HUMAN COMPUTER INTERACTION AND ACCESSIBILITY

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CS 131 DISCRETE STRUCTURES
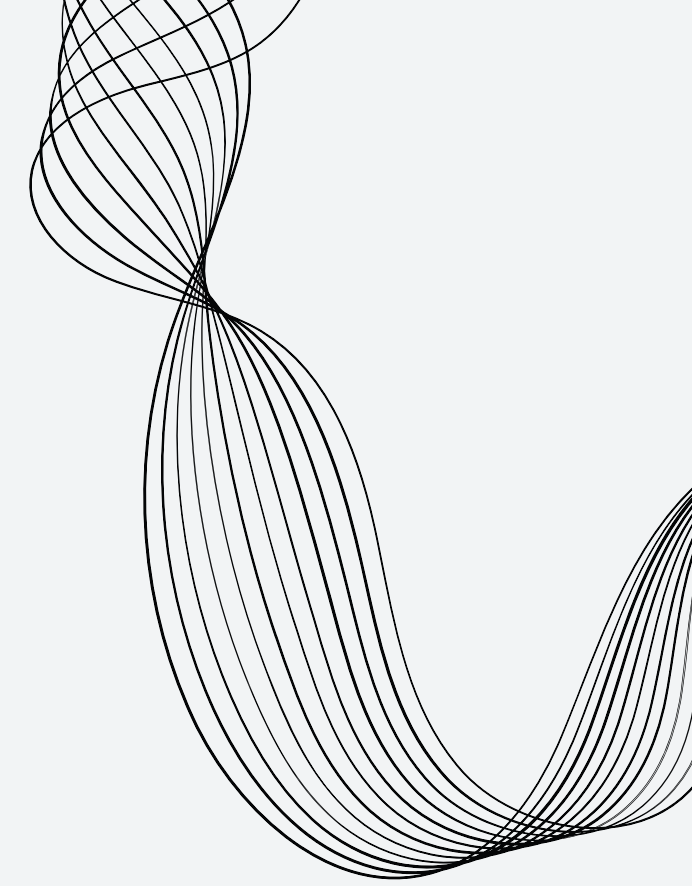
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WHAT IS HUMAN COMPUTER INTERACTION (HCI)?

- HCI is an intersection between psychology / social sciences and computer science / technology

- Researchers study to improve how technology is developed with the goal of improving usability

- Main Objective: To ensure the safety, utility, effectiveness, efficiency, accessibility, and usability
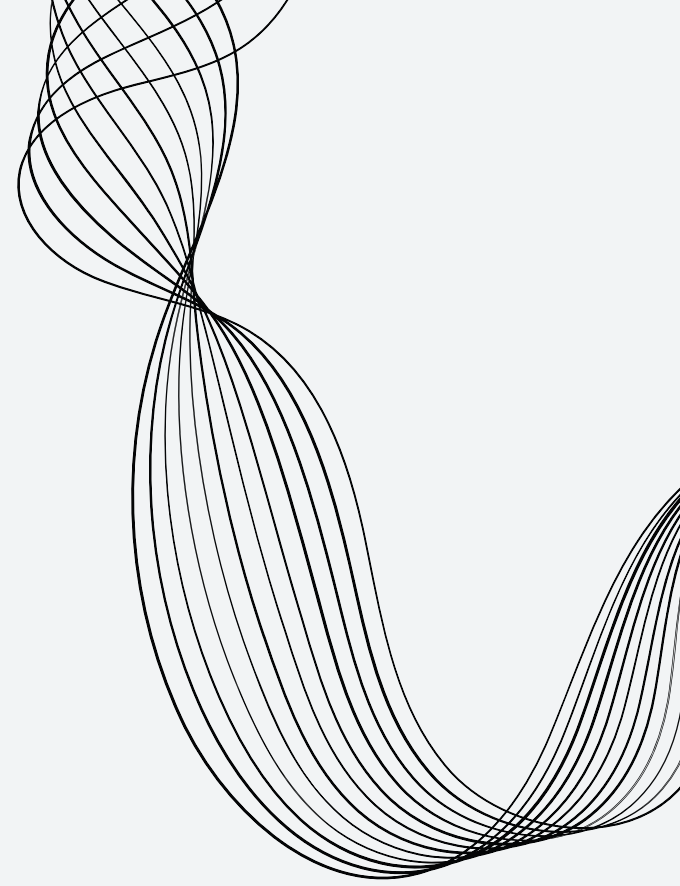
MAJOR COMPONENTS:

