Netherlands Institute for Sound and Vision. Some of these names were mentioned above. However, collectively it is worth thanking them here again. Many thanks first to Managing Director Eppo van Nispen tot Sevenaer for dedicating so many resources and awesome individuals to the task of producing our event. And loads of thanks again to those who made so many parts of this event work, and for being such great working partners: Erwin Verbruggen, Rasa Bocyte, Eleni Tzialli and Natalie Meijers. And for producing the program that you are holding, big thanks to Tom Sterk. Lastly, thank you to Johan Oomen for his support and generosity of staff resources. This group must be commended for their months of detailed planning, which gave consideration to all possible contingencies, resulting in a smooth, efficient and memorable symposium. We are so fortunate to be able to hold the Tenth JTS here at this lovely location!

KEYNOTE: DR. MARTHA LARSON

We are thrilled that Dr. Martha Larson, Professor and Chair: Multimedia Information Technology at Radboud University, is joining us for the opening keynote. Dr. Larson's work represents the exciting innovations that are happening today that merge the work of automation development and media. The possibilities that are on the horizon of using artificial intelligence and automation to assist in our description and access are phenomenal. Welcome and thank you so much for Dr. Larson's participation at our event.

AWARDS COMMITTEE

For our newly created JTS Awards that honor individuals, organizations or projects, and that recognize significant achievement and contributions to the technology of the audiovisual

archiving field, we are most fortunate to have a talented group of individuals who contributed to this delightful job of evaluating proposals and defining the award. Thanks so much to Kara Van Malssen, Kate Murray and Laura Rooney.

JTS HISTORY

Lastly, I wish to extend my appreciation to FIAF Senior Administrator and historian, Dr. Christophe Dupin, for his creation of the CCCAA website where he has been collecting and digitizing the JTS histories and symposia proceedings, along with the histories and historical documents of CCCAA and the World Day for AudioVisual Heritage. For more information on the history of CCCAA and the JTS, the website contains newly digitized historical documents: https://www.ccaaa.org.

THANK YOU ALL SO MUCH!

Rachael Stoeltje
CCAAA Chair
JTS 2019 Co-organizer

JTS 2019 ORGANIZERS

The International Federation of Film Archives (FIAF), has been dedicated to the preservation of, and access to, the world's film heritage since 1938. It brings together the world's leading non-profit institutions in this field. Its affiliates are committed to the rescue, collection, preservation, screening, and promotion of films, which are valued both as works of art and culture and as historical documents.

https://www.fiafnet.org/

The Association of Moving Image Archivists (AMIA) is a nonprofit international association dedicated to the preservation and use of moving image media. AMIA supports public and professional education and fosters cooperation and communication among the individuals and organizations concerned with the acquisition, preservation, description, exhibition, and use of moving image materials.

https://amianet.org/

Netherlands Institute for Sound and Vision is the leading institute for media in the Netherlands and one of the largest audiovisual archives in the world. It is an inspiring, creative and welcoming meeting place for professionals and others interested in the industry; online, in our physical museum and sometimes on location. Institute's mission is to improve everyone's life in and with media by archiving, exploring and contextualising it, whereby the freedom of thought and expression in text, image and sound is paramount.

https://www.beeldengeluid.nl/en

The International Association of Sound and Audiovisual Archives (IASA) is a professional association concerned with the care, access and long-term preservation of the world's sound and moving image heritage. Through its active worldwide membership and training initiatives, IASA supports and advocates the development of best professional standards and practice amongst organisations and individuals which share these purposes.

https://www.iasa-web.org/

FIAF/IFTA is a global network of broadcast archives. It is the World's leading professional association for those engaged in the preservation and exploitation of broadcast archives. Founded in 1977, more than 250 members have joined our organisation that promotes co-operation amongst radio and television archives, multimedia and audiovisual archives and libraries, and all those engaged in the preservation and exploitation of moving image and recorded sound materials and associated documentation.

http://fiatifta.org/

WELCOME FROM THE NETHERLANDS INSTITUTE FOR SOUND AND VISION

Dear delegates,

It is an honour and a pleasure to welcome you to the tenth Joint Technical Symposium. Over a 36-year period, experts from all over the globe have come together ten times already to discuss the lay of the land, the status of the decks, the jitter and the spark that the images and sounds that move us, run on. A landmark! The first JTS came about at a time when collaboration between distinct audiovisual 'tribes' was not a given. Throughout the years, it has become markedly more clear that, despite some cultural differences remaining, the influence of converging media technologies has led to more closely overlapping solutions to resist the onslaught of time upon our precious magnetic, silver, or bit-based recordings. Meanwhile, digital distribution has substantially expanded the potential for archival access and reuse.

Whether you're safeguarding moving image materials, audio recordings, or nonlinear formats, the basic technical underpinnings of how we now safeguard them are eerily similar. The once so specialised troubles and worries of archivists have come exponentially larger and exponentially more important to a vast chunk of the global population. How do we keep our collections safe in an ever more de-stabilized climate? How do we catapult the massive memory collections of the global south into the digital era? How do we give a voice to vulnerable collections in the current media deluge? How do we use technologies before they use us - and do we not just feed the machine but turn it into a force that assists our collections,

our organizations, our stories to become stronger, more visible and useful to researchers and citizens around the world? How do we make our local memories and stories entangled with the narrative of a humanity that is intrinsically more connected?

Collaboration can lead to great results. In the Netherlands, Sound and Vision is an active partner in the Dutch Digital Heritage network - a partnership between digital heritage collection holders across the country to reinforce preservation infrastructures across the large and small organisations who need it. With AVA_Net, we share expertise about audiovisual collection care with individual specialists across the country. With the Winter School for Audiovisual Archiving, we annually bring Dutch and international professionals willing to learn about digital preservation for AV collections to Hilversum. This week, with the celebratory and jubilant double bill of IASA's 50th Anniversary Conference and the 10th Joint Technical Symposium, organised by the CCAAA, we are happy to do our part to help move the conversation forward and push this vibrant, welcoming, fascinating field further into the future.

We wish you a wonderful JTS.

Eppo van Nispen tot Sevenaer
CEO

Johan Oomen
Head of Research and Heritage Services

Erwin Verbruggen
Product Manager Digital Scholarship and Knowledge Sharing

GREETINGS FROM FIAF

Dear JTS 2019 Participant,

In June 1983, just over 36 years ago, FIAF and FIAT-IFTA joined forces for the first time to organize in Stockholm, as part of the 39th FIAF Congress, a Joint Technical Symposium on the theme "Archiving of the Moving Image in the 21st Century". For four days, a number of key experts gave lectures and workshops on a variety of technical topics relating to the field of audiovisual archiving. This event set an important precedent for future cooperation between audiovisual archiving associations. As dividing lines between film, video, recorded sound started blurring, other associations such as IASA, AMIA, and SEPAVAAA, joined in to help organize further JTSs. In the digital era, many of the different technologies of our related fields have progressively converged and are indeed using one another's methods in a cross-fertilization process, which justifies, perhaps more than ever before, the idea of a Joint Technical Symposium.

FIAF is very proud to be once again associated, as a member of the CCAAA, with the Tenth Joint Technical Symposium on the theme "Preserve the Legacy, Celebrate the Future" in Hilversum. We are very grateful to the organizers of this wonderful event, in particular CCAAA Chair Rachael Stoeltje, FIAF's representative on the CCAAA Board, for her formidable work over the last year to ensure its success. We would also like to thank IASA, which has agreed to hold its 50th Congress jointly with the JTS, and the Netherlands Institute for Sound and Vision for hosting it on their state-of-the-art premises.

The rich and diverse array of presentations and workshops included in the programme of this year's JTS, many of which will introduce key technical advances in the audiovisual archiving field, will no doubt generate exciting debates among the Symposium participants.

I wish you all we very fruitful and rewarding 2019 JTS!

Frédéric Maire
President of FIAF

fiaf

GREETINGS FROM AMIA

Welcome to the 2019 Joint Technical Symposium. We should remind ourselves with this year's theme, "Preserve the Legacy / Celebrate the Future" that the JTS is a celebration. We have the responsibility and honor to conserve and make accessible the world's audiovisual culture for generations to come.

It is a privilege best remembered this week as we gather together to share comradeship, information, new discoveries, success stories, and even failures that teach us invaluable lessons. There are great challenges – financial, political and environmental – that face us now and in the future. It is this cooperation among the CCAAA organizations that will bond us together to face these obstacles.

As this tenth Joint Technical Symposium begins, thank you to our colleagues at FIAF FIAT/IFTA, and IASA for co-organizing the event, and to our colleagues at Netherlands Institute for Sound and Vision for hosting us all this week.

Dennis Doros
President
Association of Moving Image Archivists

GREETINGS FROM IASA

The International Association of Sound and Audiovisual
Archives (IASA) welcomes you to Hilversum for the 2019
Joint Technical Symposium (JTS). This year, IASA and JTS
are joined together in our shared interest in the preservation
of audiovisual materials. This year marks the 50 th IASA
Conference and there is no better way to celebrate than to
have a programme full of scientific and technical workshops.
As an organising association, IASA would like to thank
our sibling associations FIAT/IFTA, FIAF, and AMIA and
especially CCAAA Chair Rachael Stoeltje for all their hard
work for this event.

The increased urgency in preserving fragile audiovisual
materials makes JTS increasingly important. I thank you
for being part of the solution by attending and sharing your
knowledge. I trust that JTS will be both rewarding and
stimulating.

Toby Seay
IASA President

GREETINGS FROM FIAT/IFTA

Dear delegates, dear friends,

On behalf of FIAT/IFTA , the International Federation of Television Archives, and as one of the member associations of the CCAAA, I am very happy to send this warm welcome to all of you attending the 2019 edition of the Joint Technical Symposium in Amsterdam with our hosts, Netherlands Sound and Vision.

The symposium comes at a time when we see some critical and rapid shifts in digital technologies, along with cross-sectoral convergence in formats and preservation challenges for the audio-visual sector, opening up opportunities for even greater collaboration and exchanges within our domains. The JTS has always been an important event, bringing together the expertise of external specialists and the technical and engineering domains of film, television and sound every three years to examine in depth the latest developments in audiovisual archiving and keeping our knowledge on track.

The CCAAA is an excellent forum in which to do this and arguably is of even greater importance in the digital age where the potential for loss is more immediate and different in character to what has gone before.

I would also like to thank our colleagues from each of our associations who make up the CCAAA for the significant effort that they have put in to make this symposium possible and to bring together an excellent programme and range of speakers. Importantly, I would like thank FIAF and AMIA colleagues, particularly for their organisation and the care they have taken with every detail of the event for 2019. As the symposium is also being held jointly with IASA's 50th anniversary conference, I would like to extend my warmest congratulations to them also.

I look forward to meeting with new and old friends and colleagues during the days ahead and wish you all a very successful and rewarding gathering.

Bríd Dooley
President, FIAT/IFTA

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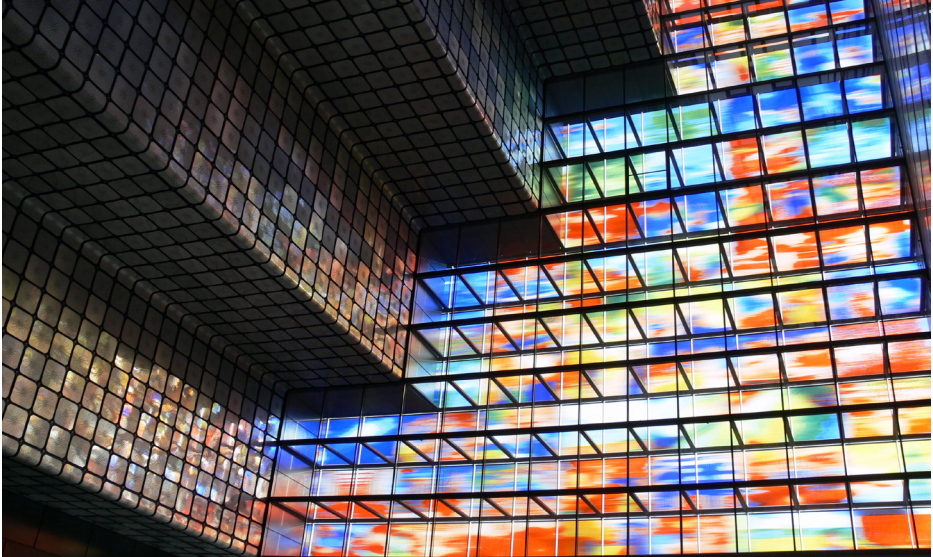**DATA FORMAT & CLOUD MIGRATION SERVICES**

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PRACTICAL INFORMATION

CONFERENCE VENUE

Netherlands Institute for Sound and Vision
Media Parkboulevard 1,
1217 WE, Hilversum, The Netherlands

The Netherlands Institute for Sound and Vision is a leading knowledge institute in the field of media culture and AV archiving. The institute initiates research that makes media heritage available and searchable, follows relevant innovations in media archiving, participates in research projects and experiments with new technologies.

Sound and Vision's collections include media in the broadest sense of the word, from written press, film, radio and television to computer games, online video and websites - whether or not professionally produced. Its collections focus on four thematic pillars: 'News, information and current affairs', 'Culture and entertainment', 'Amateur and business productions' and 'The media landscape'. A large part of these collections is stored in digital form. Sound and Vision was awarded the Data Seal of Approval in 2015.

TRAVEL ADVICE

Trains are the most convenient way to travel between Dutch cities. The train is also the easiest way to reach the conference venue (next to Hilversum Media Park station) and the airport (Schiphol Airport station). You can buy train tickets at the yellow self-service machines at any station, no need to book in advance. There is a €1 charge per single ticket. For train schedules, visit https://www.ns.nl/en.

