HUMAN COMPUTER INTERACTION

Lecture 1 Overview: Introduction to HCI

- ➤ What is HCI?
- ➤ History / Evolution of HCI
- ➤ Future of HCI
- ➤ Does HCI Matter?

WHAT IS HCI?

*"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, 1992)

WHAT IS HCI?

"HCI has grown to be broader, larger and much more diverse than computer science itself. HCI expanded from its initial focus on individual and generic user behavior to include social and organizational computing, accessibility for the elderly, the cognitively and physically impaired, and for all people, and for the widest possible spectrum of human experiences and activities. It expanded from desktop office applications to include games, learning and education, commerce, health and medical applications, emergency planning and response, and systems to support collaboration and community. It expanded from early graphical user interfaces to include myriad interaction techniques and devices, multi-modal interactions, tool support for model-based user interface specification, and a host of emerging ubiquitous, handheld and context-aware interactions."
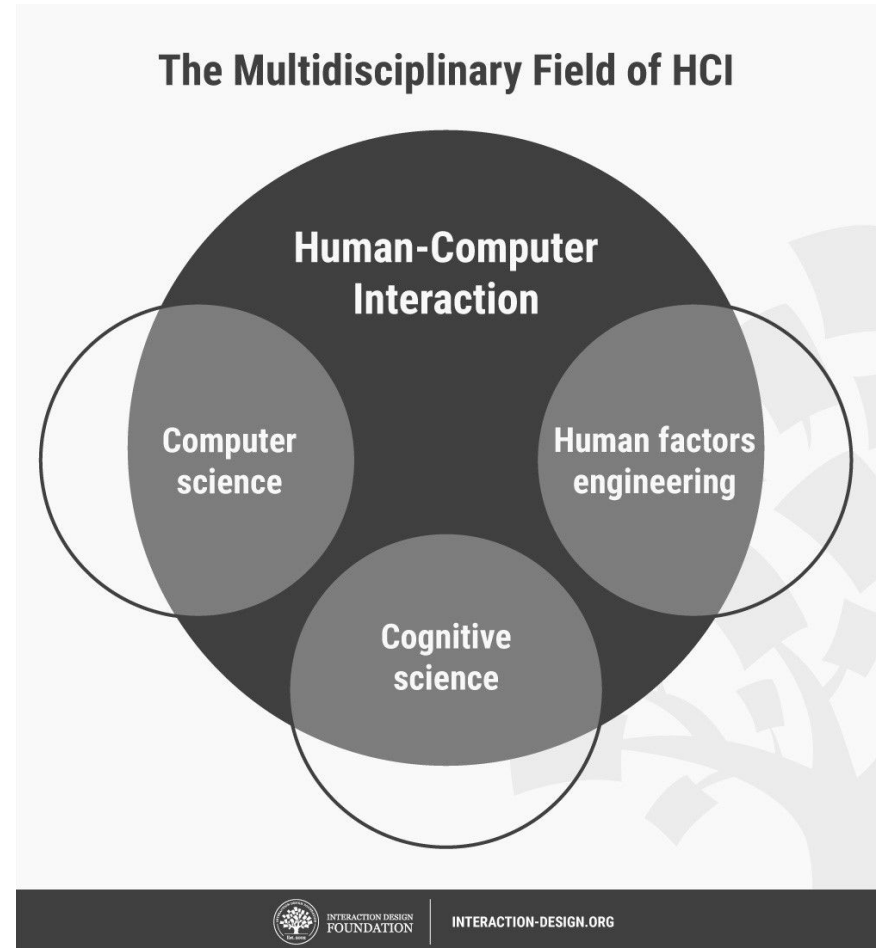
John M. Carroll, author and a founder of the field of human-computer interaction.
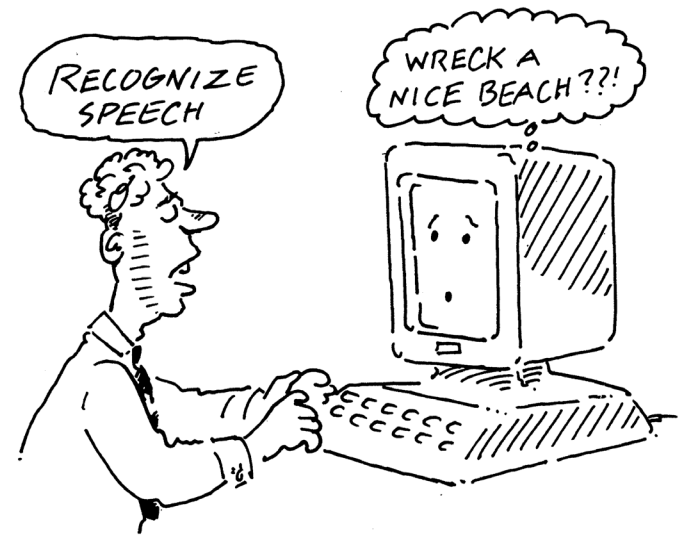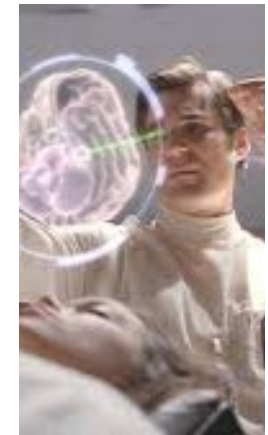
HUMAN COMPUTER INTERACTION?

