Lecture 1
Chapter 1 part 1: What is interaction design?
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Human-Computer Interaction
CAP 4304 / CAP 5309

Overview

• Short introductions
• Chapter 1 What is interaction design? – part 1
  • What is human-computer interaction (HCI) and why do we need it?
  • What is interaction design (ID)?
  • What is user experience (UX)
• Course syllabus
• Assignments
  • Discussion of Individual Homework assignment H1:
    • Website creation, Project Brainstorming, AngularJS start
  • Reading assignments for next class and for next week
• Quiz 0

Short introductions

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  • Wednesdays 3:30pm – 5pm
  • and by appointment
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And now about you...

• In 15 seconds, tell us:
  • your name
  • your level: Graduate or Undergraduate

What is Human-computer interaction (HCI) and why do we need it?

• Research interests
  • Human-computer interaction with focus on
    • intelligent virtual agents and
    • affective computing
  • Application areas:
    • health avatars and
    • 3D simulation for learning social skills
Why was HCI needed?

- In the late 1970s and early 1980s, shift:
  - from
    - large computers in secured rooms
    - operated only by engineers
  - to
    - small computers
    - operated by people without a technical background
    - in homes and workplaces
- So
  - ease of use,
  - the human side,
  - user acceptance,
  - all became more important!

HCI: a working definition

- A discipline "concerned
  - with the design, evaluation, and implementation of interactive computing systems for human use and
  - with the study of major phenomena surrounding them" (ACM SIGCHI, 1992)

Constraints of people matter

- Technology was the constraint for years
- But now it’s not
  - User needs/goals ("domain knowledge")
  - User capabilities
  - User context (including groups)
  - User values

An HCI attitude: users first

Out of the way, hacker! A user is coming!!

LUSERs

- Programmers versus “normal people”

This was ok-ish...

- ...when only programmers used computers
Changes in HCI research

- The main topics of HCI have shifted over time:
  - 1980s
    - Word processing and database interfaces
  - 1990s
    - Web usability, e-mail, groupware
  - 2000s
    - User-generated content, tagging, social networking
  - 2010s
    - User experience, interaction design, aesthetics, emotions, virtual agents

What is interaction design?

Dilemma

- Which is the best way to interact with a smart TV?
  - Standard remote device?
  - Apple slimline remote control?
  - Minuum's new keyboard?

What to design

- Need to take into account:
  - who the users are
  - what activities are being carried out
  - where the interaction is taking place

- Need to optimize the interactions users have with a product
  - so that they match the users’ activities and needs

Understanding users’ needs

- Need to take into account
  - what people are good and bad at

- Consider
  - what might help people in the way they currently do things

- Think through
  - what might provide quality user experiences

- Listen to
  - what people want and get them involved

- Use
  - tried and tested user-centered methods

Domain knowledge isn’t enough
Human capabilities matter

- Physical abilities
  - Human factors
  - Perception
- Mental abilities
  - Psychology
  - Linguistics

So what is interaction design?

- “Designing interactive products to support the way people communicate and interact in their everyday and working lives.”
  - Preece, Sharp and Rogers (2015)
- “The design of spaces for human communication and interaction.”
  - Winograd (1997)

Is interaction design beyond HCI?

- Main difference between Interaction Design (ID) and Human-Computer Interaction (HCI)
  - Is one of scope
- ID has much wider net
- ID is concerned with
  - the theory
  - research, and
  - practice of designing user experiences for all manner of technologies, systems and products
- HCI traditionally had a narrower focus (see definition earlier)

Goals of interaction design

- Develop usable and enjoyable products
- Usability means
  - easy to learn
  - effective to use and
  - provide an enjoyable experience
- Involve users in the design process

Which kind of design?

