

# EECS 4441

## Human-Computer Interaction

### Fall 2020

### *--- Course Project ---*

For the course project, you are to conduct an HCI user study comparing some interaction techniques. The main submissions are a proposal and a research report on the user study. Another requirement is to prepare a brief video (about 1 minute) demonstrating the interaction techniques tested in the user study.

### *--- Part 1 – Proposal (due Nov 10) ---*

Preparing a proposal is the first step. Begin by downloading and opening the template file provided with the assignment on the course Moodle. Save it on your computer and rename it `proposal.docx`. Read the information in the template file and prepare your proposal following the organization and style guidelines in the template.

The proposal should be organized in the usual manner for a research paper describing an HCI experiment, or “user study”. Your proposal will expand into the full project report submitted later. For the proposal, the Abstract, Results, and Conclusion sections may be left blank, since your research is not complete.

You are required to work in a group of three (3) students for the course project, and this includes the project proposal. Where "Your name" appears at the top of the template file, include the names of the three group members. Where "your\_email\_address" appears just below, include the email addresses of the three group members.

The topic is up to you. For some ideas on appropriate topics, see the example student papers from previous project courses ([click here](#)).

You are not required to write any software for this project (although you can, if you wish). You can use one of the software apps on Professor MacKenzie's web site for experiment software ([click here](#)). Or, you can use other software, as desired.

The main parts of your proposal are the Introduction, Related Work, Methodology, and References. The introduction should begin with broadly-placed background information on the topic. Characterize the current state of the art, then identify a UI challenge or problem that you will investigate.

Follow the Introduction with a Related Work section containing a literature review. The literature review identifies, cites, and discusses prior research relevant to the topic. Use sub-sections, as appropriate, and add additional sections as you see fit.

For the proposal, the Methodology section may be written in the future tense (e.g., "Ten participants will be recruited..."), since the research has not been completed. Describe what you are planning to do, and give as many details as possible on, for example, the number of participants, the independent and dependent variables, counterbalancing, experiment design, etc.

Your user study must include independent variables and dependent variables. Include either one or two independent variables. If you use only one independent variable, it should have at least three levels.

Include at least two dependent variables. The dependent variables are the measures of user performance that you log and analyse. The most common measures relate to speed and accuracy. Speed is often represented in its reciprocal form – the time to do a task. Accuracy can be a simple record of whether or not the task was completed successfully, or as the number of errors or the error rate. Accuracy can also reflect some other aspect of interaction, such as the number of corrective actions or the extent of deviation from perfect performance.

The topic is up to you. Be original. Remember, this is your research project, not mine.

Include at least two figures, appropriately captioned and cross-referenced. All figures must be referred to in the body text, as noted in the template.

For the References section, include at least four published papers, including at least one conference paper and one journal paper. Choose papers not authored or co-authored by your instructor. Please, no web postings. The papers appearing in the reference section should be cited in the paper. The references and citations should be correctly formatted, as required for submissions to HCI conferences and as described in class and as noted in the template file. See, also, Chapter 8 in the course text.

Do not pad the paper by adding extra white space (e.g., at the end of paragraphs). Work with the styles provided in the template file. Also, do not write in the 1<sup>st</sup> person (i.e., “An experiment will be conducted to...” is better than “I will conduct an experiment to...”).

Re length, 3-5 formatted pages will be fine.

When you are finished, make a PDF version of your proposal.

### **What to submit for Part 1 of the Project (by Nov 10)**

Only one group member should upload the proposal. Make sure the names of the three group members are at the top of the proposal.

Upload one (1) file to the Project section of the course Moodle:

proposal.pdf

### ***--- Part 2 – Project Report and Video (due Dec 16) ---***

After submitting your proposal, grades and comments will be available within one week. Change the name of your proposal file to **report.docx**. Make changes in your report in view of the suggestions and comments in the graded proposal. You may also change the design of your user study in consideration of the comments in the proposal or new ideas you have. You may even change the entire topic, if you wish.

When you are ready, proceed to conduct your user study according to class discussions and details presented in the course text, the proposal, etc. Extend the write-up of your user study in **report.docx** to include the Results and Discussion, Conclusion, and Abstract. For the Methodology section, write in the past tense since you are describing what you did (e.g., "Ten participants were recruited..."). Consult the example student papers and follow directions given by your instructor during class meetings.

Re length, 4-6 formatted pages will be fine.

When you are finished, make a PDF version of your report.

Prepare a video in mp4 format, about 1-minute in duration, demonstrating the interactions evaluated in your user study. See the videos accompanying the example student papers for examples.

**What to submit for Part 2 of the Project (by Dec 16)**

Only one group member should upload the report. Make sure the names of the three group members are at the top of the report.

Upload two (2) files to the Project section of the course Moodle:

`report.pdf`

`video.mp4`

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