Initial HCI focus on computers and first-time use evolved to consider:

• Overall user Experience

• Flow (how users make use of and/or move through an interface)

• Fun/User Enjoyment

• Well-being (addiction, dependency, positive computing)

• Support for human development

The Multidisciplinary Field of HCI

Human-Computer Interaction

Computer science

Human factors engineering

Cognitive science

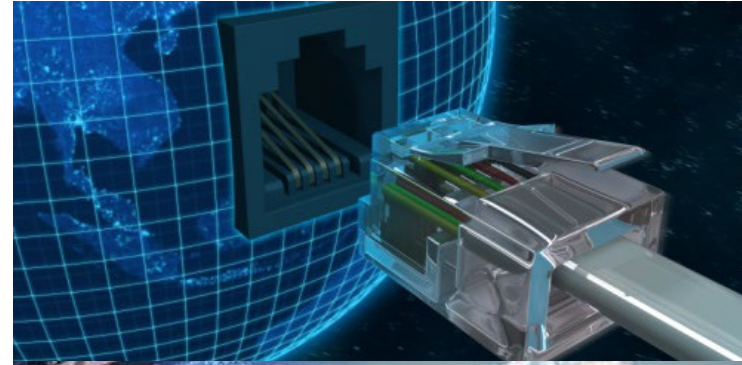INTERACTION DESIGN FOUNDATION | INTERACTION-DESIGN.ORG

HISTORY / EVOLUTION OF HCI

- Start of Human Computer Interaction?

- First Computer?

- First Mechanical Computer?

- First Electronic Computer?

- Personal Computer?

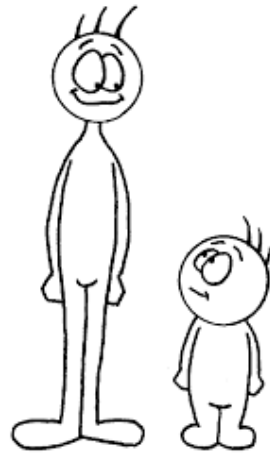- Mobile Computer?

- Wearable Computer?

FUTURE HCI?

➢ Technologies

➢ Applications

➢ Novelty: Le Petit Chef

DOES IT MATTER?

- Design of computer systems that serve human purpose

- *"Interaction designers can make an effort to keep simple tasks easy for the user, and to make complex tasks possible."* Alan Kay
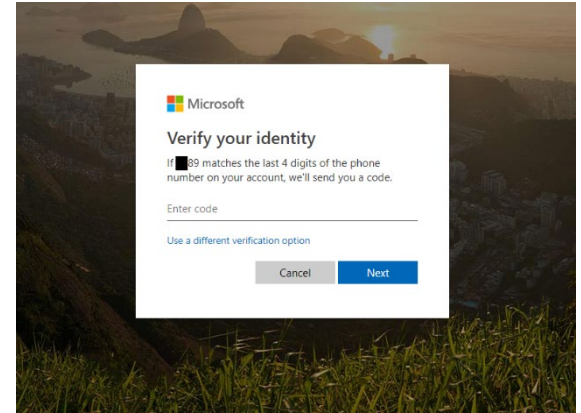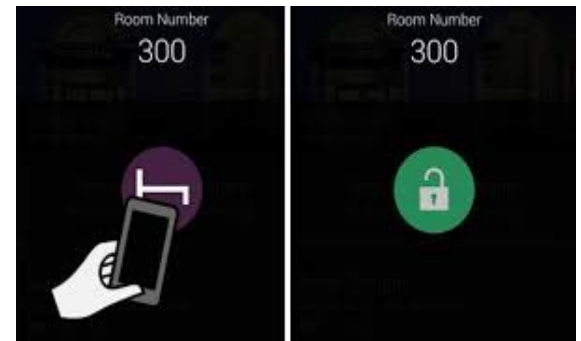
- Examples?

