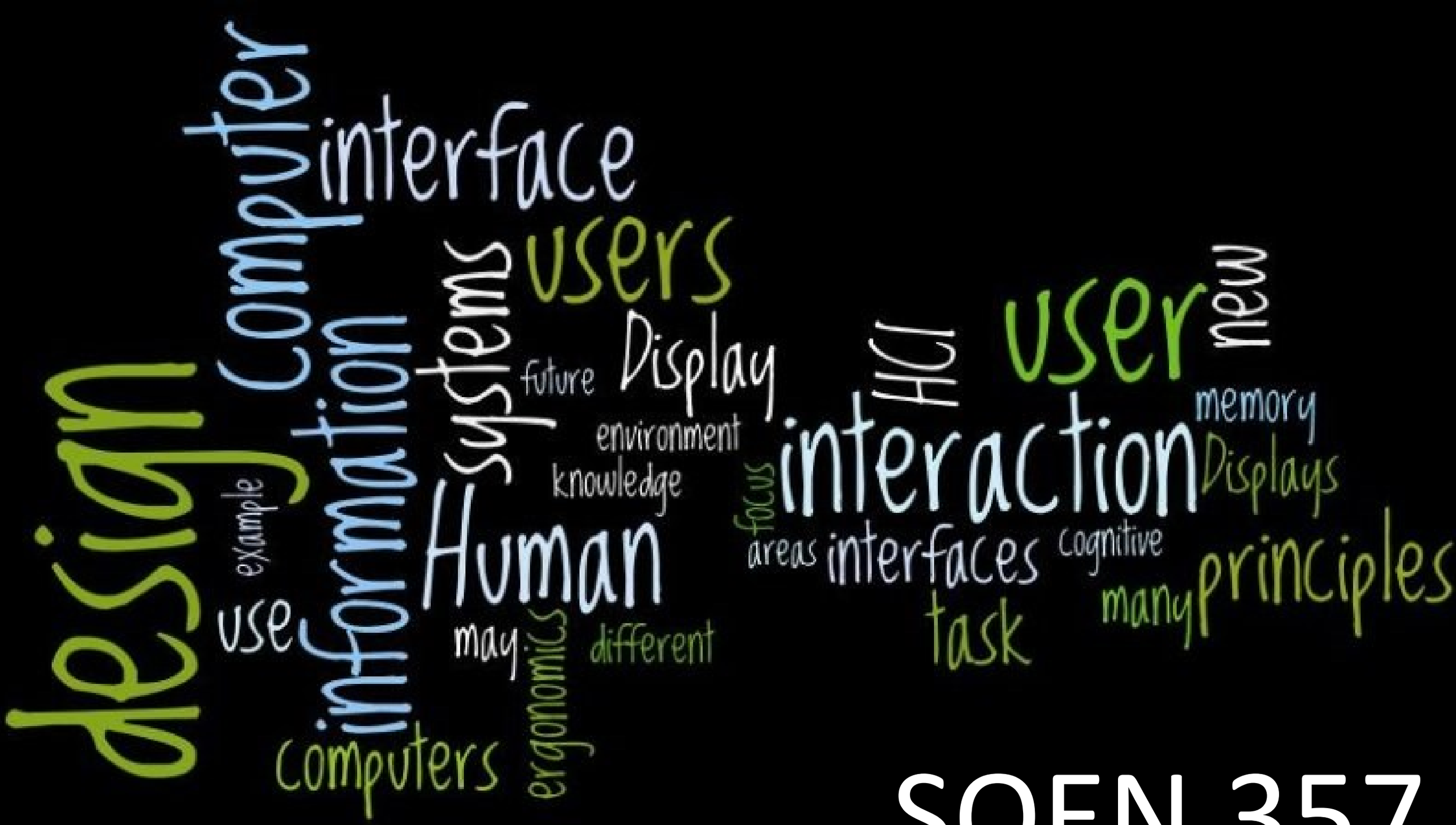


SOEN 357

USER INTERACTION DESIGN
BEYOND HUMAN COMPUTER INTERACTION

USER INTERFACE OR USER INTERACTION DESIGN?

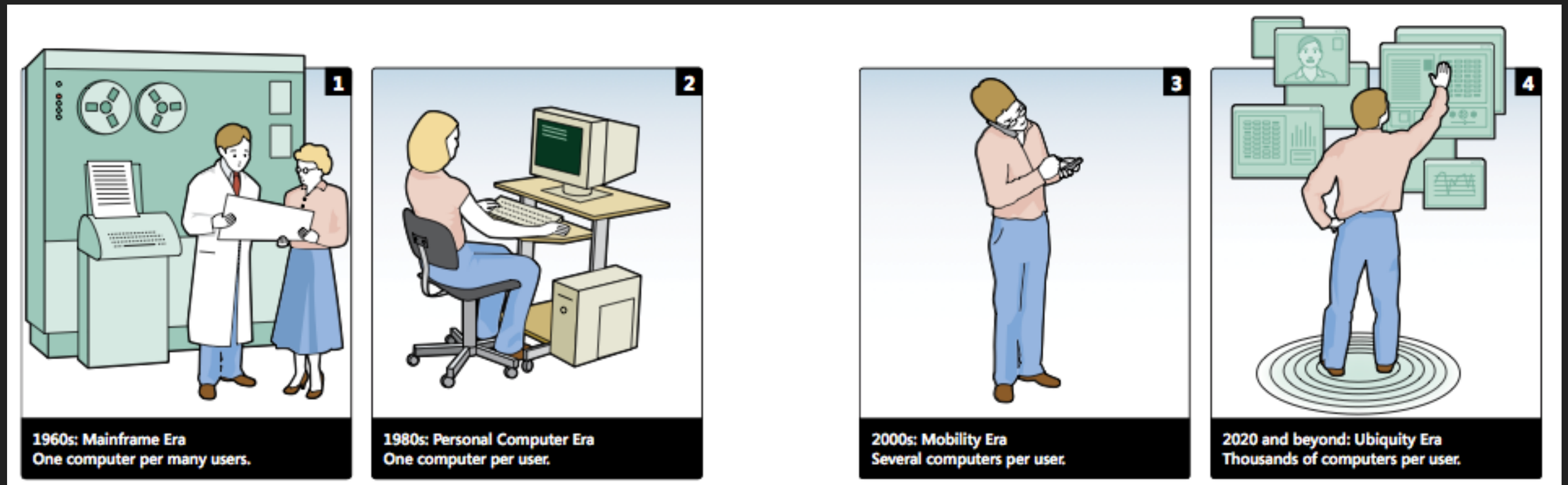
HUMAN-COMPUTER INTERACTION

INTRODUCTION & HISTORY

based on Chapter 2 of “The Encyclopedia of Human-Computer Interaction” by Interaction Design Foundation.


INTERACTIO
HUMAN
COMPUTER

HISTORY



https://hxd.research.microsoft.com/work/being-human-human-computer-interaction-in-the-year-2020.php

EMERGENCE OF PERSONAL COMPUTING

- Everyone became a potential user of computers
- This highlighted the deficiencies of computer with respect to usability.

