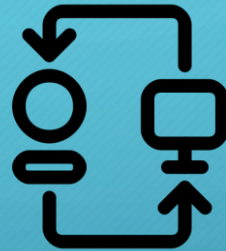


HUMAN-COMPUTER INTERACTION

CS255

LEC-1 : INTRODUCTION TO HUMAN COMPUTER INTERACTION



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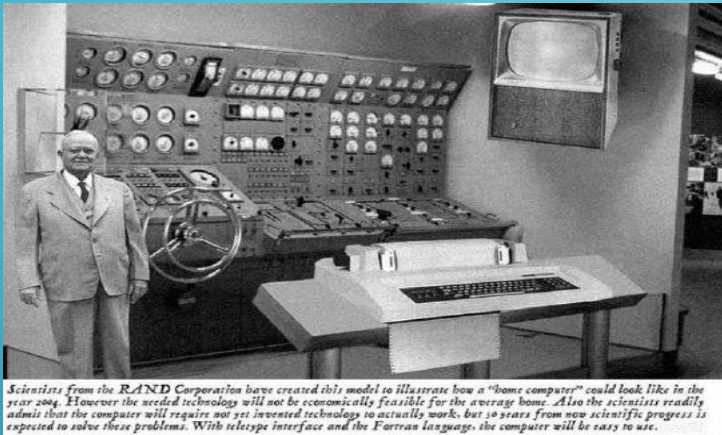
OUTLINE

- **Section 1: Introduction to Human Computer Interaction**
- **Section 2: Human – computer interaction Definition**
- **Section 3: Components of a human-computer interaction**

INTRODUCTION TO HUMAN COMPUTER INTERACTION

- Human Computer Introduction (HCI) was previously known as the man-machine studies or man-machine interaction.
- It deals with the design, execution and assessment of computer systems and related phenomenon (الظاهرة) that are for human use.
- The design of an interface between humans and computers has a direct impact on the efficiency of the interaction between the two parties.
- HCI emerged in the 1980s with the popularization of personal computing. Computers were no longer being built just for experts, and the goal of HCI was to make all interaction with computers easy and efficient for broad groups of users at different skill levels.

HISTORICAL EVOLUTION



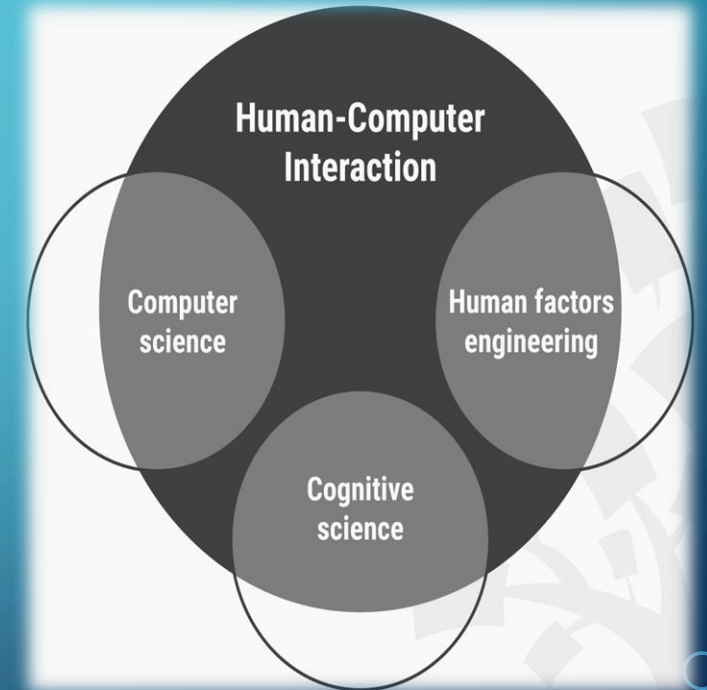
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INTRODUCTION TO HUMAN COMPUTER INTERACTION

- HCI practitioners observe the ways in which people interact with computers and then design technologies to help them use computers more efficiently.
- The goal is to **minimize interaction cost** that represent the amount of physical and mental effort a user must exert when using the technology—and **make interactions more human**.
- The HCI field seeks to improve human-computer interaction by improving the functionality, reliability, usability, and comfort of computer interfaces.

THE FIELD OF HCI

- HCI can be used in all disciplines wherever there is a possibility of computer installation.
- Some of the areas where HCI can be implemented with distinctive importance such as:
 - **Computer Science** – For application design and engineering.
 - **Psychology** – For application of theories and analytical purpose.
 - **Sociology** – For interaction between technology and organization.
 - **Industrial Design** – For interactive products like mobile phones, microwave oven, etc.



