CSC 484 Lecture Notes Week 9
Misc. Administrative Matters;
Research Readings from Weeks 7 - 9;
Leftovers from Notes Week 6

I. **Relevant reading.**

    A. Week 9 research reading:

       "Usability evaluation considered harmful (some of the time)", by Greenberg and Buxton, 2008 SIGCHI.

    B. Papers selected by your team for the Assignment 4 presentation.

II. **Recap of schedule for the last 2 1/2 weeks of class.**

Week	Day	Lecture	Lab
9	Mon Wed Fri	Typical Lecture DRC Guest Lecture Quiz (full lecture)	2d3d Usability Part 1 2d3d Usability Part 2 2d3d Usability Part 3
10	Mon Wed Fri	Gatekeeper Usability Swat Usability Assignment 4 Presentations	Mobility Usability Menupad Usability TouchTen Usability
Finals	Mon, 10am-1pm Wed, 5pm	Final Project Presentations Final Project Due, on team website	

III. **Discussion of Assignment 4** -- see the handout (from last week).

    A. Discussed during last Friday's lecture.

    B. Pairings of teams to paper sessions will be determined during Monday lecture.

IV. **Discussion of the quiz.**

    A. It will take the hour.

    B. It's open-book, open-paper, open-note.

    C. There will be two questions on the most resent research readings (one question for each paper).

    D. There will be additional questions about material from the book, focusing on chapters 3 through 8.

    E. The paper-related questions will be in the same format as the other quizzes.

    F. The book-related questions will be short-answer, multiple-choice format.

V. **Final adjustments to grade breakdown.**

    Assignments (4): 40% *(originally 3 assignments @ 10% each)*
    Project (4 milestones): 45% *(originally 40%)*
    Debate: REPLACED by Assignment 4 (originally 10%)
    Quizzes (4): 15% *(originally 5 @ 2% each; now 3 at 3% each, 1 at 6%)*
    Final Exam: CANCELED (originally 10%)

VI. **Discussion of Weeks 7/8 research reading.**

    A. The paper explores the integration of visualization and statistics, for the analysis of large amounts of data.

    B. The authors present four case studies, where they demonstrate the effectiveness of their approach.

VII. **Discussion of week 9 research reading.**

    A. Two well-respected researchers discuss how usability analysis is not necessarily the be-all and end-all of interaction design.

    B. They present a number of specific concerns with common practices in usability analysis, including:

        1. Research hypotheses are chosen to suit a particular analysis method or framework, rather than the other way around.

        2. Designs are validated by existence proofs rather than strong testing; i.e., there exists *a* case where the design works well.

        3. Usability experiments are rarely replicated.

        4. Qualitative analyses are artificially mapped to quantitative frameworks.

        5. Usability testing done too early in a design can stifle creativity.

        6. Usability analysis of truly cutting-edge technology may be meaningless.

    C. The authors certainly do not want to scrap usability testing, just tighten it up.

VIII. **Finishing topics from Notes 6.**

    A. Items **IX** through **IV**, Pages 4 through 6.

IX. **Mobile interfaces, textbook pp. 265-269.**

    A. This is clearly an area of very active work.

    B. The ACM MobiCom conference is going very strong.

    C. The book focuses on cell phone and PDA devices.

    D. There are numerous other types of mobile devices, automobile UIs being among the more highly visible.

    E. R&D issues.

        1. Major ID challenges are coping with the small amount of real estate on the screen, and limited size of the keypad or touch-screen input interface.

        2. Much work has been devoted to mobile operating systems, including Windows CE and the latest iPhone OSs (iP{od,hone} Linux anyone?).

X. **Multimodal interfaces (pp. 269-271.**

    A. These UIs attempt to integrate touch, audio, video, and speech.

    B. The book notes that combining speech and vision processing is a common form of multimodal interface.

    C. R&D issues.

        1. People working in this area are still investigating fundamental issues of how best to combine multiple input/output sources.

        2. A significant open question is whether human-to-human interaction forms, such as hand gesturing, are in fact useful for human-to-machine interaction.

XI. **Sharable interfaces (pp. 271-275).**

A. These include electronic whiteboards and tabletop surface interfaces, e.g., Microsoft surface.

B. The primary purpose of these interfaces is support for collaborative work.

C. R&D issues.

   1. The current high cost of displays remains an issue.

   2. Fundamental research continues on what types of work are effectively and efficiently supported by large-scale sharable interfaces.

   3. The book discusses some of this work on pg. 275.

XII. Tangible interfaces (pp. 275-277).

A. These are designed to simulate real-life behavior, and react when manipulated in real-life ways.

B. Implementations can use RFID-tagged objects, manipulated on a digitized table top.

C. R&D issues.

   1. As with sharable UIs, there remain fundamental questions about the efficacy and utility of tangible UIs.

   2. What GUI tools and techniques are applicable to tangible UIs?

XIII. Augmented and mixed reality interfaces (pp. 277-281).

A. These are interfaces designed to smoothly integrate digital and physical worlds.

B. The book notes that they have been used most successfully in medical applications, where digital images are super-imposed on human bodies, to guide surgical procedures.

C. Another prominent application is in military and commercial "heads-up" displays.

D. Public displays and gaming applications are coming.

E. R&D issues.

   1. Where and when should the digital augmentation appear in the physical environment?

   2. And once again, for what types of tasks are such UIs most effective?

XIV. Wearable interfaces (pp. 281-284).

A. Strap a video-cam to your forehead, or stitch one in your lapel.

B. R&D issues.

   1. Comfort is a key issue.

   2. Social acceptance and privacy are also obvious issues.

XV. Robotic interfaces (pp. 284-285).

A. These are UIs embedded in robotic devices.

B. A recent New Scientist paper is one of many thought-provoking examples:

   "Electronic 'pet' could replace passwords and PINS".

C. R&D issues.

   1. How canipomorphic or anthropomorphic should we get?

   2. Do we need to license our robotic pets, in case they (virtually) bite our (virtual) neighbor?

   3. Should it be legal in the state of California to marry your robot?