

Assignment 3: Preparing an Experiment

You have three weeks to prepare an experiment of your own. This includes (1) coming up with an experiment, (2) implementing your experiment, and (3) writing the needed instructional material.

Customize the Experiment

While we provide an example experiment of a bubble cursor study, you are free to change this to anything you want. This includes the option to throw away everything and implement a completely new experiment (you might even come up with an interesting experiment that doesn't require any code). However, it is also ok to change what we provide in some way to alter the experiment. In either case, you need to document your intentions for your experiment and changes.

If you are unsure what kind of things you could explore, here are some options:

- The study currently only supports circular targets. You might want to add rectangular or complex shaped ones.
- In case of an error, the study allows participants to just continue. Errors are also not logged for further analysis. You could change the experiment to reset in case of an error or add logging of, for example, error count.
- The targets used in the study are fairly large and distributed randomly. You could explore what happens with smaller targets that are clustered together.
- Instead of above mentioned random arrangement, you could also structure the targets. They might be in a grid, a menu-like structure, or another interesting arrangement.
- You might want to add a completely new selection technique. Other options are, for example, Escape (<https://dl.acm.org/citation.cfm?id=1357104>), or Starburst (<https://dl.acm.org/citation.cfm?id=1385592>).
- Only very few parameters are logged in the study. You could extend this to log more information about a trial. This would be especially interesting when combined with some other change.
- The color used to highlight the active target could have an influence on the participants' performance. What would happen if the color difference was more subtle? What happens if there is no color difference, but small icons are rendered inside each target (you would need to show the icon to select somewhere)? What if there was text in the targets?

These are just a few examples of your possibilities. Invest some time into brainstorming interesting changes. Also think about what kind of new questions you could answer if you made a change. You need to connect this to a research question and justify your choice of experiment.

Implementing your Changes

The experiment template we provide is a HTML-based application that runs in the browser (we tested this in Chrome on Windows). We use *p5.js* (<https://p5js.org>) to implement most of the experiment. Similar to Processing, this allows for easy drawing, as well as input handling. Have a look at the reference (<https://p5js.org/reference/>) for an overview of available functionality. There are many additional extension libraries available (<https://p5js.org/libraries/>) should you want to implement wilder changes. You can also find additional instructions (<https://p5js.org/learn/>) and examples (<https://p5js.org/examples/>) on the site.

Writing Instructional Material

For your experiment, please prepare a consent form, as well as a step-by-step instruction sheet for use by an experimenter. In your consent form, you need to tell participants about what they are signing up for, inform them of their rights as a participant, and include a way for them to sign the form. If you want to take pictures of participants or make video/audio recordings, you will need to get separate consent for that. You can find an example consent form at the end of this document. Your form does not need to be as detailed and not all parts might make sense for your study.

Your step-by-step instructions should detail all actions that need to be performed by the experimenter, as well as what the participant is supposed to be doing. This need not be very formal, imagine describing how to run the experiment to a friend. However, please also include a section at the beginning of the document that describes the intentions around your experiment. As described above, the changes you made should be based on some rationale. This also extends to your choice of experimental conditions.

Hand-in

Submit a ZIP file with your material on Absalon before March 21st 2018 at 23:59. Inside there should be the source files of your experiment, and all instructional material in PDF format. You are free to pick any formatting you want for the written material (but maybe stick to A4 paper). However, make sure to convert whatever to have to a PDF before handing it in.

Grading

We will grade your assignment based on originality, complexity (of the implementation and/or the study design), as well as how well you justify your changes. The last aspects connects directly to your chosen research question.



Informed Consent Form for Volunteer Participants

This informed consent form is for volunteer participants to the experiment on body-based user interfaces. This research is lead by Professor Kasper Hornbæk, University of Copenhagen, Denmark. The European Commission sponsored this research under grant agreement number 648785.

This Informed Consent Form has two parts:

- Information Sheet (to share information about the research with you)
- Certificate of Consent (for signatures if you agree to take part)

You will be given a copy of the full Informed Consent Form to take away from the experiment.

PART I: Information Sheet

Introduction

I am *[to be filled in with the name of the researcher running the study]*, working for University of Copenhagen. We are doing research on a class of emerging user interfaces for interacting with computers called body-based user interfaces. I am going to give you information and invite you to be part of this research. Before you decide, you can talk to anyone you feel comfortable with about the research.

There may be some words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them of me or the principal investigator of the project, Kasper Hornbæk.

Purpose of the research and type of manipulation

[explain briefly the purpose of the study and the type of manipulation. In most experiments in BODY-UI, the manipulation will be an interface.]

Participant selection

You have been invited to this study because you are representative of a group of users that we would like to be able to use body-based user interfaces. *[if there are specifics requirements for skills/competences, they will be shared here]*

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. You may change your mind later and stop participating even if you agreed earlier.

Procedures and Protocol

[explain briefly the procedure of the study, the computer interfaces used, and the process of the study. For body-based output, explain the technology and how it works]

Duration

The research takes place over about 1 hour. *[replace with actual duration]*

Risks and Benefits

We anticipate no risks from participating in the experiment. If you participate in the experiment, you will experience a new class of user interface. You will also help the researchers conducting the study advance our understanding of when such interfaces may be useful.

Reimbursements

We will give you *[amount of money/compensation]* to pay for your travel and lost work time. You will not be given any other money or gifts to take part in this research

Confidentiality

The data we collect from you will be made anonymous; your name will be replaced with a number known only to the person facilitating the experiment and the principal investigator.

[if video-taping or photos are required for the study insert the following text: In this study we will collect videos or photos of you as you interact with the interfaces. We use these for later analysis among the group of researchers involved in this study. They will not be shared with anyone else.].

Sharing the Results

If you are interested you may leave your email with us or contact us at a later stage to learn about the outcomes of the study. We will publish the results in order that other interested people may learn from our research. No confidential information will be shared.

[if video-taping or photos are required for the study insert the following text: Publications may include photos of you interacting with the system, blurred out and manipulated, so that you cannot be identified. Towards the end of this form we ask for your explicit accept of this: you are welcome to participate in this study even if you do not want manipulated photos containing you to appear in any publications.]

Right to Refuse or Withdraw

You do not have to take part in this research if you do not wish to do so. You may also stop participating in the research at any time you choose. It is your choice and all of your rights will still be respected.

Who to Contact

If you have any questions about the study at a later stage, please contact the principal investigator Kasper Hornbæk, Department of Computer Science, University of Copenhagen, Denmark, Njalsgade 128, building 24, 5th floor, mobile phone 30957883, email: kash@diku.dk. The study is funded by the European Union (under ERC Consolidator Grant 648785. approved by the Danish Data Protection Agency, and the Regional Health Ethics Committee. *[fill in the relevant application numbers when these are available]*

You can ask me any more questions about any part of the research study, if you wish to. Do you have any questions?

PART II: Certificate of Consent

I have read the foregoing information. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this research.

Print Name of Participant: _____

Signature of Participant: _____

Date: _____
Day/month/year

[if videos or photos are to be used in publications, insert the following text: I accept that videos or photos of my interaction are published in a form where I cannot be recognized because the videos or photos would be manipulated to not show my identify or recognizable features (e.g., by blurring or by putting a dark area over part of the video or photo.

[] Yes, I accept that videos/photos can be published in anonymous form.

]

Statement by the researcher/person taking consent

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of this ICF has been provided to the participant.

Print Name of person taking the consent _____

Signature of person taking the consent _____

Date _____
Day/month/year