

## Assigment 4 - Multi-modal and Post-WIMP (26 points + 6 Bonus points)

Please keep all of your answers short and to the point, write them as concisely as possible. Please read the instructions for submission at the end of this exercises.

If you have questions regarding the tasks, please ask your tutor.

**Groups of 2:** For groups that have only 2 members, for some tasks a reduced amount of work is indicated with *Groups of 2*: as an identifier. This does not apply for groups that have three members.

### Exercise 1 - Eye Tracking (6 points + 2 Bonus points)

Instead of using pointing devices, such as a mouse on a computer, one interact with virtual items by looking at them.

1. **SUBMIT** an explanation of advantages and disadvantages of eye-input. Name the most famous problem related to with it (max 4 sentences).
2. **SUBMIT** a general description of how this famous problem can be solved (max 4 sentences).
3. Consider a scenario where users only has their eyes for interacting (e.g., quadriplegia). **SUBMIT** a description of a specific example of how one would select items of a GUI using only the eyes (max 4 sentences).
4. BONUS: Pointing and gesturing with ones eyes is very difficult to perform, and identifying where on the screen the eyes are pointing at is technologically hard to do. **SUBMIT** a description of an alternative way of using eyes for input which does not rely on eye-position (max 5 sentences).

### Exercise 2 - Interface Types (8 points + 4 bonus points)

You need to know how Pac-Man works for this exercise. If you do not know the game, your first task is to play one of the many versions that can be found in the internet (e.g. <https://www.webpacman.com/>).

Now consider the pros and cons of playing the same game using different interfaces. Consider a speech-based interface, a touch-based interface, a tangible interface and a virtual-reality and/or augmented reality interface (e.g. head-worn display).

For each interface type **SUBMIT** a description of how the game might be redesigned and **SUBMIT** an explanation of how the game would then be played (max 4 sentences per interface type). *Groups of 2*: choose 3 interface types.

BONUS: Imagine up to two other post-wimp interfaces. For each additional interface **SUBMIT** a description of what the interface is, a description of how the game might be adapted to suit the interface, and an explanation of the game would then be played (max 4 sentences per interface type).

### Exercise 3 - Weekly pill case interface (12 points)

Figure 1 shows an example for a weekly pill case.

Imagine that the case is interactive, and that it can detect a) if a lid is open or closed and b) how many pills are in a container. Imagine that the images on top of the containers are interactive and can display

any information you wish. Additionally, if you want, you could also imagine that the device is touch sensitive. Also, assume the case is connected to the internet or a smartphone via WiFi or Bluetooth.

**SUBMIT** descriptions of three possible functions/features in this setting that the case could offer (each in max. 3 sentences). For each, create and **SUBMIT** a sketch (including explanations of what the sketch depicts) of how the interface elements would look like. (*Groups of 2*: do the task for two examples).

Please make sure to scan/photograph your sketches in sufficiently high quality so that everything (especially text) is readable!



Figure 1: Pill Case used as example in Exercise 3

## Instructions for submissions:

- You can upload your answers multiple times until December, 16<sup>th</sup> 2020 - 11:55 pm. The most recent version will count. You cannot change your answer after December, 16<sup>th</sup> 2020 - 11:55 pm.
- If one of your group members are not contributing to the exercises, you must inform your tutor.
- This is a creative exercise. Innovative ideas and solutions are rewarded in grading.
- Please put your answer sheet and all the other relevant documents in one archive file (zip) and name your submissions according to the following scheme:  
HCI\_exercise\_XX\_GGGG.zip where XX = exercise number (e.g. 03) and GGGG = group number (e.g. G001).

Hand-in until December, 16<sup>th</sup> 2020 - 11:55 pm as PDF via Moodle (<https://hci-lecture.cs.uni-saarland.de>)