Trams, buses and metro are all great ways to travel in Amsterdam and other Dutch cities. The most convenient option for visitors is a disposable one-hour card or a day card (valid for one to seven days). One-hour tickets can be bought from the conductor on the tram or bus (payment by card only) or from vending machines at metro and train stations. To plan your journey, visit https://9292.nl/en.

CATERING

Coffee/tea breaks are included in the registration fee and will be provided in the atrium area. For participants who bought lunch vouchers, food will be served in the atrium area. Please inform the staff if you have any dietary requirements.

If you have not bought a lunch voucher, you can buy food and drinks at the restaurant which is located on the lower ground floor of the institute. Both card and cash payments are accepted. You will find more restaurants and bars are located further away from the institute in Hilversum city centre, 20 minutes on foot from the venue.

WI-FI

Wifi name: Beeld en Geluid
Password - ikbenmedia

MOTHER AND BABY ROOM

The venue has a private room on-site for nursing mothers.

ACCESSIBILITY

The building is accessible to people in wheelchairs or with any other restriction. All the conference rooms are accessible by lift and have wheelchair-accessible seating. If you require any assistance, please speak to the reception desk.

SOCIAL EVENTS

SPECIAL SCREENING IN THE EYE FILMMUSEUM

Wednesday, October 2nd, 21:00

Eye Filmmuseum, IJpromenade 1, 1031KT, Amsterdam

Free to registered delegates.

underscore is an initiative of the Eye Filmmuseum, RE:VIVE (Netherlands Institute for Sound and Vision) and The Rest is Noise (Muziekgebouw's concert series for adventurous and experimental music) inviting composers of experimental and electronic music to create new scores for silent films from the collections of Eye and Sound and Vision. It gives artists the opportunity to gain experience writing scores, an art form that requires specific skills and gives these lost films a new lease on life, reviving them for contemporary audiences

IASA 50TH ANNIVERSARY DINNER

Thursday, October 3rd, 19:00
IJ-Kantine, NDSM Kade 5, 1033 PG Amsterdam

Advanced booking required.

A sit down three-course meal with drinks. During dinner, you will be entertained by live music performance, and you can also expect a few surprises! There will be a cash bar open after the meal.

The restaurant is conveniently located just across the river IJ, a 15-minute ferry ride away from Amsterdam central train station. To reach the location, you can take a free ferry from the central station towards NDSM-werf, see the schedule here. The central station is within easy reach of Hilversum by train.

JTS CLOSING PARTY

Saturday, October 5th, 17:30
The HUB, Sumatralaan 45, 1217 GP Hilversum

After a week of focus, it's time for the afterparty! Join us for drinks and a BBQ at the HUB, a beach club bar located 5-minute walk from the conference venue. For a truly relaxing atmosphere, DJ Lisa will make you dance until the early hours.

JTS AWARDS 2019

Since 1983, the Joint Technical Symposium (JTS) has offered an international forum for the discussion of the research and technologies affecting the preservation of audiovisual materials. During that time, technologies have evolved rapidly and JTS has offered an opportunity for colleagues to share information with each other and with the broader archival field. This year, CCAAA, the international organization that hosts JTS, is presenting the inaugural JTS Awards. These Awards honor the work to advance the scientific and technical knowledge of the field.

The award ceremony will take place on October 5 16:00 in Theatre 1.

JTS FOUNDERS AWARD

FOR EXTRAORDINARY ACHIEVEMENT AND CONTRIBUTIONS TO THE TECHNOLOGY OF THE AUDIOVISUAL ARCHIVING FIELD

Dietrich Schüller

Dietrich Schüller has been active in the fields of archival audio preservation for almost 50 years. His contribution to the fields, in audio preservation are endless, as well as his contributions serving on the IASA Technical Committee. He has authored so many technical publications to support digitization and reformatting for decades; and has been on the forefront of the field at various times—even well before these initiatives were common. His commitment and involvement to JTS, CCAAA and serving as the UNESCO representative, to advocate for the technological education and research required in our field is remarkable. He has consulted and supported so many archives around the world, has served as an extraordinary leader in the area of technical strategies for audiovisual preservation and with his new initiatives to preserve Video, he does not appear to be slowing down, though recently retired as the Director of the Vienna Phonogrammarchiv. He has contributed massively to our fields for half a century.

JTS AWARDS

FOR EXTRAORDINARY CONTRIBUTIONS TO THE TECHNOLOGY OF THE AUDIOVISUAL ARCHIVING FIELD

Barbara Flueckiger

Since 2012, Dr. Barbara Flueckiger and her team have been traveling the world to research and create the leading resource in the investigation of film color technology and aesthetics, analysis and restoration. A professor in Film Studies at the University of Zurich, Flueckiger has been sharing her findings with presentations at the International Federation of Film Archives (FIAF), the Association of Moving Image Archivists (AMIA), and many others. Her consultation on a number of film restorations has been invaluable to the advancement of digital restoration and the accurate reproduction of color. Her website, The Timeline of Historical Film Colors is one of the finest technical and academic achievements of this past decade.

Reto Kromer

Reto Kromer consistently devotes an enormous amount of time to research of new (and affordable) technologies. To support the audiovisual archival field. He has generously offers his skills and knowledge to multiple training initiatives at no charge, around the world. He has developed and offers online skills, including his FFmpeg Cookbook for Archivist, as well as other open source tools and continues to research more and more technological breakthroughs that will help our digital community of audiovisual archivists. A recent example includes his breakthrough development to open encrypted DCPs—a skill that will be needed in the future for all of those films that are locked away and inaccessible in the future. Lastly, Reto developed a piece of equipment that creates 9.5mm film so that film restoration specialists can print back out to film when appropriate to that format, and in this case, a format that is long ago discontinued. Reto's expertise in this area will prove invaluable to the difficult work ahead for the all future archivists and preservationists.

Kate Murray

Kate Murray is the Digital Projects Coordinator in Digital Collections Management and Services and at the Library of Congress where she leads the Federal Agencies Digitization Guidelines Initiative (FADGI) Audio-Visual Working Group and coauthors the Sustainability of Digital Formats website. She is instrumental in guiding the development of sustainable practices and guidelines for digitized and born digital historical, archival, and cultural content through the publication of a number of FADGI Guidelines. The most recent are Draft guidelines for Significant Properties for Digital Video, SMPTE RDD 48 MXF Archive and Preservation Format and Sample Files, and embARC for DPX Files. In addition, Kate is leading the effort through FADGI for investigating FFv1 and Matroska for federal agency use. Prior to joining the Library of Congress, Kate was the Digital Process Development Specialist in the Digitization Planning Branch at the National Archives and Records Administration (NARA) specializing in standardizing and documenting moving image and audio formats. Kate is a member of AMIA (Preservation Committee co-chair 2010-2013), IASA (Technical Committee member), SMPTE, ISO/TC171/SC2 (PDF standards committees) and ISO/IEC JTC 1/SC 34/JWG 7 (EPUB standards committee).

Irish Film Institute

In recent years as part of their Digital Preservation and Access Strategy, the team at the IFI Irish Film Archive have actively advocated for open source solutions to film digital preservation challenges. As part of this ethos IFI Data and Digital Systems Manager Kieran

O'Leary has developed a suite of over 50 open source scripts (IFIScripts) that have enabled the IFI to undertake its digital preservation activities in a sustainable and efficient manner, allowing it to maximise limited resources and take control of its digital preservation workflows. IFI Scripts have not only revolutionised the IFI Irish Film Archive's work but are shared freely on GITHUB so they can to be used and adapted by others within the preservation community. To date a wide variety of international archives (both moving image and otherwise) have utilized IFIScripts in their preservation work and the impact of the IFI in the field of digital preservation is evidenced through regular invitations for staff to speak internationally about their work in this area and as the recipient of a number of prestigious awards. This JTS award is further acknowledgement of the impact of the IFI and Kieran O'Leary's work within the digital preservation community.

The Reel Thing

Since 1994, Grover Crisp and Michael Friend have presented The Reel Thing Technical Symposium, exploring the latest preservation and restoration technologies. Over its 45 editions (so far), The Reel Thing has been held in Europe, South America, at AMIA conferences throughout the United States, or in Los Angeles. Each iteration of The Reel Thing brings together speakers from around the world to discuss current thinking and the most advanced practical examples of progress in the field as well as a look towards the future. From a look at the new digital technologies in 1994 to a discussion of the role of AI in the restoration process today, The Reel Thing continues to address the evolving technologies needed to move the field forward.

THURSDAY OCTOBER 3

WORKSHOPS AND TUTORIAL

	TWITTER LARGE*	BENGLAB 2	THEATRE 1	THEATRE 2
08:30	Registration			
09:00	W5: Safeguarding the RTS broadcast lacquer divvscs: challenges of a multifaceted project *by Emiliano Flores; Karen Beun; Rebecca Rochat; Eric Monge*	W7: FFmpeg for audio-visual archivists (1) *by Reto Kromer and Joshua Ng*	W4: Overview of IASA-TC 06 Guidelines for Video Preservation: Formats, Carriers and Workflow *by Lars Gaustad, Kate Murray, Carl Fleischhauer, Somaya Langley, Andy Martin, Jerome Martinez, George Blood, Peter Bubestinger-Steindl*	W6: The composition of digital audio and video files *by Bertram Lyons*
10:30				Morning Break
11:00				W13: Europeana Media: Using IIIF/AV to improve online audiovisual collections *by Erwin Verbruggen, Marco Rendina, Abiodun Ogunyemi, Sally Reynolds, Mathy Vanbuel*
12:30	Lunch Break			
13:30	W8: Improving metadata in DPX files: Open source tools and guidelines from FADGI *by Bertram Lyons, Kate Murray*	W12: FFmpeg for audio-visual archivists (2) *by Reto Kromer and Joshua Ng*	W11: NEMOSINE - The future of media storage *by Nadja Wallaszkovits; Juan Ignacio Lahoz Rodrigo; Kerstin Herlt*	W10: A bluffers guide to sound and digital audio (part 1) *by Neil Garner*
15:00	Afternoon Break			
15:30			W9: Quality control for media digitization projects *by Mike Casey*	W10: A bluffers guide to sound and digital audio (part 2) *by Neil Garner*
17:00				
19:00	**IASA 50th Anniversary Dinner** *see page 22*			

* Twitter Large is located 3 minutes away from the conference venue. We ask workshop participants to meet at the conference registration desk 10 minutes before the workshop. From there you will be taken to the location.

FRIDAY OCTOBER 4

THEATRE 1: REFORMATTING AND RESTORING

Time	Session
08:30 - 09:00	Registration
09:00 - 09:30	**Welcome and Introductions**
09:30 - 10:30	**Keynote: What the Archive can do for AI…And what AI can do for the Archive** *by Prof. Martha Larson*
10:30 - 11:00	Morning Break
11:00 - 11:30	**A Methodology for Digitizing Wax Cylinders** by Nick Bergh
11:30 - 12:00	**Have You Ever Tried…? An exploration of myth, queries, and neat things to try in audiovisual preservation** by George Blood
12:00 - 12:30	**How to achieve authentic results with modern soundtrack scanners** by Oliver Danner
12:30 - 14:00	Lunch Break
14:00 - 14:45	**MXF Repair Flow: How to plan a major asset migration** by Marjolein Steeman & Tristan Zondag
14:45 - 15:30	**Using computer vision technology to accurately and objectively determine motion picture film condition** by James Lindner
15:30 - 16:00	Afternoon Break and Poster Sessions

Preserving Culturally and Historically Important Collections via Community Archiving Workshop (CAW): Manila AsiaVisions AV Collection Project by Rosemarie Roque	**The J.H. Kwabena Nketia Archives: African Archives Best Practices — A Case Study for In-House Digitization in the Developing World** by Nathaniel Kpogo Worlanyo and Audra Adomenas	**Open Access & Intellectual Property Rights at the National Cultural Audiovisual Archives of India** by Irfan Zuberi

Time	Session
16:00 - 16:30	**Q&A on Conservation and Restoration Ethics in Digital Times: Refining Ethical Requirements and Ease their Communication by introducing Visual- and Mathematical Models** by Jörg Houpert and Lars Gaustad
16:30 - 17:00	**Saphir: Digitizing broken and cracked or delaminated lacquer 78 rpm records using a desktop optical scanner. Special focus on cracked lacquer discs** by Jean-Hugues Chenot
17:00 - 17:30	**Quality Control Experiences and Effectiveness in a Large-Scale Film Digitization Project** by Peter Schallauer

SATURDAY OCTOBER 5

THEATRE 1: BIG COLLECTIONS, BIG ASSETS, BIG DATA

THEATRE 2: STATUS AND IMPACT OF TECHNOLOGY & PROGRAMMES AND SOLUTIONS

Time	Theatre 1	Theatre 2
08:30 - 09:00	Registration	
09:00 - 09:30	**Historical film colors and digital cinema** by Giorgio Trumpy	**If I Knew Then What I Know Now: Evolution of MDPI's Post-digitization Processing** by Brian Wheeler
09:30 - 10:00	**Requirements and new technologies for the inspection of photochemical film** by Jörg Houpert	**Mass digitization systems and open-source software: A viable combination?** by Etienne Marchand
10:00 - 10:30	**HDR, 4K UHD : What future for archives? The archives and the new color spaces are they friends or enemies?** by Thierry Delannoy and Benjamin Almini	**New Phonograph: Enthusiasm and Inspiration as a Driving Force: How to leverage your content to overcome budgetary constraints** by Anthony Allen & Martin Mejzr
10:30 - 11:00	Morning Break	
11:00 - 11:30	**Video Reuse Detector - Reappropriating Trump** by Pelle Snickars, Filip Allberg and Johan Oomen	**Automated Creation of Descriptive Metadata for Large Media Archives: Creating open source tools and workflows with the experts** by Karen Cariani and James Pustejovsky
11:30 - 12:00	**ReTV: bringing broadcaster archives to the 21st-century audiences. How ReTV solutions can optimise audiovisual content for online publication and maximise user engagement** by Lyndon Nixon	**IIIF for AV: Improving access to audio archives** by Adam Tovell and Andy Irving
12:00 - 12:30	**Structural signatures: Using source-specific format structures to identify the provenance of digital video files** by Bertram Lyons and Dan Fischer	**What Good is an Ontology Anyway?** by Raymond Drewry
12:30 - 14:00	Lunch Break	