PERSONAL COMPUTING

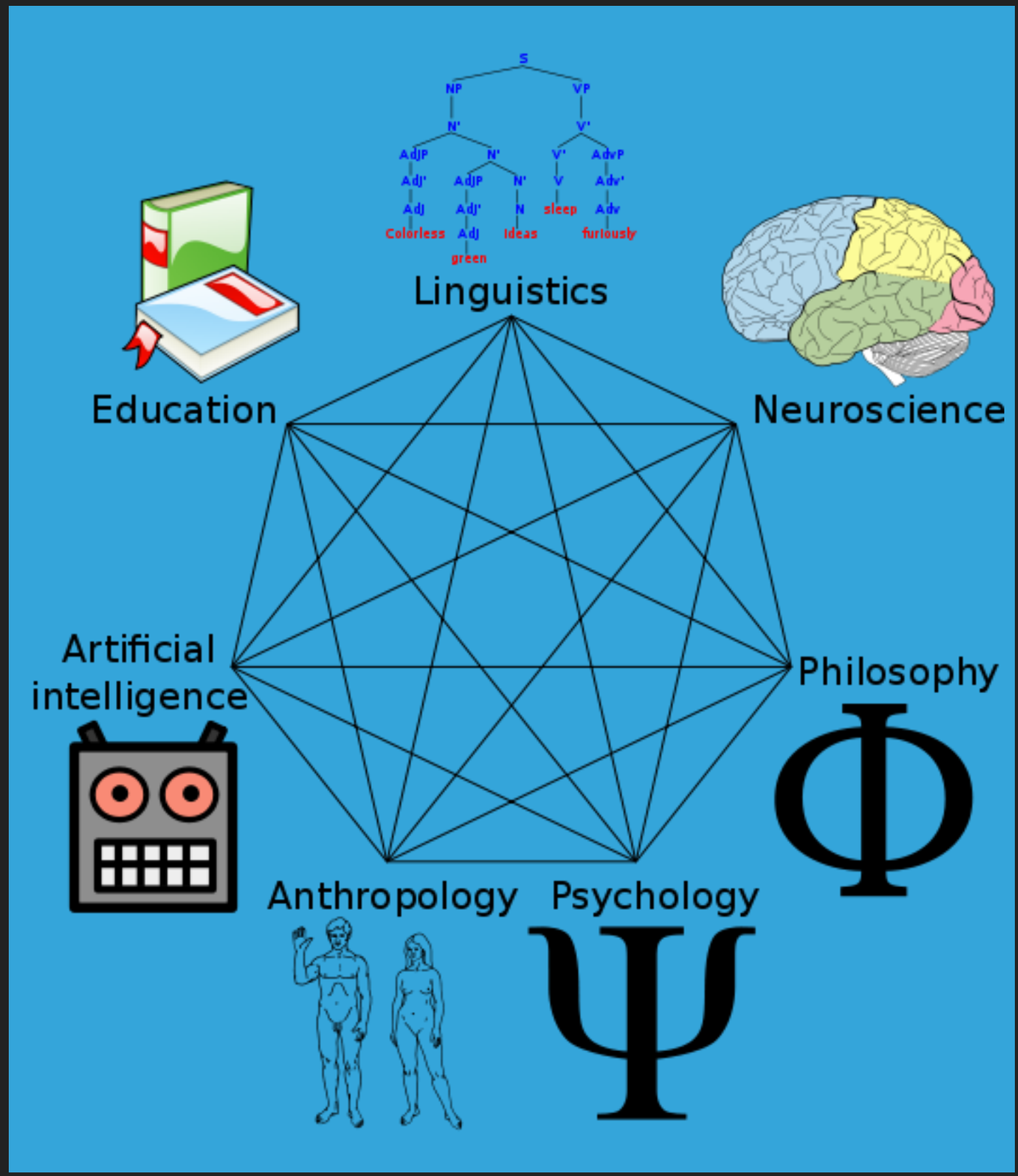
- https://www.youtube.com/watch?v=-5zeJyQ31rM

COGNITIVE SCIENCE & ENGINEERING

- Challenge of personal computing happened at the same time as the field of cognitive science was emerging (end of the 70s).
- HCI was one of the first examples of cognitive engineering.

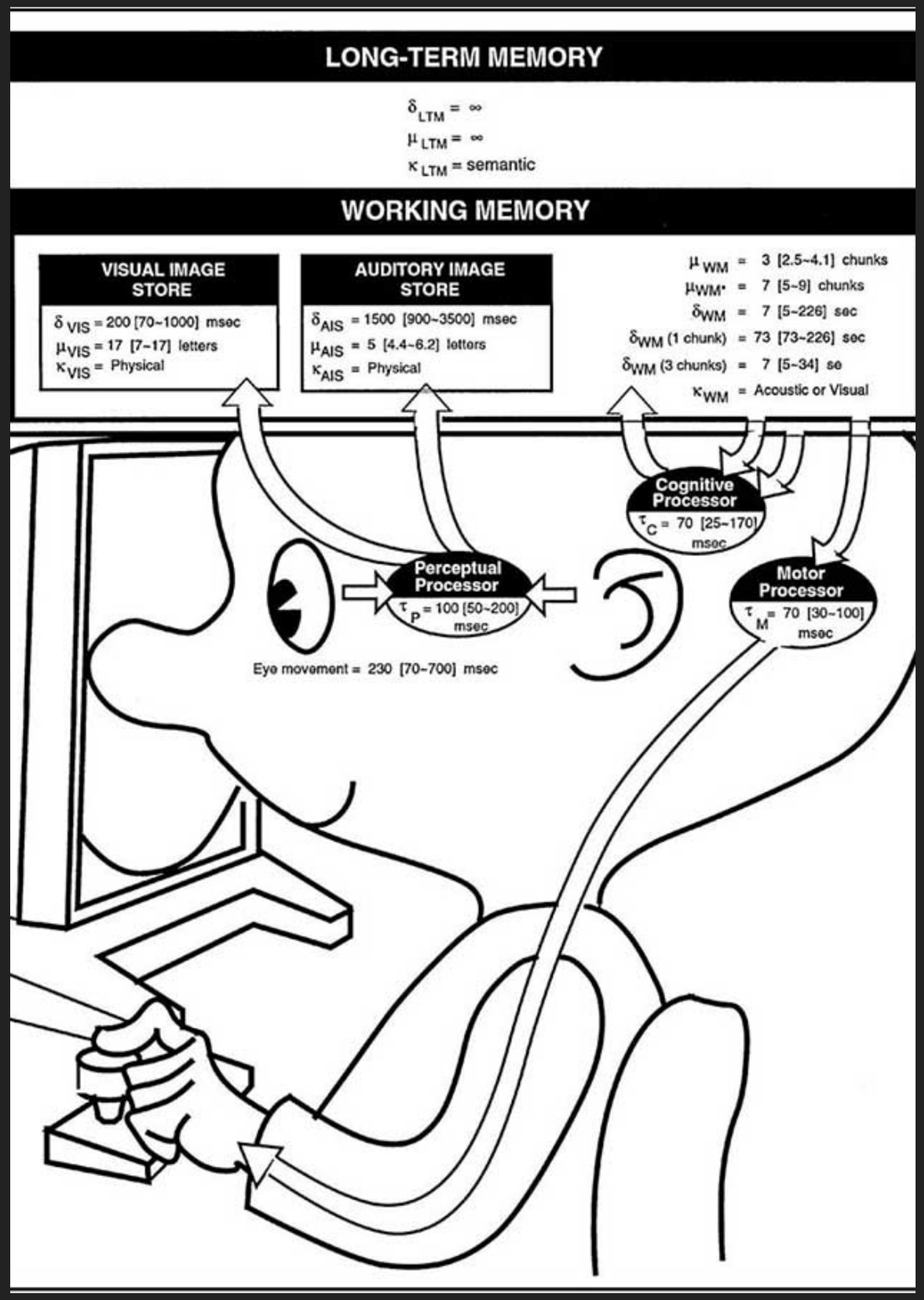
COGNITIVE SCIENCE

- How do the nervous systems represent, process, and transform information?



