Assignment #1: Fitts' Law Experiment

Why do I do this?

There is a big difference between learning to run an experiment and actually running an experiment. This assignment is designed to give you an experience of preparing an experiment, meeting participants and interacting with them, and collecting and analyzing results from the experiment. This will be helpful for you to plan the course project and hopefully your other research projects.

What do I do?

You will conduct an experiment that tests pointing performances of **two input devices of your choice** using GoFitts (http://www.yorku.ca/mack/FittsLawSoftware/doc/index.html?GoFitts.html). The input devices can be anything you can test, such as a mouse, a touchpad, a touchscreen, or a stylus. Or it can also be between different kind of computer mice, e.g., gaming mouse vs. office mouse. If you cannot find two input devices, I have a mouse and an apple trackpad that you can borrow for the experiment. For statistical testing, you may use GoStats (http://www.yorku.ca/mack/GoStats/), or any other statistical testing software of your choice.

The GoFitts software is in a JAR package and you'll need a JDK installed on your computer. It works on Mac, Windows, and Linux.

- **Experiment task:** FittsTask, both 1-D and 2-D.
- **Experiment setting:** You may use the default setting of the GoFitts. If you want to test other settings, please do so and write why you chose to use different parameters in the report.
    - Number of Trials: 15
    - Amplitudes: 100, 200, 400
    - Widths: 20, 40, 80
- **Measure:** Throughput
    - See .sd2 output file for results. Change file extension to .csv and you can open it with spreadsheet software such as Microsoft Excel, Google Sheets, etc.
    - A stands for Amplitude, W stands for Width, and TP stands for Throughput. Unit for Throughput is bps (bit per second).
    - If you want to learn more about throughput, check the following paper: http://www.yorku.ca/mack/hcii2015a.html
- **Participants:** Four participants. You may recruit anyone in the class or outside the class.

Your report

Your report should include:

- **Experiment Design:** Explain the study design, trials and blocks used, participants recruitment, study setting, instructions given to participants.
- **Experiment Results:** Explain the results with graphs and/or tables with statistical testing results, as well as details about the experiment sessions (e.g., participant demographics, time taken for each participant). Discuss the results in your words.
- **Your Reflection:** Describe your reflection, e.g., what you've learned, challenges you faced, and/or what you liked or disliked.

You may find Jacob O. Wobbrock's guide to writing CHI papers useful in writing experiments and also your final project repot (http://faculty.washington.edu/wobbrock/pubs/Wobbrock-2015.pdf).

Grading

- **Completeness (40%):** Cover all required components listed above in your report.
- **Depth (30%):** Include thoughtful analysis and reflections
- **Clarity (30%):** The writing should be clear to understand, and the visual materials in the report should effectively communicate the idea.

How do I submit?

Make a single PDF file of your report and submit to Google Classroom.

Academic Honesty

It is okay if the results are not significant or pretty. You may learn from the experience and maybe the two input devices were not that different. But do not ever attempt to modify or create the results, or copy someone else's report. Doing so will not only fail the course, but it will also be forwarded to the Honor Committee.

Late policy

Deadline is Sep 23 23:59pm. You may submit the report until three days after the deadline, with 10%, 20%, and 40% penalty.

Questions?

If you have any questions about the assignment, feel free to message Seongkook on Slack or send an email to seongkook@virginia.edu.