Section Meetings

Hollywood— April 2008

The Hollywood Section was invited by Warner Bros. on April 22, to tour the production facilities at "TMZ," a syndicated television program currently airing on Fox affiliates across the country. This TV show is a prime example of the new generation of television newsgathering, which is highly based on the internet culture.

Spencer Stephens and Robert Moore provided details on a very new workflow for news acquisition, production, editing, and distribution. "TMZ" is produced in a very fast-paced, tapeless production environment and airs simultaneously on television and the web. The workflow is vastly different from that in current newsgathering. There is no host to "cut back to" if something does not work with a location reporter. The news is timely and very current; producers have the ability to update a segment or segments within minutes of airtime. The workflow is all server-based, and all acquisition is shot on HD gear and down-converted for current broadcast; however, "TMZ" has the ability to go full HD if needed.

Attendees were very impressed with the workflow and the technology being utilized to deliver content. No doubt, this is a model for news that will be duplicated around the globe. An article in the February 2008 issue of *Broadcast Engineering* provides further detail on the components being used in "TMZ."—*Allan Schollnick, Section Manager*

Hollywood— May 2008

The nation's Army delivered an enlightening presentation to the Hollywood Section on May 20 at the Raleigh Studios in Hollywood.

The U.S. military and Hollywood share a rich history, dating back to the early days of the newsreels shown in the theaters, and the war movies that have told stories of brave men and women in key battles over the last decade. The wars fought back then were different from the battles seen today; therefore, the way that troops are trained must also change to reflect the new battlefield.

The Army presented a short movie entitled, *The New High Tech Army*. The movie began with a reflection on the history between Hollywood and the Army, and then showed how motion picture technologies are applied in daily training activities, and more importantly, how technologies such as motion capture are used to help heal the injured.

Fort Irwin, CA, is a national training center for all units of the military. Here, in the past, the Red Army vs. the Blue Army would battle each other to simulate field battles, as seen in many old military movies. Today, Fort Irwin (along with other locations) is made up of villages and staffed by individuals that come from other countries and returning soldiers who re-enact the exact scenarios that troops may encounter when deployed. Soldiers must learn the culture, be negotiators, ambassadors, and understand subtle danger signals when they are required to go into a village and engage in any assigned activity. The purpose of this activity may be to find a stash of weapons, interrogate insurgents, or simply to patrol the area. Both Warner Bros. and Disney set designers have been employed to bring realism and accurate set design to these villages, adding to the overall effect.

This training is conducted with lifelike accuracy, engaging pyrotechnics, skilled acting, and even includes unfriendly news crews that go into the field and try to get damaging shots of the troops in action. The sobering view of how medics must treat a soldier losing a limb from an improvised explosive device (IED) are often played with a volunteer trooper who reflects back on his or her actual experience. The result is a well-trained soldier who is better equipped to carry out a task. Motion picture technologies contribute heavily to this success, and this event was the Army's way of thanking the Society for the technologies we standardize and refine in our industry.

Col. Walsh, Commander of the 6th Recruiting Brigade, led the project and discussion. Walsh brought a team from Army Intelligence: Staff Sergeant Cameron, 309th MI and Sergeant First Class Swanson, 309th MI, who discussed how they use images gathered in training and in the field. Also in attendance, were Sergeant Salvador and Staff Sergeant Scibelli of B Company (UAV), who discussed the use of the unmanned aircraft in surveillance and tactical activities. Dr. Wilkens of the Center for the Intrepid, gave a very interesting discussion on how motion capture technologies, coupled with video game scenarios are helping to heal the process. The Center for the Intrepid is an advanced site located at Fort Sam in Houston, TX. This facility was privately funded and is now operated by the Army. It is recognized for its innovative and successful treatment of injured soldiers.

In closing, the Army discussed the implementation of programs to attract highly qualified recruits. The growing high school dropout rate threatens the ability to maintain a successful all-volunteer armed force. Therefore, programs such as "March For Success" are provided free of charge to help high school students academically, with no obligation to enlist. The presenters also stressed the importance of employers to also find ways to contribute.—*Rick Dean, Governor*

Hong Kong— May 10, 2008

In response to a strong demand for more training courses on image compression technologies, the SMPTE Hong Kong Section and the Hong Kong Institute of Vocational Education (IVE) organized the fourth in a series of training courses, which was held on May 10. Oscar Au, director of the Multimedia Technology Research Cen-

tre at the Hong Kong University of Science and Technology, conducted the seminar, which focused in detail on MPEG–2/4, H. 261, H.263, H. 264, SMPTE VC-1, AVS, JPEG 2000, and audio coding such as MP3, AAC, and AC-3. Au elaborated on the application of these coding technologies in motion picture and television.—*Tony Ngai, Section Chair*

Oscar Au delivers presentation on compression technologies to the Hong Kong Section at a training seminar on May 10.

