FACECON

the new way to browse a website

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Course: Interaction Engineering | **Lecturer:** Prof. Dr. Michael Kipp | **Semester:** Winter 2020/21
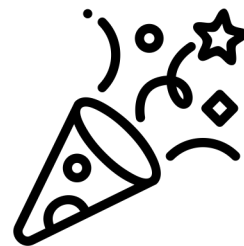
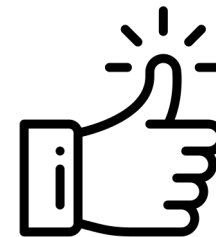Augsburg University of Applied Sciences

MOTIVATION

New way of interacting with websites, without the need of special programs or sensors

More fun and intuitive interaction than using a trackpad or touchscreen

Interaction without hands can be an advantage in many situations

RELATED WORK

"Control of Mouse Movements Using Human Facial Expression"
by A. W. Mohamed and R. Koggalage

"Face as Mouse through Visual Face Tracking"
by Jilin Tu, T. Huang and Hai Tao

INTERACTION TECHNIQUES

Move the mouse pointer
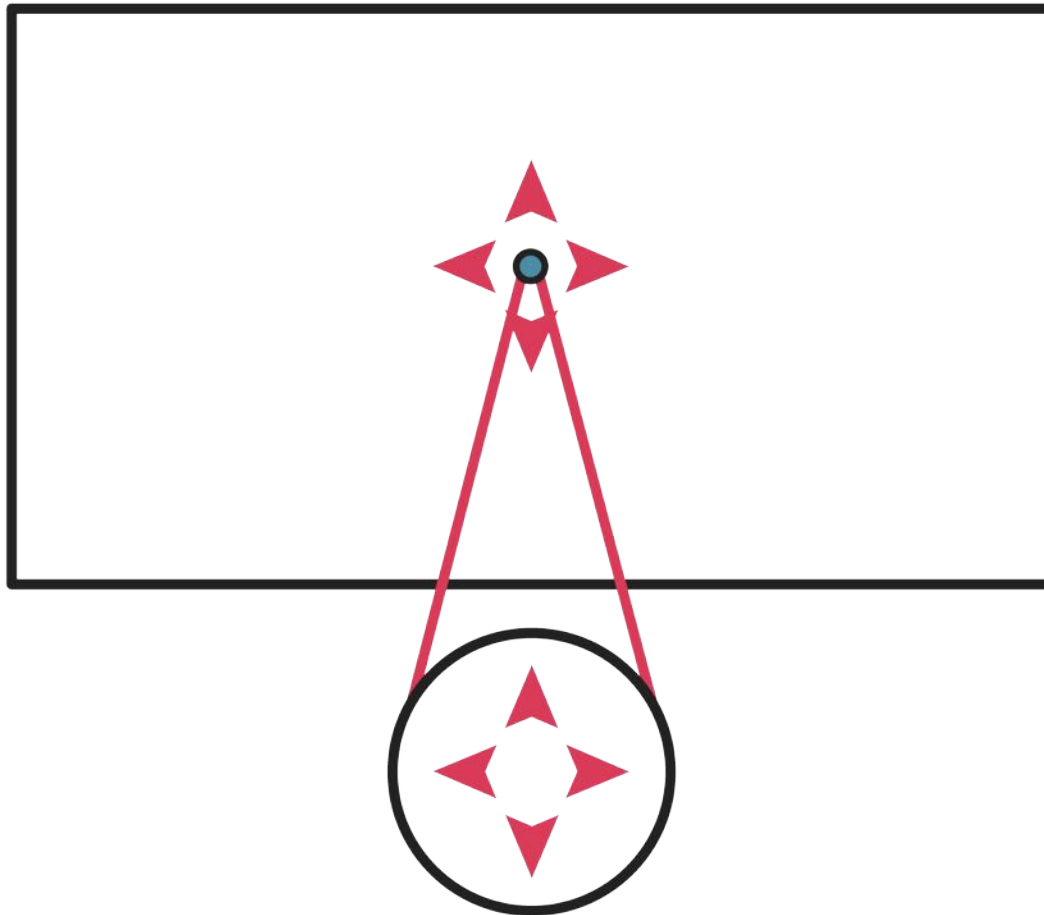
Click on objects

Scroll on the page

Whole page scroll | Zone scroll

Navigate between pages
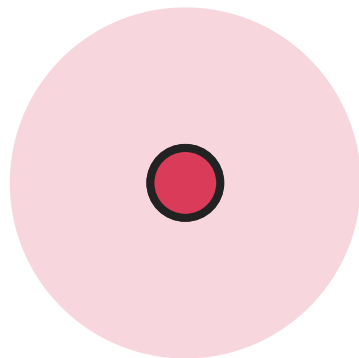
Roll navigation | Wink navigation

