

3D VISUALIZATION

The Next Step in Closing the Value Chain



The Fraunhofer Heinrich Hertz Institute: Covering the Entire 3D Value Chain

The Fraunhofer Heinrich Hertz Institute (HHI) covers every link in the 3D value chain. HHI's competencies include:

3D Capture: HHI's calibration and support tools for multi-camera setups enable high-quality 3D production for next-generation 3D displays that don't require glasses. *Trifocal Depth Capture* creates reliable depth maps with only minimal additional on-set effort compared to 2D. HHI's *Stereoscopic Analyzer (STAN)* captures and analyzes stereoscopic pictures, allowing them to be processed in real-time.

3D Video Encoding: By combining SVC and MVC, HHI enables the cost-efficient distribution of high quality HDTV and 3DTV services with wide coverage and service-specific robustness. HHI also offers authoring software for MPEG-DASH that is suitable for HD, 3D and future media codecs.

3D Processing: HHI provides dedicated conversion services for almost any type of existing autostereoscopic display. The Institute has also developed a real-time stereo-to-multiview conversion engine that allows playback of 3D Blu-ray and other stereoscopic 3D video content on most existing autostereoscopic displays.

3D Video Transmission: HHI enables adaptive 2D and 3D video transmission over LTE-A for multi-user applications.

3D Usability: HHI addresses the industry's need for a user-centric evaluation of 3D benefits.

3D Standardization: Fraunhofer HHI is developing 3D video codecs for television, cinema and mobile applications, including novel encoding tools for multi-view video and depth (MVD) compression, extending the high-efficiency video coding (HEVC) method.

Advanced 3D Displays: (Autostereoscopic) 3D display technology can combine multi- and single-user functions in one screen. This enables the creation of multi-functional all-in-one displays, the starting point for an entirely new kind of 3D display. HHI also offers electronic adjustments of optimal viewing distance for these displays.

3D Interaction: HHI offers competencies and solutions for touchless interaction with 3D content that support the development of new natural user interfaces (NUIs). Users may interact with objects in the virtual world without the need for other input devices. Fast hand tracking and gesture recognition algorithms developed by HHI facilitate the flexible design of touchless user experiences.

For more information, visit our website at:
www.hhi.fraunhofer.de

About Fraunhofer HHI

The Fraunhofer Heinrich Hertz Institute focuses on R&D in the fields of state-of-the-art communications systems and digital media and services use, particularly in the areas of 3D visualization and interaction, content creation, and image processing for the medical and security technology industries. HHI is a recognized leader in the field of digital technology whose work has been honored with numerous international awards; its EMMY-award winning video encoding algorithms are a worldwide industry standard.

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