SATURDAY OCTOBER 5

	THEATRE 1: BIG COLLECTIONS, BIG ASSETS, BIG DATA	THEATRE 2: STATUS AND IMPACT OF TECHNOLOGY & PROGRAMMES AND SOLUTIONS
14:00 - 14:30	**DeepRestore – AI techniques for Digital Film Restoration** by Franz Hoeller	**Evolution of data management for new uses of Ina's collections: construction of a data lake** by Eleanore Alquier and Gautier Poupeau
14:30 - 15:00	**Bring New Life to Media Assets with Artificial Intelligence** by Li Ang	**AMP: An Audiovisual Metadata Platform to Support Mass Description** by Jon W. Dunn and Bertram Lyons
15:00 - 15:30	**Moving Image MetaData Based Finding Aids using Artificial Intelligence: Northeast Historic Film will create an Archival Moving Image Content Database for AI Research** by James Lindner	**Coexistence of (Asynchronous) Preservation Processes in Archive Asset Management** by Silvester Stöger
15:30 - 16:00	Afternoon Break	
16:00 - 17:30	**PLENARY SESSION AND OPEN DISCUSSIONS. Technical Awards**	
17:30	**JTS 2019 Closing Party**	

KEYNOTE PROF. MARTHA LARSON

What the Archive can do for AI… And what AI can do for the Archive

Artificial Intelligence (AI) has the ability to automate tedious tasks in workflows needed for the creation, maintenance, and disclosure of audiovisual archives. Martha's talk will argue that we should work to improve the knowledge flow from the archive to the groups who design and develop AI-based solutions. She will discuss examples of projects that have been carried out as collaborations between archivists and AI researchers over the past two decades. A common thread throughout these projects has been that AI research depends on the archive to succeed. Without a thorough understanding of what archivists need to support their work, AI research and development lack direction as well as ways of measuring how well they are solving underlying problems. The way forward is to expand the opportunity to collaborate with archivists to a wider range of researchers working on AI systems. The examples covered in this talk suggest that on its own, without the archive, AI overlooks certain types of data and certain tasks, and also misses out on important opportunities to create algorithms that provide direct support for archivists.

Martha Larson is Professor Professor of Multimedia Information Technology at the Radboud University Nijmegen and works in the Multimedia Computing Group at TU Delft. Her research focuses on search engines and systems for retrieval and recommendation that provide users with intelligent access to multimedia content. Her expertise lies in speech and language technologies and how meaning is expressed and interpreted by humans. Much of her research has concentrated on methods for automatically structuring audio and for indexing audio using speech recognition techniques. Recently, her work has focused increasingly on multimedia in social networks and on human computation, including crowdsourcing. Martha started working in the

area of speech recognition and multimedia retrieval in 2000 and her formative experiences included time spent as a visiting researcher at the Technical Informatics department at the University of Duisburg and as an intern at IBM Watson Research Center. Before joining Delft University of Technology, she researched and lectured in the area of audio-visual retrieval at Fraunhofer IAIS and at the University of Amsterdam. She has participated as both researcher and research coordinator in a number of projects including the EU-projects CrowdRec, CUbRIK, PetaMedia, MultiMatch, and SHARE and is co-chair of the 2019 ACM International Conference on Multimedia. Her most influential early work was focused on developing vocabulary-independent speech-based access for large radio archives within an industry project during her time at Fraunhofer. Martha holds an MA and PhD in theoretical linguistics from Cornell University and a BS in Mathematics (concentration in Electrical Engineering) from the University of Wisconsin.

Professor Martha Larson will deliver the keynote "What the Archive can do for AI… And what AI can do for the Archive" on Friday, October 4, 09:30–10:30, in Theatre 1

WORKSHOPS AND TUTORIALS

A full and varied series of our popular Workshops, free to all registered delegates. Workshop locations are subject to change. Please consult the registration desk for the lastest information.

W4: Overview of IASA-TC 06 Guidelines for Video Preservation: Formats, Carriers and Workflow

George Blood, Peter Bubestinger-Steindl, Carl Fleischhauer, Lars Gaustad, Somaya Langley, Andy Martin, Jerome Martinez, Kate Murray
Thursday October 3rd, 09:00-12:30 Theatre 1

IASA-TC 06 Guidelines for the Preservation of Video Recordings was published online as modules in early 2018 (https://www.iasa-web.org/tc06/guidelines-preservation-video-recordings). This workshop will walk participants through the technical details of each section of the guidelines including the video carriers, signal and signal extraction as well as planning, setup, and workflows for video digitisation. IASA-TC 06 identifies six classes of video recordings, each with its own strategies and methods to support the long-term preservation of the underlying content. For the most part, the scope for the initial edition of IASA-TC 06 is limited to the digitisation of "class 1," analogue videotapes, and transfer of content from selected types of digital videotapes. Work is ongoing, with later editions planned to cover born-digital video, metadata, and the production of new video recordings in preservable formats. The discussions of target formats for digitised video will include updates on new standards work for the Matroska and MXF wrappers and the FFV1 codec. This interactive session will give participants the opportunity to gain an understanding of the first version of these in-depth guidelines. Participants will also be able to provide feedback and comments on the existing sections of IASA-TC 06 as well as help shape the forthcoming planned sections on born-digital video content.

W5: Safeguarding the RTS broadcast lacquer discs: challenges of a multifaceted project

Karen Beun, Emiliano Flores, Patricia Herold, Eric Monge, Rebecca Rochat
Thursday October 3rd, 09:12-12:30 Twitter Large (workshop participants should meet at the conference registration desk 10 minutes before the start of workshop)

The 80,000 lacquer disc audio recordings of RTS (Radio Télévision Suisse) are a unique collection spanning from the 1930s to the 1950s. The disc collection covers contents

including radio dramas, classical music, and news reports, among many others. The various types of lacquers used throughout the years make this collection an interesting case study, from a chemist and/or a curator point of view. The digitization of these broadcast archives is an 8-year long service provided by the French GECKO company. Patricia Herold will mention the FONSART organization and its overall history in safeguarding and promoting archives. She will speak about the various steps in setting up the RTS discs safeguarding project, and she will present a comparison of the Visual Audio optical digitization technique, compared to the standard stylus playback technique. Mrs. Herold will briefly mention the history of the various sub-collections. The partnership with the GECKO company, in terms of logistics, cataloguing, digital file integration, and monitoring the production done by GECKO will be mentioned. Eric Monge, IT manager at GECKO, will present MADAMS, GECKO's in-house workflow and database management system. Karen Beun, production manager, will focus on the technical workflow, and go into details about the metadata provided and the various disc playback techniques used throughout the project. Finally, Emiliano Flores, restoration manager, will present the digital restoration aspect of the project. Rebecca Rochat, preventive preservation expert, will present her digital guide with the results of her several-year long research on lacquer discs, which is expected to be an important landmark for all specialists of the topic. A chemist and microscopic approach to the deterioration of lacquer discs will be developed.

W6: The composition of digital audio and video files

Bertram Lyons
Thursday October 3rd, 09:00-10:30 Theatre 2

As more and more collection objects are born-digital and non-physical in nature, archivists must develop core competencies regarding the fundamental nature of digital objects. Just as knowledge of the chemical composition of cellulose (for example) is essential for the care and maintenance of paper materials, the knowledge of file construction at a bit-level is essential for archivist to make careful decisions about what are and are not unique characteristics of a given digital collection object and how best to determine sustainable and safe care and maintenance plans for the digital collection object over time. This tutorial illustrates the fundamental binary elements of digital audio and video objects, from bits to bytes to formal format structures. The tutorial will demonstrate methods for understanding and interpreting these many technological layers, including how to translate bytes into understandable information based on file format specifications, and how to distinguish file object information from file system information in order to understand the true boundaries of a digital object within a given computer system.

W7/W12: FFmpeg for audio-visual archivists

Joshua Ng, Reto Kromer

WP7 - Thursday October 3rd, 09:00-12:30 Benlabs 2
WP12 - Thursday October 3rd, 13:30-17:00 Benglabs 2
Note: Participants must bring their own laptops for this workshop

Over the past many years, an ecosystem of free and open source software for long-term digital preservation has been developed. One of the tools is FFmpeg, a solution for processing, transcoding, filtering, analysing, and playing audiovisual files. Due to its extensive and actively developed codec library, FFmpeg has been integrated as a crucial element into many film and video archives worldwide. This workshop will present why FFmpeg is relevant to archivists and how it can be applied for digital preservation of the the cultural heritage. Participants will learn how to install the software on their computers and master the use of it with audiovisual files. They will use the applications (FFmpeg itself includes a suite of applications) to perform several tasks, including lossless transcoding, technical inspection, timecode burn-in, compression for access, and quality control. Lessons and hands-on activities will alternate. Topics will include a refresher on digital audio and digital video; file structure: container, codec, raw data; different file formats for different purposes: archive master, mezzanine files for postproduction, access files; and audiovisual data transformations.

W13: Europeana Media: Using IIIF/AV to improve online audiovisual collections

Marco Rendina, Margret Plank, Abiodun Ogunyemi, Erwin Verbruggen
Thursday October 3rd, 11:00-12:30 Theatre 2

Large swaths of publicly available audiovisual archives collections across Europe have been linked and made available to Europeana, Europe's cultural heritage platform. The Europeana Media project aims to increase the appeal, visibility, reuse, research of and interaction with moving image and sound materials on the platform. By building on the IIIF/AV framework, our aim is to deliver functionalities that will offer researchers, educators and the public at large functionalities to better access and incorporate AV content from Europeana into their daily living and working environments, such as video fragment quoting, support for subtitling, and embedding media. This workshop will go into the aggregation and publishing landscape for European AV collections and outline the technical challenges related to unifying streaming output from various collectaions and sources. We are curious to hear attendees' own streaming approaches and solutions!

W8: Improving metadata in DPX files: Open source tools and guidelines from FADGI

Bertram Lyons, Kate Murray

Thursdat October 3rd, 13:30-15:00 Twitter Large (workshop participants should meet at the conference registration desk 10 minutes before the start of the workshop)

The US Federal Agency Digital Guidelines Initiative (FADGI), in conjunction with AVP, is developing a new open source tool for format validation and batch embedding and correcting metadata within DPX file headers. Named "embARC" for "Metadata Embedded for Archival Content," the software application has flexible functionality to follow both required SMPTE metadata rules as well as those defined by FADGI in the document "Guidelines for Embedded Metadata within DPX File Headers for Digitized Motion Picture Film," including tracking the digitization workflow. The DPX format is a raster image format often used for the image only data for scanned motion picture film with each frame of film translating to a separate file. Because there are many thousands of frames for each title, there are typically many thousands of DPX files to manage. FADGI's research into DPX implementations discovered that there are often inconsistencies within the file's structure and header information.These scope and scale issues make file management a challenge. The embARC tool enables users to audit and correct internal metadata of both individual files or an entire DPX sequence while not impacting the image data. embARC will be released as a beta version early in 2019 with a first official release in summer 2019.

W10: A bluffers guide to sound and digital audio

Neil Garner

Thursdat October 3rd, 13:30-15:00; 15:30-17:00 Theatre 2

2 complementary training workshops. In Part 1, we will use demonstrations to explore the relationship between frequency and pitch, amplitude and loudness, and harmonics and timbre. We will seek to understand how we quantify and measure sound and why this is important to audio quality and the way we archive content. In Part 2, we will demonstrate how we turn analogue sounds into digital signals. We will look at the importance of sampling, quantisation, data rates, and the importance of error management. Finally we will look at choosing a compression algorithm and what happens if we reduce the size of a file.

W11: NEMOSINE - The future of media storage

Nadja Wallaszkovits

Thursdat October 3rd, 13:30-15:00 Theatre 1

NEMOSINE is an EU founded project for the development of Innovative packaging solutions for storage and conservation of 20th century cultural heritage of artefacts based on cellulose derivatives. The objective of project NEMOSINE www.nemosineproject.eu is to improve traditional storage solutions by developing an innovative package with the main goal of energy saving and extending the life time of cultural objects based on cellulose derivatives. In contrast to conventional film cans or media boxes, the packages will be equipped with the latest sensor technology to monitor decomposition processes and adsorb decomposition products such as acetic acid. The focus is on films, photographs, posters, slides, cinematographic sound, magnetic tapes and discs, based on cellulose acetate and its derivatives. The aim of the four-year project is to achieve more efficient long-term archiving and to increase the life cycle of audiovisual media, as well as other objects of cultural heritage and arts. Beyond the state of the art, NEMOSINE is developing the following modular and integrated products: High O2 barrier and active packaging using non-odour additives; Active acid adsorbers based on functionalized Metal Organic Framework (MOFs) integrated in innovative porous structures; Gas detection sensors based on nanotechnology for monitoring degradation products; Multi-scale modelling to correlate degradation & sensor signals for maintenance prediction and integrate all these technologies; Packaging with modular design to fulfill the technical & economical requirements of the different cultural heritage items made by cellulose derivatives; Curative packages containing controlled release of natural antifungal additives. The modular solution is one of main advantages of the innovative package. This design will allow to provide different versions of the product with more or less technology included in the solution: Protective (basic and premium model), and Curative (for damaged products). In this way, the smart package can be adapted to different type of final clients –private collectors, national museums, regional collections, councils and institutions, schools-, in terms of necessities, balancing real value of the content and the package cost. The complete solution for storage boxes proposed by NEMOSINE is based on multi-nano sensors for different gases (mainly acetic acid and nitric oxide) and a control software platform that simulates degradation processes and then will predict accurate protective treatments.