COGNITIVE ENGINEERING

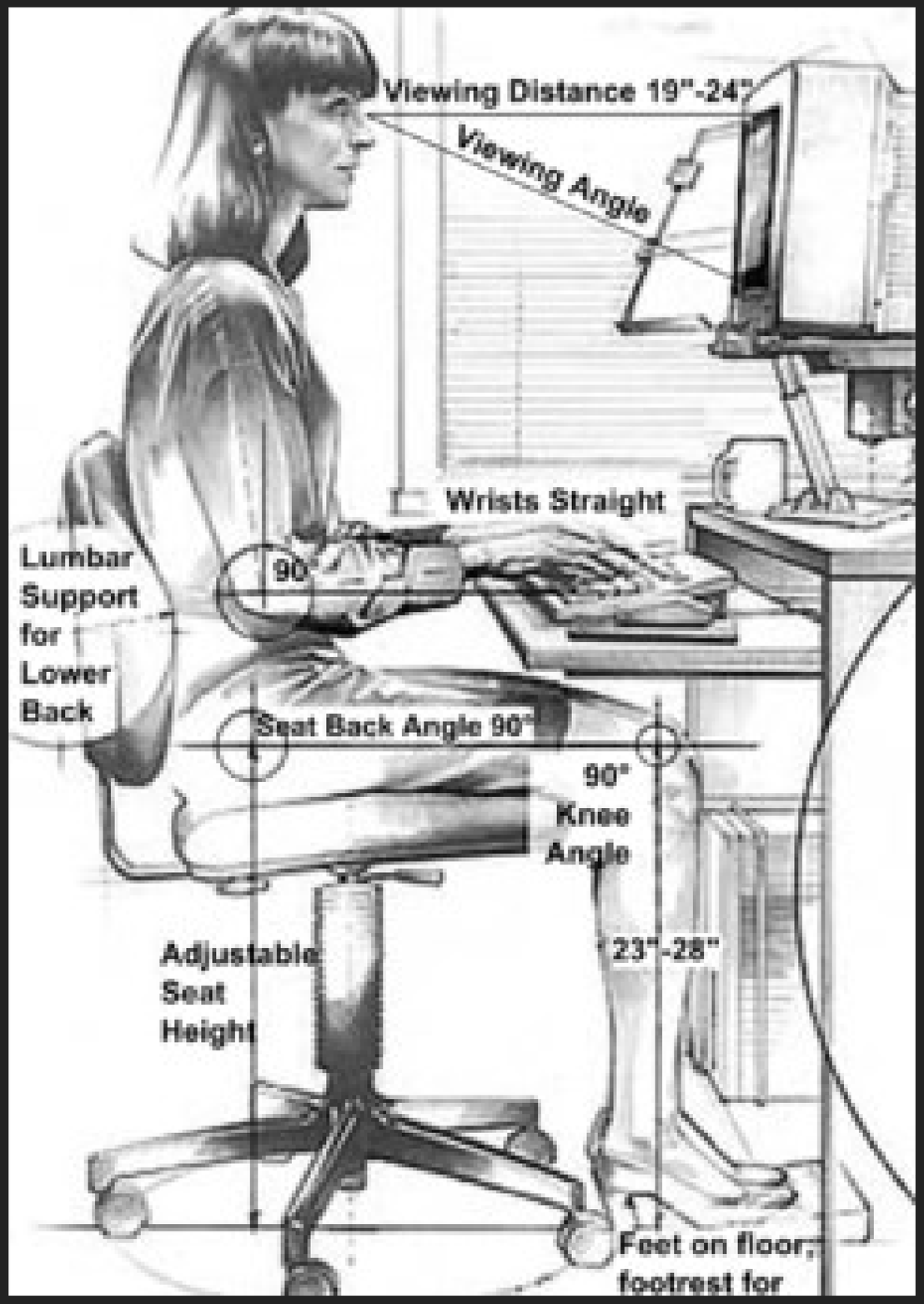
- Multidisciplinary endeavour concerned with the analysis, design, and evaluation of complex systems of people and technology.
- HCI one of the first examples of cognitive engineering.

