



The Future of Storytelling and How to Save It

SMPTE 2016 Symposium: Monday, 24 October

8:00 AM — 9:00 AM

9:00 AM — 9:15 AM

9:15 AM — 9:45 AM

9:45 AM — 10:30 AM

10:30 AM — 11:00 AM

11:00 AM — 1:45 AM

11:45 AM — 1:15 PM

12:15 PM — 1:15 PM

1:15 PM — 2:30 PM

2:30 PM — 3:00 PM

3:00 PM — 3:45 PM

3:45 PM — 4:25 PM

4:25 PM — 4:30 PM

7:00 PM — 10:00 PM

Morning Coffee — Ray Dolby Ballroom Terrace

Opening Welcome

Speakers: Patrick Griffis, Andrea Kalas, Robert Seidel

Keynote — *Speaker:* Daniel Teruggi

Want to Know How to Preserve Digitally? Play a Game

Games are breaking technical ground everyday but they also teach us a lot about the history of digital technology— an essential part of archiving.

Speakers: Mike Acton, Eric Kaltman, Feargus Urquhart

Moderator: Steve Wong

Coffee Break — Ray Dolby Ballroom Terrace

Enhanced Formats Need Enhanced Archival Brains

Object based audio; enhanced theatrical, virtual reality require very smart people to dissect and describe their atomic archival parts.

Speaker: Andrew Oran

Moderator: James Snyder

Networking Box Lunch — Salon 1

HPA's Women in Post and SMPTE present a Women in Technology Luncheon— (*Ticket Required*) **Vantage Room**

Why Restore Films Anymore?

They all say we don't go to theaters; we don't buy disks we don't even watch movies on TV—so why should anybody bother restoring films anymore? Visionary filmmakers, technologists and cultural curators all weigh in.

Speakers: John Badham, Kelvin Bolah, Dino Everett, Ben Rosenblatt, Karen Stetler, Jan Yarbrough

Moderator: Grover Crisp

Coffee Break — Ray Dolby Ballroom Terrace

Wrapper's Delight

IMF, AXF, MXF, DCI...there are many wrappers with many acronyms and many more uses. How do these standards help preserve and protect moving images? What is assumed about the futures.

Speaker: James Snyder

Moderator: Nick Gold

Archives Are Not an Island

Based on 20 years of experience managing some of the largest digital archives in the world. A medical doctor turned system architect, Karl Facedyn explains how the current approaches to digital archiving are simplistic and why we should learn from biology's proven sophistication in managing complex systems.

Speaker: Karl Facedyn

Thank you and Adjourn

Honors & Awards Ceremony and Dinner (*Ticket Required*)—
Ray Dolby Ballroom





2016 ANNUAL TECHNICAL CONFERENCE & EXHIBITION HOLLYWOOD, CA. 24-28 October 2016



Tuesday, 25 October

7:30 — 8:45 AM Morning Coffee
8:45 — 9:00 AM Welcome
9:00 — 10:00 AM Opening Keynote
10:00 — 10:30 AM Coffee Break

10:30 AM — 12:00 PM

Networked Media Infrastructure 1 — Topics on IT-based Media Infrastructure

Room: Salon 1

Chair: Al Kovalick (Media Systems Consulting, USA)

10:30 AM — A Tale of Live IP Formats

Paul Briscoe (Consultant, Evertz Microsystems, Canada)

11:00 AM — Broadcast and Network Integration using the PMN SDN AP

Subha Dhesikan (Cisco Systems, USA);
Pradeep Kathail (Cisco, USA)

11:30 AM — Looking Deep into the Future — Infrastructure Prospects for the Media Enterprise

Al Kovalick (Media Systems Consulting, USA)

Color Management 1 — Tone and Color Management — The Art and Science of Preserving and Enhancing Creative Intent

Room: Salon 2

Chair: Arjun Ramamurthy (20th Century Fox, USA)

10:30 AM — Adapting Content to Different Display Capabilities and Viewing Environments

Jack Holm (Tarkus Imaging, USA)

11:00 AM — Perceptually-based Gamut Extension Algorithm for Emerging Wide-gamut Display and Projection Technologies

CURRENT SPONSORS



Syed Waqas Zamir, Javier Vazquez-Corral and Marcelo Bertalmío (Universitat Pompeu Fabra, Spain)

11:30 AM — Breaking out of the 100nit Box — A Colorist's View of HDR Grading
Shane Mario Ruggieri (Dolby Laboratories, USA)

12:00 — 1:30 PM Fellows Luncheon

1:45 — 3:15 PM

Networked Media Infrastructure 2 — Topics on IT-based Media Infrastructure

Room: Salon 1

Chair: Al Kovalick (Media Systems Consulting, USA)

1:45 PM — Efficient Monitoring of ST 2059-2-Based Time Transfer Performance

Nikolaus Kerö (Oregano Systems, Austria); Thomas Kernen (Cisco, Switzerland); Tobias S. Müller (University of Applied Sciences Technikum Wien & Oregano Systems, Austria)

2:15 PM — Large Scale PTP: How Big Can it Get?

