Course Administration

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Overview

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Administration

- Course materials at Google Drive or chaklam.com
- Google Classroom (Code: in the class)
- Email: chaklam@ait.asia
- Office hours: see my calendar chaklam@ait.asia

Let's have a short tour to chaklam.com, Google Drive, and Google classroom.

Why and what HCI

- HCI is **pervasive** and **multi-disciplinary**
    - User Interface
    - Input Devices: Mouse, Keyboard, Stylus, etc.
    - Applications
- Key goals
    - Reliability $\rightarrow$ Productivity $\rightarrow$ Creativity
      $\rightarrow$ Engagement $\rightarrow$ **Well-Being**
- Research Areas
    - User Experience and Usability
    - Education, Health, Aging, Game applications
    - Interaction - VR, AR, Haptics, Pen, Eye, Voice, Gesture, Textiles, Brain, etc.
    - Understanding People
- Research Questions
    - What are some **new** forms of interaction?
    - How to design **usable** devices?
    - What **human psychology** we need to consider?
    - How to **scientifically evaluate**?

Flagship venues

- ACM Conference on Human Factors in Computing Systems (ACM CHI)
- 3,000+ submissions and 4,000+ attendees
- Ideas about Apple Watch, iPhone, VR, AR etc. all originates from here 10+ years ago
- https://www.youtube.com/watch?v=-rQxyvxuv1U

Modules

- **Design** - principles and common mistakes
- **Human Factors** - capabilities and limitations
- **Experimental Design** - validity
- **Evaluation** - statistical analysis
- **Interaction** - elements and models

Outline

- Wk 1: History of HCI
    - Vannevar Bush's "as we may think" - Invention of the mouse - Xerox Star - Macintosh - SIGCHI conference
- Wk 2-4: Experimental Design
    - IV vs. DV
    - Within-subject vs. Between-subject
    - Control vs. Confounding vs. Random variables
    - Task and Procedure, Order Effects, Validity Analysis
- Wk 5-6: Design of Everyday Things
    - Why Design is Difficult
    - Design Principles
    - Design Theory
- Wk 7: **Midterm Exam**
- Wk 8-9: Human Factors
    - Perception, attention, memory, reasoning

Outline

- **Wk 10: Project Phase 1: Research and Idea**
- Wk 11, 12: Analysis of Variances
- **Wk 13: Project Phase 2: Systems and Experiments**
- Wk 14: Interaction Elements
    - Control-display gain, Latency, Modes, Bandwidth
- Wk 15: Modeling Interaction
    - Fitts' law, Hick-Hyman Law, Keystroke-level model
- Wk 16: Brain-Computer Interfaces
- **Wk 16++: Project Phase 3: Evaluation and Communication**
- **Wk 16++: Final Exam**

Project

- Groups of 4-5 people
- Main objective: Successfully design a controlled experiments. Preferably **health, personality, emotion, cognition** related topics; you can **make or not make stuff**
- Available **lab devices**: EEG, VR
- Final output: 4-10 pages SIGCHI formatted paper.
- Three phases: Research and Idea, Experiment, and Evaluation and Communication
- **Research and Idea Phase**
    - Review 16-20 papers in CHI in the past 2 years (*choose only experimental type of papers with clear IV and DV*)
    - Summarize the current research state based on the review
    - Identify a gap of the current research state
    - Identify a research question/problem
    - Identify several new research directions you wanna do
    - **Submission (Week 10)**:
        - INTRODUCTION, RELATED WORK section of the report (must use the SIGCHI format)
        - PPT presentation

Project

- **Experiment Phase**
  - Develop your prototype if you have one. Then design your experiment and run pilot studies. After this phase, your experimental design and prototype should be finalized.
  - **Submission (Week 13)**:
    - METHODOLOGY section of the report
    - PPT presentation with demo

- **Evaluation and Communication Phase**
  - Perform empirical evaluation with at least 15 participants. Run statistical analysis on the data.
  - **Submission (Week 16)**:
    - METHOD, RESULTS, DISCUSSION and CONCLUSION section of the report
    - PPT presentation with demo

Project

- Examples of each phase can be found in the Google Drive.
- You are responsible to take note of all deadlines and plan accordingly.