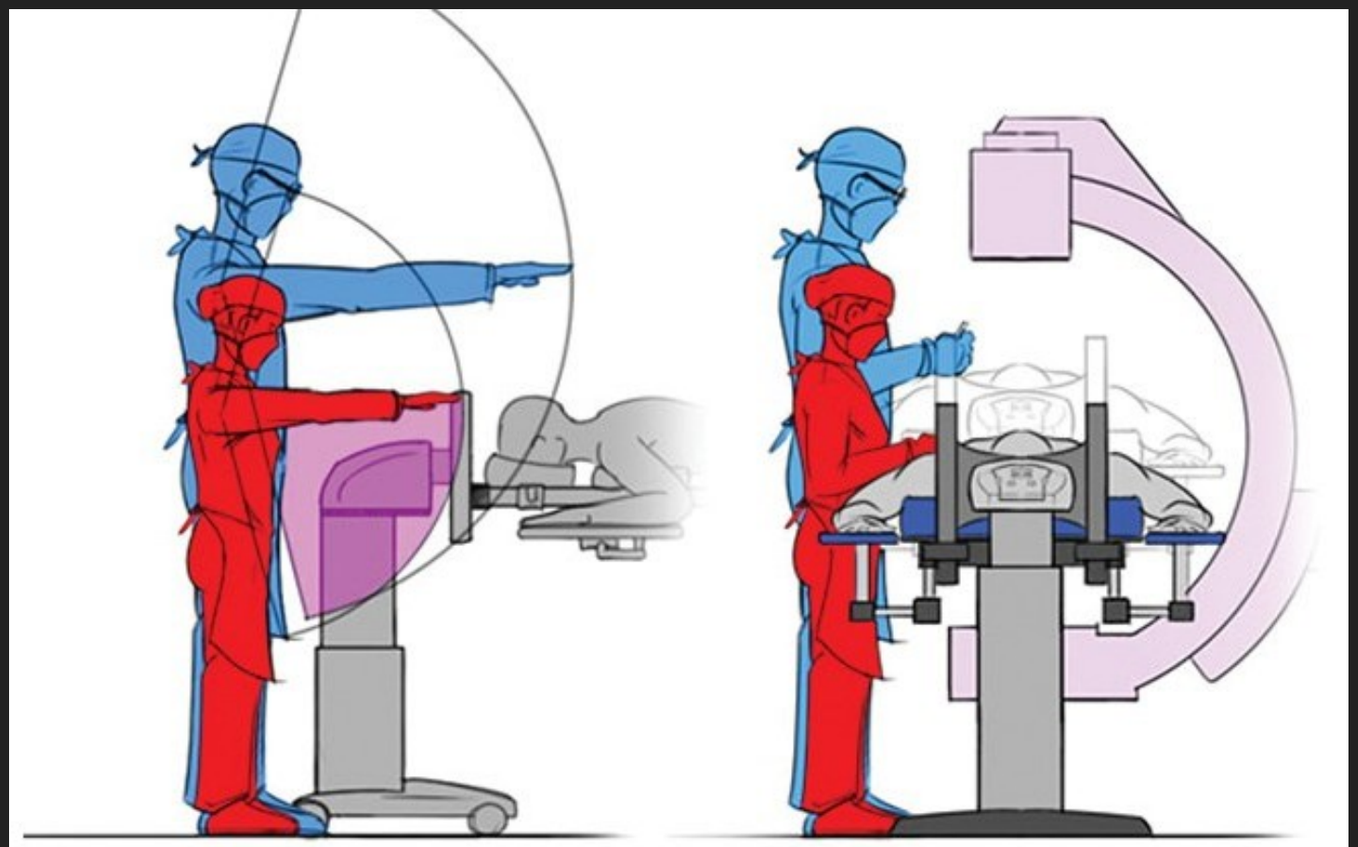


http://techdigest.jhuapl.edu/TD/td2604/Gersh.pdf

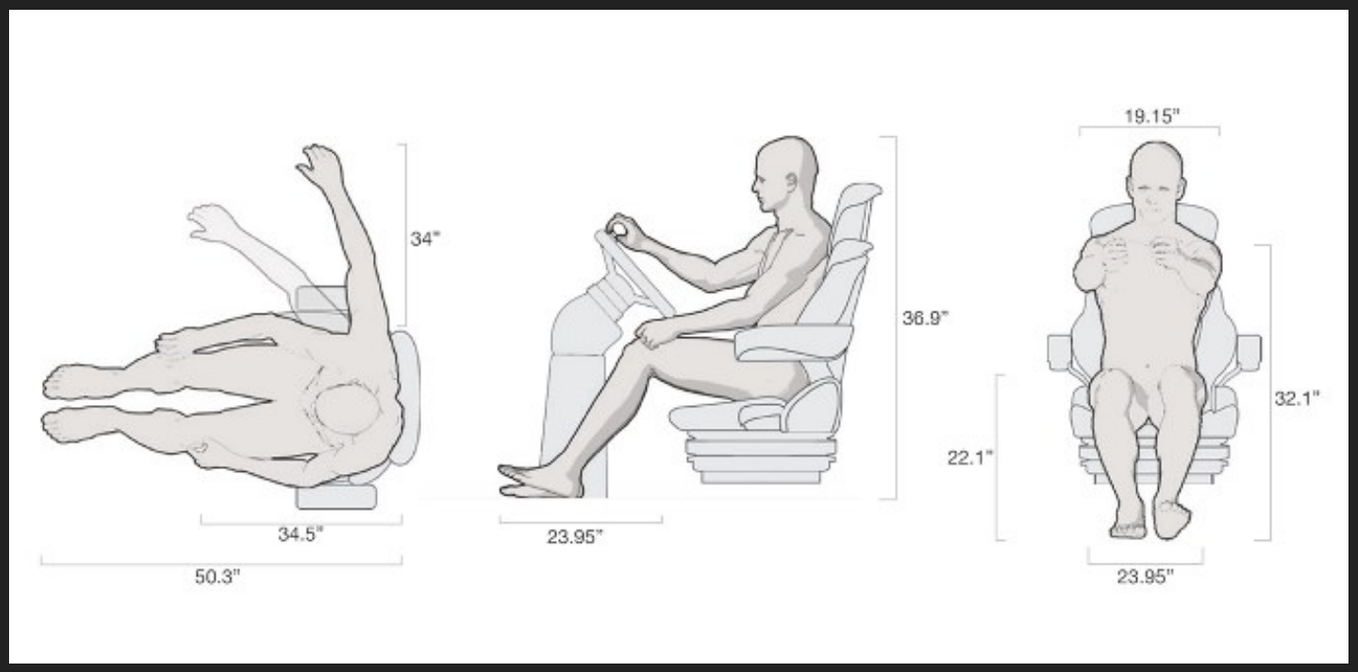
HUMAN FACTORS / ERGONOMICS

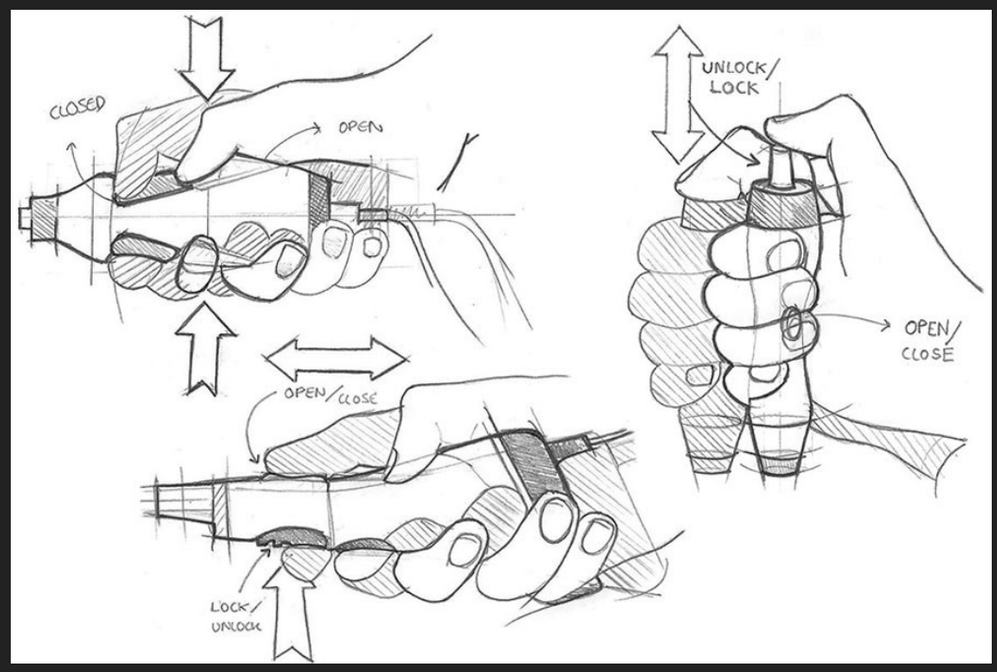
- Empirical and task-analytic techniques for evaluating human-system interactions in domains such as aviation and manufacturing.
- Move to address interactive system contexts in which human operators regularly exerted greater problem-solving discretion.