W9: Quality control for media digitization projects

Mike Casey

Thursdat October 3rd, 15:30-17:00 Theatre 1

Participants in this workshop will gain hands-on experience identifying and interpreting QC-related audio and video issues. They will have the option of working through an online course module prior to the workshop to begin developing critical listening skills for QC work with audio. The workshop will also feature discussions of the differences between quality control and quality assurance, the types of quality control, and applying risk management strategies to the QC endeavor. A laptop is advised in order to get the most out of the workshop. Files for use in the workshop will be made available for download in advance.

POSTER SESSIONS

FRIDAY OCTOBER 4

Please see the conference venue map for the locations of poster sessions.

15:30 - 16:00   Preserving Culturally and Historically Important Collections via Community Archiving Workshop (CAW): The CAW: Manila AsiaVisions AV Collection Project by Rosemarie Roque

Established in 1982, AsiaVisions was an independent media collective that documented the realities, atrocities and political movements during Martial Law in the Philippines under Ferdinand Marcos. The Collective produced newsreels and documentaries which served as tools for conscientization and awareness raising against the propaganda materials that was being disseminated by the Dictator. Upon its dissolution in 1999 the AsiaVisions transferred its collection to IBON Foundation, a development organization that seeks to promote understanding of social, economic, and political issues confronting Philippine society and the world through research and education. The collection primarily composed of videotapes includes master copies of the films produced by AsiaVisions and more importantly associated raw footage covering the Philippines in the 1980s. The Community Archiving Workshop (CAW): Manila Asia Visions Project is an initiative that seeks to assist IBON Foundation in jump-starting the preservation of the AsiaVisions Collection. The primary objectives of this initiative are: process a key part of the AsiaVisions Collection; assess, assist, and repair where possible the audiovisual archiving infrastructure of IBON Foundation; train and equip local IBON Foundation staff and other local volunteers with the capabilities to do basic collection assessment and management as to finish the processing of the entire AsiaVisions Collection; link up IBON Foundation with local and international network of archivists, vendors, and volunteers to further assist in their archiving endeavors. The first CAW Manila held in 1 April 2017 coincided with the 21st SEAPAVAA Conference.Participants took critical steps to organize, catalog, and facilitate preservation of U-matic tapes in the AsiaVisions collection. Afterwards, series of workshops were organized and opened to the public. The project is gearing for the digitization of select U-matic tapes for archival preservation. While funding is being worked on, available low-end digital copies of key works are processed for public access using simple solutions of rendering digital copies using existing aspect ratios; improving audio quality via open-source software; and including transcription and/or translation as subtitles. Such low-cost, good enough, DIY solutions made public screenings possible since September 2018. Publishing the digitized materials on an online platform for greater public access with approval of copyright holders is part of future plans.

15:30 - 16:00 The J.H. Kwabena Nketia Archives: African Archives Best Practices — A Case Study for In-House Digitization in the Developing World by Nathaniel Kpogo Worlanyo and Audra V. Adomenas

In the early 1950s, research fellows like J. H. Kwabena Nketia started capturing important ceremonies/events on sound. This collection, according to an oral history by Nketia (2013), formed the basis for establishing the Institute of African Studies (IAS). The greater part of the collections were essentially locked away on obsolete media formats, affected by mold and the inherent vice of sticky shed syndrome, whereby the tape becomes gummy and sheds the magnetic particles – the very particles that hold the content. The condition of the tapes is very common for archives in tropical areas and presents very real obstacles for preservation. The digital revolution has brought about new audio formats for archiving. This has caused institutional archives worldwide to make a transition from preserving audio collections on tapes to creating digital files. One such international archives, the J. H. Kwabena Nketia archives at the Institute of African Studies at the University of Ghana is currently bracing the opportunities and challenges offered by emerging innovations in archiving. In this poster, we will project how the J H Kwabena Nketia archives was able to move from an analog audio format to digital formats and will also contain project guidelines for digitization for small to medium-sized archives that are keen to start preserving their audiovisual history.

15:30 - 16:00 Balancing Open Access & Intellectual Property Rights at the National Cultural Audiovisual Archives of India by Irfan Zuberi

 In the broadest sense, archives are an embodiment of cultural artifacts that endure as signifiers of who we are and why. They are both a place of representation of these signifiers and their institutional form, providing tangible evidence of memory as well as defining memory institutionally within prevailing political systems and cultural norms. The principle of offering equal and open access to archival resources remains a cornerstone in various guidelines and codes of ethics for archival practices. However, providing open access, triggered by large-scale digitization initiatives, is also a thorny problem and one that is challenged by various aspects of intellectual property rights. This poster will consider the notion of open access in the domain of audiovisual archives and the challenging potential that it offers, looking specifically at the experience of National Cultural Audiovisual Archives (NCAA) of India. Through an examination of the intellectual property rights advisory carried out by NCAA, the paper will posit that perhaps the moment of open access is well and truly upon audiovisual archives, for they face the necessity of reinventing themselves or risking possible irrelevancy and increased marginalization, even as they must continue to balance delicate questions pertaining to ethics of access.

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PAPER ABSTRACTS

FRIDAY OCTOBER 4 – THEATRE 1
THEME: REFORMATTING AND RESTORING

11:00 - 11:30 A Methodology for Digitizing Wax Cylinders by Nick Bergh

Optical and stylus playback are often considered to be two opposing approaches to groove media playback. However, optical playback can be a powerful companion to typical stylus transfer workflows. While stylus transfer excels in sound quality and throughput, optical can handle media with missing grooves or cracks that are impossible to transfer safely with a stylus. Optical transfer also allows non-invasive auditioning of unlabeled media during cataloguing. Unfortunately, most current optical playback approaches tend to be expensive, slow, or exhibit poor sound quality. When they are used, they are often only used for select items within a collection because of the cost and complication of use. In order to help with this problem, the latest Endpoint cylinder machine has implemented a powerful yet low-cost optical playback system using an on-board laser module. Real-time optical tracking is made possible by using a separate high-resolution video camera traveling with the laser. This image-based groove tracking along with the already sophisticated stylus tracking systems on the machine allows a cylinder to be transferred with stylus only, laser only, or stylus and laser simultaneously. In other words, a complete integration of the typically disparate stylus and optical approaches. Although capturing stylus audio and laser audio together may seem redundant, it can help both quality assurance and quality control since the two systems have little in common. For example, an anomaly caused by debris on the stylus can be confirmed by checking against a simultaneous optical recording. Likewise, any concerns about laser position or optical behavior can be quickly checked against the stylus audio. Performing the optical playback in real-time also provides the unique ability to optimize optical variables such as angle and focus while listening directly to the audio. This presentation will discuss the optical pickup and tracking technology used for real-time playback on the Endpoint cylinder machine as well as how the quality compares to stylus playback on the same machine. Along with technical results, practical audio samples will be presented.

11:30 – 12:00 Have You Ever Tried…? An exploration of myth, queries, and neat things to try in audiovisual preservation by George Blood

Over many years in audiovisual preservation practitioners have proposed questions about practice, potential efficiencies, and generally asked "Have you ever tried…?" Well, we finally have. This paper explores topics ranging from reverse play of audio tapes to the impact on

electromagnetic shielding of drilling holes in head shields to make it easier to adjust azimuth; from whether cleaning video tape affects the signal to the repeatability of film scans. How long do diamond styli last (and is it the biggest concern in the life of a disc playback system)? On each topic we'll define the problem, describe our test procedure, summarize our data, and share our results (and some detours and surprises).

12:00 – 12:30 How to achieve authentic results with modern soundtrack scanners by Oliver Danner

During JTS 2010 in Oslo state-of-the-art soundtrack scanning technologies were discussed with the inventors of Sound Direct, Resonances and COSP. What has happened in the field during the past nine years? What are the strengths and weaknesses of the optical soundtrack scanning technologies available today? I am a professional audio media preserver who has exclusively worked with optical soundtracks since 2010 for the Bundesarchiv and I will answer the two questions above briefly. Mainly I will reason for a new parameter "slit height" that should be incorporated by modern soundtrack scanning systems. The scanning geometries of modern soundtrack scanning systems compare badly with the slit images of a historic soundtrack scanners and this directly affects the reproduction characteristic in terms of nonlinear distortion, signal-to-noise ratio and frequency response. Based on academic research and experience I want to elaborate on my conclusion that only a numeric definition of the height of the scanning slit would enable us to transfer optical soundtracks in a comprehensible and authentic manner and that the "slit height" parameter would clearly bring us towards the realization of a historic reproduction characteristic.

14:00 – 14:45 MXF Repair Flow: How to plan a major asset migration by Marjolein Steeman and Tristan Zondag

Recently a new mam-system was installed at Sound and Vision. Before installation we had to create new proxies for all our MXF-files. This gave us the opportunity to do a full Quality Check on all MXF-files of our archive. So now we have more detailed metadata on the actual quality of our MXF-files. When in september 2018 a client complaint came up about not being able to render an MXF because of some quality issue, alarm bells rang. It turned out that new software updates caused a blocking issue on a technical defect that had not even been noticed earlier, rendering the same file. This triggered an analysis on the quality metadata of all the files. As part of our working standards Sound and Vision has implemented the international standard of Open Archival Information System (OAIS). Migrations are planned within the function Preservation Planning. Preservation planning gives our management the opportunity to make well informed choices on preservation. And we document those choices. Each migration plan has a fixed table of contents, covering four sections: the context of the plan, the collection that is at stake, requirements that are to be met and what options we have

to do this. And we end the document with an advice. We would like to illustrate this with the MXF-repair flow as a use case. We also would like to give insight on the actual outcome of the analysis of the Quality metadata. We will outline the scenarios on carrying out this substantial migration of 30% of our MXF-archive, in order to repair the issues that we found. We will tell about the used software, technical infrastructure, and our experiences with throughput as opposed to what was expected.

14:45 – 15:30 Using computer vision technology to accurately and objectively determine motion picture film condition by James Lindner

CINEQUAL has developed a collection management tool that provides a complete, objective, and precise view of motion picture film condition using a standardized language, and does it all at 24 frames per second. Using computer vision technology to capture film's condition, the system measures every aspect of film, determining shrinkage, stretch, perforation integrity, and structural issues frame by frame. This is a new system that is cost-effective, fast, accurate, and far surpasses the capabilities of legacy tools and workflows. The system can objectively and repeatably assess collection holdings, identify issues, and determine the time and resources required to implement a restoration strategy—all with complete confidence. The system allows a totally new way to manage large collections and determine preservation priority objectively.

16:00 – 16:30 Q&A on Conservation and Restoration Ethics in Digital Times: Refining Ethical Requirements and Ease their Communication by introducing Visual- and Mathematical Models by Jörg Houpert & Lars Gaustad

For all professional archivists, ethical requirements in media conservation and restoration are the foundation and guidelines for any practical handling of media. For this reason, archiving organisations like IASA, AMIA, FIAT/IFTA and FIAF began early to document in their Committees/Commissions the latest concepts and best practices for their members working with archive sound recordings, broadcast videos, or cinematographic films. In order to spread the knowledge about ethical principles worldwide, a translation into different languages was promoted. For example IASA-TC 03 – The Safeguarding of the Audiovisual Heritage: Ethics, Principles and Preservation Strategy – has official translations into ten languages. But even the latest version does not contain a visual illustration to facilitate the understanding and abstraction of the underlying concepts. The purpose of this session is to raise awareness on how important it is that these ethical rules become evenv more precise and better accessible to technically-minded individuals who prefer mathematical abstraction in order to internalize new concepts. Especially as some of these engineers are developing the preservation tools to process and reformat legacy media carriers. These tools are getting more and more software

defined and getting more complex all the time. It is almost impossible for end-users in the archive to verify that ethical constraints are fully respected by a tool under consideration. Transforming textual descriptions into mathematical expressions provide interesting insides.Since mathematics is a high-precision language, this has the advantage that some of the intended and some of the undesirable ambiguities and inaccuracies in the description of ethical requirements become more explicit. This can lead to more technical and ethical discussions about the future construction of media migration and reformatting tools. This presentation, structured in a Q & A format, aims to fathom additional ways to develop guidelines that answer more precise questions about conservation and restoration ethics, especially for analogue content that will only be at our disposition in a digital format in the long-term. This presentation will utilize visual illustrations and some simple mathematical expressions to explain the proposed concepts. This session also pays homage to the great accomplishments of the first authors of IASA-TC-03, especial Dietrich Schüller, who directed Jörg's professional focus on archival principles more than 20 years ago.

16:30 – 17:00   Saphir : Digitizing broken and cracked or delaminated lacquer 78 rpm records using a desktop optical scanner. Special focus on cracked lacquer discs by Jean-Hugues Chenot

Conventional playback of 78rpm audio disc records is usually the preferred method for digitizing the records. It does require skills but is relatively fast and usually delivers good quality. But as far as broken discs and cracked or delaminated lacquer records are concerned, conventional playback is not an option, because the groove cannot be tracked reliably, and the risk of destroying the record or the equipment becomes unacceptable. We present an optical alternative for recovering the audio signal from such records. The new desktop-sized Saphir system uses simple components and allows scanning optically a 78rpm disc side in less than 30 minutes, still keeping a good signal-to-noise ratio over all the frequency range, up to 20kHz, thanks to reflective principles. The decoding of the scanned pictures takes less than one hour in the easiest cases, and allows an experimented user to reconstruct completely the available signal in the correct order, even when lacquer flakes are distorted or missing. The thousands of available connections between tracks fragments are decided by a best-path solver, with guidance from the user. The recovered quality depends on the surface condition: exudates are a nuisance we are still working on, but reflective shining discs can be reconstructed up to a fair quality level. We will present a number of playbacks for damaged records in diverse conditions. Amongst the presented examples, on some disc sides, lacquer flakes have been re-positioned physically before being scanned under a glass pane. Discoloured and cracked lacquer discs can also be scanned. Our objective is to be able to provide to audio archives and service providers an affordable may of recovering those records that cannot be played using conventional means. The finalization of our new

fast desktop-sized scanner is an important step towards this goal. Our presentation will be completed by a hands-on demonstration during the conference in the exhibition room, where we will digitize records for the willing participants.

