

Exercise 1 – Mensch-Maschine-Interaktion 1

Rapid and Aimed Human Movement

Topic: In this exercise you will learn about the theory and application of rapid and aimed human movement. In particular we will have a closer look at Fitts' Law and its implications to the field of Human-Computer Interaction.

1. Experimental Investigation of Human Pointing Performance

(Per-group homework, 1 week)

Develop an experiment and create a program to experimentally assess the pointing performance of a user. The users task is to move the systems pointer from a start point to a target area.

Develop a program that your group will use to carry out the designed experiment. Your program needs to do the following things:

- a) Record the starting position.
- b) Position the target area (a square or a circle).
- c) Record the time of task (pointing) execution.
- d) Vary the size and distance of the target (use a reasonable minimum size).
- e) Automatically log the results.

For brevity, it is sufficient to print your results to the console and copy them into a text file for further processing. For more sophisticated logging and formatting we recommend `log4j`¹. For the implementation, you may use a technology of your choice. However your results need to be executable on a Windows XP machine and the latest Java version.

2. Execution of the Experiment

(Per-group homework, 3 weeks)

Perform the experiment with the software you developed. Use at least four different participants and run at least two series of tests, one with variable target distance and one with variable target width (the other parameter remains fixed). Optionally run a third series with both parameters variable.

Submission:

(see next page)

¹ <http://logging.apache.org/log4j/docs/>

Submission:

- Submit your solution to the UniWorx² system. Use an attachment named exercise1-groupN.zip (N is the number of your group).
- The attachment must contain the following:
 - An executable version of your program. Make sure it is an executable JAR file.
 - A data file containing the collected data and graphical analyses (use OpenOffice Calc or MS Excel)
 - A file with your interpretation of the results (in plain text) (PDF format)
 - A brief summary of your own understanding of Fitts' Law (approx. 100 words) (PDF format)
- **Deadline:** 12.11.2007, 12 p.m.

² <http://www.pst.ifi.lmu.de/uniworx/>