- Number of other terms used emphasizing what is being designed, e.g.
  - user interface design
  - software design
  - user-centered design
  - product design
  - web design
  - experience design (UX)
- Interaction design is the umbrella term covering all of these aspects
  - fundamental to all disciplines, and
  - approaches concerned with
    - researching and designing computer-based systems for people

Relationship between ID, HCI and other fields

**Academic disciplines contributing to ID:**
- Psychology
- Social Sciences
- Computing Sciences
- Engineering
- Ergonomics
- Informatics
Relationship between ID, HCI and other fields

Design practices contributing to ID:

- Graphic design
- Product design
- Artist design
- Industrial design
- Film industry

Interdisciplinary fields that ‘do’ interaction design:

- HCI
- Ubiquitous Computing
- Human Factors
- Cognitive Engineering
- Cognitive Ergonomics
- Computer Supported Co-operative Work
- Information Systems

Working in multidisciplinary teams

- Many people from different backgrounds involved
- Different perspectives and ways of seeing and talking about things

Benefits

- more ideas and designs generated

Disadvantages

- difficult to communicate and progress forward the designs being create

What about the user experience (UX)?

The User Experience

- How a product behaves and is used by people in the real world
  - the way people feel about it and their pleasure and satisfaction
  - when using it, looking at it, holding it, and opening or closing it
- “every product that is used by someone has a user experience:”
  - e.g. newspapers, ketchup bottles, reclining armchairs, cardigan sweaters.” (Garrett, 2010)
- “all aspects of the end-user's interaction with the company, its services, and its products. (Nielsen and Norman, 2014)

- Cannot design a user experience
  - only design for a user experience

Why was the iPod user experience such a success?

- Quality user experience from the start
  - simple
  - elegant,
  - distinct brand
  - pleasurable
  - must have fashion item, catchy names
  - cool, etc.
The User Experience

- But it’s not just the Model Human Processor
- Emotions matter

Beauty matters, flow matters

Concept of flow

- Concept of flow (Csikszentmihalyi, 1997) refers to
  - state of intense emotional involvement
  - that comes from being completely involved in an activity (e.g., playing music)
  - and where time flies
- Instead of designing web interfaces to cater for visitors who know what they want,
  - induce a state of flow,
  - leading the visitor to some unexpected place,
  - where they become completely absorbed

Context matters

- People have other values, things to do
  - economics
  - philosophy and critique and culture
  - programmers forget this but they shouldn’t
Course Objectives

• Upon successful completion of this course, students should be able to:
  • Describe and apply core methodologies from the field of HCI
  • Define a user-centered design process that explicitly takes account of the fact that the user is not like the developer or their acquaintances
  • Design, prototype, implement and evaluate usable and satisfying graphical interactive computer interfaces
  • Implement simple graphical user interfaces using AngularJS

My personal goal for you in the course

• In addition to content-specific objectives reflected by the topics in the course calendar, I have these personal goals for each student:
  • to get you to think deeply and carefully about the subject,
  • to help you to genuinely like the subject,
  • to provide knowledge and skill useful to you in your career following life in college,
  • to engender a deeper interest (perhaps in some of you) that can be pursued beyond this course, and
  • to have a little fun in the process.

Class time

• Class time will be split between
  • content-based lectures
    • devoted to covering course materials, sometimes highlighting or skimming through the slides.
  • in-class activities.
    • provide an initial opportunity for experience with the interaction design (ID) development lifecycle activities.
  • Outside of the classroom, you will acquire more in-depth hands-on experience in individual assignments and a team term project.

• In summary, it is our goal for you to master the development activities of the ID lifecycle process.
• You are exposed to each activity in several ways.
  • So you will need to
    • first read the book before the lecture on the topic, according the schedule on the course website
    • then I will review the highlights in lectures, and you will get some initial practice via in-class exercises.
    • Finally, you will apply them in a more realistic hands-on situation through
      • individual homework assignments, and a
      • semester-long team project assignments.
Prerequisites

• Undergraduate students must have successfully completed Programming II (COP-3337).
• All students must be able to
  • program in a high-level programming language, and
  • become proficient on their own in the basics of AngularJS by the middle of the semester.

Textbooks

• Required
  • Additional reading material will be provided on the course website.