Attendees at the training seminar included: (L-R) Peter Chu, Philip Wu, Tony Ngai, Prof. Oscar Au, K.L. Lam, P.H. Cheung, W.B. Leung, Percy Fung, K.H. Sin, K.Y. Poon, and William Chan.

Attendees gathered at the Hong Kong IVE on May 13, for a presentation on lighting.

Guest speaker Jonathan Harrison delivers a presentation on lighting to the Hong Kong Section.

Hong Kong— May 13, 2008

More than 150 professionals in film and television gathered at the Hong Kong IVE for a presentation on "Lighting On The Run," by Jonathan Harrison.

Harrison gave general introduction on the trend of using a smaller lighting kit versus the conventional way of lighting equipment, the constraints, and the advantage of shooting in HD format. He pointed out that time pressure is always difficult for cinematographers and gaffers, who want to achieve the perfect lighting scenario before calling for "action." Harrison demonstrated how a small lighting kit operates when shooting interviews, and how to manipulate the depth of field to achieve the desirable result in combination with lighting effects.

Attendees were impressed by what can be achieved in a comparatively short period of time.—*Oonagh Chan, Secretary/Treasurer*

New York— April 2008

Kodak hosted the New York Section meeting on April 2, which began with

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introductions by Section Chair Doug Sheer. SMPTE Director of Engineering and Standards Peter Symes, who was in attendance, took a few moments to introduce himself and remind members that SMPTE HQ is here to serve "…you the members."

Nestor Rodriguez, senior technical project leader at Kodak, delivered the presentation, titled "Integrated Calibration and Management of Color, Tone, and Image Structure in a Digital Intermediate System."

During the digital intermediate (DI) process, unwanted color, tone, and image structure distortions may be introduced during digitization or subsequent image processing operations. Rodriguez discussed a system and method for automatically creating scanner-specific calibration functions that convert color, tone, and image structure into a common exchange space. "Printing density" has been a commonly accepted image data metric in post-production

Nestor Rodriguez presenting "Integrated Calibration and Management of Color, Tone, and Image Structure in a Digital Intermediate System" at the New York City Section meeting on April 2.

applications since the early days of DI, and it would seem beneficial to standardize other equipment employed in the entire DI process on the printing density metric. By implementing commonly used calibration targets/instrumentation, along with known color management techniques, it is possible to convert image output from scanners, digital cameras, CGI, image processing workstations, and other devices to printing density. This practice would provide a common metric for the interchange of digital intermediate image data for the various stages of the process, minimizing the problem of data incompatibility between in-house devices as well as post-production facilities.

Rodriguez also discussed different image capture/processing workflows, demonstrating how printing densities would be implemented as a common metric. He provided examples showing how the use of printing density as a common metric would improve the calibration of tone, color, and image structure for film-originated images to be projected either digitally or on film.

Following the presentation, the program continued with a lengthy Q&A discussion, which included exchange of expert commentary on the subject matter that served as a DI tutorial for many attendees.—*Rich Carlson, Program Chair*

Rochester— May 2008

Members gathered at the Curtis Theatre at George Eastman House on May 8 for a presentation titled, "Dissecting Ditty: The Making of Operation Ditty"—bringing home movies into the 21st century using traditional and digital film preservation methods. *Ditty*, a home movie comedy about school-girl detectives who are dedicated to maintaining world peace and security, was shot on Super-8 Kodachrome film on location in Montreal in 1967 by Susan Patrick (a teenager at the time). The movie, screened for family and

Guest speakers Susan Patrick (l) and Taylor Whitney (r) were presented with flowers by John Weiksnar (c) after their presentation of "Dissecting Ditty."

friends in a basement theater, was later stored in a box for 40 years. In 2006, Taylor Whitney of Preserving the Past, L.L.C., working with Susan Patrick, began restoring the movie, which was transferred to Betacam SP tape at the Film Technology Company in Hollywood. Best-light color correction was implemented using a DaVinci color correction system, and the signal was passed through a digital video noise reduction (DVNR) unit to minimize dust and scratches. It was then digitized and edited using Final Cut Pro. Jump cuts and bad splices were repaired, under-exposed scenes lightened, and transitions added. While maintaining the director's original intent and the integrity of the era, special effects and titles were added using Apple's Motion and Adobe's After Effects. The final product was authored on DVD using Compressor and DVD Studio Pro for screening. A 40th Anniversary Gala Premiere of the movie was held in Toronto on April 7, 2007.