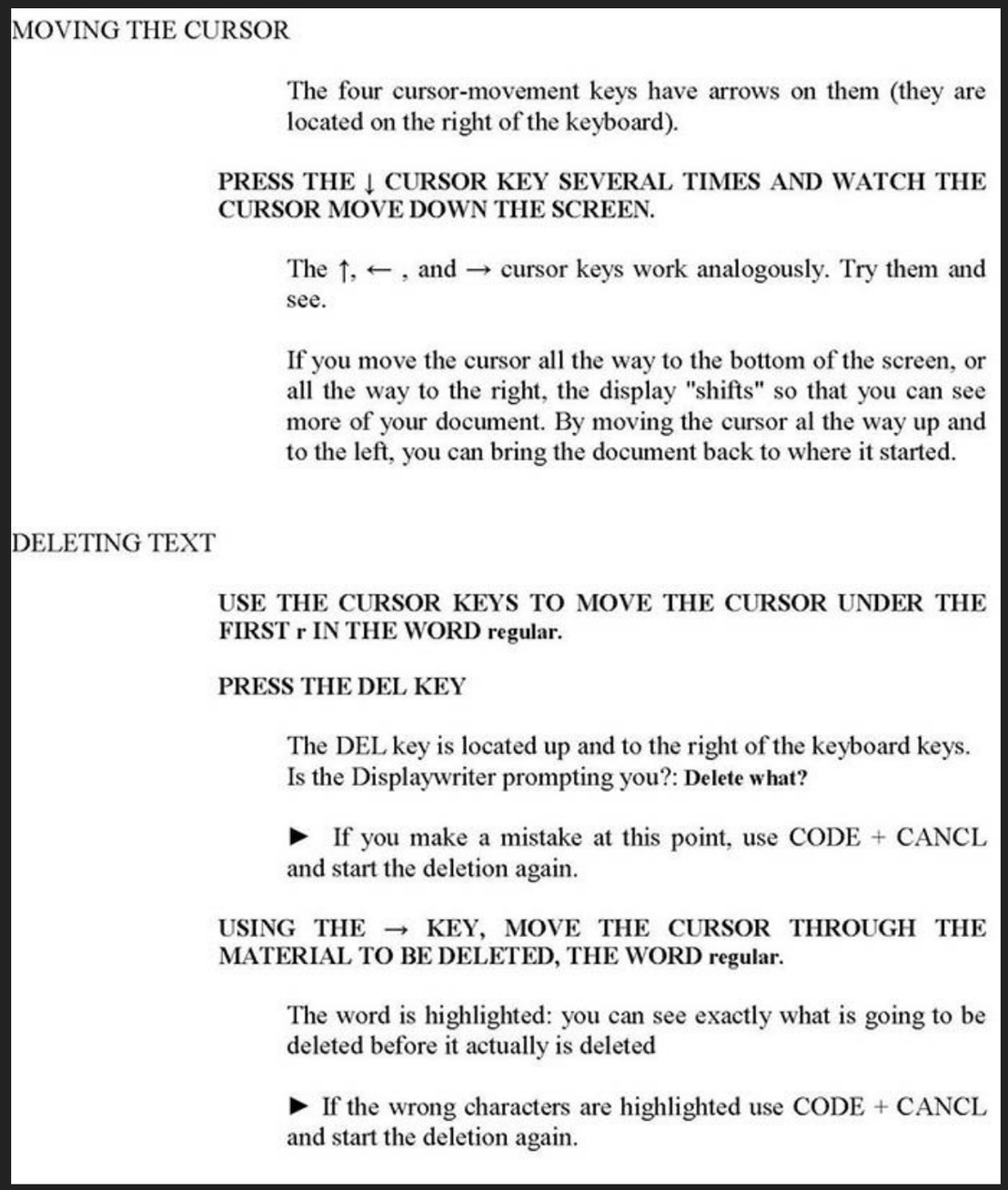
HUMAN FACTORS





DOCUMENT DEVELOPMENT

- Was moving beyond its traditional role of producing systematic technical descriptions toward a cognitive approach incorporating theories of writing, reading, and media, with empirical user testing.
- Documents and other information needed to be usable also.



MOVING THE CURSOR

The four cursor-movement keys have arrows on them (they are located on the right of the keyboard).

PRESS THE ↓ CURSOR KEY SEVERAL TIMES AND WATCH THE CURSOR MOVE DOWN THE SCREEN.

The ↑, ← , and → cursor keys work analogously. Try them and see.

If you move the cursor all the way to the bottom of the screen, or all the way to the right, the display "shifts" so that you can see more of your document. By moving the cursor al the way up and to the left, you can bring the document back to where it started.

DELETING TEXT

USE THE CURSOR KEYS TO MOVE THE CURSOR UNDER THE FIRST r IN THE WORD regular.

PRESS THE DEL KEY

The DEL key is located up and to the right of the keyboard keys. Is the Displaywriter prompting you?: **Delete what?**

► If you make a mistake at this point, use CODE + CANCL and start the deletion again.

USING THE → KEY, MOVE THE CURSOR THROUGH THE MATERIAL TO BE DELETED, THE WORD regular.

The word is highlighted: you can see exactly what is going to be deleted before it actually is deleted

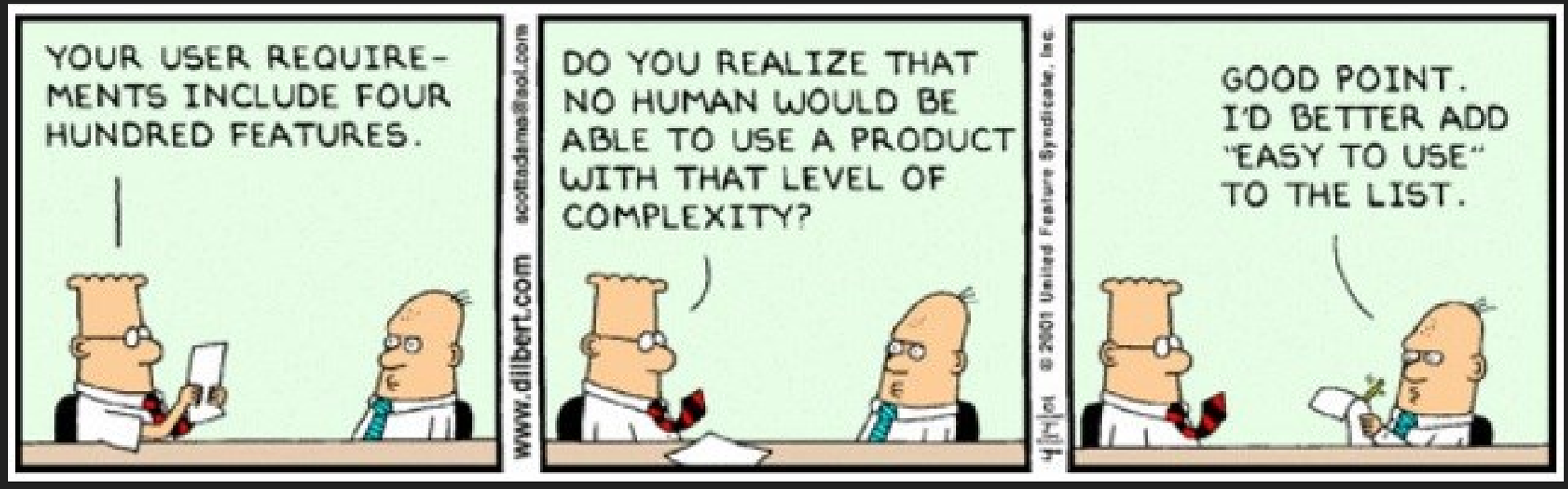
► If the wrong characters are highlighted use CODE + CANCL and start the deletion again.

