

FRAUNHOFER HEINRICH HERTZ INSTITUTE

PRESS RELEASE

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Fraunhofer HHI with latest VR technologies at NAB in Las Vegas

At NAB Show 2017 Fraunhofer HHI presents the latest developments in 360 degree video and Virtual Reality (VR).

You find the following highlights at Fraunhofer Booth 6110, South Upper Hall and Booth N1216VR, Virtual & Augmented Reality Pavilion:

New 360 degree OmniCam-360 with closed sphere and live stitching

Fraunhofer HHI's OmniCam-360 is a worldwide unique system for recording high-resolution video panoramas. For instance sport or musical events can be experienced in an Ultra High Definition panorama up to 360 degrees. The latest development makes it possible to provide this UHD panoramic content for Virtual Reality (VR) glasses. Thanks to the real-time solution of Fraunhofer HHI, the ten single camera segments are smoothly composed to an UHD video that can be transmitted to VR glasses so that the spectator is able to enjoy a truly immersive experience. At NAB the new very light version of the OmniCam-360 with closed sphere will be shown.



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3D Human Body Reconstruction

At the Fraunhofer Heinrich Hertz Institute, the 3D human body reconstruction technology captures real persons with multiple cameras at the same time and creates naturally moving dynamic 3D models. Afterwards, they can be integrated in computer graphics virtual worlds or real scenes. The human 3D models can be manipulated to change their viewing direction, movements



and animation.

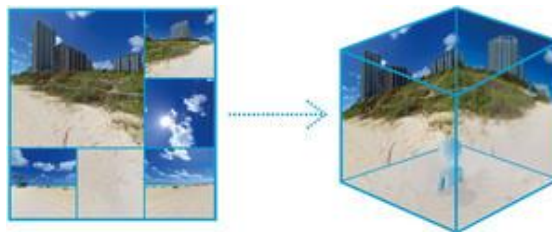
This technology is being used for the first time in cooperation with UFA GmbH in the course of a joint test production for the immersive film "GATEWAY TO INFINITY" as a volumetric virtual reality experience. Results will be shown at NAB.

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Tile Based DASH Streaming for Virtual Reality with HEVC

Only high resolution content can give a sense of immersion in VR video applications, but the large amount of data poses a challenge to common transport systems and decoders. Tile based DASH streaming with lightweight HEVC Tile Aggregation allows to easily adapt on-the-fly the 360° video data stream to the current user viewport.



This technology allows reducing throughput and decoder requirements significantly without complex transcoding.

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Interactive Live Streaming of 10K Video Panoramas with HEVC

At the Fraunhofer booth, the OmniCam-360 captures live high-quality 360-degree panorama video. The video is transmitted from the OmniCam-360 to an UHDTV. Any section (region of interest – ROI) of the panorama can be selected with a remote control and scaled to UHD. The user may scroll horizontally through the panorama and he may also zoom out, in order to show the complete panorama on the screen. For the use of VR glasses an UHD receiver decodes the HEVC panorama video and the full panorama is downsampled to UHD and re-encoded.



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HEVC Live Statmux

The latest generation of Fraunhofer HHI's H.265/MPEG-HEVC software encoding technology is enabling HEVC live encoding of 10-bit 60Hz UHD video with High Dynamic Range (HDR) and Wide Color Gamut (WCG). With the Statmux Fraunhofer HHI developed a new component of its HEVC Live Encoder Software Developer Kit (SDK). The technology enables an analysis of the video material and an allocation of the total bitrate to different video encoders depending on the complexity of the content. Thus, significant bitrate savings as well as quality improvement of the video content of single channels can be gained while the available bandwidth is used most efficiently.



Innovations for the digital society of the future are the focus of research and development work at the **Fraunhofer Heinrich Hertz Institute HHI**. In this area, Fraunhofer HHI is a world leader in the development for mobile and optical communication networks and systems as well as processing and coding of video signals. Together with international partners from research and industry, Fraunhofer HHI works in the whole spectrum of digital infrastructure – from fundamental research to the development of prototypes and solutions. www.hhi.fraunhofer.de

The Fraunhofer-Gesellschaft is the leading organization for applied research in Europe. Its research activities are conducted by 69 Fraunhofer Institutes and research units at locations throughout Germany. The Fraunhofer-Gesellschaft employs a staff of some 24,500, who work with an annual research budget totaling 2.1 billion euros. Of this sum, 1.9 billion euros is generated through contract research. More than 70 percent of the Fraunhofer-Gesellschaft's contract research revenue is derived from contracts with industry and from publicly financed research projects. International collaborations with excellent research partners and innovative companies around the world ensure direct access to regions of the greatest importance to present and future scientific progress and economic development.
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