HUMAN?

COMPUTER?

INTERACTION?

WHY DOES IT MATTER?

➢ What is computer doing?

  ➢ Computing: algorithms, DP

  ➢ Information: storage, retrieval

  ➢ Data: data analysis, visualization

  ➢ AI: prediction, creation

➢ What is human doing?

  ➢ Interacting: how?

  ➢ Manipulating

  ➢ Selecting

  ➢ Memory

  ➢ Creating

HCI: ALAN DIX

➤ HCI: Academic and Applied Design discipline

➤ Academic study of technology and its impact on people (psychology, physiology, social)

➤ Design: practical translation of academic insights into technical interventions that make a difference to people

➤ HCI:

➤ Knowledge: facts/information

➤ Analysis: problems, opportunities

➤ Creativity: creation of effective designs
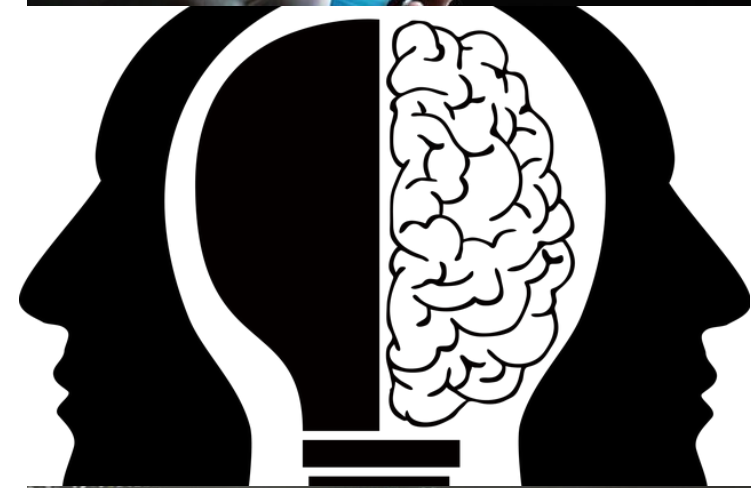
What will I do in HCI?

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1. Define Problems: Requirements Identification / Ask Questions
2. Represent Requirements / User Needs: maps, stories
3. Create Alternative Designs: Prototyping
4. Create Interactive Technical Solutions
5. Critique: Good Design?
6. Evaluate prototypes and working systems

➔ Knowledge, Analysis, Design to benefit humanity (Attitude) Dix

HCI ASSESSMENT:

Course Assignments:

MCQ * 5:   [5 Marks]

Group Project: [25 Marks]
- User Research
- Conceptual Prototypes
- Interactive Prototype
- Evaluation

Examination   [70 Marks]

HCI PROJECT

HCI: Design Project:

"The end product is intended to enhance the quality of life of the people who will use it.

- **It does not rush to a solution**. Given a problem, it stops to observe and study the issues to ensure that the correct problem is being addressed, namely, the fundamental causes and needs, not surface symptoms.

- **It is evidence-based,** using careful observations and analyses to determine needs and experimental deployment of potential solutions in an iterative cycle of observation, ideation, prototyping, and testing.

- **It is action-oriented**, learning by doing, through repeated iterations of making, testing, and observation."

HCI PROJECT

HCI: Design Project:

➢ **Problem** Space: Health / Security

➢ **What** is the problem?

➢ **Who** has the problem?

➢ **How** could it be solved?

➢ **Outcome:** Prototype: proof of concept solution

DOES IT MATTER?

"Through HCI, we see virtual reality, intuitive technology, and more efficient machines being created, using our roots as human beings to allow technology to serve us better. Above all, Human-Computer Interaction opens up new doors of possibilities to the digital world, because it begs the question:
"How can technology better serve us, as humans?"

Dix, A., Finlay, J., Abowd, G. D., and Beale, R. (Feb, 2005). *'Human-Computer Interaction'.*