Welcome!

- **About me**
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- **About this course**
  - Syllabus, timeline, & resources on-line...


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**What’s a Graphical User Interface?**

- **In the narrow sense...**
  - a graphical information channel between a user and computer system/application
  - e.g., most Windows & Mac applications
  - any interface with buttons, menus, etc (“widgets”)

- **In the broader sense...**
  - ATMs, cell phones, navigation devices, etc.
  - GUIs don’t have to have standard widgets!
  - GUIs don’t have to be on your desktop!

- This course focuses on the first group, but we’ll keep the second group in mind

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**Who / what / where / when / why / how**

- Prerequisites
- Lectures
- Readings
- Assignments
- Exams
- Grading
- Communication
- Policies
- Questions?
Why GUIs?

- Can present a lot of information in a small area but still maintain readability
- Can present different types of information (e.g., pictures, animations)
- Can store “functions” on-screen without forcing users to remember them
- Can provide “direct-manipulation” interfaces with various input

The GUI Life Cycle

Design → Prototype → Evaluate

Focus of this course

CS 337: Psych HCI
CS 338: GUI

To set the stage...

- Some problems with GUIs today:
  - Software is “rude”
    - e.g., inappropriate or derogatory error messages
  - Software makes unwarranted assumptions
    - e.g., assumes users know underlying mechanisms, such as saving to a hard drive
  - Software is obscure
    - “Use passive mode on FTP proxy?”
  - Software exhibits inappropriate behavior
    - Open Word document, print it, close it — “Save?”
To set the stage...

- Why do we have these problems?
  - we have a conflict of interest
    - for whom exactly are we developing the system?
  - we lack a process
    - how can we think like engineers to evaluate user needs and develop appropriate, usable systems?
  - one simple, common, but not-so-good process:

Developing GUI (or any) software

- Cooper’s 5-component process:

Multidisciplinary nature of GUI & HCI

- Human side:
  - cognitive psychology
  - ergonomics and human factors
  - sociology and anthropology
  - linguistics
  - communication theory
  - social and organizational psychology
  - graphic and industrial design
**Multidisciplinary nature of GUI & HCI**

- **Machine side:**
  - computer science
  - engineering
  - computer graphics
  - operating systems
  - programming languages
  - software engineering
  - development environments
  - artificial intelligence

**Users, users, users**

- Today we’ll focus on the “human side.” Soon we’ll deal with the “machine side.”
- How can we possibly deal with all the complexity of the human side of GUIs?
  - one short answer: It’s hard.
  - one long answer: See CS 337.
  - our short answer: KEEP THE USER IN MIND!

**Users at a lower level**

- Users embody all aspects of being human
- Being human means having limitations:
  - visual attention (e.g., noticing animation)
  - visual processes (e.g., reading a word)
  - motor processes (e.g., mouse movement)
  - cognitive processes (e.g., memory)

**Users at a higher level**

- Users have goals in using our GUIs
- User-centered design involves...
  - goals: what is the user trying to accomplish?
  - needs: what does the user need to do this?
  - user constraints: what can/can’t the user do?
  - task constraints: what can/can’t be done?
  - and lots of other things to consider
Example: Web site design

- Jakob Nielsen’s “Top Ten Mistakes in Web Design”
  1. Using Frames
  2. Gratuitous Use of Bleeding-Edge Technology
  3. Scrolling Text, Marquees, and Constantly Running Animations
  4. Complex URLs
  5. Orphan Pages
  6. Long Scrolling Pages
  7. Lack of Navigation Support
  8. Non-Standard Link Colors
  9. Outdated Information
  10. Overly Long Download Times

- Is good design really this easy?
- These are really just heuristics that keep the user in mind!

Research Question of the Day

- When people surf the web, they have goals.
  - the goals might be very specific
    - e.g., find a paper
  - the goals might be very general
    - e.g., find a cool news article or on-line game
- For typical web browsing, what are users’ goals and how common are these goals?

Research Question of the Day

- Byrne et al. (1999) created a “taskonomy” of web browsing
  - take users from a diverse population
  - observe them in a natural environment
  - analyze their verbal protocols & extract goals
- And at the same time...
  - perform a task analysis of web browsing
  - create categories & subcategories of goals
    - e.g., locate word, image, something interesting...

Research Question of the Day

Optimizing for intermediates

- Cooper uses a “bell curve” argument:
  "Most users are neither beginners nor experts; they are intermediates."

- He thus argues that we should “optimize for intermediates”
- Is this always the case?
  - for what systems does this make sense?
  - for what systems doesn’t this make sense?

Dealing with beginners, experts

- Let’s not forget the others!
- Beginners need...
  - straightforward “mental model”
  - good, concise topical help (need not be long!)
- Experts need...
  - lots o’ shortcuts
  - directed, specific, unintrusive help

"Most users are neither beginners nor experts; they are intermediates."
Personas

• One system won’t make everyone happy

Alessandro’s goals
- Go fast
- Have fun

Marge’s goals
- Be safe
- Be comfortable

Dale’s goals
- Haul big loads
- Be reliable

How do we develop personas? Research.
- user interviews
- subject-matter experts
- market research surveys
- etc.

• End production: Each persona represents a class of users in context
  - persona is not an “average person”, but an exemplar or “canonical person” with an associated range of behaviors

Exercise: CS Web Site

• Check out the web site on the next page

What’s your gut reaction?
- yikes, ugly
- yikes, cool
- just fine
- yawn

• Ok, that’s out of your system. Now let’s think about our users...
Exercise: CS Web Site

- What are some personas for the CS Web?