Nick Ciarleglio and Robert Welch (Arista Networks, USA); Thomas Edwards (Fox Networks Engineering and Operations, USA)

2:45 PM — IT Transformation of Media Infrastructure
Jerome Champetier (Ericsson, United Kingdom)

Color Management 2 — Tone and Color Management — The Art and Science of Preserving and Enhancing Creative Intent

Room: Salon 2

Chair: Arjun Ramamurthy (20th Century Fox, USA)

1:45 PM — Distribution of HDR in an SDR World
Keith Slavin (Isovideo LLC, USA)

2:15 PM — A Cinematographic Spectral Similarity Index
Jack Holm (Tarkus Imaging, USA); Paul Debevec (USC Institute for Creative Technologies, USA); George Joblove (Prima Lumina, USA)

2:45 PM — A Modern Approach to HDR Color Timing
Peter Postma (FilmLight, USA); Richard Kirk (FilmLight, United Kingdom); Daniele Siragusano (FilmLight, Germany)

3:15 - 3:45 PM Coffee Break

3:45 - 5:15 PM

Security — Can IMF, Cloud and Distribution be Secure?

Room: Salon 1

Chair: Marc Zorn (Independent Security Consultant, USA)

3:45 PM — Security in the Cloud with IMF
Bruce Devlin (Mr. MXF Ltd., United Kingdom & The Media Bay LLC, USA); Eric Carson (The Media Bay LLC, USA)

4:15 PM — Securing IMF
Eric Diehl (Sony Pictures Entertainment, USA)

4:45 PM — The Challenges of Forensic Watermarking UHD/HDR Content
Mehmet Celik and Jaap Haitzma (NexGuard)

Image Processing — Good Images and Too Good Images!

Room: Salon 2

Chair: Siegfried Foessel (Fraunhofer IIS, Germany)

3:45 PM — Automatic, Viewing-condition Dependent Contrast Grading Based on Perceptual Models
Praveen Cyriac, David Kane and Marcelo Bertalmío (Universitat Pompeu Fabra, Spain)

4:15 PM — Detection of Video Modification
Edward T Grogan (Department of Defense)

4:45 PM — Luminance-Preserving Colour Conversion
Florian Schweiger (BBC Research & Development, United Kingdom); Tim Borer and Manish Pindoria (BBC, United Kingdom)

Wednesday, 26 October

7:30 — 8:30 AM Morning Coffee



8:30 — 10:00 AM

Broadcast Infrastructure: Cable: Even Less Dead than Last Year

Room: Salon 1

Chairs: Harvey Arnold (Sinclair Broadcast Group, USA), John Maizels (Entropy Enterprises, Australia)

8:30 AM — Advances in Coaxial Cable Design
Stephen H. Lampen (Belden, USA)

9:00 AM — 12G SDI Over RF Coaxial Structures
Owen Barthelmes (Amphenol Corporation, USA); David Weinstein (Amphenol RF, USA)

9:30 AM — Return Loss: What, Why, How, and Where
Marc Walker (Marc Walker Consulting, USA)

Cloud 1 — Virtualizing Broadcasting: Data Center and Cloud

Room: Salon 2

Chair: Thomas Edwards (Fox Networks Engineering and Operations, USA)

8:30 AM — New Generation Video Head-End: How IP, Software and Virtualization Technologies are Changing Video Distribution with Flexibility and Efficiency

Gustavo Marra (ATEME, USA)

9:00 AM — Virtualization: Changing the Face and the Pace of Master Control Projects

Eric Openshaw (Pebble Broadcast Systems & Pebble Beach Systems, USA)

9:30 AM — Automated Confidence Monitoring for Cloud Production Workflows

Jim Duval (Telestream, USA)

VR/AR: Assuring Quality in Virtual Reality

Room: TCL

Chair: William Redmann (Technicolor, USA)

8:30 AM — Virtually Perfect: Factors Affecting the Quality of a VR Experience and the Need for a VR Content Quality Standard

Pierre Hugues Routhier (Creat3 inc., Canada)

9:00 AM — The Special Challenges of Offering High-quality Experience for VR Video

Mary-Luc Champel and Sebastien Lasserre (Technicolor, France)

9:30 AM — GPU-Based Real-Time System for Cinematic Virtual Reality Production

Thomas True (NVIDIA Corporation, USA)

10:00 — 10:30 AM Coffee Break

10:30 AM — 12:00 PM

Broadcast Infrastructure: But Wait — There's More: SDI Evolves!

