

EnhancedDesk and EnhancedWall

Augmented Desk and Wall
Interfaces
(Nakanishi et al)

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Overview

- Authors: Yasuto Nakanishi, Yoichi Sato, and Hideki Koike
- MMI using computer vision and augmented reality
- Manipulation of real and projected objects
- Fast tracking and interpretations of hand motions and gestures, (GUI built upon)
- Face tracking for wall-display

Desk and Wall Implementations

Enhanced Desk

- “Tangible” objects
- Direct manipulation with hands and fingers
- Overlay interactive functionality on real objects

Enhanced Wall

- Face Tracking to track gaze at large displays.
- GUI enhancements based on tracking, such as zooming in on window, etc.

EnhancedDesk Movie Clip

See:

<http://http://www.hci.iis.u-tokyo.ac.jp/research/EnhancedDesk/overview2.mpg>

(This link will open into a window with error statement "The page cannot be displayed". However when you click on the media icon in toolbar than you can play the file in the left hand side console.)

Bonus Movie (RushCrash)

See:

<http://www.hci.iis.u-tokyo.ac.jp/research/EnhancedDesk/RushCrash.mpg>

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EnhancedWall Movie Clip

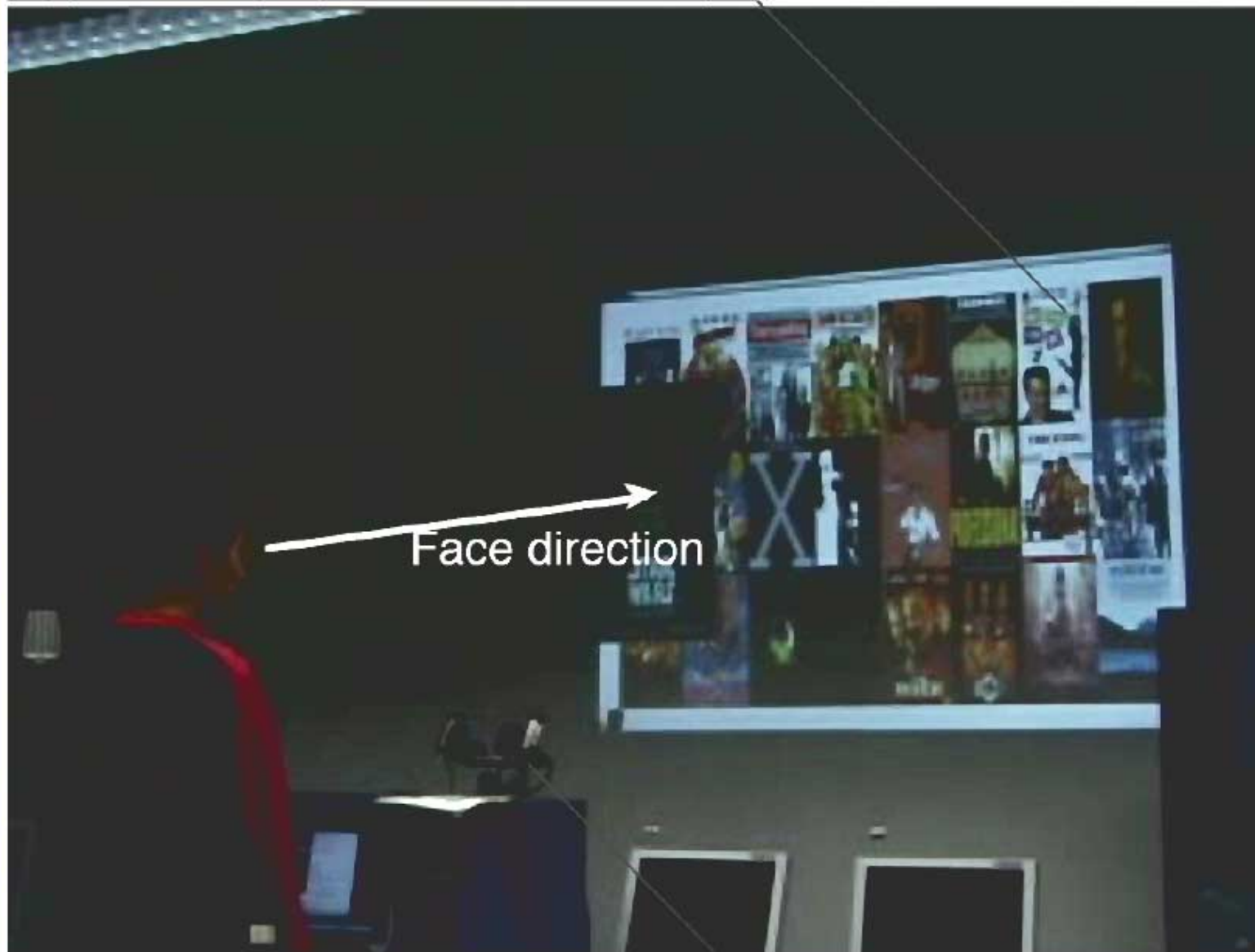
(sorry, no clip)



