Interaction Design

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Reference and Credits

- An easy to read book (chapters 1 & 2 used to prepare this slides):
  - Dan Saffer, *Designing for Interaction*, 2nd Edition, New Riders
  or, in Italian, the First Edition
  - Dan Saffer, *Design dell'Interazione*, Pearson Education
- A more serious reference:
  - Jennifer Preece, Yvonne Rogers, Helen Sharp, *Interaction Design: Beyond Human-Computer Interaction*, John Wiley & Sons, Inc.
- Most slides are taken or revised from Marco Loregian's presentations

What is Interaction Design?

Every moment of every day…

millions of people…

Every moment of every day…

millions of people…

All these things are made possible by good engineering but…

it is interaction design that makes them usable, useful, and fun or pleasurable to use

Interaction design studies how to build objects offering at best their functionality and services

Interaction design is about the meaning people give to objects

Can we define "at best"?

It has to do with easiness, feeling, …

Good and poor interaction design

- We can benefit from good interaction design but, often, we suffer from interaction design problems still unsolved; e.g.:
    - struggling to synchronize the mobile phone with the PC
    - waiting at a bus stop with no idea, or the wrong information, about when the next bus will arrive
    - trying to set the clock in the microwave oven

Do you have some examples of
good or poor interaction design?

Interaction design is about behavior

Every time behavior, how a product works,
is involved interaction designers *should* be
involved

Behavior is much harder to observe and
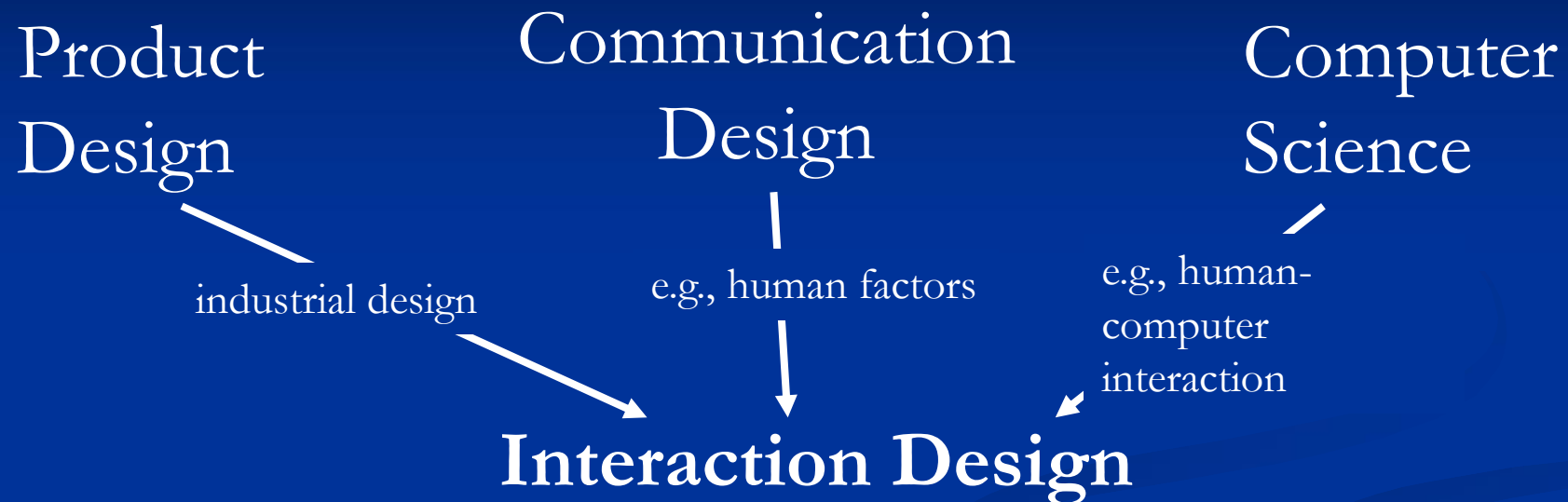understand than appearance

A lot of interaction design is invisible, functioning behind the scenes

Why do the Windows and Mac operating systems, which basically do the same thing and can even look identical, *feel* so different?

Behavior and Interaction

- We can think about the behavior of a product as being composed of transactions
- An interaction is a kind of transaction between two entities (i.e., people, machines, systems); an exchange of information, of goods, of services
- An interaction takes place between people, machines, and systems in a variety of combinations

Interdisciplinary roots

Product
Design

Communication
Design

Computer
Science

industrial design

e.g., human factors

e.g., human-
computer
interaction

Interaction Design

It drew on the above disciplines but it is
something different

Short history of interaction design

- Interaction design is born when homo sapiens built its primitive tools; we *always* attempted to build useful and working tools
- **'40-'50**: Early computers: not really practical; useful to few, specialized, researchers
  - Xerox PARC, MIT and others start to think at computers as communication tools
- **'70**: Interaction via command line
- **'80**: Graphical User Interface, first studies on human factors
- **1990: Bill Moggridge coins the term**
- **Explosive growth of the ID discipline due to:**
  - **'90**: Web, email, etc.
  - gadgets becoming digital (e.g., microprocessor into everyday machines)
- **Today**: many interaction devices; multiple interfaces available for the same application; a multitude of serious interaction design problems need to be solved in the new digitized world

The boundary between interactive and not-interactive objects is dissolving

Interaction Design

- Interaction design is an art—an applied art, like architecture:
  - It is not a science; we can follow best practices and adopt well-established methods
- Interaction design is by its nature contextual:
  - It solves specific problems under particular circumstances using available *materials*
  - Since the context is dynamic, new solutions constantly arise
- Interaction designers design *for* the possibility of interaction

Interaction Design

- Interaction design aims to:
  - build objects offering at best their functionality and services (*recall*)
  - connect people through the products they use
  - facilitate the communication among persons or among persons and objects

Not only interface; not only appearance; not only usability

The interaction designers design…

What does it mean to design?

- A project starts from a problem or from a challenge (in the market)

- A project starts because something doesn't exist or doesn't work properly

- It is not suitable for ID talking of *mandatory* activities and of their order (it is an art!); it is more appropriate describing the **key aspects** and the **adopted approaches**

ID: Key Points (1/2)

1. **Focusing on Users**: users care about doing their tasks and achieving their goals. Interaction designers must be advocates for end users

2. **Finding Alternatives**: designers must invent new alternatives, they should not simply choose among the available options

3. **Using Ideation and Prototyping**: designers build solutions through brainstorming and then building, various, prototypes to test them (e.g., Jeff Hawkins-PalmPilot in woods)

4. **Collaborating and Addressing Constraints**: few designers work alone. Designers need resources which come with their constraints

ID: Key Points (2/2)

5. **Creating Appropriate Solutions**: the ultimate solution should uniquely address the specific problem(s) and being appropriate for the unique situation

6. **Drawing on a Wide Range of Influences**: interaction design must draw inspiration from many areas to conceive the solution (psychology, ergonomics, economics, engineering, etc.)

7. **Incorporating Emotion**: products must include an emotional component

Interaction Design Approaches