

CYLINDRICAL 3D DISPLAY  
OBSERVABLE FROM ALL DIRECTIONS  
*Juried Exhibit*

This new cylindrical 3D display allows multiple viewers to see 3D images from 360 degrees of arc horizontally without special glasses. The display is based on ray-space and super-multiview concepts, so its images have smooth motion parallax with unlimited viewing distance.

Cylinder-shaped holographic stereograms are widely used for art, advertising, and other applications because they allow multiple viewers to see a 3D image from all directions. But a multiplex-hologram can only show static images. Some displays of volumetric scans can show dynamic images that can be viewed from all directions, but their application is limited because they display "phantom images," in which all of the background objects are translucent. On the other hand, due to resolution limitations and the shape of 2D display devices such as LCD panels, it is difficult to make a multiview display with conventional methods such as lenticular sheets so that the display can be seen from all horizontal directions.

Our technique uses a cylindrical parallax barrier and a one-dimensional light-source array constructed from semiconductor light sources such as LEDs aligned vertically. It is based on the parallax panoramagram. The light source array rotates along the inside of the cylindrical parallax barrier, and the intensity of each light is modulated synchronously with the rotation.

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