OTHER HISTORICALLY FORTUITOUS DEVELOPMENTS AT THE TIME

- Software engineering, mired in unmanageable software complexity in the 1970s (the “software crisis”), was starting to focus on nonfunctional requirements, including usability and maintainability.
- Empirical software development processes that relied heavily on iterative prototyping and empirical testing.
- Computer graphics and information retrieval had emerged in the 1970s, and rapidly came to recognize that interactive systems were key.

ORIGINAL FOCUS

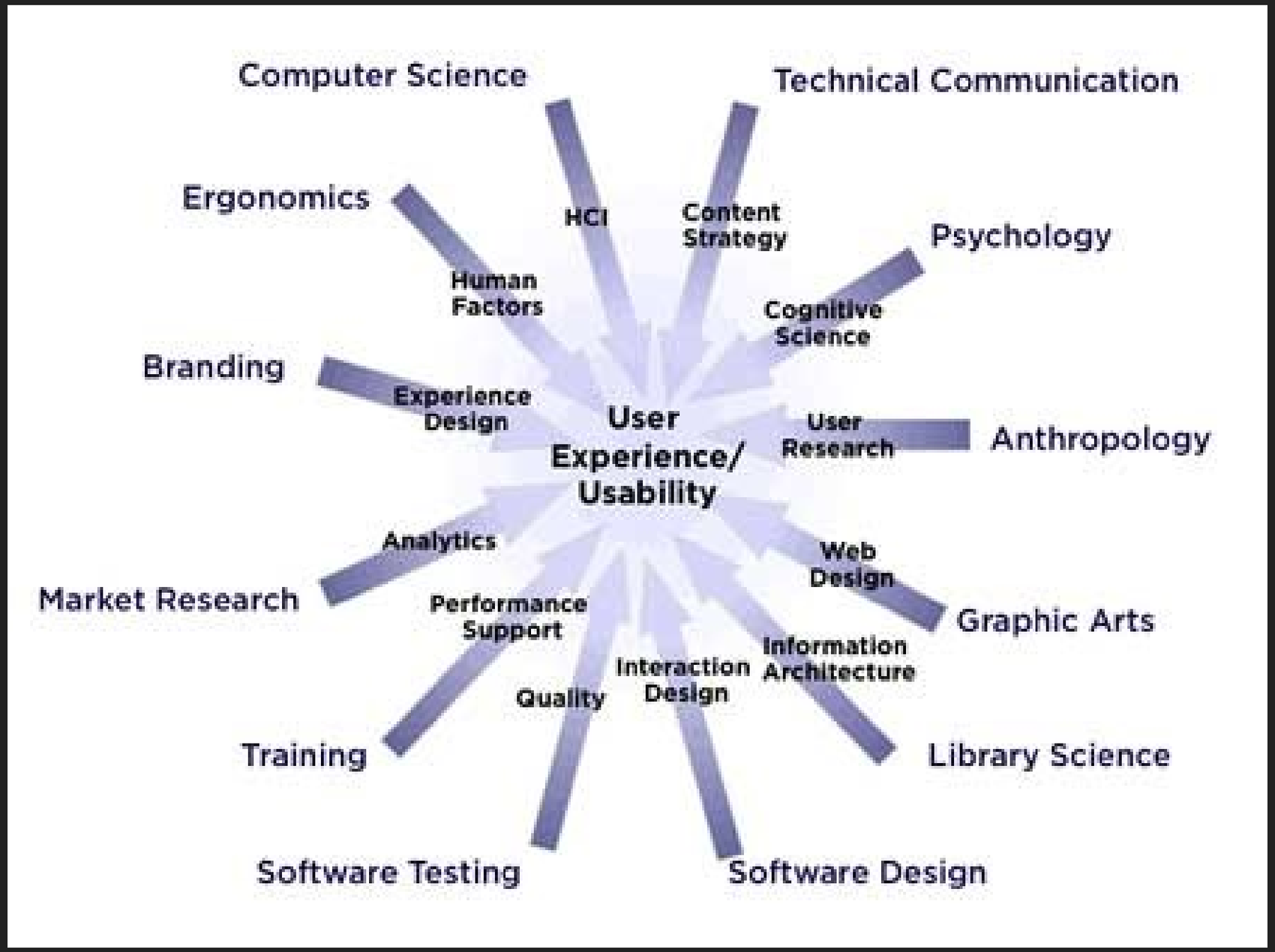
- Usability: ease of use and learnability



USABILITY

- Concept of usability has been re-articulated and reconstructed almost continually.
- Usability now often subsumes qualities like fun, well being, collective efficacy, aesthetic tension, enhanced creativity, flow, support for human development, and others.

