



Bruce Devlin

Next-Generation Imaging

More pixels, better pixels, metadata for pixels, repeat every few years and you end up with a history of TV and cinema over the decades. From low-resolution black-and-white cinema and TV, we improved resolution, added colors, improved resolution again, made the colors better (again), improved the resolution (again), and started to add metadata about the shoot or the film stock to improve the imagery. Today, we live in a world where top-end content is captured with more information that can be displayed on any screen, but post-processing means the content can be targeted at the right screen at the right time for the right price.

At the display side of the value chain, we have just seen a relaunch of 8K resolution super-bright screens at the Consumer Electronics Show (CES) 2019. Some of them even roll away into a box so they don't make your room feel too small. These screens have smart upconverters and color space converters that once upon a time were the technologies that could only be afforded by the very top-end TV stations and distribution facilities. These consumer screens have more pixels, more contrast ratio, and more brightness than almost any professional screen or cinema screen being used to master the content.

To get the content from camera to screen, there is never

enough bandwidth, and the world continues to look for interesting and novel compression techniques. SMPTE's VC-5 and VC-6 are currently used in the standardization process, along with updates to VC-2 and VC-3 to incorporate high dynamic range operation.

Are any of these truly next-generation imaging though? Surely by now, we should have 3D imaging. Well, that seems to have gone back into hibernation for another few years. Maybe virtual reality (VR) has met its claim of being the new killer app? I would state that the low profile of VR at CES 2019 might suggest that VR and augmented reality (AR) are heading for hibernation, unless you're in the gaming



Attendees pose for a photo during the Technology Committee (TC) meetings in December 2018 at Dolby Laboratories in San Francisco, CA.

market. However, it seems to me that one of the big topics is really about the metadata that can be generated and is required by all these systems. It might be metadata that allows preview of computer-generated imagery or metadata that enables tracking of objects that are not physically present, or maybe metadata that captures the optical characteristics of the scene for later display on a device with completely different optical characteristics. By the way, I wonder what geolocation metadata was used to describe the source location of the content from the International Space Station described elsewhere in this *Journal*! SMPTE does not yet have an extraterrestrial register. I wonder if we should.

Regardless of the type of next-generation system, SMPTE continues its liaison activities with organizations involved in VR, cinematography, displays, consumer technology, and all aspects of professional media to ensure that we can create standards, specifications, and guidelines for the industry. If you have a project where SMPTE can help with imaging technology, then please get in touch! If you have never attended a Technology Committee meeting and would like to see what goes on, then you can attend one meeting as a guest. The next meetings are scheduled at our SMPTE headquarters in White Plains, New York, in March and then at IMAGICA in Tokyo, Japan, in June.

SMPTE

UPCOMING TECHNOLOGY COMMITTEE MEETINGS

11–14 March 2019
SMPTE
White Plains, NY, USA

17–20 June 2019
IMAGICA
Tokyo, Japan

18–21 September 2019
Fraunhofer
Erlangen, Germany

2–5 December 2019
Arista Networks
Santa Clara, CA, USA

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