17:00 – 17:30   Quality Control Experiences and Effectiveness in a Large-Scale Film Digitization Project by Peter Schallauer

In 2017, Indiana University (IU) launched the film phase of the Media Digitization and Preservation Initiative (MDPI), which will result in over twenty-five thousand large and small gauge film reels digitally preserved by the university's 2020 bi-centennial. While partnering with a service provider has resulted in a very high throughput digitization workflow to meet its ambitious timeline IU has additionally created an extensive automatic and manual quality control workflow to guarantee specifications for aural and visual quality and structural standards are met. This presentation will provide an overview of the MDPI film phase, focusing on quality control needs and its implementation with IU's practical experience in using the film scanning quality control software VidiCert to efficiently and cost effectively check thousands of files. We will discuss the innovative approach to quality control for film which automates error detection for the QC operator to quickly review files and make decisions that guarantee quality preservation and restoration. Examples and long-term statistics of human verified, critical scanning issues, such as over/under exposure, dust/dirt, framing error, freeze frame and unsteadiness will be shared along with experiences made in the first 18 month of operations where more than 3000 hours have been QC'd and consequently partially be re-scanned. The effectiveness of quality control integrated with the film scanning process will be evaluated on a long-term statistical basis.

SATURDAY OCTOBER 5 – THEATRE 1
THEME: BIG COLLECTIONS, BIG ASSETS, BIG DATA

9:00 – 9:30 Historical film colors and digital cinema by Giorgio Trumpy

In the framework of the ERC Advanced Grant FilmColors at the University of Zurich, we investigate new approaches for transferring the aesthetics of historical film color processes into digital form. For the Joint Technical Symposium we propose selected topics sustained by our spectroscopic analyses: 1. Reference images for automatic color correction – A film digitization must aim to recreate the appearance produced in cinema theaters by means of analog projectors. In the effort to achieve this original look, the color grading of the raw scan can benefit from a digital image that contains the target colors (reference image). With this aim in mind, we developed an automatic tool to perform the color correction. 2. Chromatic Callier effect – All of the most popular film scanners available on the market to date create digital files illuminating the film with a light diffuser. This type of illumination, while having the advantage of attenuating dust and scratches, differs completely from the way films are illuminated in a projector. Due to this fact, digitized early film colors (especially toned film) can significantly deviate from the original projected colors. 3. Color separation and non-standard dyes – Several scanners capture film colors with narrow spectral bands that considerably deviate from humans' chromatic response. They exclude spectral regions where the typical dyes of chromogenic film do not exhibit their absorption peaks, in order to reduce the dyes' cross-talk and increase "color separation". This feature has important benefits when scanning color negatives and faded chromogenic prints. However, the selectivity of this spectral arrangement can represent a severe limiting factor for color rendition, especially when scanning early color films with non-standard dyes. 4. ERC Proof of Concept "VeCoScan" – There is no professional high-end film scanner on the market that is able to properly digitize the whole range of film colors. The proof of concept VeCoScan tackles this lack of technical solutions by developing and testing a multi-spectral and versatile scanning unit, whose design will adapt to the specific film type to be scanned. An outlook will be given on the activities for the development of a new generation of film scanners.

9:30 – 10:00 Requirements and new technologies for the inspection of photochemical film by Jörg Houpert

The diagnostics of the current condition of a preserved film stock is a necessary prerequisite before a film can be reformatted (scanned) into a digital master file. The human expert effort to perform these diagnostics is typically higher than the effort for the high resolution film scanning itself. With the huge amount of film material that needs to be inspected within the next decade, there is probably no other commercially viable route than to research

and develop new assistive tools to streamline this challenging inspection task. The manual inspection process is often split into three categories: physical condition (mechanical incl. dirt, chemical, biological) photographic state (resolution, density, etc.) content and provenance related inspection These three categories can again be subdivided into aspects relative to the image or the audio track. If you even have to inspect multiple versions of a film print, this becomes a multidimensional type of problem. Film archives do not only have to deal with obsolescence of photo-chemical equipment and material, but also with the dramatically quick decrease of expertise and hard to find specialists. In addition, manually conducted film inspections typically include a significant subjective rating component. The objectivity and the comparability of evaluations can be significantly improved by automation. The automated inspection process can be driven to a very detailed documentation level, which in practice is not achievable by human experts. The presentation will give a status report, in which areas new technology can be expected to support the inspection process. Examples are: an improved selection of materials an improved preparation of materials for digitization a prediction of frame positions that can be problematic during a scan process an improved selection and control of digitizing devices an improved control for the automated generation of restoration copies The presentation should also foster an understanding on how a partly automatic generated inspection report can be used to ease the prediction on restoration cost and labour effort and whether such a report can help to decide which cleaning/washing procedure and which film scanner will be adequate for the job. But there are also pitfalls, where state-of-the-art inspection technology stays completely blind for very simple defects.

10:00 – 10:30   HDR, 4K UHD : What future for archives? The archives and the new color spaces are they friends or enemies? by Thierry Delannoy and Benjamin Almini

New mutation in the digital world : 2K and HD formats give way to 4K UHD with new color spaces: HDR, Rec 2020, P3, Aces… What are the contributions and the dangers of these new tools ? What technical advances for archives in these new formats ? What are the best practices to follow in order to have a faithful reproduction of the archive ? In our presentation, we will show you a panorama of examples: black and white, tinted, toned but also color archives, worked in these new standards.

11:00 – 11:30   Video Reuse Detector: Reappropriating Trump by Pelle Snickars, Filip Allberg, Johan Oomen

The project "European History Reloaded: Circulation and Appropriation of Digital Audiovisual Heritage" (CADEAH)—funded by the European Union's Horizon 2020 Research and Innovation programme—will shed light on how online users engage with Europe's audiovisual heritage online. The project is a follow up on the EUscreen projects,

and particularly looks at online circulation and appropriation of audiovisual heritage via the usage of algorithmic tracking and tracing technologies. The project brings together scholars and developers from Utrecht University, the Institute of Contemporary History (Czech Republic) and the digital humanities hub, Humlab at Umeå University—and also includes the Netherlands Institute for Sound and Vision as a cooperation partner. From a technical perspective CADEAH will use (and in a way reverse engineer) forensic video fingerprinting techniques. Within the media content industry video fingerprints are used to track copyrighted video material. But whereas the industry seeks to police and control piracy, CADEAH will use similar digital methods to analyse, research and discuss the cultural dynamics around re-use and remix of audiovisual heritage and archival footage. Building on the open source video fingerprinting technology Videorooter, CADEAH will develop an up-to-date and cutting edge system—the Video Reuse Detector—enabling users to upload a specific video to a system which will match the video against a set of fingerprints known to the same system. Implemented in Python and using the OpenCV machine learning framework, the Video Reuse Detector will compute a video fingerprint as a sequences of images hashes, store those fingerprints and associated metadata (title, source, thumbnails, frames etcetera) in a fingerprint database, and match a fingerprint or image hash against the current set of fingerprints in the database. In a collaboration with the Internet Archive, videos from the current Trump Archive— which collects TV news shows containing debates, speeches, rallies, and other broadcasts related to Donald Trump, before and during his presidency—will serve as a test case for the video reuse detector system currently being developed at Humlab. The system will have a capacity to compute and store fingerprints for several videos (or images) in an offline batch process, a feature that will enable easy load of reference video collections to be used in future matching. The open source system will also have an online (web) capacity to accept and match a video (or image) against the current set of fingerprints stored in the database, a feature that will be available as a web service in the form of a user interface with drag and drop capabilities for potential video and image matching. The Video Reuse Detector will hence address the current shortcomings of the Videorooter technology, foremost regarding the way in which hash sequences are generated but also avoiding the fixation to one specific hashing algorithm.

11:30 – 12:00   ReTV: Bringing Broadcast Archives to the 21st-century audiences by Lyndon Nixon

Broadcaster archives today are faced with the challenge to keep up with the needs of 21st century online audiences who want to easily find content that is tailored to their personal preferences. In a competitive online media landscape, broadcasters and heritage professionals lack tools that would enable them to reach their target audiences with materials from archival collections. To remain competitive in the digital realm, broadcaster

archives need to adapt their content to online media consumption and find new routes to effectively reach the right audiences. ReTV (http://retv-project.eu/) is a research project (funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No 780656) that builds a novel infrastructure to help broadcasters and audiovisual heritage professionals address these challenges. ReTV tools automate the planning and publication of content that is tailored for online consumption and iteratively monitor and enhance this workflow, beginning with a visual analytics dashboard to enable editorial teams to easily identify and predict topics that will be trending with their target audiences. With the help of machine learning technologies for concept extraction and annotation, editors can generate thematic video summaries from archival content based on these topics. These video summaries are then automatically tailored for different online channels, personalised for specific audiences and published at an optimal time to maximise audience engagement. In the presentation, we will demonstrate how these technological solutions can bring the legacy of broadcaster archives to 21st century online environments and digital audiences.

12:00 – 12:30   Structural signatures: Using source-specific format structures to identify the provenance of digital video files by Bertram Lyons & Dan Fisher

Every complex digital file format requires the presence of self-describing and predictable internal binary structures. This internal structure is responsible for framing the stored content within the file so playback software can acquire the correct configuration details to reconstitute this encoded information. This applies to videos (e.g., mp4, mov, avi), audio files (e.g., wav, mp3), still images (e.g., jpg, tif, png), serialized packages (e.g., zip, tar), database files (e.g., sql), and file systems (e.g., FAT32, HFS), among many other content types. Traditional approaches to digital file forensics focus on the content of the file itself. Signal analysis takes the output of the reconstructed payload of the file and processes this output to identify traces that are targets of the particular investigation method. Semantic analysis identifies recognizable text that can be examined for further meaning. Signal and semantic analysis of digital media are both necessary and fruitful approaches. Our research indicates that an additional approach, structural analysis, which targets the internal structure (or, the syntax) of digital file formats, is a viable method to identify provenance, to detect tampering, and to propose approaches to file repair or reconstruction.

14:00 – 14:30   DeepRestore – AI techniques for Digital Film Restoration by Franz Hoeller

DeepRestore is a research project driven by HS-ART Digital (Austria) together with the TU-Graz Institute of Computer Graphics and Vision. (Austria), running from 01/2018 until

end of 2020. The goal of the project is to evaluate AI technologies in the sector of digital film restoration. A focus is on applying modern machine learning techniques, in particular convolutional neural networks, to remove dust and scratches in archival footage. In the presentation we will show current results of the DeepRestore prototype and we will compare the speed and quality of the restoration with the classic dust & scratch filters from the DIAMANT-Film Restoration Software. We will discuss the advantage and disadvantage of the AI approach versus the classical approach in digital film restoration. The problematic of generating good training data for the particular problem to solve will be shown and possible solutions will be presented.

14:30 – 15:00   Bring New Life to Media Assets with Artificial Intelligence by Li Ang

At present, there are a large number of audio and video media assets stored in digital form all over the world. Traditional media management organizations usually classify and file audio and video data manually, which is not only expensive but also difficult to discover the value of media assets. In the era of artificial intelligence, big media data is an important fuel for deep learning and media management can also benefit from it. Using Deep Learning technology, the label information of media data can be extracted from multiple dimensions, and the media data can be fine managed according to the structured information. With Deep Learning, a neural network can be trained according to the use of media data, so as to predict and guide the production of media. While using media data more conveniently, deep learning can provide data support for a subarea according to the type of media data with some state-of-the-art technologies. For example, sports video, through motion recognition technology to analyze the motion pictures in the video, thus providing data support for assistant training or tactical analysis services. Shanghai Audio-Visual Archives (SAVA) will explore the cross-border application of traditional media assets based on Shanghai Media Group (SMG) Intelligent Media Management Platform.

15:00 – 15:30   Moving Image MetaData Based Finding Aids using Artificial Intelligence: Northeast Historic Film will create an Archival Moving Image Content Database for AI Research by James Lindner

While great progress has been made in the area of facial recognition for still and moving images, issues such as context are still cutting edge. Beyond context there is the issue of film language itself which is entirely new territory. For example is the famous shower scene from "Psycho" about a shower or about a murder? This paper will discuss new frontiers for AI research using archival databases in order to develop automatic metadata extraction that is cognizant of film language for contemporary as well as Archival moving images.

SATURDAY OCTOBER 5 – THEATRE 2

THEME: STATUS AND IMPACT OF TECHNOLOGY & PROGRAMMES AND SOLUTIONS

10:00 – 10:30   New Phonograph: Enthusiasm and Inspiration as a Driving Force by Anthony Allen & Martin Mejzr

In May of 2018, the National Museum of the Czech Republic set in motion a project aimed at preserving the diverse collections of mechanical audio carriers strewn across the nation. While funding for the project proved generous – in context of other national cultural grants – the scope of the problem at hand could not easily be accounted for when project planning was underway. As such, it has given way to a project that depends on an agile, resourceful approach as a matter of course. We have come to thrive from a cross-disciplinary team united in enthusiasm for audio. A mix of part-time workers and contractors, whose knowledge is not limited to one aspect of the work, has allowed us to address a multitude of problems that have risen, mainly, from a lack of funding. From building our own holders for cleaning records to taking a 'develop-it-yourself' approach to software tools, the team has drawn from each others' knowledge and interests to navigate budgetary constraints. Developing relationships with experts and suppliers has been instrumental in overcoming our limitations. Those who visit, assess and grow to understand the purpose of their product within the archival environment have been invaluable to our progress. One strong partnership alone has helped us design custom carts and trolleys for transporting our audio objects, as well as sourcing appropriate labels, sleeves, boxes for long term storage and many other essential supplies at a fraction of the cost. We also secured a generous donation of equipment from Radio Free Europe, allowing us to overcome the ever-thinning market for used playback machines. In an attempt to rethink the way methodologies are used, we have taken inspiration from language books, infographics and more, to design the methodologies included in our research outcomes in such a way that they are accessible and offer a user journey which can be followed by those with only a basic understanding of audio documents. Furthermore, we have begun designing a 'first aid kit' for audio, a simple handbook which offers an at-a-glance overview of how to handle the most common at-risk audio formats. With a clean slate to start from, we are taking advantage of the breadth of technology, design and other resources now so easily available to ensure the project is a success despite financial limitations. To ensure our learning process is carried on to the next generation of archivists, the project has also begun to drive education across multiple trajectories. This has seen the launch of university courses and has given rise to discussions with collection owners across the nation. The legacy of this research project will be a newfound concern for historical media within the Czech Republic, and a customised centre for audio document preservation in which to do it.