USER EXPERIENCE/USABILITY

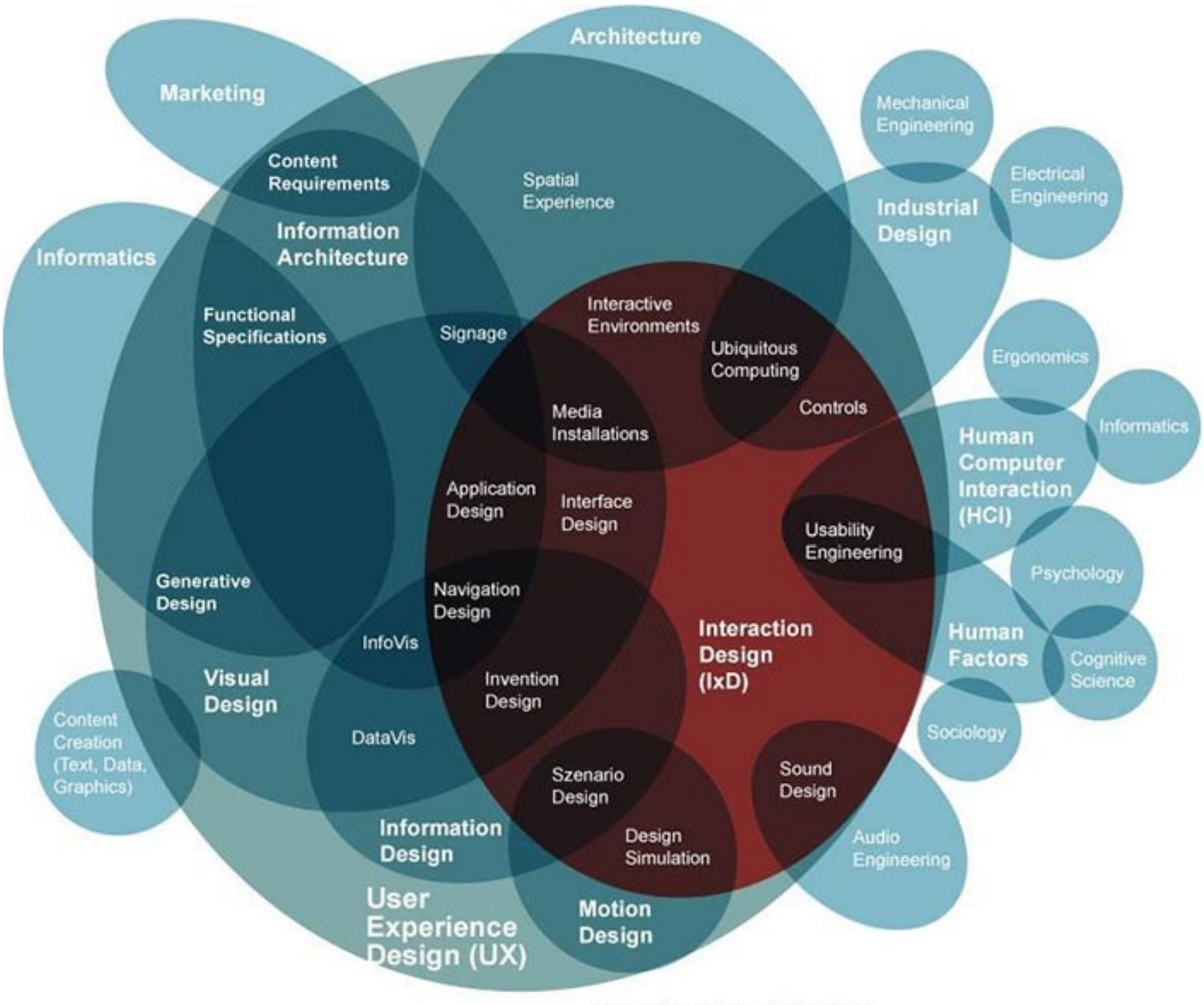


HCI

- Original academic home for HCI was computer science, and its original focus was on personal productivity applications, mainly text editing and spreadsheets, etc.
- It quickly expanded to encompass visualization, information systems, collaborative systems, the system development process, and many areas of design.

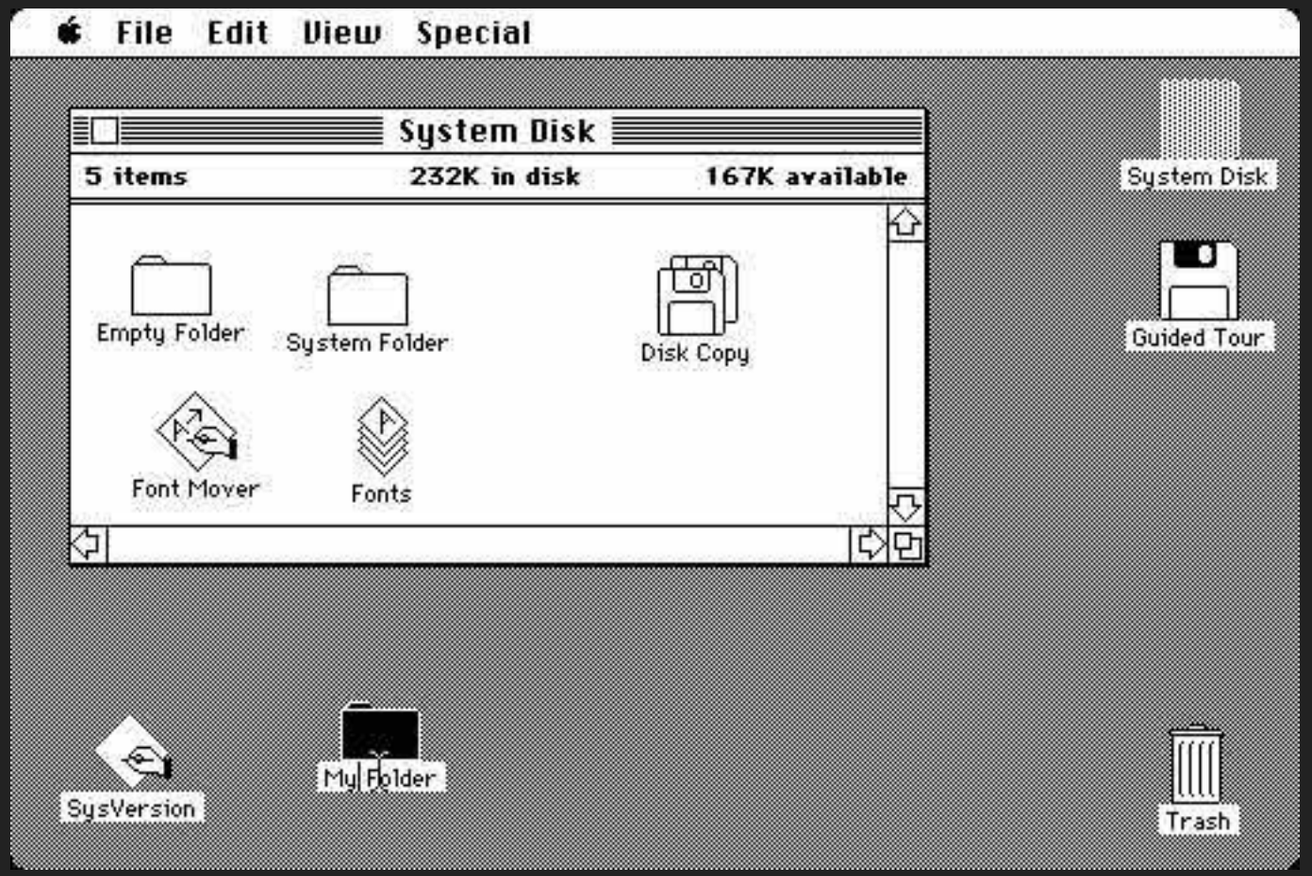
EMERGING TECHNOLOGIES IN HCI

- Beyond graphical user interfaces to a 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.



BEYOND THE DESKTOP

- One of biggest design ideas of the early 1980s was the so-called messy desk metaphor, popularized by the Apple Macintosh.



THE DESKTOP METAPHOR

The early popularity of messy desktops for personal information spaces does not scale.

