Human-Computer Interaction

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Ground rules

- To keep disturbance to your fellow students to a minimum

    – Switch off your mobile phone during the lecture.

    – Arrive on time. If you are more than 15 minutes late, please wait until there is a break and copy the notes from a friend.

    – Keep talking, whispering and other background noise to a minimum.

    – Avoid engaging in entertaining activities with your laptop (watching a video during the class)

Ground rules

- To maximise your learning
  - Avoid dual-tasks (writing e-mails and attending a class are incompatible activities).
  - Leave the mobile in your bag (and consider leaving the laptop too).
  - Take notes during the lecture and revise them in the evening.
  - If there is something you don't understand, please interrupt me at any time to ask if I could clarify.
  - If you want to make a general remark, please wait until there is a natural break.
  - Participate!!!!

What is
Human-Computer Interaction?

Discuss in couples

Human-computer interaction

"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"
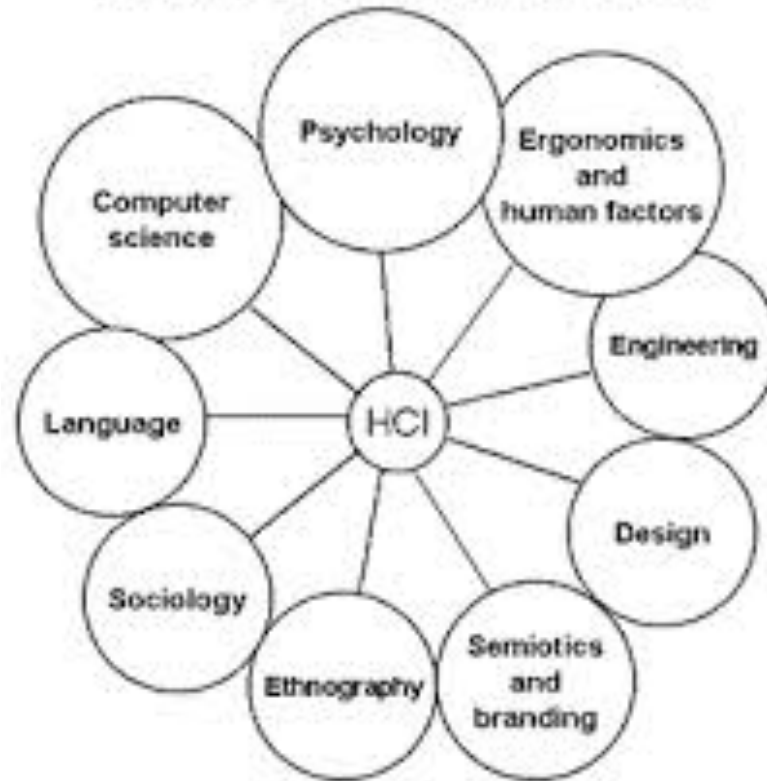
(ACM SIGCHI, 1996, p.5)

Goals of HCI

- "To develop or improve the safety, utility, effectiveness, efficiency, and usability of systems that include computers"

  - Interacting with computers 1989, p. 3

Disciplines contributing to HCI

The Field of HCI
(Human Computer Interaction)

What knowledge are required?

- "*Psychology and cognitive science to give her knowledge of the user's perceptual, cognitive and problem-solving skills; ergonomics for the user's physical capabilities; sociology to help her understand the wider context of the interaction; computer science and engineering to be able to build the necessary technology; business to be able to market it; graphic design to produce an effective interface presentation; technical writing to produce the manuals, ...*" [10]

Dix, A., Finlay, J., Abowd, G. Beale, R. (2004). *Human–Computer Interaction* (3rd edition). Prentice Hall.

What is an interface?

?

Evolution

- **50s** - Interface at the hardware level for engineers - switch panels

- **60-70s** - interface at the programming level - COBOL, FORTRAN

- **70-90s** - Interface at the terminal level - command languages

- **80s** - Interface at the interaction dialogue level - GUIs, multimedia (http://www.cs.cmu.edu/~amulet/papers/uihistory.tr.html)

- **90s** - Interface at the work setting - networked systems, groupware

- **00s** - Interface becomes pervasive
  - RF tags, Bluetooth, mobile devices, consumer electronics, interactive screens, embedded technology

- 10s -Interface disappears
  - Focus on tasks, experiences, emotions, social connections, beauty
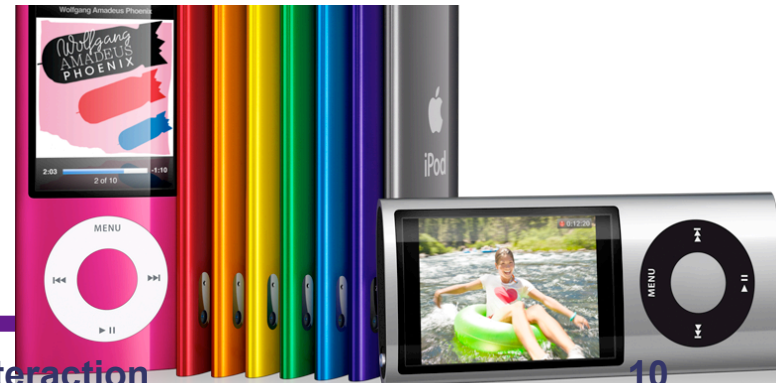
Interaction Design

- "the design of spaces for human communication and interaction"

    – Winograd (1997)

- designing interactive products to support people in their everyday and working life

- Creating (user) experiences which fit, extend, and enhance the way people work, communicate and interact

- Increasingly, more application areas, more technologies and more issues to consider when designing 'interfaces'

Paradigm change

- Technology-driven design
  - Technology influences the design of the interface which give the user the functionality and interaction mechanisms of the system

- User-centered design
  - User requirements define the functionality of the interface which runs the design of the technology

Module aims

- Present the techniques and issues involved in HCI to promote usable and engaging interaction design

- Give examples on how to
  - document users needs and goals
  - translate user needs/goals into design
  - evaluate the quality of design alternatives

Reading List

- CORE READING:

  Sharp, H., Rogers, Y., & Preece, J. (2014). <u>Interaction Design: beyond human-computer interaction</u>. New York: John Wiley & Sons, Inc. 3rd

- Gamberini, L. Chittaro, L. and Paternò, F. Human-Computer Interaction, Pearson, 2012.

  – NOTE THE HANDOUTS AND LECTURE NOTES DO NOT REPLACE THE CORE READING

On-line resources

- http://www.sigchi.org/
  - ACM special interest group
- http://www.id-book.com/
  - companion website for Preece et al.’s book
- http://hcc.cc.gatech.edu/
  - web portal maintained by Georgia Tech.
- http://www.baddesigns.com/
  - illustrated examples of things that are hard to use because they do not follow human factors principles
- Interaction-design.org
  - Open source knowledge repository

Assessment

- Coursework
  - A practical exercise of UCD during the teaching Semester
  - Group project with individual activities and written report
  - Oral discussion of the project (ideally by the entire group) during examination time
- Attendance required
  - Fixed delivery dates

Groups

- 4 people each
- Subscription will be opened on the course web-site 17/09 and closed on 24/09
- Active, constant participation required

Wrapping up

- HCI definition

- Interaction design

- Module presentation
  - Write your reflections (10 minutes)