11:00 – 11:30   Automated Creation of Descriptive Metadata for Large Media Archives: Creating open source tools and workflows with the experts by Karen Cariani & James Pustejovsky

WGBH is confronted with the need to enhance descriptive data to improve online discoverability for large-scale digital indexing and analysis of media collections. There is a strong need to use computational tools to create more scalable and more accurate descriptive metadata for audiovisual archives. In addition, the potential use of these collections as a dataset for quantitative analysis by digital humanists and social scientists is significant if the data and access to the dataset can be improved. This presentation will demonstrate the collaborative work between archivists at WGBH and Computational Linguists (CL) at Brandeis University Computer Science Department to create open source tools and workflows for archivists to automate metadata creation for large digital media collections. Panelists will share work to date on the creation of a computational dataset from the American Archive of Public Broadcasting collection, including the policies and frameworks developed for providing access to the dataset. Creating transcripts of the audio is an obvious solution to describe the content and expose the text to search engines. Using speech-to-text tools can be adapted or "trained" for use to achieve greater degrees of accuracy, but they do not generate perfect transcripts, and the data is not always clean enough for consistent indexing. Within the context of CL, we can also explore tools and capabilities that allow for OCR of text on screen: being able to capture descriptive data on a slate, credit roll or lower third and embed that data into a transcript would enormously help with access. Other capabilities include video clean-up (removing bars and tone), categorization of different audio elements (music, applause, external sounds), distinguishing language types, categorizing scene types, and creating named entities that are linked to existing authority records from DBPedia, Wikidata, LCNAF and LCSH, and using forced alignment to sync text transcripts with media. These tools, to be most efficient and provide cleanest output, need to be pipelined, allowing each tool to perform a specific task and be trained. However, training such tools and refining their output requires human oversight, quality control, and expertise beyond most archivists. Collaborating with computational tool-making experts – linguists, computer scientists – to increase accuracy of the tools, allow easier use, and enhance outputs, would greatly benefit both communities. The challenge is to make the tools easy and intuitive – tools that anyone could implement at scale with large volumes of files. In addition, the data output needs to conform to archivists' needs and metadata schemas. Such open source analytical tools have not been extensively used on large digital media collections to help with the laborious task of creating metadata. Historians, archivists, and computational scientists have seldom collaborated to further develop tools to help enhance archives and libraries. The collaborative opportunity fostered by this project can be adapted as a model that will greatly benefit the humanities and social sciences.

11:30 – 12:00   IIIF for AV: Improving Access to Audio Archives by Adam Tovell and Andy Irving

IIIF (International Image Interoperability Format) has emerged in recent years as a powerful framework to enable the viewing, comparing, manipulation and annotation of images online. As a community driven, standardised set of technologies, IIIF is attractive to memory institutions in providing access to digital materials and their supporting metadata (e.g. descriptive and structural) without the limits imposed by bespoke, locally-developed applications and solutions. By describing content in a standardised way, digital collections can be rendered by a single 'viewer', reducing technical overheads, creating a unified, 'content agnostic' experience for the end-user, providing more opportunities for collaboration and opening up collections between institutions, globally. Access to digital collections is fundamental to research and scholarship, and to the promotion of collections to non-academic audiences. But providing access to digitised sound collections in a way that supports the needs of researchers and the curious public presents several challenges. Archival materials and 'field recordings' held on legacy physical formats can be very complex, often composed of several distinct recordings on multiple items, by several sequences of audio files, each of which are frequently non-sequential. To deliver these materials online with the metadata required to navigate the resource and to understand its contents requires rich but easily understandable metadata. Over the past two years and supported by a grant from the Andrew W. Mellon Foundation, the IIIF Presentation API has been further developed by a consortium of international partners including the British Library to support the delivery of audiovisual materials. IIIF v3 aims to supportv the various needs of audio creators and custodians. Use cases for IIIF for audiovisual materials have been collected from the across the IIIF community, including requirements such as the ability to: Deliver complex archival resources to a research audience with rich metadata; Deliver complex audio resources in a simple way to the public; Create and display annotations as they apply to an audio or audiovisual recording; Compare multiple resources alongside one another; Play sound recordings of a piece of music or speech while following a musical score or transcript; Highlight or specify a region or point of interest in an audio or audiovisual file. This work has also involved the development of the 'Universal Viewer' – an open-source viewer for IIIF image sequences – to support audio and to deliver all audio materials created through the British Library's eight-year Save our Sounds programme. This paper will explore the challenges that delivering audio resources online presents; how IIIF metadata can be used to describe complex audio collections; how harnessing this metadata can open up possibilities for research and dissemination and how the Universal Viewer will provide access to audio collections online for the Library's Save our Sounds programme.

12:00 – 12:30   What Good is an Ontology Anyway? by Raymond Drewry

Data sources that exist on their own are much less powerful than ones that connect to other data sources. One of the problems with these connections is that very few sources in any industry share a common model, much less a common format. The original idea of Linked (Open) Data proposed some technical solutions but failed to deal with the reality of current and legacy practices. Linked identifiers (as implemented by EIDR, other DOI systems, and Wikidata) go a long way to solving the connectivity problems but do not address models and formats. An ontology – basically a general and precise model that covers a particular domain (e.g. audiovisual works, rights statements, or legal opinions) – provides the infrastructure for reconciling (or at least being aware of) differences in format and meaning in the data. MovieLabs, working with several studios and experts from other communities (ontologists, librarians, archivists, and researchers), has defined an ontology for audiovisual works and done a prototype implementation, aggregating data from multiple sources and making it available in multiple formats. The ontology makes it fundamentally easier to deal with big data from multiple sources and data that has to be acquired from multiple sources to get good coverage. Current and proposed applications include: Analysis of genre assignments for films across multiple genre systems, giving insights into how explicit genres can be used to find implicit genres; Commercial analytics based on metadata that is not often used because it is hard to find or not always present, exists in separate databases, etc.; Machine learning based on trailers, synopses, and other ancillary material; Gender analysis of contributors based on genres, release years, and countries of production; Finding groups of works that 'go together' in non-obvious ways, to support both research and commercial activities; Connecting archives and other institutions, building on the linked IDs in EIDR, including links to information about related non-audiovisual items such as source material (books, characters, theme park rides), locations (landmarks, real and fictional settings, etc.), and ephemera (scripts, reviews, artwork, and so on.); Mapping of terms and vocabulary across multiple systems, simplifying communications and joint projects; Investigating a variety of localization problems (sub vs dub, local censorship ratings, local rankings and reviews, regionalized vs original titles, etc.). Most of these can be done in an ad hoc way using a few databases, but the ontology makes it much easier to go beyond individual sources and look at the data in different ways time after time, rather than creating one-off solutions for each instance of each task and constantly searching for and reintegrating the required information. We are publishing the ontology as an open source project, and are working on open source software that converts from common and useful data sources to the ontology, which will gave a base for both a 'union catalogue of data' and local projects that want to supplement their own data with data from public sources.

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14:00 – 14:30   Evolution of data management for new uses of Ina's collections: construction of a data lake by Eleanore Alquier and Gautier Poupeau

The French National Audiovisual Institute has been responsible since 1974 for the preservation of the audiovisual heritage produced by national broadcasts. The massive digitalization of these collections in the 1990s, the digital capture of 169 channels since 2001 in them frame of the legal deposit of television of radio, the opening of a "general public" (Ina.fr) website in 2006, the extension of legal deposit to web objects (sites, social networks, videos online, …) in 2009, are some of the steps taken by the Institute to take into account the digital technologies to benefit the audiovisual preservation. However, because of a historically "fragmented" IT architecture, the Institute has been suffering these last years from an under-utilization of its millions metadata collected in support of audiovisual collections, in particular in the frame of the legal deposit of radio and television. This is why since 2014 the Institute has been remodeling its documentary IT, in close coordination with the construction of a "data lake", which will allow merging the metadata from all enterprise tools (documentary, legal, and commercial). The adoption of a data oriented strategy tends to develop new ways of structuring, modeling, storing and using metadata, guaranteeing their quality and their coherence, whether they come from external sources, from internal activities of documentary description or from tools based on artificial intelligence to generate automatically metadata. The presentation will describe this multiyear and multilayer project, which aims to deploy a new technical infrastructure and new innovative tools, and to harmonize metadata from various provenances with a new data model as well as to promote new uses of these contents: online editorialisation, new offers to Ina's clients for footage or complete programs, exploration and analysis of Ina's collections and metadata by researchers and students, data mining… The construction of the data lake will help to develop more relevant and accurate offers to Ina's partners, without forgetting the legal framework in general, and more particularly intellectual property rights. While Ina's collections go on growing ever faster (more than 1 million hours collected each year in the frame of radio and television legal deposit, more than 10 billion new URLs collected each year in the frame of web legal deposit), this project also raises the question of new technologies impact on expected skills for information professionals.

14:30 – 15:00   AMP: An Audiovisual Metadata Platform to Support Mass Description by Jon W. Dunn and Bertram Lyons

In recent years, concern over the longevity of physical AV formats due to media degradation and obsolescence, combined with decreasing cost of digital storage, have led libraries and archives to embark on projects to digitize recordings for purposes of long-term preservation

and improved access. Beyond digitization, in order to facilitate discovery, AV materials must also be described, but many items and collections lack sufficient metadata. In 2014 Indiana University (IU) began an effort to digitize hundreds of thousands of hours of audiovisual materials from across campus through its Media Digitization and Preservation Initiative (MDPI). In 2015, with the support of consulting firm AVP, the IU Libraries conducted a planning project to research, analyze, and report on technologies, workflows, staffing, timeline and budgets to address the challenge of quickly and efficiently creating metadata for these materials. One of the outcomes of this planning project was identifying a need for a technology platform to support the incremental application of both automated and human-based processes to create and augment metadata. While there have been several open source and commercial efforts to date that demonstrate the possibilities for computationally assisted metadata generation and improved discovery, they have generally been narrow in focus and developed as standalone solutions. In truth, access to audiovisual objects at scale will require a variety of these analysis mechanisms, and these will need to be linked together with human tasks in a recursive and reflexive workflow engine that is compiling, refining, synthesizing, and delivering metadata to be used by any number of target systems. Recognizing that the need for such a platform extends well beyond any single institution, Indiana partnered with the University of Texas at Austin and AVP, with funding from the Andrew W. Mellon Foundation, to bring together a group of experts in the fall of 2017 to provide input into the technical design of a system to meet these needs, which we refer to as Audiovisual Metadata Platform, or AMP. This planning effort, outcomes of which are documented in a public white paper (https://go.iu.edu/ampreport), has led to a subsequent grant from the Mellon Foundation to support initial implementation and testing of the AMP platform beginning in 2019. In this new phase of AMP, known as AMP Pilot Development, or AMPPD, IU and AVP are working to develop an initial version of AMP as an open source system that will enable the creation and execution of workflows that link together both automated and human analysis activities to generate metadata for AV resources. The AMP system will then be pilot-tested against representative samples from collections both at Indiana University and at the New York Public Library to assess its feasibility for further development. In this session, we will describe the architecture of AMP, discuss the use cases and technical considerations that informed its design, and discuss the results so far from its implementation and testing.

15:00 – 15:30   Coexistence of (Asynchronous) Preservation Processes in Archive Asset Management by Silvester Stöger

In times of immediate availability of media through digital and networked dissemination paths, new and exciting approaches for archive use and completely file based media production, the vast repertoires of physical archive content are being inevitably unlocked in

the time to come. Although this being one of the major quests of any archive owner, many archives still struggle with providing access to their legacy content and, equally important, with developing a long tverm digital preservation strategy. Even though challenging enough on its own, mass migration of physical collections to the digital domain is only the first big step; it takes more to build a state of the art media repository. Organizing and describing the sounds and images within the archive is a most vital prerequisite, let alone storage and essence management. The presenter will talk about the multiplicity of tasks that are necessary in preservation projects, pointing out that not all of them are synchronous processes, and how their coexistence can lead to efficient orchestration and labour separation. With a main focus on structured cataloguing processes, it will be described how to bridge the annotation gap between digitization and access.

SOUND AND VISION, HOST OF THE #JTS2019 CONFERENCE

Sound and Vision organises the Winter School for Audiovisual Archiving, a four-day training that gives participants the practical knowledge to design and implement a digital preservation plan for their audiovisual collections. The fifth edition of the Winter School takes place at the Netherlands Institute for Sound and Vision from Tuesday 14 until Friday 17 January 2020. **beeldengeluid.nl/en/winterschool**

AVA_Net is an independent network organization for audiovisual collection holders. The network - a representative reflection of all sectors in which AV heritage is managed and made available - strengthens the position of audiovisual heritage in The Netherlands and offers a platform for knowledge exchange.

