

Electronic Holographic Stereography for True 3D Displays With Horizontal Parallax and Matched Vergence/Accommodation

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ABSTRACT

(500 words max)

Third Dimension Technologies (TDT) has developed a highly innovative true 3D holographic display, known as the Holographic Angular Slice 3D Display (HAS3D™). TDT's HAS3D is a light field display technology that does not require special glasses or head tracking devices. The unique technology allows a viewer to see a different view of a 3D scene with each eye (stereopsis) and provides head motion parallax, i.e. simply moves one's head left or right to look around objects (true horizontal parallax). The HAS3D technology does not have dead zones, pseudoscopic zones or dropouts. Based on holographic stereography, HAS3D reproduces all human visual cues to eliminate vergence-accommodation conflicts that typically cause eye fatigue and headaches with prolonged viewing of stereo glasses or even multiview lenticular displays. The HAS3D technology is available today, and a variety of form factors are possible from desktops to theaters. The technology has already been integrated into a flight simulator that can be used to simulate a number of different aircraft.

BIO

PRIMARY AUTHOR

(250 words max)

C. E. (Tommy) Thomas, PhD, is the founder and Chief Technical Officer (CTO) of Third Dimension Technologies (TDT) and has been working with holography, lasers and electro-optics design for more than 30 years (since 1972). Dr. Thomas holds a PhD in Plasma Physics (holography thesis) from Massachusetts Institute of Technology (MIT), Cambridge, MA, 1980, and is the inventor of the Holographic Angular Slice 3D Display (HAS3D). Research since 2003 includes development of the HAS3D and research on digital holography as a fast, high-resolution measurement technology. Prior to TDT, Dr. Thomas was a co-founder of nLine Corporation where he developed holographic image acquisition technology that allows extremely accurate measurement of semiconductor features to one percent or better of the laser wavelength used for measurement.