

Digital Optical Cloaking

A digital optical cloak to hide an object from multiple viewpoints by digitally recreating a three-dimensional version of the background.

Problem Solved by This Technology

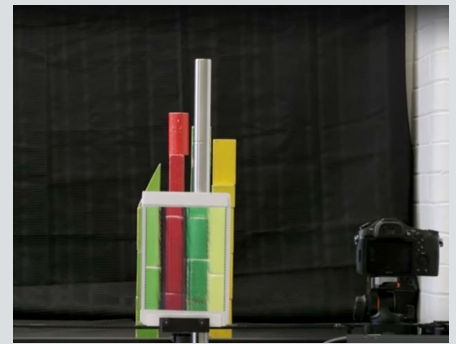
Whether hiding an object, or removing an inconvenient obstruction from one's line-of-sight, practical invisibility has remained elusive. While the **Rochester Cloak** offers a simple way of cloaking, it is limited by the cloaking working only over small angles, and cloaking large objects would require large, expensive lenses.

Applications

Using the same mathematical framework as the Rochester Cloak, researchers at the University of Rochester have been able to use flat screen displays to extend the range of angles that can be hidden from view. Their method lays out how cloaks of arbitrary shapes that work from multiple viewpoints, may be practically realized in the near future using commercially available digital devices.

By breaking up the information into distinct pieces, it becomes possible to use currently available digital cameras and digital displays to scan a background and then encode the information in such a way that, using a lenticular array, the background is correctly displayed for each viewing perspective. Thus, if the viewer moves from side to side, every part of the background moves accordingly as if the screen was not there – effectively cloaking anything in the space between the screen and the background. The mathematical framework and the proof-of-concept setup also demonstrates how any object of a fixed size can be cloaked, even when in motion, as long as the shape of the object remains fixed and does not deform.

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U.S. and international patent applications pending.

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