CPSC 543 "Physical Sketching" Project Assignment

Updated: 1 May, 2016 - adjusted final mark weights to reflect marking emphasis.
Version: 1.4

Project Components Summary

As individuals:

1. Project Ads → Team formation
2. Project Blogs (per iteration)

As a team:

3. Project Proposal
4. Sketch Iterations 1, 2 and 3
5. Final Presentation
6. Final Written Report

Deadlines and Submission Details

All **due dates** are posted on the project dashboard, the final authority for all things schedule-related; and subject to change: http://www.cs.ubc.ca/~cs543/current-term/dashboard.html

Submission details (blog posts and handin instructions) are found on the course webpage: http://www.cs.ubc.ca/~cs543/current-term/del/project.html

Overview

This document describes CPSSC 543's "haptic sketching"-style project. This project is about rapid prototyping and exploration of interaction design possibilities centered on an interesting question, rather than a classical case study of human-centered design. A formal evaluation element is optional, as it may be beyond scope. But there are many ways to use users!

The project consists logistically of: proposing project ideas individually (via posted "project ads"), forming a team with some of your classmates, then carrying out three iterations of collaborative interaction design sketching. You'll document your iterations individually in project blogs (marked pass/fail, and intended for sharing), and share your progress with the class and instructor in open design crits. Optionally, your team may conduct an informal user study at any point, if it makes sense. At the end of the term, the team will present its work in a public demo/presentation session, and submit a written conference-style report.

What makes a good 543 Sketching Project?

- Must start with an interesting objective; e.g. to explore a vision or question about a compelling experience, or a real problem to be solved.
- Be built around imaginative and appropriate prototyping
- Make good use of iteration –different approaches and/or increasing refinement
- Build progress or insights relating to a stated objective – or towards an even more interesting problem found on the way
- Exhibit resourcefulness in face of adversity
- Be well documented – blogs and final report/presentation

How can you tell if you've made progress without rigorous evaluation?

Evaluation is crucial throughout HCI design cycle… but it doesn't always stimulate creativity. At these "expansive" stages, progress indicators can be:

- Your process (probably indirect) has led to clearly different, new-to-you ideas /insights – "I hadn't thought of doing it that way"
- You experience a personal "aha, that's it" moment after a struggle. For now, you are your own judge, and if it makes you happy, that's a good sign.
- You have added something notable to inspirations and ideas you've freely taken /combined from the world.
- Informal feedback from others successfully informs iterations that increase "progress types" listed above. Show your ideas, ask, and listen.

What is the difference between 543 labs, and the project?

- The main difference is your trajectory; your project will be guided by a goal or vision. Lab sketches use exploration to develop your skills.
- Project iterations should tell a story; at minimum, they will be linked by a theme.
- "Sketching" should absolutely be part of it.
- Overall the project will be more directed and you may optionally choose to go in a direction of increasing refinement / less sketchiness. (If the course were longer, I'd require this).

Project Proposal (Team)

Length: 1 page

Header: list team member names and descriptive moniker (e.g. "haptic stratogaster")

Sections:

1. Guiding objective (1-2 sentences).
2. Motivation: why is this interesting to do?
3. Appropriateness: explain why this objective can benefit from haptic sketching.

Submission: handin to instructor by deadline posted on course dashboard. Handin label listed on project deliverables page.

Project Iterations (Team)

Your project will be structured around three prototyping iterations, each with a due date **at which individuals will submit new blog posts.**

Each iteration should have a distinct goal, which is set by team with approval by instructor. Distinct start/end dates are defined by the course calendar. Near the end of each iteration (could be just before or just after), you'll participate in a class design review.

Your overall project goal/objective was stated in the proposal (it may change as you learn more).

As you approach the end of each iteration, as a team you will set an objective for the next iteration. What do you want to try/learn next?

Your iterations can be oriented at expanding the design space – sample different approaches / parameters. Or, you can iteratively evolve/refine on approach – each cycle takes the concept further, with more detail, functionality, etc.). Or, you can do some combination of both – this is most feasible with a larger team.

Collaboratively, you can break the iterations down even more – e.g. individuals or pairs can try an objective independently. Or you can divide the job up and take different pieces. Do collaborate, and document how your collaborative strategies work for you. Learn from them.

You'll work in teams. Teams can be loose or tight organizational units, but should work towards a common goal.