The presentation was followed by a screening of the 26-minute movie, and the program concluded with a lively Q&A session. A reception was also held at the Rochester headquarters of Preserving the Past, L.L.C.—*Alan J. Masson, Section Chair*

Rochester— June 2008

Richard B. Wheeler, a senior principal scientist with the Eastman Kodak Co., gave a PowerPoint presentation on how the now common digital intermediate systems for motion imaging could be improved upon. To make digital intermediate systems even better, more efficient methods for reducing system variability and preserving creative intent are currently being developed and refined. The presentation was based on a paper written by Nestor M. Rodriguez and Richard Wheeler. The information presented illustrated a comprehensive method for automatically creating calibration functions that convert color, tone, and image structure into a common exchange space referred to as "Printing Density." Once calibrated, the system provides features that allow

SMPTE Section Manager Darryl Jones thanks speaker Richard Wheeler.

the user to accurately preserve the color, tone, and image structure of existing films or create custom renderings that when displayed on film or digital devices will be faithfully reproduced.

By using the printing density system described in Wheeler's presentation, it does not matter how you capture or create the image. Electronic, film, or computer graphic images can all be managed with this system approach. In fact, these three image sources can be mixed and matched as needed and the end result can be controlled to such a degree that "inter-cutting" will be seamless. Simply stated, by using the

printing density workflow, any origination method(s), post-production, and any display medium can be accurately managed from beginning to end.

The PowerPoint slides for this presentation can be viewed at http://motion.kodak.com/US/en/motion/Hub/why1.htm (Film Printing Density); the complete paper will be published in the October 2008 issue of the *Journal.—Darryl G. Jones, Section Manager*

Washington, D.C.— March 2008

The D.C. Section met at Atlantic Video in March as part of Quantel's multiday presentation of their stereoscopic 3-D processing platform. The event featured a screening of scenes from 3-D theatrical releases, including footage from director James Cameron and segments from the recent *Hannah Montana* movie. The images were projected by two vertically-oriented projectors with polarizing filters and audience-worn passive polarizing glasses.

3-D images are created by manipulating the position of identical images, which are shown to each eye at slightly different times or with optical polarization. The location where visual elements are placed within the interocular distance (average distance between the pupils of both eyes) determines the perceived depth those elements have in a scene. Elements can be behind, on, or in front of a virtual z-axis plane. Live 3-D is shot with two cameras mounted in tandem and synchronized to make identical recordings. The distance between the camera lenses determines the interocular distance of the scene.

Typically, 3-D material is edited in 2-D form, by cutting all the scenes for a single eye and then cutting the reel for the other eye. The 3-D end-product is then viewed. This offers a disadvantage in that editing decisions are made without viewing the final 3-D effect, often leading to many changes. Likewise, imperfections in the 3-D source material may not be seen immediately, and fixing them can be extremely time-consuming. Quantel was able to demonstrate realtime manipulation of the 3-D image to correct flaws in the

(L-R) SMPTE Eastern Regional Governor Graham Jones; Norman Rouse, Quantel; and Jim Kutzner, PBS, discuss 3-D processing.

original footage and to create particular depth effects.

The meeting was particularly interesting to viewers who have never seen high-quality 3-D video in a theatrical setting. Many of the difficulties encountered with the older 3-D systems have been solved, and the end result is quite surprising (and much less prone to viewer discomfort). Live productions, such as a Hannah Montana concert, are particularly effective in 3-D because they give the viewer a greater

sense of presence at the event.—*Eric Wenocur, Section Manager and Program Chair*

Washington, D.C.— May 2008

On May 17, the SMPTE D.C. Section, the Audio Engineering Society (AES), and the Acoustical Society of America (ASA), enjoyed a presentation by Frederick J. Ampel, whose consultancy serves the professional and consumer audio/video industries worldwide.

Most people listen to sound systems, whether for production/post-production work or for pleasure. Ampel made it clear that the goal of a surround installation is entertainment, not science. A properly setup and calibrated audio system will produce a higher Reality Creation Quotient, enabling a sound designer to create a more accurate and involving sound space, which will more effectively place the listener, with his or her own properly setup and calibrated audio system, in that space. The more effectively the system places the listener in the space the sound-

track represents, the higher the entertainment value, the better the system, and the stronger the emotional power of the sound.

