Agenda

- Introductions
  - Me
  - You
- Administrative stuff...
- HCI Overview
  - Objectives
  - Principles
Introductions

- Instructor
  - Bruce Walker
  - Psychology & Computing
  - GVU

- HCI - Alternative Interfaces
  - Sonification & Auditory Interfaces
  - Alternative Interaction Styles
  - Engineering Psychology & Human Factors
  - Assistive Technology

- Formative experiences...
  - Grad School Decisions "To Boldly Go..."
  - NASA, IBM, Consulting
Introductions

➢ Teaching Assistants
  ❖ Keenan May
    • kmay @ gatech.edu
  ❖ Zoe Becerra
    • zbecerra3 @ gatech.edu
  ❖ Agrim Chandra
    • agrimchandra @ gatech.edu
Your turn

Demographics:
- Males __ Females __
- <18 __ 18-23 __ 24-29 __ >30 __
- English __ Spanish __ Other language __
- Years Computer use:
  - <1 __ 1-4 __ 5-8 __ 9-12 __ >12 __
- ??
Course Information

➢ Text Books

➢ Web
  ❖ http://sonify.psych.gatech.edu/~walkerb/classes/ms-hci/index.html
  ❖ Also via T-square
  ❖ Syllabus & Class Info
  ❖ Schedule
  ❖ Assignments
  ❖ Wiki
Course Information

Grading

- Group project, 4 parts (45%)
  - More to come next time...
- Mid-term (20% total)
- Homeworks (30% total)
  - A couple weeks to do each one, likely 3 in total
- Participation (5% total)
  - Class involvement and peer review
  - Note that your participation in the project is factored into your project grade, not this separate participation score
Resources

- Previous courses, courses elsewhere, info on the web, ...
  - Content, lectures, projects, ...
- Books
- Web sites
- Standards documents
- Go further
  - Move beyond lectures & book
  - Further courses
  - Step into research
HCI and Evidence-Based Design

Here we go...
What happens when a human and a computer system interact to perform a task?

- task - write document, calculate budget, solve equation, learn about Iran, drive home, make a reservation, land a plane...

Why is this important?

1. Computer systems affect every person
2. Safety, satisfaction, utility is critical
3. Product success depends on ease of use
Interfaces in the World

- Not just computers!
  - GPS
  - Mouse
  - Phone
  - Copier
  - Car
  - Plane cockpit
  - Airline reservation
  - Air traffic control
  - Home control
Thought Provoker #1

- Steering wheel head scratcher...
Thought Provoker #1

Gotta see the details...
Thought Provoker #1

➢ The answer...? The issues...??
OMG! Head Exploding!

- Issues of...
  - Design
  - Internationalization
  - Supply Chain
  - Costs
  - Standards
  - Documentation
  - Training
  - ...etc., etc., etc....
Goals of HCI

➢ Allow users to carry out tasks
  ❖ Safely
  ❖ Effectively
  ❖ Efficiently
  ❖ Enjoyably
Crucial issue in this area!

Combination of:

- Ease of learning
- High speed of user task performance
- Low user error rate
- Subjective user satisfaction
- User retention over time
How do we improve interfaces?

1. Educate software professionals
2. Draw upon fast accumulating body of knowledge and evidence regarding H-C interface design
3. Integrate UI design methods & techniques into standard software development methodologies now in place
Evidence-Based Design Process

- Tao of User-Centered Design
  - Analyze user’s goals & tasks
  - Create design alternatives
  - Evaluate options
  - Implement prototype
  - Test
  - Refine

DESIGN → USE & EVALUATE → IMPLEMENT → DESIGN
Evidence-Based Design in HCI

Context of use
Context of development

Needs/Capabilities:
- User
- Business
- Market
- Technology

Analyse/Evaluate

Evidence/Requirements
Artifact/Constraints

Design/Build

Product/App/Service
Above All Else…

➢ Know the User!
  ❖ Physical & cognitive abilities (& special needs)
  ❖ Personality & culture, context
  ❖ Knowledge & skills
  ❖ Motivation, Wants, Needs
  ❖ Etcetera, etcetera!!

