Human-Centered Design of Computer Interfaces

Graduate computer science course in Human-Computer Interaction. Students work in teams to conduct an end-to-end integrative interface design project.

PREREQUISITES

Students are strongly encouraged to have taken CS 5714 (Usability Engineering), CS 5724 (Models and Theories of Human-Computer Interaction), or HCD courses in four core areas: (1) Creative Problem Solving, (2) Computational Practices, (3) Interdisciplinary Research, and (4) Humane Understanding.

TEXTS AND SPECIAL TEACHING AIDS

Assigned reading will be drawn from the following:

- Yvonne Rogers, Helen Sharp, and Jenny Preece, (2011) *Interaction Design: Beyond Human-Computer Interaction*. Wiley. ISBN 0470665769.
- Bill Buxton (2007) *Sketching User Experiences: Getting the Design Right and the Right Design*, Morgan Kaufmann ISBN: 0123819598
- Saul Greenberg, Sheelagh Carpendale, Nicolai Marquardt, Bill Buxton (2011) *Sketching User Experiences: The Workbook*. Morgan Kaufmann ISBN: 0123740371

Additional reading and recommended sources will be drawn from the following:
- Don Norman (2013) *The Design of Everyday Things: Revised and Expanded Edition* Basic Books ISBN: 0465050654
- Andy Pratt, Jason Nunes (2013) *Interactive Design: An Introduction to the Theory and Application of User-Centered Design*, Rockport. ISBN: 1592537804
- JC Jones (1992) *Design Methods*, Wiley. ISBN: 0471284963
- Thomas Tullis and William Albert (2013) *Measuring the User Experience, Second Edition: Collecting, Analyzing, and Presenting Usability Metrics* Morgan Kaufmann ISBN: 0124157815
- William Lidwell, Kritina Holden, Jill Butler (2010) *Universal Principles of Design*, Rockport ISBN: 1592535879

Project topics and design perspectives may be drawn from contemporary publications. Some examples are:
- Paul Dourish (2004) *Where the Action Is: The Foundations of Embodied Interaction* MIT Press ISBN: 0262541785
- Viktor Kaptelinin an Bonnie Nardi (2009) *Acting with Technology: Activity Theory and Interaction Design* MIT Press ISBN: 0262513315
- Malcolm McCullough (2012) *Ambient Commons: Attention in the Age of Embodied Information*. MIT Press ISBN: 0262018802

SYLLABUS

Students will learn problem seeking, ideation, concept selection, simulation, and prototyping. Using iterative methods, the dynamic relation of problem-seeking and problem-solving will be explored. Students will be exposed to a wide variety of methods (such as user-centered design, Delphi method of planning, morphological box, brainstorming, genre analysis, representational methods, the pattern language, rapid prototyping, structured walk-throughs, and mind maps, to name a few). Since design reviews are an essential part of designing, formal and informal reviews will be a regular part of the class.

Structurally, the class is part seminar, part lecture, and part hands-on project development. Grading will be based on seminar preparation and participation (20%), a paper in "CHI" conference format describing the project (15%), a written essay exams that are drawn from a journal maintained during the course (25%), and the design and implementation of the project (40%).

Content of Course
The topics loosely break down into four main categories: design process, design skills, philosophic underpinnings of interaction design, and design problem domain specifics.

1. Orientation and methodology	10
2. Technical skill development	15
3. Project planning & management	05
3. Domain area/topic orientation	10
4. Problem finding in domain area	05
5. Creative design solutions (ideation)	20
5. Implementation	10
6. Evaluation	15
____ Percent of course	100