

Exercise sheet 6

Interactive Systems - SoSe 24

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All exercises that are not explicitly declared as group assignments must be completed individually and handed in individually. Identical submissions will be treated as plagiarism.

Submission until Monday 13.05.at 23:59 via <https://assignments.hci.uni-hannover.de/SoSe2024/ISy>.
The submission must consist of a single zip file containing all necessary files. Please delete umlauts in file names.

Task 1: Pointing Techniques - DynaSpot (4 points)

Olivier Chapuis, Jean-Baptiste Labrune, and Emmanuel Pietriga. 2009. DynaSpot: Speed-dependent area cursor. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI 09). ACM, New York, NY, USA, 1391
<https://dl.acm.org/doi/abs/10.1145/1518701.1518911>

- DynaSpot is an area cursor where the size of the area depends on the speed of the cursor. Which problem is to be solved by DynaSpot? How is it solved?
- DynaSpot has not found its way into popular GUI software. What do you think could be the reason for this?

Task 2: DynaSpot implementation (15 points)

Implement the DynaSpot interaction technology (based on the code provided in DynaSpot.zip). Experiment with the parameters (maximum area size, minimum speed for switching from point to area cursor, and delay when switching from area to point cursor).

- Add the code for the dynamic adjustment of the cursor to DynaSpot.java. You do not have to let the cursor grow and shrink exponentially as described in the paper.
- Experiment with the parameters of DynaSpot and describe in the comments what you have noticed.

You can find the JavaFX documentation at: <https://openjfx.io/javadoc/11/> Export your solution as a zip file from IntelliJ.

Task 3: DynaSpot evaluation (10 points)

Use your implementation of DynaSpot from the previous task to carry out an evaluation of two parameterizations.

- a) Log at least three runs (selection of all targets) with two different parameters. For example, once with a longer and once with a shorter delay. In total, you will receive two log files with 3 blocks of 30 selections each.
- b) Evaluate the data with a Python script. Use Jupyter Notebook. Calculate the average selection times and error rates for both parameter sets and compare them.
- c) Attach the logs and the evaluation of the delivery.

Task 4: Command Selection (12 points)

Various interaction techniques for selecting commands were discussed in the lecture.

- a) What is the main reason why hotkey labels in menus are often ignored?
- b) In the paper by Grossman et al., 2007: To which category does "audio feedback" belong and to which does "disabled menu items" belong? What is the objective of the two categories?
- c) Why is a Zipf distribution chosen for the frequencies of the items in the main study by Grossman et al.
- d) What is the main difference between "Expose HotKeys" and "KeyMap"? What is the motivation behind the "KeyMap" approach?