System setup based solely on measurements (the science) can get you only so far. Ampel explained a methodology that combines recognized and respected instrumentation-produced information, with the sound heard by a listener, to give a more powerful analytical tool to use in ascertaining a system's sound quality. He demonstrated how to use soundtracks to evaluate multichannel audio system performance and guide the listener in making final adjustments.

This bimodal approach to system setup is necessary because equipment does not hear as we do, and listeners' ears pass final judgment on the effort of the engineer or designer. This is true whether the audio is music or a soundtrack, and whether the customer is a consumer, a mastering engineer, or a movie sound designer.

Whenever a person listens to an audio system (especially a multichannel one), he or she receives a huge amount of data on that system's attributes and capabilities, without formally recognizing the process. Unfortunately, only a small portion of what is heard is processed, primarily because people don't listen for the rest of the information.

Loudspeaker specifications and measurements are generally based on anechoic analysis, yet speakers are used in rooms where acoustics always modifies expected performance and often dramatically changes sound quality. Ampel gave a short refresher on room acoustics, speaker/listener placement issues, and the 3-D nature of room modes. He fed a 50 Hz tone through the system while attendees walked around to find the horizontal and vertical locations of sound energy peaks and dips.

Ampel considers the most critical parameter to be the precisely matched timing of the signal from each speaker to the prime listening location (the "money" seat, where the person with the checkbook sits). His experiments have revealed that the measured distance almost always differs from the

acoustic distance, sometimes by as much as 1 m, because room reflections within the first 30 msec (the ear's approximate fusion time) affect the perception of sound arrival. He uses the audio control Iasys (an analyzer that he assisted in designing) to determine the relative acoustic distances of the speakers from the microphone placed at the prime listening spot.

The Iasys also detects each speaker's level, signal polarity, and detailed frequency response at the listening posi-

tion, using fuzzy logic to suggest equalizable corrections. The algorithm never suggests trying to fill a null, because it is not possible and will severely stress the system, violating one of Ampel's tenets: distortion is distortion, regardless of the explanation or name, and is not to be tolerated. Based on the Iasys data and his judgment, Iasys enters appropriate corrections and crossover frequencies (between each main speaker and the subwoofer) into the audio control Diva, which electronically fits between the Maestro, or any other surround pro-

cessor and the power amplifiers. Ampel emphasized that these steps are undertaken using a combination of measurements and ear checking.

To illustrate the importance of his bi-modal approach, Ampel played a series of movie clips, beginning with the cornfield scene from *Field of Dreams* ("If you build it, he will come"). His selections were chosen to highlight the subtleties in the sound, not explosions, because they more strongly affect one's sense of reality. Each was played three ways. First, with the system in "out-of-the-box" mode—unpack, place, and interconnect the electronics and speakers, with no further adjustments; second, with added timing correction and level balancing; and third, with added EQ.

He suggested listening to:

■ Dialog (actors must sound "real," not thin or boxy).

■ Space (ambience of the physical places represented on the screen; especially the small, quiet details sound designers spend hours creating and placing—footsteps, corn stalks rustling in the wind, birds, a creaking screen door, etc.).

■ Accuracy (a smooth, even sound-field with no artifacts; nothing that is not in the source signal).

■ Colored/Uncolored (no harmonics or resonance produced by the speakers or the room).

■ Naturalness (voices, music, and ambience must sound "real" and not forced).

The results could be summarized as "Fair" (because good equipment and speakers were used in a reasonably decent room), "Better," and "Best"—the latter version effectively transporting the audience to that place and time on the screen. It was easy to imagine actually being there; the sound reflected the listeners' (our) mental sense of the space, and no audible artifacts degraded or distracted from the experience. Attendees were invited to visit the "sweet spot" occupied by the measurement microphone to get the maximum effect.

Ampel stated that when a system is working properly, there will often be a physical jerk or snap in a listener's body language when the stop button is pressed and their location suddenly shifts from the picture back to the reality of the room. This tells him that he has successfully re-created the acoustical space intended, and that the details are coming through to create a sense of reality.
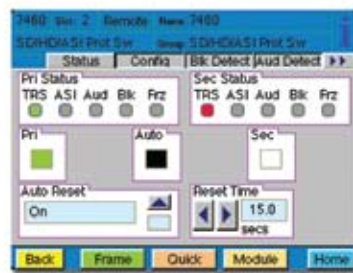
Many attendees remained after the presentation for a Q&A session and to discuss various surround sound issues.

Funding for the event was shared among the SMPTE D.C. Section and the D.C. chapters of the AES and the ASA, with help from the AES' Distinguished Speaker Program.—*David J. Weinberg, SMPTE Section Manager and AES-DC Section Chair, and Fred Geil AES-DC Secretary*

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