

Holofilter: 2.5D Anamorphic Illusions

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Project Abstract

Most modern 3D visualization software requires external devices to assist the immersive effect, whether in the form of a virtual display, or split-eye cardboard viewers.

Holofilter is a 2.5D anamorphic illusion web application that solely requires mobile phones. It utilizes parallax backgrounds and anamorphic stretching (commonly seen in sidewalk 3D chalk art) based on gyroscope readings to warp and distort the flat image to give it a three-dimensional effect.

The application has an interactive game mode, where users can fly in and out of the layered scenes similar to a flight simulator. Users can also mark trajectories on the scene-authoring side and have the model fly along the guided path like a cinematic cutscene, before launching the interactive mode. Additionally, we explored multi-device and collaborative setups, having one phone be the moving "lens" while the "viewer" distorts the model based on gyroscope changes of the "lens".

The result is a novel authoring tool for developing 2.5D illusions without the need for additional hardware, allowing creators to build guided and interactive scenes that seemingly break out of the screen. The applications of Holofilter include creating presentation demos, gaming experiences, and advertisements.