

The Interactive FogScreen

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1 A Screen in Mid-air

The FogScreen is an immaterial projection screen that consists of air and a little humidity, and enables high-quality projected images in thin air. Objects and images appear to float in mid-air, and touching or walking through them enhances the impression, as the screen feels just like air. One nice feature is the possibility to project different images on both sides without interfering each other.

FogScreen's basic patented technology presents numerous possible applications, sizes, forms, versions, and technical extensions. For example computer vision -based finger tracking enables to employ finger as a mouse. The FogScreen then becomes an immaterial computer touch screen with nearly unlimited applications.

2 The Interactive Screen

The walk-through FogScreen experience was very popular in SIGGRAPH 2003 Emerging Technologies. Now, the new, improved FogScreen is also interactive and capable of some stunning magic.

When people see the passive FogScreen, they are excited and interested, but interactivity offers a new level of inspiration. Interactivity is a major technical improvement.

To use a pointer as a mouse on the screen, only 2D tracking on the screen plane is needed. Various tracking methods, such as ultrasonic tracking, computer-vision-based methods, and laser scanning, have been explored, and many demonstrations and applications have been developed. Some of the most interesting works are demonstrated at SIGGRAPH 2005, including unobtrusive finger tracking.

Stereoscopic viewing is possible e.g., with polarization or shutter glasses. An interesting extension would be to use 3D tracking for a finger or a pointer and the glasses to make interactive, volumetric walk-through 3D displays.

3 Art and Performance

One could even say that the FogScreen is an entirely novel medium for communications or art. For example, SIGGRAPH 2005 attendees experience a performance specially created for the Interactive FogScreen. Actor Markku Laitinen presents short, entertaining performances to illustrate some of the medium's artistic and dramatic possibilities.

4 Conclusion

Interesting applications of the interactive FogScreen include walk-through, play-with advertisements in shops or malls; a walk-through screen for trade shows, museums, science centers, or theaters; special entrances to theme parks; scientific visualization, etc. The FogScreen is unbreakable, which enables safe gaming, exercise, or training, and unsupervised public presentations.

This display technology of the future literally revolutionizes the limits of projection screens and blurs the boundaries among art, science, and fun.

5 References

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Figure 1. Images projected onto the FogScreen.



Figure 2. The interactivity of the screen creates an intriguing experience and display medium for numerous applications.