

Gaze and Touch

Armin Mokhtarian

Aachen, Germany

armin.mokhtarian@rwth-aachen.de

Oliver Nowak

for Submission

City, Country

e-mail address

ABSTRACT

ACM Classification Keywords

H.5.m. Information Interfaces and Presentation (e.g. HCI): Miscellaneous; See <http://acm.org/about/class/1998/> for the full list of ACM classifiers. This section is required.

Author Keywords

Authors' choice; of terms; separated; by semicolons; include commas, within terms only; required.

INTRODUCTION

Process from mouse input to touch and gaze

Gaze

- Reasons for gaze input
 - Primary sensory organ
 - Very fast
 - No fatigue
 - "Why shouldn't I interact directly with a target, when I'm already look at it?"
- Selection techniques (also presenting example approaches)
 - Dwell Time
 - Blinking
- Problems with gaze
 - Technology
 - Not precise (eye jittery)
 - No muscle memory
 - Midas Touch problem
 - Time based Selection (Too early gaze change which unintentionally aborts selection)
 - Distraction (Eye is by nature a input organ, so it is also reacting on events in the peripheral vision)
 - Intention (Unintended starring at the screen, should not be recognized by the system as target selection)
- "What about Fitts' Law?"

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Touch

- Pro
 - Direct input
 - Widespread & familiar input method
 - Well-known gestures
- Contra
 - Fat Finger problem for small targets or on small screens
 - Reachability (How to interact on distant screens? (attention sharing) and How to interact with a target which is not directly in front of me (e.g. on table-tops)?)
 - Speed (Is it faster than gaze?)

COMBINING GAZE WITH OTHER MODALITIES

(Here we will present the different approaches/principles and cover the following topics)

- Transition from contras of mouse/touch/gaze only to gaze and touch
- Presenting different techniques
 - Different principles: 'Gaze selects, touch manipulates', Cursor-Warping, Gaze-Shifting etc.
 - Applications for Gaze+Touch (Interaction on distant displays/wall-sized displays, RST, Just speed up, Fitts' Law)

EVALUATION

- More precise comparison of different techniques (not only Gaze+Touch methods, but also comparison to touch-only, gaze-only,...)
 - Speed
 - Comfort
 - Accuracy
 - Mental demanding?
 - User satisfaction
 - ...
- Contra
 - Fat Finger problem for small targets or on small screens

- Reachability (How to interact on distant screens? (attention sharing) and How to interact with a target which is not directly in front of me (e.g. on tabletops)?)
- Speed (Is it faster than gaze?)

CONCLUSION

REFERENCES