Human:
- The user is studied to understand how they process information: cognitively, emotionally, and psychologically

Computer:
- The hardware / software people interact with
  - ex: keyboards, monitors, mobile devices, operating systems, apps, etc.
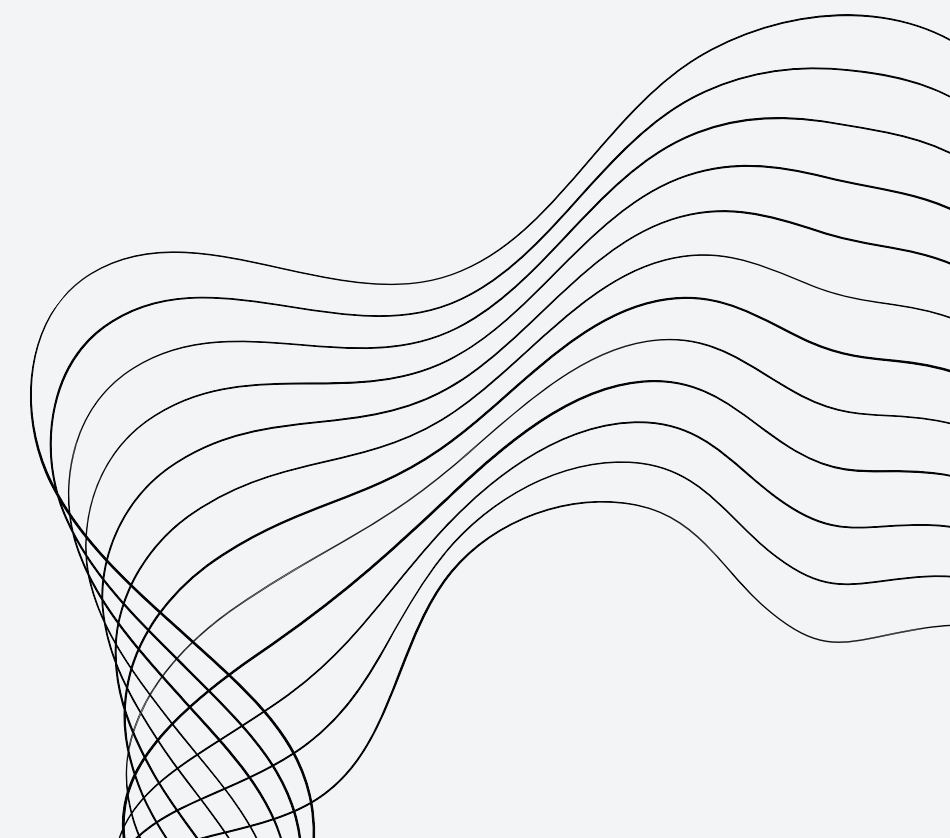
Interaction:
- How the user communicates or uses the computer whether its through touch, voice, or physical gestures

- Interface design
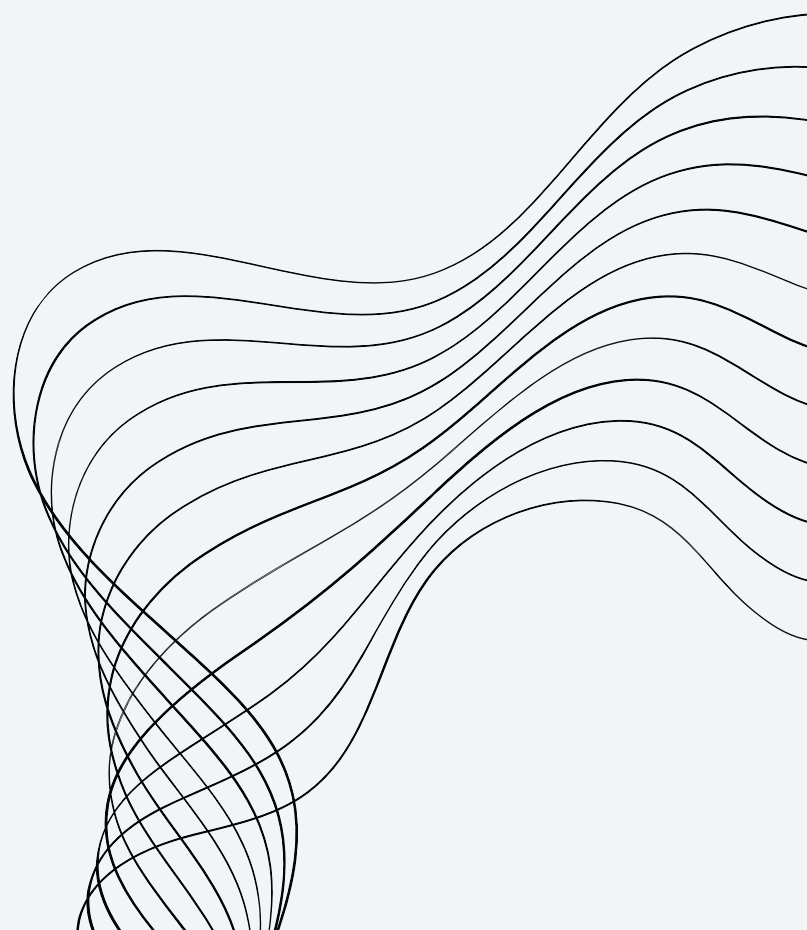 - How the user reacts to the visual of the computer / software

