

# From Presentations

## Research Presentation 1

### Enhancement of Integrated Broadcast-Broadband System ~Toward The Advanced Hybridcast Services

Hisayuki OHMATA, Integrated Broadcast-Broadband Systems Research Division



Hybridcast is a technology platform for integrated broadcast-broadband services that offer viewers new TV experiences. It was launched by NHK in September 2013, and since then, STRL has been continuing work to enhance Hybridcast services through the development of technologies to realize more advanced and diverse services. We are also contributing to standardization activities to extend Hybridcast's technical specifications.

In this presentation, we addressed the technical concept of a non-broadcast-oriented managed application that allows third-party companies, other than broadcasters, to provide Hybridcast applications. We also discussed a system model to distribute secure and safe applications to viewers and enable broadcasters and third parties to provide smooth cross-channel services. The vision for Hybridcast and approaches to its future implementation in the coming 8K Super Hi-Vision era were also discussed.

## Research Presentation 2

### Development and Standardization of an Optical Interface for 8K Super Hi-Vision

Takuji SOENO, Advanced Television Systems Research Division



NHK has been researching 8K Super Hi-Vision (8K) as a next-generation broadcasting system. We are developing "full-specification 8K" equipment with resolution of  $7,680 \times 4,320$  pixels, a 120-Hz frame frequency, 12-bit depth/pixel coding format, and a wide color gamut. In many cases, it was necessary to use numerous coaxial cables to transmit 8K signals. This has raised issues in practical applications. Consequently, there is a need for the development and early standardization of an interface for transmitting 8K signals using a single cable.

In this presentation, a new 8K optical interface that was standardized as ARIB STD-B58 in March 2014 was reported. First, the requirements and considerations for an 8K interface were discussed. Then, the newly developed 8K signal mapping method to multilink 10-Gbit/s streams was introduced, and results of the 8K signal transmission experiment were presented. Finally, 8K equipment developed by incorporating this interface was presented.

## Research Presentation 3

### Using a Multi-viewpoint Camera to Generate Integral 3D Images

Kensuke IKEYA, Three-Dimensional Image Research Division



One of STRL's aims is the creation of an ultra-realistic broadcasting system. To this end, research is continuing on integral 3D television, which produces natural-looking three-dimensional images that can be viewed without special glasses. Integral 3D television generates three-dimensional images by combining a lens array (consisting of small lenses) and a high-resolution display to reproduce the light beams emitted from an object. It employs a special camera to produce its images. However, this special camera has had difficulty capturing 3D images of distant objects such as the players in a sports field.

In this presentation, we introduced a method to produce integral 3D images of objects, even those at a distance, through the use of a multi-viewpoint camera system consisting of ordinary TV cameras that capture video from many different directions (multi-viewpoint video). The usefulness of this method was illustrated in the form of integral 3D content produced from past video footage of a sumo tournament.