Room: Salon 1

Chairs: Harvey Arnold (Sinclair Broadcast Group, USA), John Maizels (Entropy Enterprises, Australia)

10:30 AM — Flexible SDI — The Universal Transport for Streamed Media

Nigel Seth-Smith (Semtech Corp., United Kingdom)

11:00 AM — A 100 Gbps Interface for 4K/8K UHDTV Signals

Shigeyuki Yamashita and Kazushige Takahashi (Sony Corp., Japan)

11:30 AM — Practical Transition Strategies of SDI Facilities utilizing newer IP Baseband A/V Signals

Scott Barella (Utah Scientific, Inc., USA)

Cloud 2 — Practical Use of the Cloud for Media

Room: Salon 2

Chair: Steve Wong (Hewlett Packard Enterprise, USA)

10:30 AM — Next Generation Video Processing Application Architectures

Ammar Latif and Tom Ohanian (Cisco Systems, USA)

11:00 AM — A Cloud Content Repository: From Acquisition, Metadata, Processing and Archive

Usman Shakeel and Mark Stephens (Amazon Web Services, USA)

11:30 AM — Project Suitcase: Using C4, Semantics and NoSQL for Managing Motion Picture Data

Nancy L. Silver (MarkLogic, USA); Joshua Kolden (Avalanche, USA); Michael Malgeri (MarkLogic, USA); Erik Weaver (ETC — Entertainment Technology Center @ USC, USA); Kaki Ettinger (Disney | ABC Television Group, USA)

12:00 — 1:30 PM Lunch on your Own

1:30 — 3:00 PM

Re-Energize Entertainment Engineering: How to Blend the Experience of Yesterday with Millennials' Vision of Tomorrow

Room: Salon 1

Chair: Kellie McKeown (McKeown Consulting, USA)

1:30 PM — Re-Inventing Entertainment Engineering: Merging the Experience of Today with Millennials' Vision for Tomorrow

Kellie McKeown (McKeown Consulting, USA); Jennifer Zeidan (Industrial Light and Magic, USA); Joshua Berkowitz (Technicolor, USA); Abel Lawal (NBC Universal, USA); Matthew Donato (Netflix, USA); Jaclyn Pytlarz (Dolby Laboratories, USA); Stephanie Wu (Disney ABC Television Group, USA)

Future of Cinema: Perception of HDR and Contrast

Room: Salon 2

Chair: Peter Ludé (RealD, USA)

1:30 PM — HDR Perception Challenges and Measures in Cinematographic Environment

François Helt (Highlands Technologies Solutions, France)

2:00 PM — Screen Brightness Uniformity: Analysis and Comparisons

Dave Coleman (RealD, USA)



2:30 PM — The Perceived intra-frame Dynamic Range in a Cinema Environment

Dirk Maes (Barco n.v.); Tine Vyvey (Ghent University); Jan Van Looy (Ghent University, Belgium); Bruno Vandeveld (Barco n.v.); Goran Stojmenovic (Barco n. v., Belgium)

3:00 — 3:30 PM Coffee Break

3:30 — 5:00 PM

Asset Management & Storage: Content Management and Storage-Surviving the Data Tsunami

Room: Salon 1

Chair: *John E. Ferder (CBS, USA)*

3:30 PM — Talk About BIG Data!

Brian Campanotti (Oracle Digital Media Solutions, USA)

4:00 PM — High-performance Scale-out Storage: Less Tiers, Fewer Fears

John L. Pittas and David Sallack (Panasas, USA)

4:30 PM — Reinventing Content Storage to Solve Today's and Tomorrow's Media Workflow Challenges

David Colantuoni (Avid, USA)

Future of Cinema: Pixels per Second

Room: Salon 2

Chair: *Peter Ludé (RealD, USA)*

3:30 PM — It's All Backwards: Rethinking Frame Rate and Temporal Fidelity in a Cinema Workflow

Anthony Davis (RealD Inc., USA)

4:00 PM — Is There an "Uncanny Valley" in Frame Rate Perception?