AVA_Net Library!
The AVA_Net documents library offers practitioners a common body of knowledge about the various aspects of audiovisual archiving. Explore it at: **library.avanet.nl/en**

SOUND AND VISION

JTS 2019 SPEAKERS

Audra Adomenas

Audra V. Adomenas is a Certified Archivist, holds a Masters in Library and Information Science degree from Dominican University in River Forest, IL and is the founder and president of the Lithuanian Archives Project, a community archives actively engaged in the cultural preservation of the global Lithuanian immigrant experience. Currently, Audra serves on the Diversity Task Force for IASA and is also a member of the Midwest Archives Conference (MAC), past board member of the Chicago Area Archivists (CAA) and currently serves on the board of the Chicago Area Religious Archivists (CARA). She spends her free time advocating the benefits of IASA membership and participation to her colleagues as Central USA Ambassador to IASA.

Benjamin Alimi

Benjamin Alimi has begun his carreer at Titra Film, before joining UGC International and then TF1 DA as a Technical Manager He joined Hiventy in 2013 and has a strong experience in the field of archives, film restoration and film processing. He has supervised the restoration of many French and international film masterpieces.

Filip Allberg

Filip Allberg is a Systems Developer at Humlab. He studied Computing Science at Umeå University, before transitioning into a career within the financial tech industry that culminated in a senior development position at NASDAQ. Prior to this, Allberg spent numerous years working as a graphic designer and communicator, and he now leverages the two disciplines in unison to create technology that's more sympathetic to other humans than it otherwise would have been.

Anthony Allen

Anthony is a sound engineer from Scotland. He began working on the New Phonograph project shortly after moving to Prague in January of 2018. He manages audio transfer and digitisation, as well as more general project-related duties, such as development of the project's digitisation workflow tool, reaching out to international collaborators, and defining metadata needs. In collaboration with the National Technical Library, he is also involved in the migration and redesign of the Virtual National Phonotheque, an online discographic database and access tool.

Eleonore Alquier

Eleonore Alquier is Head of Acquisition and Preservation in the Collections division of French audiovisual Institute (INA). She's in charge of the refoundation of the collections management IT system and of the collections acquisition strategy, coordinating transversal projects connected to audiovisual description and conservation. She graduated from the French Ecole nationale des chartes (2005-2009) and Heritage management Institute (Institut national du patrimoine, 2009-2010). She began working at the French National Archives (2010-2013), first as Head of Modern Archives, and then as Coordinator of the relocation and redeployment of the Archives into a new building. She was then Head of the Records and Archives Office at the French Social Ministries (Labor, Health, Youth and Sports (2013-2015)), where she was responsible for the collecting policy applied to political records produced by the ministers and their advisers. She's also an active member of the International Council on Archives (ICA) and member of the editorial board of IASA.

Li Ang

Technical support engineer from Copyright Assets Centre of Shanghai Media Group (SMG) Shanghai Audio-Visual Archives. He focused on the application and research of artificial intelligence in audio and video media assets. He has experience in Computer-Vision such as face recognition, object detection and image super-resolution. He participated in drafting the White Paper on the Application of Artificial Intelligence in Radio and Television published by National Radio and Television Administration of China.

Nicholas Bergh

Nicholas Bergh received his B.A. and M.A. in ethnomusicology from UCLA where he specialized in the history of recording technology and sound archiving. During this time, he was also fortunate to be mentored by engineers who worked in the earliest decades of optical sound, disc, and magnetic technologies. After spending a number of years doing digital restoration work, Nicholas started Endpoint Audio Labs in 2003 to focus on improving the quality of sound transfers before restoration. Endpoint has become known for both unique transfer technologies as well as using historical research to inform transfer decisions. Projects range from major 70mm studio films such SOUND OF MUSIC and MY FAIR LADY to the earliest Vitaphone films of the 1920s.
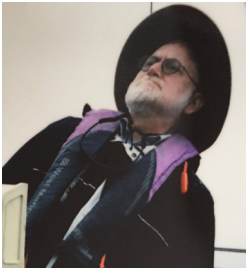
George Blood

George Blood graduated from the University of Chicago (1983) with a Bachelor of Arts in Music Theory. The only student of pianist Marc-André Hamelin. Recorded over 4,000 live events since 1982. Recording Engineer for The Philadelphia Orchestra for 21 years. Recorded and edited some 600 nationally syndicated radio programs. Recorded or produced over 250 CDs, 6 of which have been nominated for Grammy Awards. An active teacher and presenter at conferences, presented on research into workflow, best practices, metadata, authentication, and interchangeability of digital information. Served on standards committees for MXF AS-07 (now SMPTE RDD48), and is a writer two chapters for IASA TC06. Mr. Blood and his wife, Martha, have five children and five grandchildren. An unapologetic preservationist, at the end of a day of Preserving the Sound and Motion of History, he goes home to his 1768 house where he practices harpsichord and reads books on paper.

Karen Cariani

Karen Cariani is The David O. Ives Executive Director of the WGBH Media Library and Archives and WGBH Project Director for the American Archive of Public Broadcasting, a collaboration with the Library of Congress with a mission to preserve and provide a centralized web portal for access to historical content created by public media over the past 70+ years. Karen has 30 plus years of television production, project and archival management

experience and was project director for recent projects a such as Improving Access to Time-Based Media through Crowdsourcing & Machine Learning, National Digital Stewardship Residency, National Educational Television Collection Catalog Project, and Building Infrastructure and Capacity for the American Archive of Public Broadcasting. She serves on the National Stewardship Digital Alliance (NDSA) Coordinating Committee. She is active in the archive community and professional organizations and passionate about the use of media archives and digital library collections for education.

Jean-Hugues Chenot

Jean-Hugues Chenot graduated in 1986 and 1998 from French Ecole Polytechnique and Ecole Nationale Supérieure des Télécommunications. He joined INA where he developed software for 3D modelling from range images and virtual studios projects. He is now manager of the INA audio and video processing and restoration research team. Jean-Hugues Chenot was involved in a number of European research projects, related to audio and video digitisation, preservation, digital restoration, and large-scale fingerprinting and content tracking. He is the project manager of the Saphir optical analogue audio disc recording playback project.

Oliver Danner

Since 2010 Oliver Danner works with analog optical soundtracks for the federal German film archives Bundesarchiv and since 2016 operates the Resonances soundtrack scanner. He is a sound engineer for 19 years and holds an MA degree in conservation and restoration of audiovisual cultural assets as well as a BSc in media production and -technology. His master's thesis titles "The Scanning of Analog Optical Soundtracks as part of Film Preservation" (HTW Berlin 2015).

Thierry Delannoy

Head of Restoration at Hiventy, has worked since 1988 in scanning 35 mm feature film, archive, and for ten years in film restoration for theaters and festivals, such as Cannes Classics, Imagine Ritrovata, Toute la mémoire du monde. Hiventy is a laboratory that perpetuates the tradition of photochemical fabrication while being at the cutting edge of digital technology dedicated to film restoration.

Raymond Drewry

Raymond Drewry is Principal Scientist at MovieLabs and Chief Architect at EIDR. His current interests are identifiers and identification, linked data and metadata, and distributed and federated systems, especially for film, television, and the broader entertainment industry. He has held management and technical roles at Liberate Technologies, Sybase, Digital Equipment Corporation, and Microsoft. He has worked on digital cable TV networks, multimedia databases, graphics hardware and software, large-scale robotics for mechanical-industrial performance pieces, and version 1.0 of Microsoft Windows. He is Vice Chair of the DOI Foundation, which manages ISO 26324, the Digital Object Identifier standard, and has a BA in Classics (Latin) and Computer Science from Yale University.

Jon W. Dunn

Jon W. Dunn is Assistant Dean for Library Technologies in the Indiana University Bloomington Libraries, where he oversees IT development and operations, including technical support, systems administration, software development, digital preservation, and digital collections services. He has been involved in the development of digital library systems for audio and video for over twenty years and currently serves as co-project director for the Avalon Media System, an open source digital repository software system for audio and video access supported in part by the Andrew W. Mellon Foundation and Institute of Museum and Library Services, and principal investigator for the Mellon-funded Audiovisual Metadata Platform (AMP) project. He serves on the steering committee for Indiana University's Media Digitization and Preservation Initiative and is co-chair of the steering group for the Samvera open source digital repository community. He also co-chairs the International Image Interoperability Framework (IIIF) Consortium's Audio/Video Technical Specification Group.

Dan Fischer

Dan Fischer is a Senior Developer at PortalMedia in Monona, Wisconsin. He has over 15 years of development experience working with forensic file format analysis and classification, ecommerce logistics and algorithms, as well as data science. Dan holds a M.S. in Computer Science from DePaul University, as well as a B.A. in Sociology from the University of Wisconsin-Madison.

Lars Gaustad

Lars Gaustad is head of moving image preservation at the National Library of Norway. The library holds the heritage collection of moving images in Norway as well as being responsible for handling the legal deposit of film and television. He has chaired the Technical Commission of IASA from 2001 to the present.

Franz Hoeller

Franz Hoeller is the managing director of HS-ART Digital Service GmbH and the product manager for the DIAMANT-Film Restoration Software. He is working also as trainer and consultant in the fields of digital film restoration. As project manager he was involved in several international research projects in the digital media area. He has a master degree in Telematics from the technical university in Graz and has worked as R&D software engineer in the fields of image restoration and processing at Joanneum Research in Austria and Pandora-International in the UK and at HS-ART Digital.

Jörg Houpert

Jörg Houpert studied electrical engineering at the University of Bremen, with the focus on digital signal processing and psychoacoustics. In order to focus on international media archive activities, Houpert founded in 2005 'Cube-Tec International'. In his capacity as the Technical Director of this company, his interest is to introduce new technologies for the safeguarding of the worldwide audiovisual cultural heritage and to create better solutions for media workflows. In IASA Houpert is a long standing member of the Technical Committee, in FIAT/IFTA is an active member of the Preservation and Migration Committee. There is also a long relation as a sponsor of FIAF activities. Since 2009 he is an active member of the SMPTE standards committee working groups. Houpert helps to harmonize media technology at European Broadcasting Union for more than 20 years. His pioneering work has led to working relationships with most prestigious and demanding media technology institutions around the globe.

Andy Irving

Andy Irving is a Solutions Architect at the British Library (BL), where he has worked on scaling the digital capability of the library since 2012. He has been involved in a wide range of areas, from implementing large-scale automated workflows for ingest of born-digital materials, to the digitisation workflows that account for the 220million+ images available through the BL's IIIF endpoints. He has been working on audio ingest, preservation and access since 2014.

Jim Lindner

Jim Lindner is an internationally respected authority on the preservation and migration of electronic media. Jim pioneered many of the techniques now commonly used for videotape restoration and migration to file workflows. He has lectured widely on and written about media preservation for the past twenty-five years and has served on a variety of international media-associated boards and organizations for many years. While Jim's first awards were as a film maker, he went on to receive many awards, first for his pioneering work in computer animation and later for his work in media preservation.

Bertram Lyons

Bertram specializes in the acquisition, management, and preservation of documentary, research, and cultural heritage collections. For fifteen years, Bert has worked as an archivist for extensive archives, first at the Alan Lomax Archive and most recently at the American Folklife Center (AFC) at the Library of Congress. He has developed tools, policies, and partnerships around the development and management of analog and digital archival collections. Bert is active with professional archival organizations including the International Association of Sound and Audiovisual Archives (Executive Board Member and Editor of IASA publications) and the Society of American Archivists. He has also received certification from the Academy of Certified Archivists and is a graduate of the Archives Leadership Institute. He holds an MA in museum studies with a focus in American studies and archival theory from the University of Kansas.
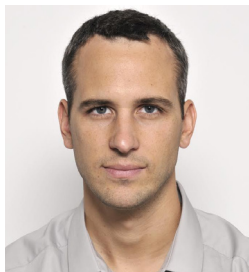
Etienne Marchand

Graduated from EICAR in 2008 after a sound engineer training, Etienne Marchand has since been working on a great variety of archive documents - audio, video and film - and on every aspect of the technical workflows : assessment, cleaning, repairs of the mediums; digitizing using manual and automatic processes; restoration and color grading; quality control; conversions and transcoding; media delivery; digital archiving. Etienne joined INA in 2015 as operations executive within the Preservation, Delivery and Digital Archiving service. He's in charge of digitizing television and radio archives, quality control and content delivery.

Lyndon Nixon

Dr. Lyndon J B Nixon is the CTO of MODUL Technology GmbH. He also holds the position of Assistant Professor in the New Media Technology group at MODUL University. He has been researching in the semantic multimedia domain since 2001. His PhD (2007) was on automatic generation of multimedia presentations using semantics. He has been active in many European and Austrian projects including in the role of Scientific Coordinator (LinkedTV) and Project Coordinator (ReTV). He has co-chaired over 40 events complemented by 27 invited talks, 8 book chapters, 6 journal articles and 88 refereed publications. Currently he focuses his research on content analysis of image and video in social networks, semantic annotation and linking of media fragments, and combining annotations and data analytics in prediction and recommendation for TV programming.
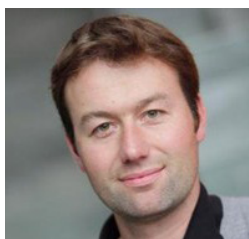
Johan Oomen

Johan Oomen is head of Research and Heritage Services at the Netherlands Institute for Sound and Vision and researcher at the User-Centric Data Science group of the VU University Amsterdam. He and his group are working on research projects that focus on digital heritage in all its facets. He has worked for the British Universities Film and Video Council and commercial broadcaster RTL Nederlands. He is a board member of the Europeana Association, the EUscreen Foundation, and the PublicSpaces Foundation. He is also an advisor to the Amsterdam Fund for the Arts and the Dutch National Research Council for Cultural Heritage, and is co-chair of The Netherlands Heritage Network.

