Lecture 1
Chapter 1 part 1: What is interaction design?

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Human-Computer Interaction
CAP 4104 / CAP 5109

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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

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Short introductions

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Short introductions

- Dr. Christine Lisetti
  - Associate Professor
- Office:
  - ECS 361
- Office Hours:
  - Wednesdays 3:30pm - 5pm
  - and by appointment
- Email: lisetti@cis.fiu.edu

- 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

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And now about you...

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

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

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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!

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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)

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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

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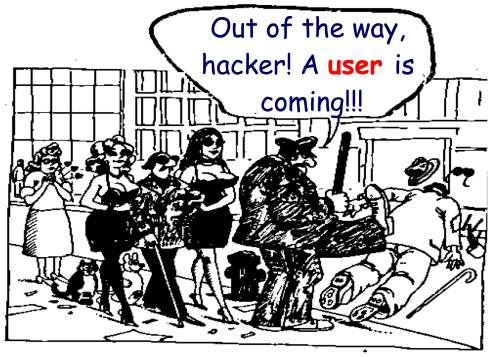
An HCI attitude: users first



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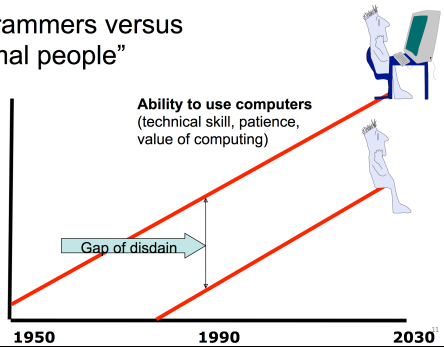
LUSERs

- Programmers versus "normal people"



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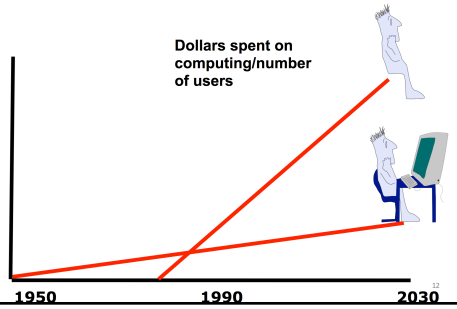
This was ok-ish…

- …when only programmers used computers



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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

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What is interaction design?

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Dilemma

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

http://minuum.com

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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

Figure 1.3 Turn signal biking jacket using e-textiles developed by Leah Beuchley

Source: Photos courtesy of Leah Buechley.

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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**

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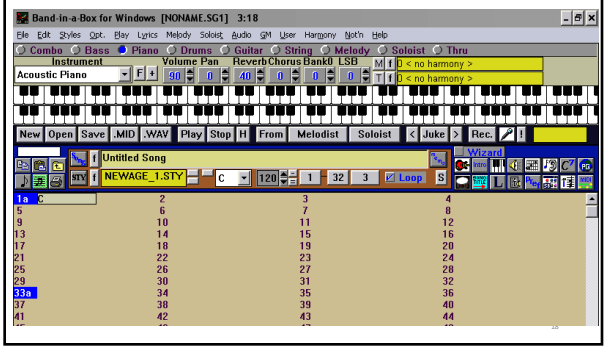
Domain knowledge isn't enough



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Human capabilities matter

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

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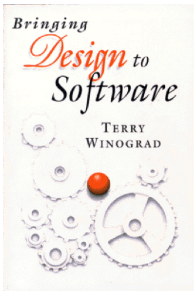
So what is interaction design?