➢ Two Fatal Mistakes:
  1. Assume all users are alike
  2. Assume all users are like the designer
Design Evaluation

“Looks good to me” isn’t good enough!

Both subjective and objective metrics

Some things we can measure

- Time to learn
- Speed of performance
- Rate of errors by user
- Retention over time
- Subjective satisfaction
Course Overview

- Interdisciplinary teams
- The UCD Process and philosophy
- Know your user!
- Evaluate an existing system (without involving users)
- Design for success
- Dialog & interaction styles
- Evaluate your design (with/without users)
- Special topics
  - Ethics, InfoVis, Ubicomp, Agents, Audio
## Connections to Research Methods

<table>
<thead>
<tr>
<th></th>
<th>Needs Analysis</th>
<th>Design &amp; Prototype</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Methods for HCI</td>
<td>40%</td>
<td>20%</td>
<td>40%</td>
</tr>
<tr>
<td>HCI Foundations</td>
<td>25%</td>
<td>50%</td>
<td>25%</td>
</tr>
</tbody>
</table>

![Diagram showing the connection between needs analysis, design, and evaluation in the context of research methods.](image-url)
Upcoming

- History & Frameworks of HCI
- Project info
- Team training
- User Centered Design

Start reading...
- ID book *(note order of chapters on Schedule)*
- UYU book *(note order of chapters on Schedule)*
- DOET (if you want)
Group Project

Semester-long team effort
Group Project

- Design and evaluate an interface
  - P0 - Team formation & topic choice
  - P1 - Understand the problem space
  - P2 - Exploring the design space
  - P3 – Prototype and evaluation plan
  - P4 – (Discount) Evaluation

- Main 4 parts worth ~10% each
- Presentations, documentation ~ 5%
- Individual grade adjusted based on participation
Part 0 – Team and Topic
- Identify team & general topic
- Suggestion: Pick a population and pick a technology; check out intersection

Part 1 - Understanding the problem
- Describe tasks, users, environment, social context
- What are implications for design?
Group Project Details

- **Part 2 - Design alternatives**
  - Storyboards, mock-ups for multiple different designs
  - Explore, push boundaries of design space
  - Explain decisions

- **Part 3 - System prototype & eval plan**
  - More detailed prototype (semi-working ok)
  - Plan for conducting full evaluation
Group Project Details

- Part 4 – (Discount) Evaluation
  - Conduct evaluation with example users
  - Feedback from classmates
  - Analyze results of feedback
  - Characterize what’s working and what’s not
  - Iterate on prototype
Presentations

- Review/Feedback Panels (2 x 1 hour)
  - Panels of 2nd year students
  - Review your project at the early stages
  - Feedback, not solutions, from the panel

- Poster session
  - End of P3
Project Teams

- 4 people
  - You decide (or I will!) by THIS FRIDAY
  - Diverse/balanced is best!
  - Consider schedules
  - Use the Online Team Forming Tool (T-Square)

- Cool project and team name for P0

- Decide on a (tentative) user population and a (tentative) task domain for those users

- Team Contract

Fall 2018
Semester theme:

“Retail”

?? What does this mean ??

General Topic:
- By **next** Friday (“P0 due”)
- Indicate team and topic on t-square wiki

Real “client” seems cool; but use caution

Instructor or TA can serve as client
What Makes a Good Project

Typically:

- Access to/knowledge of domain experts & users
- “Real” clients
- Interesting human issues
- Rich domain for design

Theme has a LOT of range for topics

Consider how it meshes with project in Research Methods class
Previous Topic Ideas

- Mobile/handheld (cars, tour guides, etc.)
- Wedding planner
- GIS
- Calendar agent (speech)
- Audio / Web sites
- Domain that you know well
- Browse old projects for more ideas…