Individual Deliverables: Project Blogs

Individuals will document the three project iterations independently in blogs they maintain. *Blog hosting suggestions are listed on first lab assignment.*

To "hand in" your individual project iteration, post an enduring link to the respective section of your blog on the course twiki PROJECT blog page, by the dates listed on the course dashboard.

Expectations for individual project blogs:

Your blog should tell your personal story of what you *attempted* and what you *learned.* The intention is for these to be lightweight and informal, and not a lot of work to put together.

However, do put some thought into organizing them so they are easy to read and understand, and tell a coherent and thoughtful story, not a stream-of-consciousness rambling.

Your blog should include these elements:

1. Restate your iteration's **objective**, and the **approach** you decided to take to get there. Note: your objective generally will be shared with your teammates. You may have chosen to take a different approach; if so, state how they were coordinated.
2. **Document** what you did. Anything you built, code you wrote, lightweight evaluations format and results, etc.
3. **Reflect**. For example: What did you learn? Does it satisfy your objective, or is there mor to do? What surprised you? What new questions have resulted?
4. **Next iteration goal**: What will be the objective of your next iteration (if there is another one)?
5. **Media**: include text, video and still shots as appropriate to demonstrate your explorations and findings. Be selective, or else put extra material at end in clearly designated optional "appendix"; videos should be <60s, and ideally <30s. Get your point across succinctly.

Final Public Project Presentation & Demonstration (Team)

The goal of the project presentations and demos is convey your project's objectives, final achievement, decisions made, and what you learned. Your audience is an HCI-literate audience that is unfamiliar with your project. The presentation event will be open to the public and advertised to MUX/HCI community in the CS department.

Time, Schedule and Location

Date: FRI April 15, 2016

Location: ICICS/CS X836 (CS Boardroom)

Tentative Schedule: starting at 10:00am

09:30 setup demo stations
10:00 start: KM introduction for audience
10:05 presentations – 10 min talk + 4min questions /team
11:45 demo session + [tentative] MUX end-term social
13:00 done / cleanup

Presentation Format

Each project presentation will consist of XX min spoken presentation, and X min for questions (see above for exact times, finalized late in term).

- Minimize switchover time (use preceding question period). Test your setup in advance.
- Team may choose how many members participate in the actual presentation.
- All class members are expected to attend the entire session unless previously arranged with instructor, and all should participate in the question portion and the demos.

Demonstration Session

The presentations will be followed and/or preceded by 30 minutes of public demos of all projects. You will have access to a table in either x836 or the lounge area outside, to set up your demo in advance of the presentations. You are responsible for your own power cords etc.

Presentation Media

Test projection in ICICS x836. If you have special requests (presentation laptop, speakers, etc), let me know at least one week advance. If you plan to use your own laptop:

- Test again during setup period.
- Always have a backup plan: talk ready on a USB key or public dropbox.

Presentation Requirements

Your presentation and your final report should cover the same material and make the same key points, albeit at different levels of detail; and you don't need to follow the same order.

For both, prepare as a conference presentation / paper. Choose judiciously where to place emphasis and do not try to say too much.

Final Project Report (Team)

You will submit your final report as a conference-style paper. There are many general guidelines for writing technical papers. A top-down approach that I advocate is described here: http://people.cs.ubc.ca/~maclean/forStudents/Writing Papers with Karon.pdf

Parameters

Length: Up to **8 pages** (not including appendices)

Format: Use the ACM SIGCHI conference format.

For 2016, both word and latex, this location is best:
https://chi2016.acm.org/wp/guide-to-submission-formats/

Submit: handin.

Any components that need to be hardcopy (e.g. ethics forms if you conducted a user study) should be submitted by same deadline, separately, to instructor's office (ICICS x641) or floor secretary (ICICS x635).

Due: date/time listed on the course dashboard

Content

Organize as appropriate for your material, but include the following information.

- **Abstract**: brief summary of challenge, approach, results and implications. 50-100 words.
- **Introduction**: include the following elements.
  - Describe the problem
  - Tell your "story": the larger goal to which your project is the first step. The more compelling your story, the more intriguing your actual work. Include a description of the overall problem you are solving. For example the overall problem might be "making GUI's accessible to blind people" - you are unlikely to solve this entire problem with your project, but you will be biting off a piece of it.
  - Justify the approach you will be describing below: persuasively set up a case for why your approach is interesting and appropriate by your presentation of the problems with existing methods and the features of the technology you are using.
  - State your **contributions**. This is a most important part of your report! What does the world know, that it didn't know before?
  - Overview the rest of the paper: again, in a sentence or two, overview what you will be covering in the rest of the paper. It is okay for this summary to be slightly repetitve of the abstract, since the paper body and the abstract should both stand alone.
- **Related Work:** Reference and discuss other research that relates to your own.

