

# HP develops glasses-free 3-D for mobile devices

The Associated Press

Researchers at Hewlett-Packard Co. have developed a way to put glasses-free 3-D video on mobile devices with a viewing angle so wide that viewers can see an object more fully just by tilting the screen.

Glasses-free 3-D is not unique. Nintendo Co. Ltd.'s 3DS handheld allows video game play in 3-D without glasses, but it requires players to look straight into the screen with their noses centered.

HP's researchers have found a way to make images viewable in 3-D from angles up to 45 degrees from center in any direction — up, down, side-to-side or diagonally. That means viewers can see a person's face with one ear blocked from view, but reveal the ear by swiveling the screen.

The company's findings will be published in the scientific journal, *Nature*, on Thursday.

The scientists used nanotechnology to etch multiple circles with tiny grooves into a glass layer of the display.

The grooves bend light in a way that allows for 64 different points of view. By moving the screen, people will perceive two of those points of view at any one time, one with their left eye and one with their right. As a result, the image will appear in 3-D.

David Fattal, the lead author of the paper, said the effect is "much like you'd see in the movie 'Star Wars' with the hologram of Princess Leia."

He acknowledged the effect wouldn't be identical to a hologram, however, since the images won't pop as far out of the screen as Leia's projection did in the movie.

The technology isn't exactly coming to a movie theater near you any time soon. While moving images can be created using computer animation, any live video capture would require an array of 64 cameras all pointed at an object, Fattal said.

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