HISTORY OF HCI

- The research and practice of HCI started up in the early 1980s

- It began as a specialty area in computer science with a small combinated of cognitive science and human factors engineering

- Expanded rapidly over the past 30 years and is now used across many disciplines

- Originally focused mainly on user-centered design and usability
  - Now there is a focus a new dynamic definition of usability
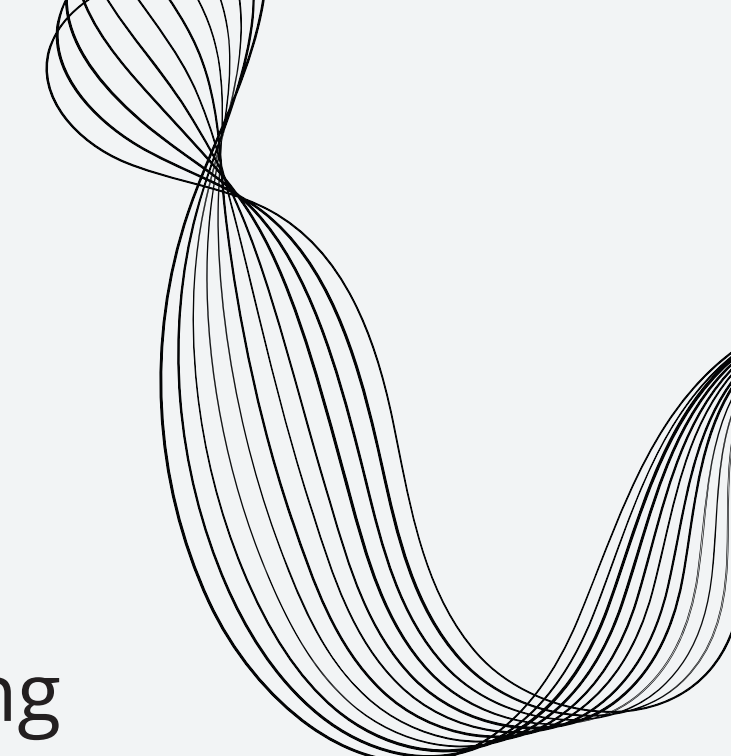   - ex: fun, well being, aesthetic, creativity, flow, etc.

CHALLENGES OF HCI

- A basic guideline is to study the "user", this is typically done by studying an "average" typical user
  - This becomes an issue because studies should be made with all potential users in mind
  - Can be slightly tunnel-visioned point of view

- Difficulty implementing a process for social emotional information
  - Lack of reliability for technology to react appropriately to emotions

- With new technology advances, design is no longer just for desktops
  - Now we have mobile devices, tablets, etc. so new adaptations needed

WHY IS ACCESSIBILITY IMPORTANT?

- **Accessibility:** Usable by all people whether able bodied or with disabilities

- Why is it important? Around 16% of the world population lives with a disability; roughly around 1 billion people
  - With technology advancing so quickly, we risk leaving out people from access to technology

- ADA and WCAG require products to be accesible

- It would better the user experience for all users
  - Possibility of enhanced convenience
    - ex: the current use of subtitles, keyboard shortcuts

CONCLUSION

- The design behind Human Computer Interaction is important to making technology accessible, usable, and effective for everyone

- Accessbility makes sure that all users, not just the "average" user is able to take part of the quickly advancing technological world

- I hope for HCI to continue adapting to the present needs and becoming more inclusive and meeting the needs of all potential users depsite the challanges