Sean Cooper (Rochester Institute of Technology, USA); Elizabeth Pieri (Dolby Laboratories, USA); David Long (Rochester Institute of Technology, USA)

4:30 PM — Research on Movie Theater Requirements for Surrounded Projection Technology

Cho Sung Min (Korean Film Council, Korea)

Thursday, 27 October

7:30 — 8:30 AM Morning Coffee

8:30 — 10:00 AM

UHDTV/HFR/HDR/Wide Color: Bigger, Better, Faster Comes to Broadcast

Room: Salon 1

Chair: *Kevin J Stec (Consultant, USA)*



8:30 AM — An UHD 2/3 inch CMOS Imager with Dynamic Pixel Management, an Enabler for New Format Flexibility

Klaus Weber (Grass Valley, A Belden Brand, Germany); Peter G. Centen (Grass Valley, The Netherlands)

9:00 AM — 8K-UHDTV Production Equipment and Workflow Which Realize an Unprecedented Video Experience

Tsuyoshi Sakiyama (Japan Broadcasting Corporation); Kenichiro Ichikawa (Japan Broadcasting Corporation, Japan); Mayumi Abe (Japan Broadcasting Corporation (NHK), Japan); Seiji Mitsuhashi and Masayuki Miyazaki (Japan Broadcasting Corporation, Japan)

9:15 AM — Development of an 8K Production System with 120 Hz Frame Frequency

Tetsuya Hayashida (NHK & Science & Technology Research Laboratories, Japan); Takuji Soeno, Jun Yonai, Atsushi Iwasaki, Daiichi Koide and Yoshitaka Ikeda (NHK, Japan); Takayuki Yamashita (NHK, Japan Broadcasting Corp., Japan); Yoshiro Takiguchi (Japan Broadcasting Corp., Japan); Eiichi Miyashita (Japan Broadcasting Corporation, Japan); Yukihiro Nishida (NHK Science & Technology Research Laboratories, Japan)

9:30 AM — Conversion of Conventional Video for Display on High Dynamic Range Televisions

Simon Thompson (BBC, United Kingdom)

File Workflows and Formats 1 — Media Infrastructure Workflows: Tools of the Trade

Room: Salon 2

Chair: *Sara Kudrle (Grass Valley, a Belden Brand, USA)*

8:30 AM — Titling for Live Streaming and File-Based Broadcast Workflows

Scott Matics (Telestream, USA); Todor Fay (NewBlue, Inc., USA)

9:00 AM — Common Mezzanine Distribution Format for ABR TV Submission to SMPTE

Raj Nair and Prabhu Navali (Ericsson, USA)

9:30 AM — NDR - A Machine-Readable Model for News Content Distribution Control

Michael L. Palmer (Masstech, USA)

Audio — Advances in Audio Reproduction

Room: TCL

Chair: *Chris Witham (Walt Disney Studios, USA)*

8:30 AM — Building the World's Most Complex TV Network (A Test Bed for Broadcasting Immersive and Interactive Audio)

Robert Bleidt (Fraunhofer USA, USA); S. Merrill Weiss (Merrill Weiss Group LLC, USA); Herbert Thoma and Wolfgang Fiesel (Fraunhofer IIS, Germany); Stefan Kraegeloh (Fraunhofer IIS, USA); Harald Fuchs and Rinat Zeh (Fraunhofer IIS, Germany); Jim DeFilippis (TMS Consulting, USA)

9:00 AM — Open-source Spatial Audio Compression for VR Content

Jamieson Brettle (Google, USA); Jan Skoglund (Google, Inc., USA)

9:30 AM — Loudspeaker Requirements in Object-based Cinema

Paul Peace, Jr. (JBL Professional & Harman Professional Solutions, USA)

10:00 — 10:30 AM Coffee Break

10:30 AM — 12:00 PM

UHDTV/HFR/HDR/Wide Color: Make Those Pixels Work!