FACE POINTER

- Tilt head up and down for movements on the Y-axis

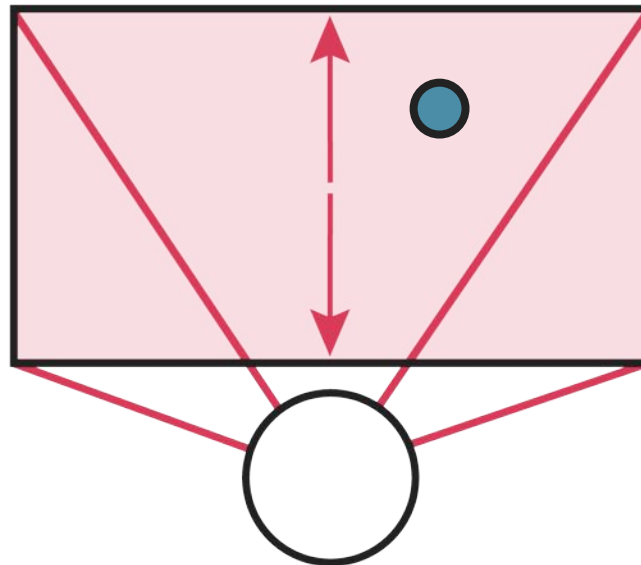- Turn head to the left and right for movements on the X-axis

CLICK

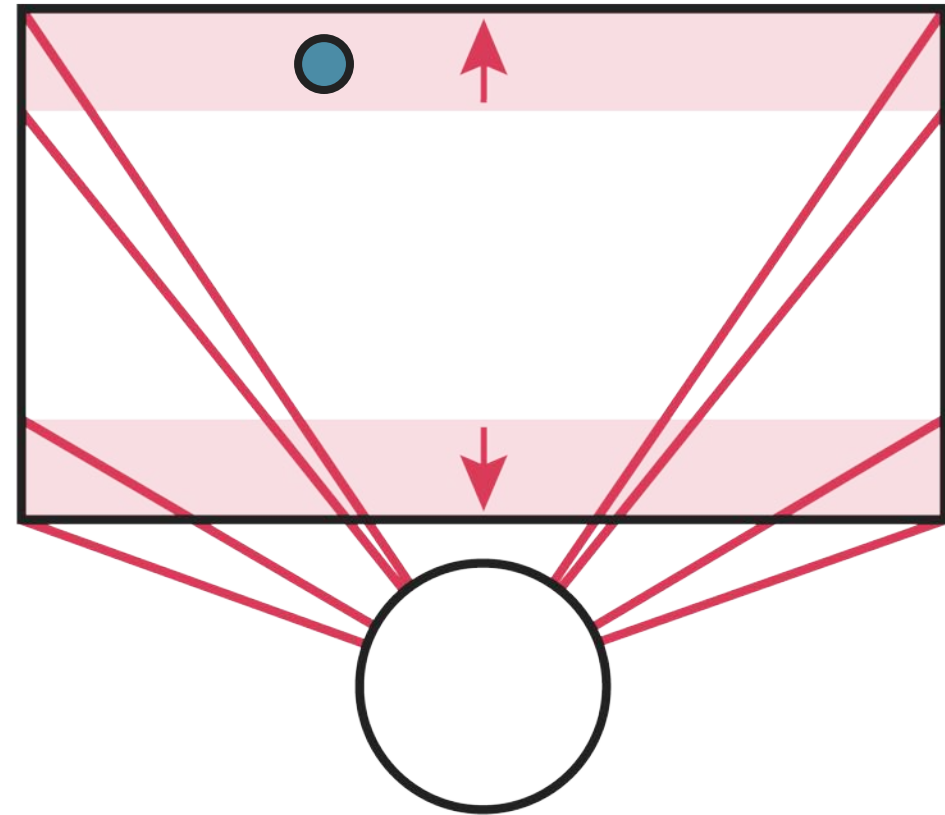- Smile to click an object below the face pointer

WHOLE PAGE SCROLL

- Raise eyebrows to activate the scroll mode

- Move the pointer into the upper or lower half of the screen to scroll up or down