A literature review is not emphasized in 543 sketching. However, it will be quite relevant for some projects, and all will benefit from a short section situating your work in a context of other work that has inspired, constrained or grounded it.

- **Approach:** Outline the solution(s) you are trying for the problem. This has two main components:
  - State your specific problem goal: describe the question your project specifically addresses. This is likely to be much narrower than the overall problem area above.
  - Describe how you will meet this goal: e.g. the range of prototypes, and any evaluation.
- **Prototyping:** document the prototypes/sketches you built; and tell the story of what you learned from successive steps and how each informed subsequent evolution or directions.
- **Evaluation & Results:** If your team did some kind of evaluation (optional), outline and justify the (informal) design and analysis used. Document the working setup. Augment with diagrams, photos, etc as needed (ideally at least one photo of a "subject" in action). Your analysis and results presentation should be in keeping with the design. Include performance, subjective, observational and other qualitative data as appropriate.
- **Discussion**: This will vary widely by project (e.g. do you have evaluation results, or does your closure take some other form). It is where you reflect on and interpret what you have learned. What do the results mean? What can you conclude from them?

  Don't overstate claims; what you'll have done is more likely to "suggest" than to "prove" or "demonstrate". Discuss where your data might point, but distinguish this from evidence.
- **Conclusions and Future Work**: Reiterate what you have done and learned. Then reflect at a higher level: is this a useful line of investigation? What can you say now about how your application design should change? If you recommend continuing this work, what would be your next few steps? What (repeat from beginning) is the long-term vision – has it changed?
- **References:** include full citations.
- **Appendices:** While your "conference paper" should stand on its own, please also submit the following appendices as needed to document your work. Examples:
  - Supporting detail of hardware setup: source & description of components; mechanical drawings; electronic schematics
  - Key sections of computer code e.g. fragment showing method for rendering feels
  - Extra analyses, or more complete documentation and graphical view of the analyses which you completed but did not include in the paper for space reasons
  - Any other relevant documentation

INDIVIDUAL Evaluation Criteria – Project Blogs

Unlike lab blogs, the individual project blogs are for regular marks (not Pass/Fail).

A. Adequacy of technical documentation Sufficient and understandable detail (through text and multimedia) to understand key innovation, and process/methods used.	0.35
B. Blog organization, images and video Alternative media provide appropriate support to text. Blog structure worked (navigation etc).	0.10
C. Ambitiousness and contribution Author's role was communicated (in group effort). Personal effort, and result attempted/achieved, were commensurate with course expectation and time allocated for it.	0.35
D. Lessons learned The goal of the exploration was articulated. Learning resulted and was conveyed	0.20

TEAM Evaluation Criteria – Project, Report and Presentation

Group mark assessed at end of term, based on elements listed below. Progress through the term is monitored and assessed via personal project blogs, instructor project meetings and course design crits.

CONTENT - project-specific weights 0.40
- Originality of question and elegance of approach
- Scope and effort
- Technical sophistication
- Evaluation (if appropriate)
- Closure attained
- Demonstration
- Other/overall

MANAGEMENT – as observed by instructor 0.10
- Timely, organized progress
- Teamwork, as observed by instructor
- Effective use of resources, including instructor
- Kept instructor informed

PROPOSAL 0.05
- Guiding objective
- Motivation
- Appropriateness to 543 and physical sketching

PRESENTATION 0.15
- Organization of talk
- Content / coverage
- Slides (clarity, design)
- Geared to audience
- Delivery, inc. timing
- Handling of questions

FINAL REPORT 0.30
- *Completeness**
- Structure
- Clarity & elegance with which ideas are expressed
- Support for conclusions
- Appearance / grammar etc.
- Use of supporting figures
- Other / overall

Report Completeness - Breakdown
- Informative title & abstract
- Intro/motivation/lit rev
- Problem statement & approach
- Technology development (if relevant)
- Experimental methods (if relevant)
- Results presentation & analysis (if relevant)
- Discussion
- Conclusions / future work
- Supporting materials, as appropriate