Room: Salon 1
Chair: Kevin J. Stec (Consultant, USA)

10:30 AM — A Biologically-Inspired Approach to Making HDR Video Quality Assessment Easier

Sean McCarthy (ARRIS Group Inc., USA)

11:00 AM — Objectively Evaluating High-Dynamic-Range and Wide-Color-Gamut Color Accuracy

Jaclyn Pytlarz and Elizabeth Pieri (Dolby Laboratories, USA); Robin Atkins (Dolby Laboratories, Inc., USA)

11:30 AM — Beyond the Limits of Visual Acuity: The Real Reason for 4K and 8K Image Resolution

Ed Reuss (Unaffiliated, USA)

File Workflows and Formats 2 — IMF and DPP-Interoperability from Creation to Delivery

Room: Salon 2
Chair: Sara Kudrle (Grass Valley, a Belden Brand, USA)

10:30 AM — Scaling IMF: How to Manage 10,000 IMF Packages

Eric Carson (Dalet Digital Media Systems, USA); Simon Adler (Dalet, USA)

11:00 AM — An Extension of the Output Profile List for Semi-automated Quality Control Using IMF

Heiko Sparenberg and Matthias Martin (Fraunhofer IIS, Germany); Ronny Paduschek (Fraunhofer IDMT,

Germany); Siegfried Foessel (Fraunhofer IIS, Germany)

11:30 AM — NABA DPP Files Specifications for North America

Clyde Smith (Fox Networks Engineering & Operations, USA)

11:45 AM — Automating The Exchange of Video Files

Christopher J. Lennon (MediAnswers, USA)

12:00 — 2:00 PM Boxed Lunch

2:00 — 3:30 PM

Advances in Display Technology

Room: Salon 1
Chair: Peter H. Putman (ROAM Consulting LLC, USA)

2:00 PM — The Resolution Revolution — How Many Bits do we Really Need?

William Cooper and Sue Farrell (Informativ, United Kingdom)

2:30 PM — The Future's So Bright, I Gotta Wear Shades: Test Patterns for HDR

Norm Hurst (SRI Sarnoff Corp., USA)

3:00 PM — Cutting The Cord @ 60 GHz

Peter H. Putman (Technology Consultant, Kramer Electronics)

New Distribution Modalities: Influence of Digital Technology on Distribution Channels

Room: Salon 2
Chair: Siegfried Foessel (Fraunhofer IIS, Germany)

2:00 PM — Evolving Television Broadcast Architectures in a Digital IP World

Mark A. Aitken (Sinclair Broadcast Group, USA); Gerard Faria (TeamCast, France); Mike Simon (Sinclair Broadcast Group, USA); Kevin Gage (ONE Media, USA)

2:30 PM — How's Your Hooper Rating?

Andy Rosen (SequenceKey)

3:00 PM — Through the Smoke and Noise: M&E Technology Trends Enabling Consumer Engagement

Matthew Eaton (Cognizant Technology Solutions, United Kingdom); Kimberly Lucin (Cognizant Technology Solutions, USA); John Footen (Cognizant, USA); Blake White (SMPTE & Cognizant Technology Solutions, USA)

3:30 — 4:00 PM Coffee Break

4:00 — 5:30 PM

Video Compression Technologies

Room: Salon 1

Chair: Matthew S. Goldman (Ericsson, USA)

4:00 PM — HEVC Mezzanine Compression for UHD Transport over SDI and IP Infrastructures

Damian Ruiz (Universitat Politècnica de València, Spain);
Juan Jose Anaya (SAPEC, Spain)

4:30 PM — A Comparison of Intra-frame Codecs Considered for IMF

Wolfgang Ruppel and Theresa Baier (RheinMain University of Applied Sciences, Germany)

5:00 PM — VP9 Encoder and Decoders for Next-Generation Online Video Platforms and Services

Mukund Srinivasan (Alliance for Open Media & Ittiam Inc, USA)

New Distribution Modalities: Challenges to Transmit Immersive Quality for OTT

Room: Salon 2

Chair: Siegfried Foessel (Fraunhofer IIS, Germany)

4:00 PM — More Juice Less Bits: Content Aware Streaming

Ali C. Begen (MediaMelon, Inc. USA)

4:30 PM — Challenges of Delivering Superb Viewing Experience While Streaming UHD 4K and HDR Content in the Adaptive Bitrate (ABR) Era

Ravid Hadar, Rotem Epelbaum, and Inna Zagrebelny (Giraffic, Israel)

5:00 PM — HDR to the Home: Rethinking Content Delivery Strategies

Ken Goeller (Deluxe OnDemand, USA)

(Program Subject to Change)

SMPTE

CONGRATULATIONS SMPTE



1 9 1 6 - 2 0 1 6

WE'RE PROUD TO BE A PART OF HISTORY!
FROM THE HOLLYWOOD PROFESSIONAL ASSOCIATION BOARD MEMBERS