1

2

ZONE SCROLL

- Scroll up or down by moving the pointer into the marked zones at the top or bottom edge of the screen
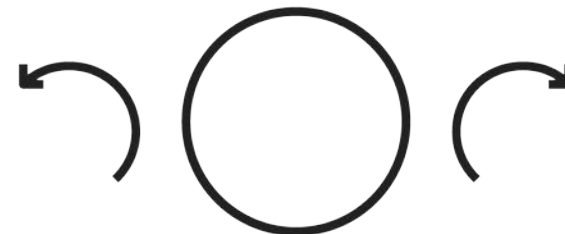
WINK NAVIGATION

- Wink with the left or right eye to navigate to the previous or next page on the website

ROLL NAVIGATION

- Roll your head to the left or right side to navigate to the previous or next page on the website
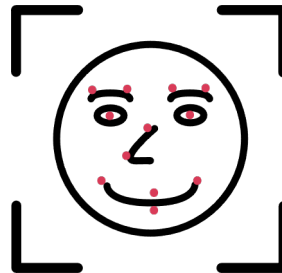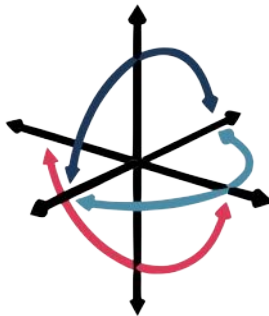
IMPLEMENTATION

HTML, CSS & JavaScript

+

JavaScript library Handsfree.js
(Face tracking by Jeeliz Weboji)

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EVALUATION

6 tech-savy participants (age 16 - 51)

The participant has to complete a task covering all interaction methods (move pointer, click, scroll and navigate)
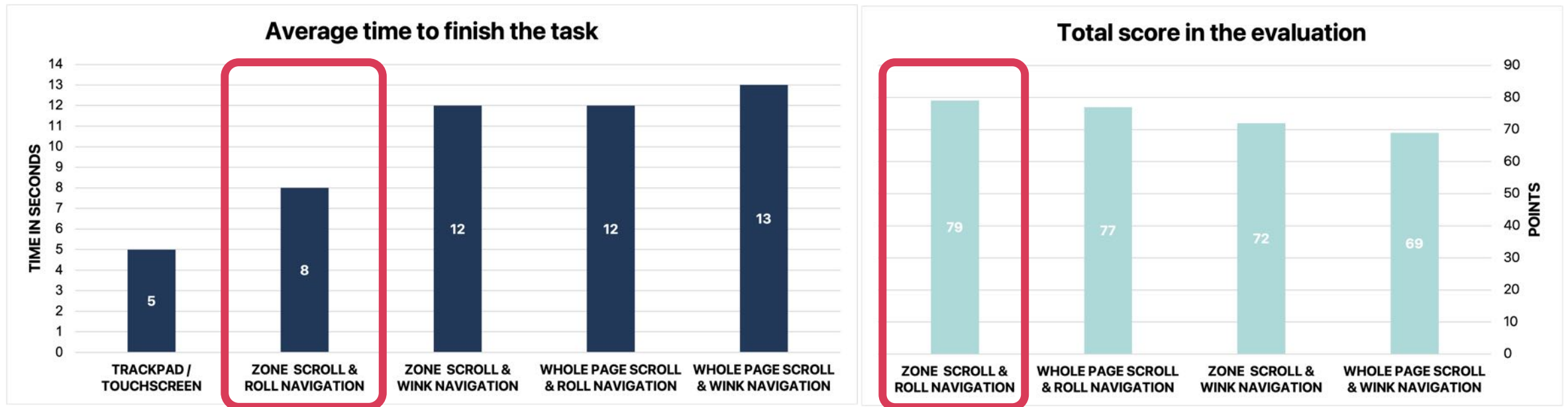
5 scenarios with different combinations of the afore mentioned interaction techniques

Questionnaire afterwards

trackpad / touchscreen + 4 scenarios (face pointer + click + scroll version XY + navigate version XY)

EVALUATION

DEMONSTRATION

SOURCES

A. W. Mohamed and R. Koggalage, "Control of mouse movements using human facial expressions," *2007 Third International Conference on Information and Automation for Sustainability*, Melbourne, VIC, 2007, pp. 13-18, doi: 10.1109/ICIAFS.2007.4544773.

Jilin Tu, T. Huang and Hai Tao, "Face as mouse through visual face tracking," *The 2nd Canadian Conference on Computer and Robot Vision (CRV'05)*, Victoria, BC, Canada, 2005, pp. 339-346, doi: 10.1109/CRV.2005.39.

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