EnhancedWall

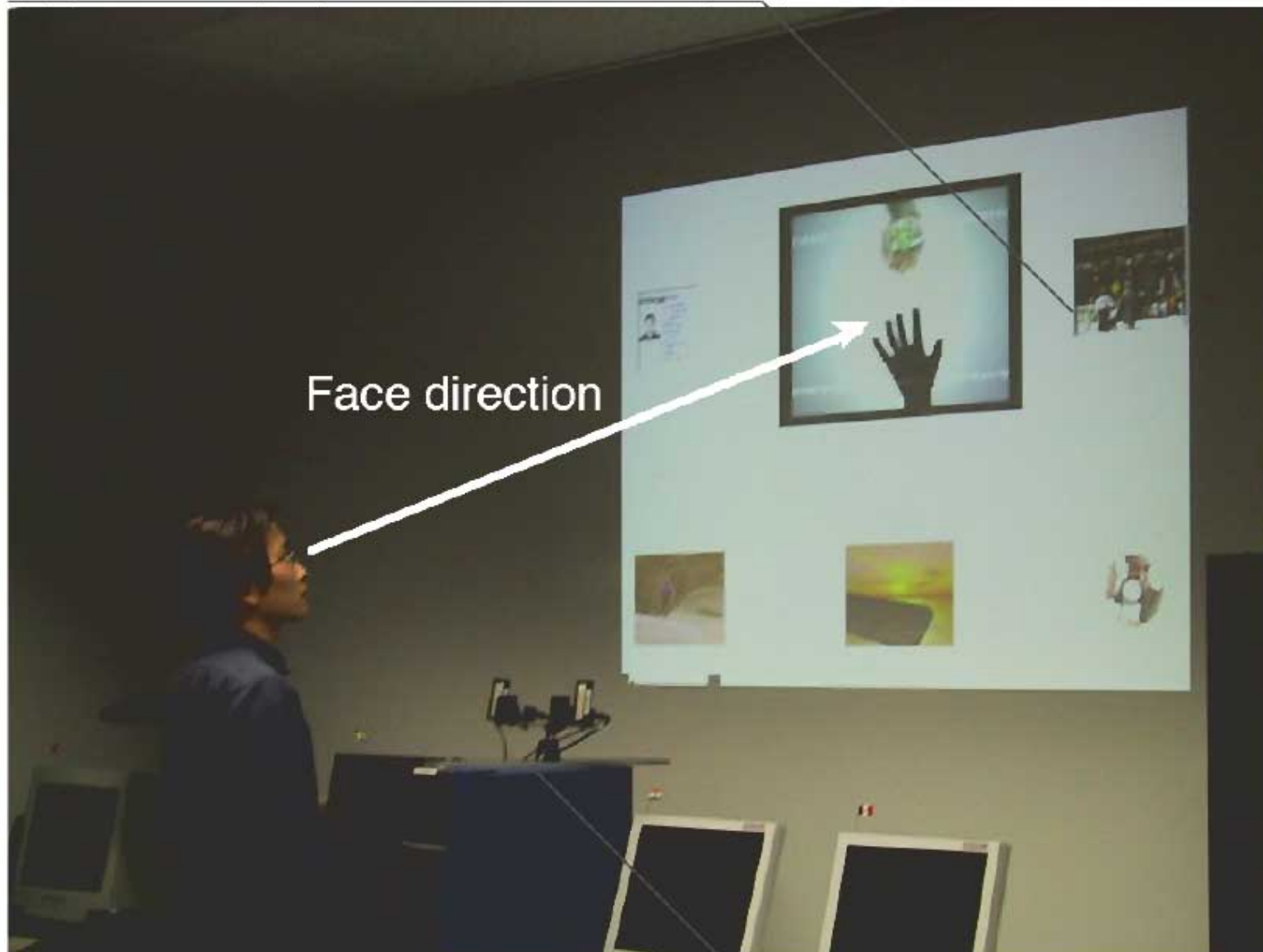
- For UbiComp 2002
- Presents a solution for large displays (as opposed to a user sitting in front of a computer monitor)
- Stereo-based (two cameras) with infrared illumination and filters
- Template match edges of eyes and mouth to track (~70 deg of horizontal rotation, ~45 deg of vertical orientation) direction of face

Application projected with a LCD projector



Stereo camera unit

Application projected with a LCD projector



Face direction

Stereo camera unit

EnhancedWall Future Improvements

- Track pupils rather than just face
- Track more than just one person using higher resolution cameras/templates
- Keep track of where users are standing, to help focus on a “sweet spot” of a user’s face

For More Info (and movies!)

- <http://www.hci.iis.u-tokyo.ac.jp/research/EnhancedDesk/>