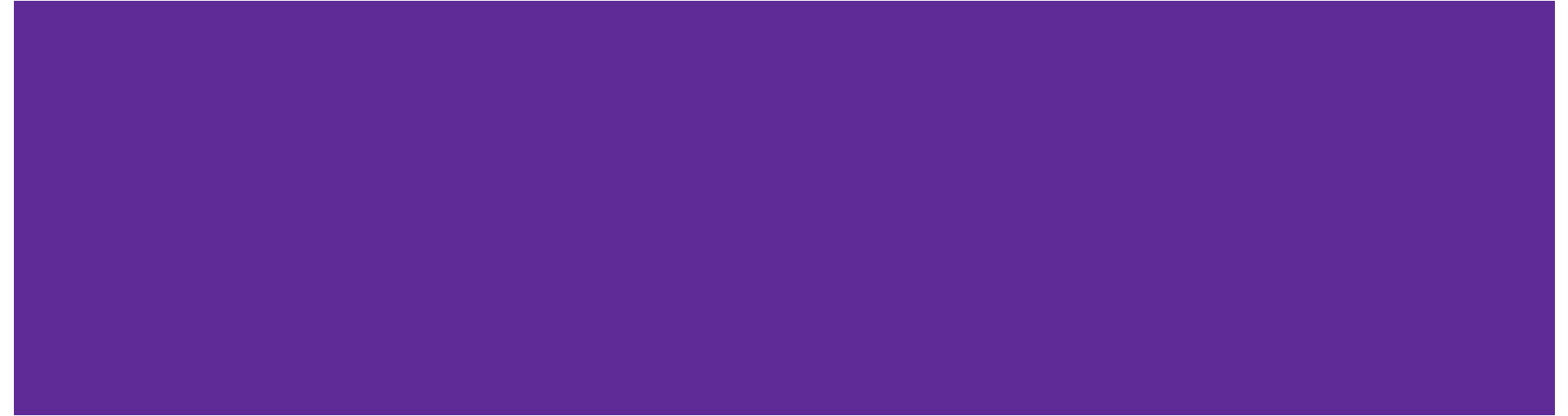


# **Introduction to HCI**

## **Good and Poor Design**



# History of HCI

The term human-computer interaction has only been in widespread use since the early 1980s, but has its roots in more established disciplines. HCI involves the design, implementation and evaluation of interactive systems in the context of the user's task and work. HCI draws on many disciplines, as we shall see, but it is in computer science and systems design that it must be accepted as a central concern.

# The field of HCI

HCI is undoubtedly a multi-disciplinary subject. The ideal designer of an interactive system would have expertise in a range of topics: 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, and so it goes on. There is obviously too much expertise here to be held by one person (or indeed four!), perhaps even too much for the average design team.

# Define Usability

A central concern of interaction design is to develop interactive products that are usable. By this we mean products that are generally

- easy to learn,
- effective to use, and
- provide an enjoyable experience for the intended people.

Through identifying the specific weaknesses and strengths of different interactive products, we can begin to understand what it means for something to be usable or not.

# An example of a bad design



Screen shot reprinted by permission from Apple Computer, Inc.

# An example of a good design

The TiVo remote control



**Invest the time  
and effort to  
follow a people-  
centered  
design process**

# Digitalization - Example

The form used for a parking app in the United Kingdom. It takes five seconds to complete and can be done while sitting in the car.

The screenshot shows a mobile application interface for confirming parking. At the top, the status bar displays the time 13:19 and signal icons. The app title 'Confirm Parking' is centered at the top with a back arrow on the left. The form consists of several sections: a location section with a pin icon, the address '805805 Stanmer Park - Outer Car Parks', and the authority 'Brighton & Hove City Council - Off Street'; a license plate section with a car icon, the plate 'GY14FG', and a dropdown arrow; an expiry section with a clock icon, 'Expires today at 14:19', 'Parking for 1 hour', and a dropdown arrow; a cost section with a tag icon, 'Total cost £1.20', and a note 'Includes additional fees (+£0.20)'. Below these is a decorative illustration of a city street. The payment section is titled 'Paying with' and shows 'Card ending \*228' with a Mastercard logo. A large green button at the bottom is labeled 'PAY & PARK'.

13:19

Confirm Parking

805805  
Stanmer Park - Outer Car Parks  
Brighton & Hove City Council - Off Street

GY14FG

Expires today at  
14:19  
Parking for 1 hour

Total cost  
£1.20  
Includes additional fees (+£0.20)

Paying with

Card ending \*228

PAY & PARK



# The computer

A computer system is made up of various elements. Each of these elements affects the interaction

- input devices – text entry and pointing
- output devices – screen (small&large), digital paper
- virtual reality – special interaction and display devices
- physical interaction – e.g. sound, haptic, bio-sensing
- paper – as output (print) and input (scan)
- memory – RAM & permanent media, capacity & access
- processing – speed of processing, networks

# Paradigms

Examples of effective strategies for building interactive systems provide paradigms for designing usable

interactive systems.

- The evolution of these usability paradigms also provides a good perspective on the history of interactive computing.
- These paradigms range from the introduction of timesharing computers, through the WIMP and web, to **ubiquitous and context-aware computing**



**"It's the latest innovation in office safety.  
When your computer crashes, an air bag is activated  
so you won't bang your head in frustration."**

# Conclusion

Computers and related devices have to be designed with an understanding that people with specific tasks in mind will want to use them in a way that is seamless with respect to their everyday work.

Interaction design is concerned with designing interactive products to support the way people communicate and interact in their everyday and working lives