BEYOND THE DESKTOP: (1) SEARCH

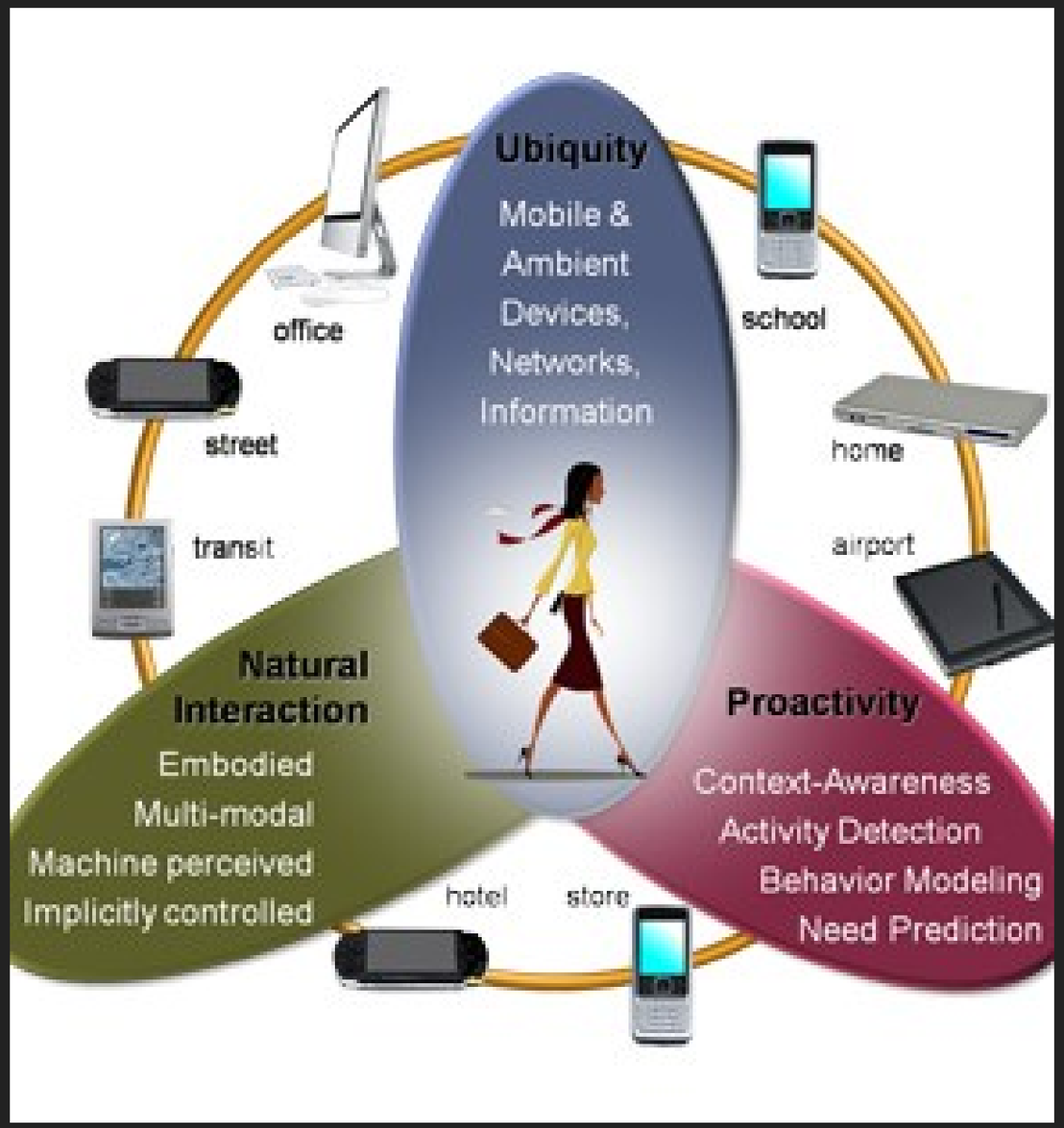
- Through the mid-1990s, HCI professionals and everyone else realized that search is a more fundamental paradigm than browsing for finding things in a user interface.

BEYOND THE DESKTOP: (2) THE INTERNET

- Mid-1980s -> email emerged
- Email made computers and networks into communication channels.
- Tools and applications to support collaborative activity now include instant messaging, wikis, blogs, online forums, social networking, social bookmarking and tagging services, etc..

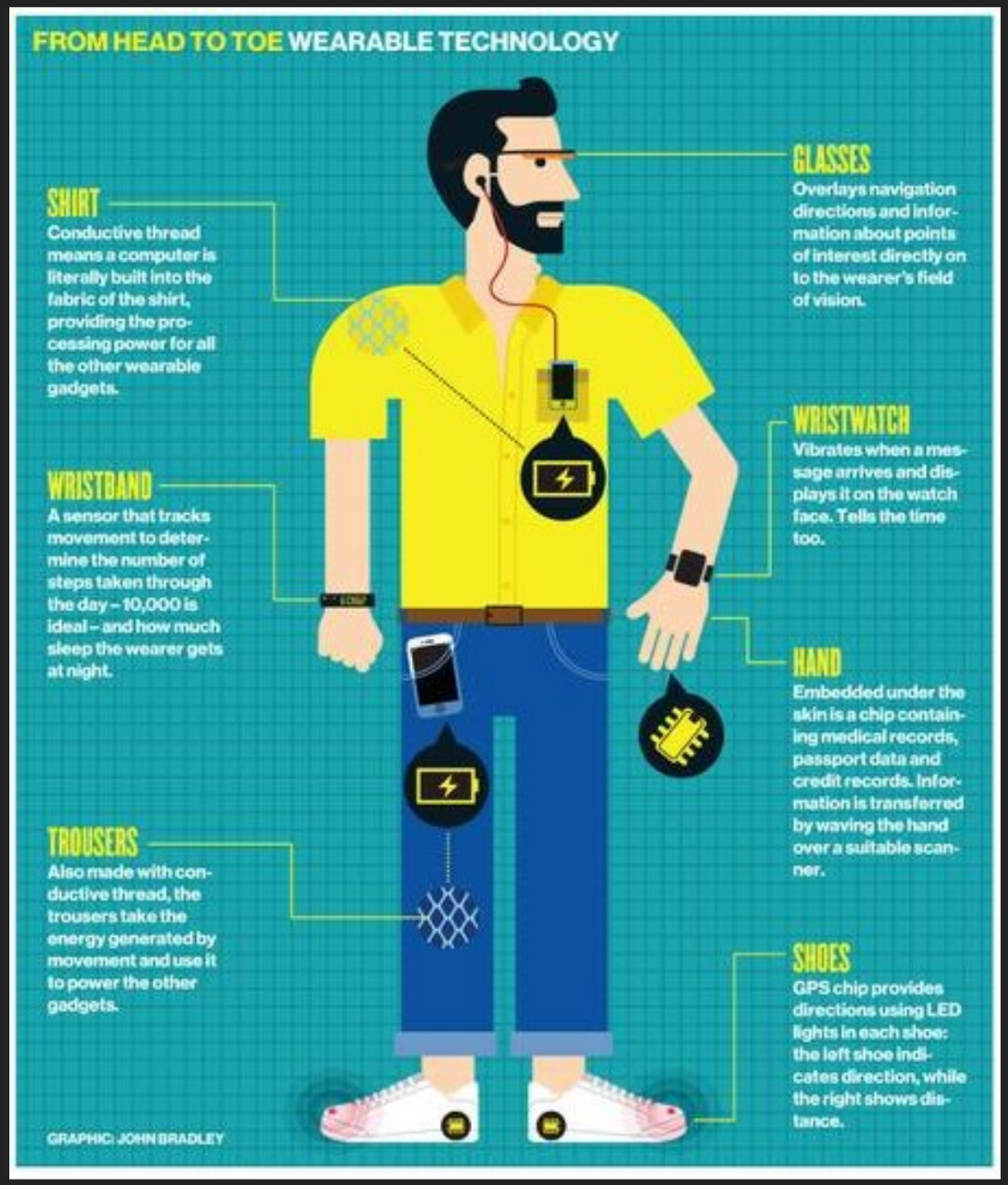
BEYOND THE DESKTOP: (3) NEW DEVICES

- “the desktop itself has moved off the desktop”
- The pervasive incorporation of computing into human habitats — cars, home appliances, furniture, clothing, and so forth.



BEYOND THE DESKTOP

- The focus of HCI has moved beyond the desktop, and its focus will continue to move.
- Driven to frontiers of technology and application possibility.



BEYOND THE DESKTOP

- https://www.youtube.com/watch?v=dRl8EIhrQjQ
- https://www.theglobeandmail.com/technology/your-smartphone-is-making-you-stupid/article37511900/

Watch at home:

https://www.youtube.com/watch?v=6UbhGdL_PDY&list=PL0f7yKzz8hJRzTjENy9n93ffHaO5MNXzQ

EMERGING TECHNOLOGIES

- The special value and contribution of HCI is that it will investigate, develop, and harness those new areas of possibility not merely as technologies or designs, but as means for enhancing human activity and experience.