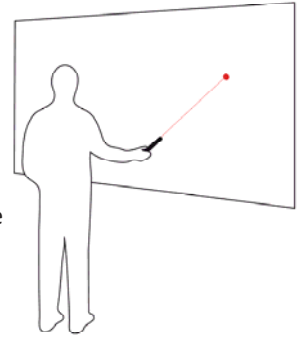


Laserpointer-Interaction between Art and Science

Werner A. König, Joachim Böttger, Nikolaus Völzow, Harald Reiterer

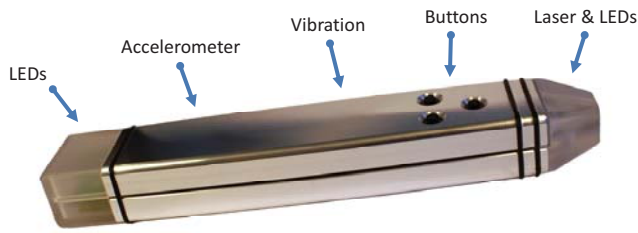


Laserpointer-Interaction

- Novel input device for large, high-resolution displays
- Low energy infrared laser with multi-modal feedback
- Direct control from any point and at any distance
- Fast, precise and flexible interaction

Custom-built Laserpointer

- Pen-like shape & solid metal frame
- On-device visual feedback in addition to screen feedback
- Tactile feedback by an integrated vibration module
- Three physical buttons for mouse-like interaction



Globorama

- Artistic & scientific installation exhibited from 09/29 to 10/28/2007 at the ZKM | Center for Art and Media Karlsruhe
- 360° Panorama Screen, 8m diameter, 8192 x 928 pixels
- High-resolution satellite images of the entire earth, 360° photographs and Live-Cams from all over the world
- Navigation and Interaction by Laserpointer

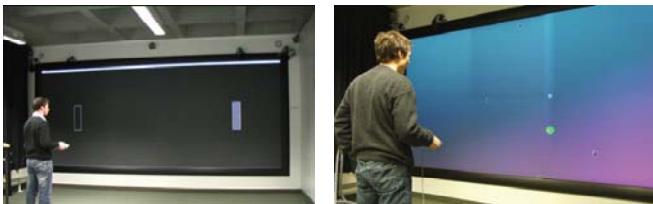


Jitter Compensation

- Multi-modal Kalman Filter
- Intelligent selection and combination of static and dynamic interaction model
- Supports both smooth movement and precise hovering

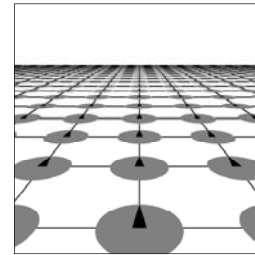
Tracking Technique

- High-resolution camera array
- Sub-pixel point detection
- High tracking speed and minimal delay
- Calibration suitable for any display shape

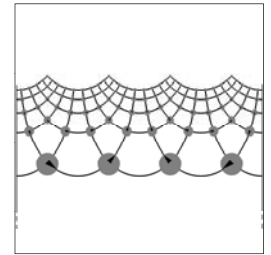


One- and multi-directional Tapping Test ISO 9241-9

- Complex-Logarithmic Perspective: Satellite images are locally free of distortion, shapes stay recognizable over many orders of magnitude.



Central-Point Perspective



Complex-Logarithmic Perspective

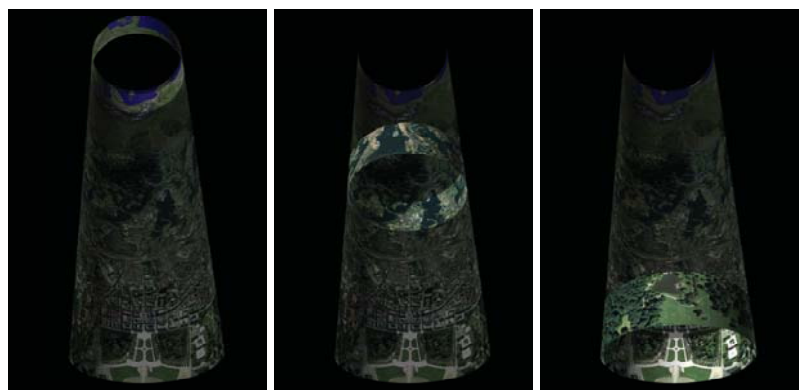


Globorama: Interactive exploration of the entire earth

Complex Logarithmic View from the Metropolitan Museum in New York City



Controlling a WIMP-application by Laserpointer at the 221" Powerwall



Travelling the earth and changing scale

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