INTRODUCTION TO HUMAN COMPUTER INTERACTION

- Iterative design is one of the foundational principles of HCI.
- Once a designer has gained an understanding of the target audience, their tasks, and empirical measurements surrounding an interaction, **designers follow several iterative design steps:**
 - **design the user interface; conduct user testing; analyze results of testing; and repeat.**
- The iterative design process is repeated until a user-friendly interface is created.

INTRODUCTION TO HUMAN COMPUTER INTERACTION

- The interaction between a machine and a human can be facilitated in multiple ways.
- Generally, it's possible to utilize one or more human senses to form the basis of a UI, such as tactile UI (touch), visual UI (sight), and auditory UI (sound).
- HCI practitioners find the optimal combination that fits the purpose of the product.
- For example, for a mobile app, this might be a combination of visual UI and auditory UI.

HUMAN – COMPUTER INTERACTION DEFINITION

- **Human-computer interaction** is a multidisciplinary study that focuses on the interaction between people and computers as well as the design of the computer interface.
- HCI is the study of how people interact with technology interfaces users as use keyboards, mouse...etc, and monitor to retrieve information and search for information.



COMPONENTS OF A HUMAN-COMPUTER INTERACTION

*** HUMAN-COMPUTER INTERACTION CONSISTS OF FOUR MAIN COMPONENTS.**

1- The user

- The 'user' can encompass an individual or a group of users working together.
- HCI analyzes how they behave, how they interact with technology, and what their needs and goals are.
- Factors to take into account include their capabilities and cognitive processes, personality, experience, motivation, and emotions.



COMPONENTS OF A HUMAN-COMPUTER INTERACTION

2- The goal or task

- When a user interacts with a computer, they usually have a goal. Especially on mobile, you can find goal-oriented experiences that help users plan their activity (they set goals and complete tasks to reach their goal).
- Factors to take into account include how complex or easy it is for the user to carry out a task and the skills required.
- In an e-commerce environment, a task could be to add an item to the shopping cart and to purchase it.



COMPONENTS OF A HUMAN-COMPUTER INTERACTION

3- The medium or interface

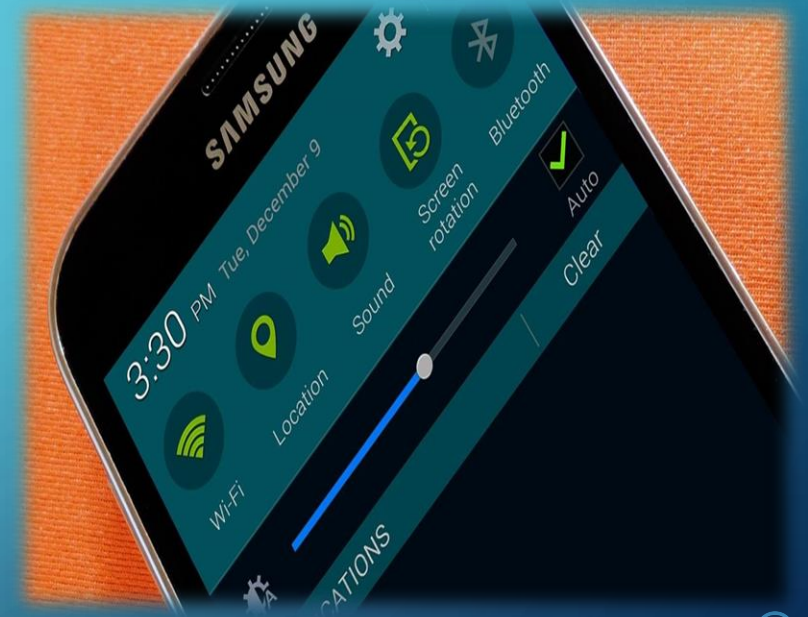
- Another vital component of human-computer interaction is the medium, the device or the interface. This could be a personal computer, a smartphone, or a voice-controlled virtual assistant.
- Factors to take into account include the input and output of the device, the layout, the navigation, as well as colors, icons, and other graphics.



COMPONENTS OF A HUMAN-COMPUTER INTERACTION

4- The context

- The context describes the actual conditions under which the computer system is used.
- To determine how users interact in normal day-to-day situations, it's important to carry out user testing, as trying to access a website on mobile, with the sun shining onto the screen, is significantly different from using it in the office on a high-speed network.
- Context-aware systems can even allow the app to modify its behavior to better interact with the user.



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