• Optional References

Grading

• Quizzes 10%
• Class participation 10%
• Individual Homework 20%
• Term project 35%
• Final Exam 25%

Reading assignments

• You will be responsible for
  • keeping up with readings in the book per the schedule given in the course calendar.
  • setting your own reading pace to keep ahead enough to be prepared for class discussions and exercises.
  • knowing where we are in our class discussions,
  • with respect to finding your place in the class lecture slides.

Quizzes

• Quizzes will cover the material of the previous and current week.
• No make-up quizzes will be given.

Class participation

• Getting full credit for the in-class exercises is easy.
• This is truly a case where showing up is half the battle.
• Just be there and be willing to participate in each in-class activity and do a good job of it.
• In assessing the "do a good job" part of this activity for each individual, I will be looking for:
  • Presence or absence of the individual
  • Preparedness, knowledge of material
  • Care and correctness in applying it
  • Intangibles (getting into role, etc.)
Homework

- Homework assignments will be individual assignments
  - available on the course website, and
  - due at the beginning of class according to the course schedule listed on the website.

- Students in CAPS109 will have an additional assignment
  - to conduct a small literature review related to their term project,
  - based on selected reading material.

Term projects

- Students will work on their term project in teams,
  - formed early at the beginning of the semester.
- The term project will involve
  - designing,
  - implementing, and
  - evaluating a system in terms of the concepts and using the methodologies discussed in class.
- Students will incrementally go through the phases of the interaction design (ID) Lifecycle, including
  - requirements gathering and analysis,
  - design,
  - paper prototyping,
  - computer prototyping, and
  - several methods of usability analysis and evaluation.
- The course will also involve the implementation of simple user interfaces using AngularJS.

Final exam

- There will one exam:
  - a two-hour final exam pre-scheduled on PantherSoft during final week.
  - It is currently scheduled on Thursday 04/27/2017 9:45 am - 11:45am (I do not schedule final exams, FIU does).
  - You can already check the time and classroom on your PantherSoft account under this course.
- No make-up exams will be given, no exception.

Course website

- Website: www.cis.fiu.edu/~lisetti/hci
  - ID: 
  - Password:

Assignments

Individual Homework assignment (H1) – DUE next Thursday

- Administrative
  - Pick three different project ideas that you would be interested in working on
  - make a rough sketch of a user interface (a scanned or photographed sketch on paper is best)
  - and write a 1 paragraph proposal for each, further fleshing out the idea.
  - Create one Adobe .pdf file for each project idea (use the le name convention: hw1-idea1.pdf, hw1-idea2.pdf, hw1-idea3.pdf)
  - post your write-ups and sketches for each idea on your web page in your order of preference
  - These will be used to help form project teams.

- Brainstorming Assignment
  - Create a personal course web page with your name and email address at the at the top and
  - post it to a server: The School of Computing & Information Sciences (SCIS) provides students
    with a workspace available to host your own website (see instructions on assignment post website)

- AngularJS
  - Start working your way through AngularJS tutorial (angularjs.org)

Go to www.cis.fiu.edu/~lisetti/hci/homework.html for details and further instructions
### Reading Assignments for next class and next week

- **Reading Assignment for next class**
  - *Course Syllabus* handout
  - *Course Schedule* on our website at URL: www.cis.fiu.edu/~lisetti/hci/schedule.html
  - *Chapter 1 - What is interaction design*
    - skim through it
  - *Lecture Notes (Powerpoint slides)* on Chapter 1
    - go to www.cis.fiu.edu/~lisetti/hci/schedule.html
    - download the slides from the link under the first lecture *Overview of HCI and ID*
    - *Syllabus* which includes both lectures (Tuesday and Thursday) on Chapter 1
  - *Quiz 1* for next class will be on the lecture notes
- **Reading assignment for next week**
  - *Chapter 9 – The Process of Interaction Design (i.e. ID lifecycle)*

### QUIZ 0 – demographics and feedback

- Getting to know you...
- Getting some feedback from you