Advanced Design and Evaluation of Interactive Systems

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Redesign
How to improve it?

Generative Design: a reminder

Discovery
Who is the user?

Invention
What is possible?

Design
What should it be?

Evaluation
Does it work?

Redesign
How to improve it?
Four phases

Each phase contributes to the other phases:

- Evaluate the system
- Understand the user
- Design the system
- Generate new ideas

The process is iterative. Jump from any phase to any other phase as needed.

Design is an iterative process...

Create design artifacts that serve as resources for redesign.

Design Trade-offs

Fundamental challenge: Balance trade-off between:
- power of expression
- simplicity of execution

Design Trade-offs

Design challenge: Shift the curve!

Simple things should be simple, complex things should be possible.
Simplicity vs. Complexity

Iterative design means redesign

Within an iterative design process, redesign is more important than initial design.

do not just “do it again!” reflect on your designs in context.

Our focus

Within an iterative design process: Redesign, not initial design

Within a multi-disciplinary design team:

Engineers, plus social scientists, designers and users
A word about engineers…

Technically trained:
- Taught to solve pre-defined problems
  but not to articulate new design problems
- May know about abstract social-science principles
  but do not have techniques for applying them
- Prefer building technology to thinking about users
  but a final evaluation is too late

… the goal of this course is to help you overcome these limitations

Perspectives on understanding users

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<th>Design perspective</th>
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<td>Collect data about users</td>
<td>Seek design inspiration</td>
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<td>'Objective' analysis</td>
<td>Redefine the design problem</td>
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<td>Inform designers</td>
<td>Generate innovations</td>
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Course Activities

Multi-disciplinary Design Methods

These design techniques are derived from Human-Computer Interaction’s component disciplines

No individual technique is best nor can it stand alone

All have advantages and disadvantages, each is influenced by the norms of the parent discipline

We can choose from among these techniques and modify them as needed or create our own
Multi-Disciplinary Design Methods

- Understand the user
- Analyze the user
- Invent new ideas
- Prototype the system
- Evaluate the system
- Redesign the system

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Final Presentation & Demonstration

- Oral presentation
  - Polished video prototype: What it could be
    - Concept
    - "How-to"
    - Scenario
  - Live Demonstration: What already works
  - Pitch: Justify your idea for a venture capitalist or Kickstarter

Grading

- HCI BootCamp: 50%
- Class participation: 20%
- Final presentation: 30%

HCI Project will be presented at same time but will be graded separately

Course project

Work in groups of 2-3
some activities are individual, others are in groups
Create a video prototype of an original design that meets the needs of real users in a real setting
Same project as in the HCI Projects course choose something you can implement and evaluate
Projects involve in-class exercises and homework attendance is critical!
Exercise

**Design Notebook**

Buy a small notebook that you can keep with you.

Observe users; note different types of interaction
  - Record your own behavior, if relevant
  - Seek out examples of users interacting with technology

Write or sketch, but also take photos, capture web items

Generate ideas; sketch or write notes
  - Snap photos, find links on the web

Seek inspiration and identify opportunities for design.

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**Design notebook**

Keep it with you and jot things down as you think of them

Capture your observations about people

Keep track of your ideas: sketches and note ideas

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**Log books, Diaries and Journals**

Capture your observations about people

Sketch ideas

Keep it with you and jot things down as you think of them
Homework

1. Design Notebook
   Buy an A5 notebook
   Add your name, group, HCID Masters program
   Each week: add observations and ideas

2. Design Concept
   Identify the key concept and three alternatives

3. Critical incident interview
   Find specific stories of recent use
   with both positive and negative results

Redesign

How to improve it?

You’ve created a video prototype … NOW WHAT?
How can you improve it?

Lengthen the scenario:
   Add interaction points

Modify the scenario:
   Consider breakdowns, surprises, alternatives
Create an additional scenario
   Consider new personas, new situations, new designs
Create a branching scenario
   Compare design alternatives in context
Improving your video prototype

Visual:
- Explanatory intertitle cards
- Use pause for time-lapse effect
- Use transparencies and post-its for dynamic effects
- Zoom in, zoom out, then video while zooming in
- Stabilize the camera (tripod, support, body)
- Stabilize the background (postit notes or tape)
- Include detail: paper prototypes and story

Auditory:
- Limit background sound (find an empty room)
- Consider how much voice-over is needed
- “Three” “Two” “ ” “ ” technique

Audiences for your design resources

Audience: Emphasis on:
- Users
  - Articulating design problems
  - Identifying design opportunities
  - Bottom-up, contextual descriptions
- Management
  - Describing design solutions
  - Justifying design solutions
  - Top-down, abstract descriptions
- Team members
  - Revealing design problems
  - Exploring design solutions
  - Both top-down and bottom-up

Exercise: Lengthen your scenario

Goal:
- About 10 interaction points
- Add at least three today
- Include at least one breakdown

Check the mid-term assessment:
- Review your interviews and observations
- Review the results of the walkthrough

What is missing from your scenario?
- Breakdown?
- Repeated activity?
- New people?
- Set up features
- Unanticipated behavior?
- Combining features?
- New situations?
- Modification features