Take home task

Details on Google Classroom

- Phase 0: ACM CHI Video Previews in Google Classroom (submit as individual)
    - Explore HCI ideas on the ACM CHI Youtube channel
    - Prep for project
- Phase 0: Team Forming (submit as group)
   - Send your topics, member list, etc.

Grading Criteria

Rubric	Percentage
Classwork	10
Midterm	20
Final	30
Project: Research and Idea Phase	10
Project: Experiment Phase	15
Project: Evaluation and Communication Phase	15

Table: Grading criteria

Please see the detailed criteria at GDrive for how each phase are being graded. My website also contains research tips on how to conduct HCI research so it may prove to be useful.

Main Textbook
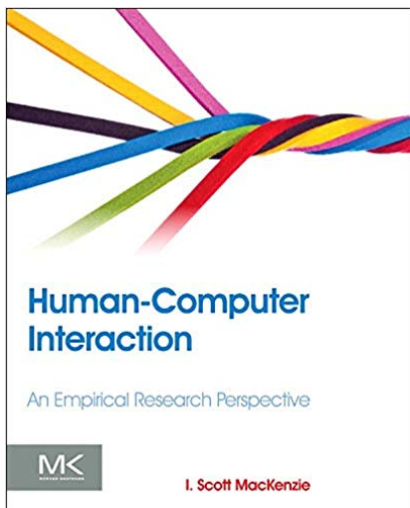
Human Computer Interaction: An Empirical Research Perspective by I. Scott Mackenzie, 1st ed. (2013)
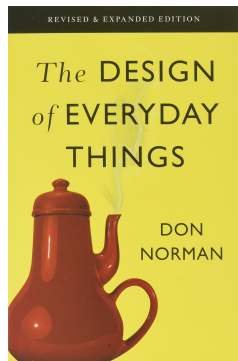
Supplementary Textbooks

Figure: The Design of Everyday Things by Norman, Revised and Expanded ed. (2013)
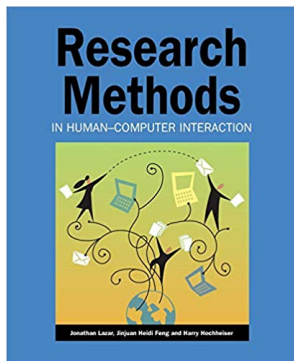

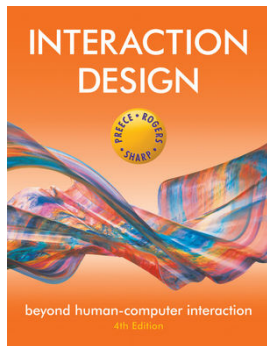Figure: Research Methods in Human-Computer Interaction by Lazar, 1st ed. (2010)

Figure: Interaction Design: Beyond Human Computer Interaction by Preece, Sharp and Rogers, 4th ed. (2015)

Supplementary Textbooks

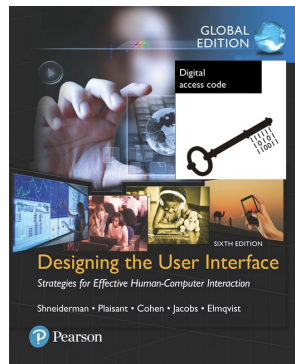Figure: Don't Make Me Think by Krug, 2nd ed. (2006)

Figure: Designing the User Interface by Shneiderman et al., 6th ed. (2016)

Coming Next

- Mackenzie, Chapter 1, **History Context**, Human Computer Interaction: An Empirical Research Perspective, 1st ed. (2013)
- Shneiderman, **Direct Manipulation: A Step Beyond Programming Languages** (1983)
- Macintosh 128K, https://en.wikipedia.org/wiki/Macintosh_128K

Questions