- "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)**



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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)

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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

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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***

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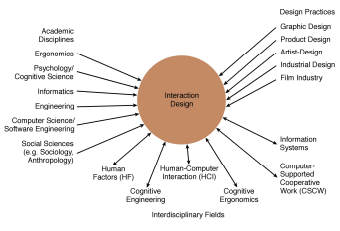
Relationship between ID, HCI and other fields

Academic disciplines contributing to ID:

- Psychology
- Social Sciences
- Computing Sciences
- Engineering
- Ergonomics
- Informatics



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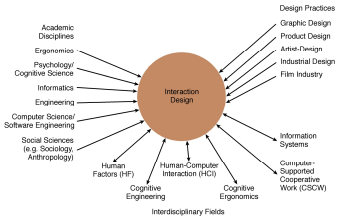
Relationship between ID, HCI and other fields

Design **practices** contributing to ID:

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



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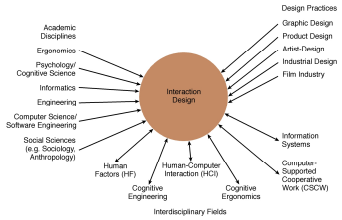
Relationship between ID, HCI and other fields

- **Interdisciplinary** fields that 'do' interaction design:
  - HCI
  - Ubiquitous Computing
  - Human Factors
  - Cognitive Engineering
  - Cognitive Ergonomics
  - Computer Supported Co-operative Work
  - Information Systems



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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

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What about the user experience (UX)?

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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

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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.

Figure 1.6 The iPod Nano Touch
Source: ©Press Association, reproduced with permission.

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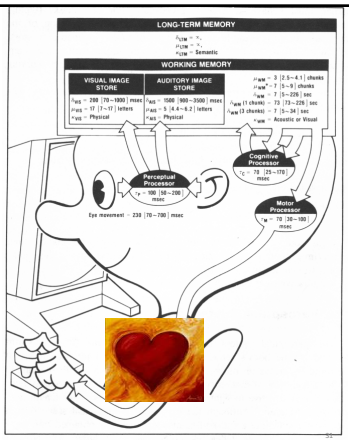
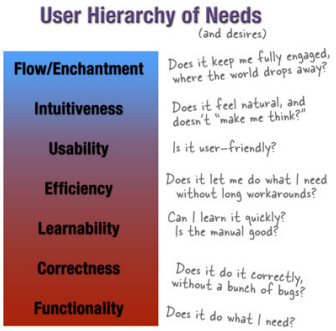
The User Experience

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



Beauty matters, flow matters



http://headrush.typepad.com/creating_passionate_users/2007/01/what_comes_afte.html

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Beauty matters, flow matters

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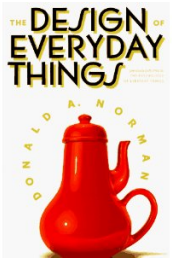
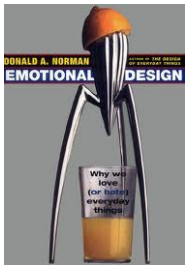
Beauty matters, flow matters





http://headrush.typepad.com/creating_passionate_users/2007/01/what_comes_afte.html

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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

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Context matters

- People have other values, things to do
  - economics
  - philosophy and critique and culture
  - programmers forget this! But they shouldn't

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Doing things... in context

Course syllabus

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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*

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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.

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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.

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Class time

- 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.

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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.

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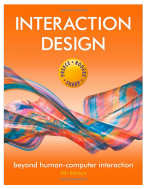
Textbooks

- **Required**
  - Jenny Preece, Helen Sharp, Yvonne Rogers. *Interaction Design: Beyond Human-Computer Interaction,* 4th Edition, Wiley, 2015.
  - Additional reading material will be provided on the course website.



- **Optional** References
  David Benyon, Phil Turner, and Susan Turner. *Designing Interactive Systems: Designing Interactive Systems: A Comprehensive Guide to HCI, UX and Interaction Design*, 3rd Ed., Addison Wesley, 2013.

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Grading

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

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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.

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Quizzes

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

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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.)

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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 CAP5109 will have an additional assignment
  - to conduct a small literature review related to their term project,
  - based on selected reading material.

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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*.

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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.

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Course website

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

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Assignments

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Individual Homework assignment (H1) – DUE next Thursday

a. 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.

b. 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 webspace available to host your own website (see instructions on assignment postd website)

c. 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

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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)

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QUIZ 0 – demographics and feedback

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

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