Gautier Poupeau

Since 2001, Gautier Poupeau has been working in the field of data management. He started his career as an engineer for the Ecole nationale des chartes in Paris, and then contributed to several major data projects in the public sector, working as a contractor within private companies. He spent the last 4 years at Ina (national institute for audiovisual in France) dealing with data architecture and data workflows, as a member of the IT team. His weblog, Les petites cases (http://www.lespetitescases.net), provides insights on the expertise he built on since 2006.
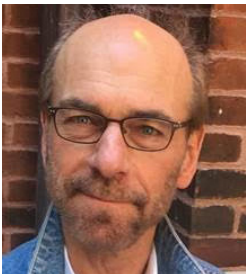
James Pustejovsky

James Pustejovsky is the TJX Feldberg Chair in Computer Science at Brandeis University, where he is also Chair of the Linguistics Program, Chair of the Computational Linguistics MS Program, and Director of the Lab for Linguistics and Computation. He received his B.S. from MIT and his Ph.D. from UMASS at Amherst. He has worked on computational and lexical semantics for twenty five years and is chief developer of Generative Lexicon Theory. He has been committed to developing linguistically expressive lexical data resources for the CL and AI communities. Since 2002, he has also been involved in the development of standards and annotated corpora for semantic information in language. Pustejovsky is chief architect of TimeML and ISO-TimeML, a recently adopted ISO standard for temporal information in language, as well as ISO-Space, a specification for spatial information in language. Under NSF and Mellon Foundation funding, he has been co-developer with Nancy Ide of Vassar College of the Language Application Grid (LAPPS). This is an open, interoperable web service platform for natural language processing (NLP) research and development. The LAPPS provides facilities to select from hundreds of NLP tools to create workflows, composite services, and applications, and to evaluate, reproduce, and share them with others. With recently awareded funding from the Mellon Foundation, he is currently partnering with WGBH to develop CLAMS, a platform of NLP tools for multimedia (A/V), to help archivists with search, navigation, and discovery over their holdings. Pustejovsky has authored and/or edited numerous books on theoretical and computational linguistics, annotation theory and machine learning, and temporal spatial reasoning: http://pusto.com/

Rosemarie O. Roque

Rosemarie O. Roque is currently the only IASA associate member from the Philippines. She is also an associate individual member of the South-East Asia Pacific Audio-Visual Archives Association (SEAPAVAA). She is an active member of the Society of Filipino Archivists for Film (SOFIA). She currently serves as its representative to the National Committee on Archives (NCA) of the National Commission for Culture and the Arts (NCCA) (first term: 2017-2019, second term: 2020-2022), where she currently holds the position of assistant secretary of the Executive Committee. Rose Roque earned her BA Communication Research and MA Araling Pilipino degrees from the University of the Philippines in Diliman. She works as Assistant Professor IV at the Department of Filipinology of the Polytechnic University of the Philippines (PUP), the national polytechnic university in the country. She is also conducting archival research on Philippine-related (Marcos era) AV materials found in European archives, particularly in the Netherlands Institute of Sound and Vision and Les archives, Cinematheque francaise. Rose Roque, together with UP SLIS professor and film archivist Bono Olgado, co-organized the Community Archiving Workshop Manila (CAW Manila), initiated in April 2017 for SEAPAVAA with New York University Moving Image Archiving and Preservation (NYU-MIAP) and the Association of Moving Image Archivists (AMIA).

Peter Schallauer

Peter Schallauer is R&D and product coordinator for audiovisual preservation solutions at JOANNEUM RESEARCH's Smart Media Solutions research area. He has been working with JOANNEUM RESEARCH since 1995 as scientific and development coordinator creating numerous digital video/movie technologies and systems. Technologies for high quality digital film restoration (DIAMANT-Film), automatic movie and video content analysis, content description, information mining and content based retrieval, efficient digitisation and documentation of audiovisual archives, semantic analysis of video, traffic video analysis and efficient human computer interaction. During recent years he is focussing his activities on signal based video and movie quality assessment solutions for improving the efficiency of archive digitisation, restoration and production processes (VidiCert). He is actively involved in relevant standardisation activities (EBU QC, EBU/AMWA FIMS QA). He coordinated the EC FP7 project DAVID– Digital AV Media Damage Prevention and Repair.

Pelle Snickars

Pelle Snickars is a professor of media and communication studies—a chair directed towards the digital humanities—at Umeå University, Sweden, where he is also affiliated with the digital humanities hub, Humlab. His research is situated at the intersection between media studies, media history and the digital humanities. Snickars is currently in charge of two major research projects: Welfare State Analytics. Text Mining and Modeling Swedish Politics, Media & Culture, 1945-1989 (Swedish Research Council) and Digital Models. Techno-historical collections, digital humanities & narratives of industrialisation (Royal Swedish Academy of Letters, History and Antiquities). Snickars is also the co-ordinator of the national research program, DIGARV—Digitisation and accessibility of cultural heritage (Swedish Research Council), and involved as PI in the EU-funded research project, European History Reloaded: Curation and Appropriation of Digital Audiovisual Heritage (EU JPI Cultural Heritage).

Marjolein Steeman

Marjolein Steeman is a specialist on data management and has been associated with the Netherlands Institute for Sound and Vision on several projects as a data- and business analyst. Recently she developed a framework for a Preservation Metadata Dictionary, based on the international PREMIS-standard. Her focus is on enhancing the sustainability of the archive, by creating practical solutions for asset management and data governance. She is a member of the PREMIS Editorial Committee.

Silvester Stöger

Silvester Stöger is a project manager in the context of Archive Asset Management (AAM) at NOA Archive and leads projects with clients like Sharjah Broadcast Authority, Bulgarian National Radio, or Radio Television of Serbia, including the establishment of digital archive systems, design of metadata schemes, and planning of database migrations. He holds an art degree of the University of Applied Arts Vienna and attended a masters program for Image Science and Digital Collection Management at the Danube University Krems. During his past engagements with the Film Archive Austria, Arri Munich, or the F.W. Murnau Foundation he gathered extensive knowledge about digitial film restoration and real world archiving needs.

Adam Tovell

Adam Tovell is the Head of Sound & Vision Technical Services at the British Library and looks after a team of engineers and preservation specialists busy safeguarding the UK's national sound collection through digitisation and digital preservation.

Giorgio Trumpy

Giorgio Trumpy is a postdoc at the University of Zurich. He studied Conservation Science in Florence, and received his PhD in Scientific Photography from the University of Basel (2013). For two years (2014-2016), Trumpy was a postdoc fellow at National Gallery of Art in Washington, DC. His work focuses on Spectroscopy and Imaging Science for conservation of cultural heritage.

Brian Wheeler

Brian Wheeler designed and implemented the post-digitization processing system for the MDPI project. Since MDPI started production in 2015, the system has verified, processed, and stored more than 330,000 audio, video and film objects -- almost 12 petabytes of content -- with nearly zero downtime. When Brian isn't working on MDPI he's researching ways to make the IU Library processing systems better.

Nathaniel Kpogo Worlanyo

Nathaniel Kwaku Worlanyo Kpogo is a Senior Research Assistant at the J.H Kwabena Nketia Archives, Institute of African Studies, University of Ghana, Legon. He holds a Bachelor of Art degree in Geography and Archaeology. His immense experience with sound engineering begun in 2004. He has handled audio in its diverse forms including recording, mixing and producing audio messages. He has experience in physical cleaning and handling of the audio digital materials. At the inception of the MAARA project at the Nketia Archives in 2014, Nathaniel was engaged as the technical person for digitalization where he produces audio materials for access and master copies, manages the technical section of the database,

maintains all archive digitization equipment, as well as ensuring the quality and integrity of audio digitized files. He learnt best practices from the project managers. Owning to this experience, he has successfully digitized over five hundred (500) reel-to-reels and counting. When tapes and reels require special attention, he is skilful of treating the physical material to obtain the audio from the tapes and reels. The special attention has included using the vacuum to suck the shed off the reels, repairing mouldy tapes, splicing tapes and repairing twisted and lose reels. In 2017, Nathaniel was a participant as well as a resource person at the SOIMA training workshop organized by ICCROM and hosted at the J.H. Kwabena Nketia Archives. He served as a Local committee member for the IASA 2018 Conference in Ghana.

Tristan Zondag

Tristan Zondag is an IT architect at NISV. He has been working in the M&E industry for 19 years and has witnessed the transformation to file based play-out at a Dutch broadcast company, working on encoding and transcoding files in the age when the resolution was 176x144 pixels up to today's 8K resolution. Later, he specialized more towards archival and preservation, large scale tape infrastructure and MAM systems.

Irfan Zuberi

Irfan Zuberi is the Project Manager, National Cultural Audiovisual Archives, the world's first ISO 16363:2012 certified Trustworthy Digital Repository, at the Indira Gandhi National Centre for the Arts, New Delhi, India. He is presently Chair, National Archives Section and Member, Editorial Board at the International Association of Sound and Audiovisual Archives. Irfan holds a Master of Philosophy Degree from Delhi School of Economics with a thesis titled 'Theodor W. Adorno's Theory of the 'Culture Industry': A Critical Appraisal in the Context of North Indian Classical Music' (2007). He has over fifteen (15) years of work experience in the domain of archiving, having successfully completed projects at Ravi Shankar Institute for Music and Performing Arts (2002-2005), Aga Khan Trust for Culture (2009-2013) and NaadSaagar Archives and Documentation Society for South Asian Music (2009 onwards). Irfan has published widely and presented papers at international conferences on subjects ranging from ethnography and musicology to audiovisual archiving, digital preservation and intellectual property rights in the domain of the performing arts.

JTS 2019 BINGO

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DIGITAL TRANSFORMA-TION	2025	BLOCKCHAIN-BASED CLOUD STORAGE	DATA LAKE
FAIR DATA	DESIGNATED COMMUNITIES	ETHICAL AI	BUT WHAT ABOUT COPYRIGHT?
GENEROUS INTERFACES	BPML	YOU CAN FIND OUR SOFTWARE ON GITHUB	BUSINESS CASE
WE STARTED A LAB TO...	WE ARE WORKING WITH A STARTUP	COLOUR SPACE	VENDOR LOCK-IN

NOTES

VENUE MAP

Sponsors:

1	STIL Casing Solutions
2	Prism Sound/SADiE

3	Cedar
5	Flimbistok
6	Merging
7	INA
8	Sacks

9	ATR Magnetics
10	NUEV
11	Sony/Memnon
12	NOA
13	Cube-Tec
14	KEM Studiotechnik GmbH

- Registration / Information Desk
- Poster sessions/LCD scre
- BenG Lab 1 and 2
- Catering
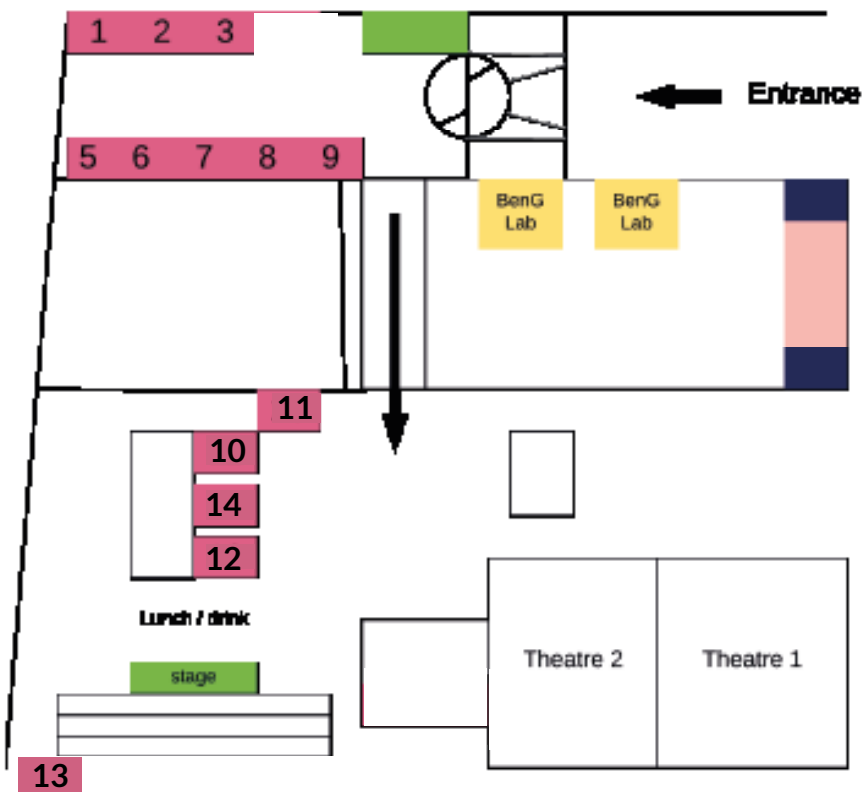
CCAAA

CO-ORDINATING
COUNCIL OF
AUDIOVISUAL
ARCHIVES
ASSOCIATIONS

The Coordinating Council of Audiovisual Archives Associations (CCAAA) traces its origins to the Roundtable of Audiovisual Records, which was organized in 1981 in response to the UNESCO report Recommendation for the Safeguarding and Preservation of Moving Images (1980). The report called for cooperation and coordination between organizations tasked with preserving the world's audiovisual heritage. Today, through its member Associations, CCAAA represents the interests of worldwide professional archive organisations with interests in audiovisual materials including films, broadcast television and radio, and audio recordings of all kinds.

A major early project of the Roundtable, and later CCAAA, was organizing a Joint Technical Symposium of preservation experts from around the world, to be held every few years. The first JTS was held in Stockholm in 1983, this year marks the tenth international Joint Technical Symposium.

Other CCAAA projects include the coordination of World Day for Audiovisual Heritage, an annual international training summit, and the Archives at Risk project.

AMIA

fiaf

ica
international council on archives
conseil international des archives

ARSC

FIAT IFTA

SEAPAVAA
SouthEast Asia-Pacific AudioVisual Archive Association

International Association of Sound
and Audiovisual Archives
Internationale Vereinigung der
Schall- und audiovisuellen Archive
Association Internationale d'Archives
Sonores et Audiovisuelles
Asociacion Internacional de Archivos
Sonoros y Audiovisuales

iasa

FOCAL INTERNATIONAL
FEDERATION OF COMMERCIAL AUDIO VISUAL LIBRARIES