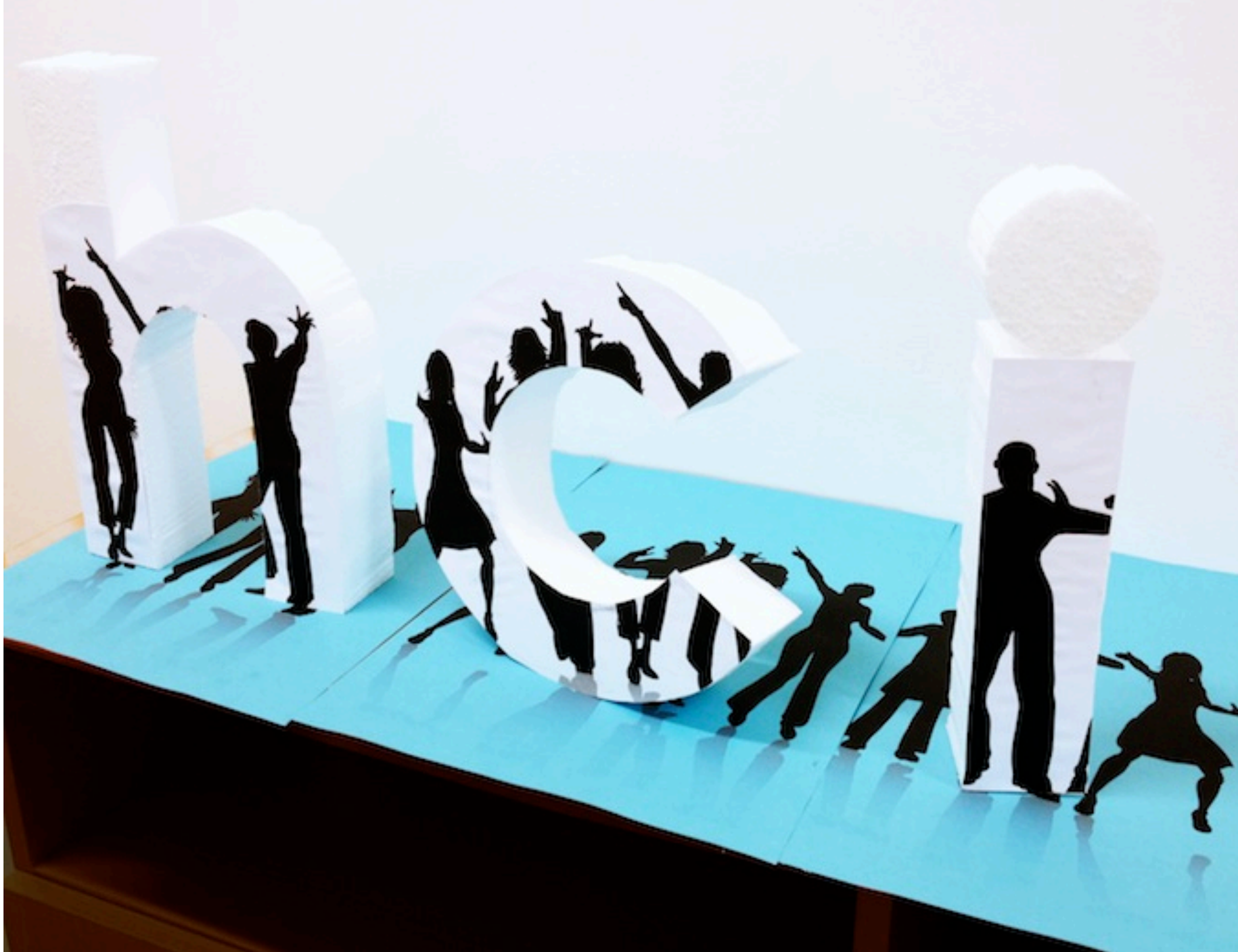
Putting User Research in historical context

Christopher Frauenberger

User-Research Methods VU 2017

FAKULTÄT
FÜR !NFORMATIK
Faculty of Informatics



FAKULTÄT
FÜR !NFORMATIK

Faculty of Informatics

Resources

Baecker, R. M. (2008). TIMELINES: Themes in the Early History of HCI—some Unanswered Questions. Interactions, 15(2), 22–27. https://doi.org/10.1145/1340961.1340968

Harrison, S., Tatar, D., & Sengers, P. (2007). The Three Paradigms of HCI. In Proceedings of alt.chi. ACM SIGCHI.

Bødker, S. (2006). When Second Wave HCI Meets Third Wave Challenges. In Proceedings of the 4th Nordic Conference on Human-computer Interaction: Changing Roles (pp. 1–8). New York, NY, USA: ACM. https://doi.org/10.1145/1182475.1182476

Pew, R. Evolution of human-computer interaction: from Memex to Bluetooth and beyond. In The human-computer interaction handbook, Erlbaum, NJ, 2003 pp1-17.

Myers, B. A. (1998). A Brief History of Human-computer Interaction Technology. Interactions, 5(2), 44–54. https://doi.org/10.1145/274430.274436

https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/human-computer-interaction-brief-intro

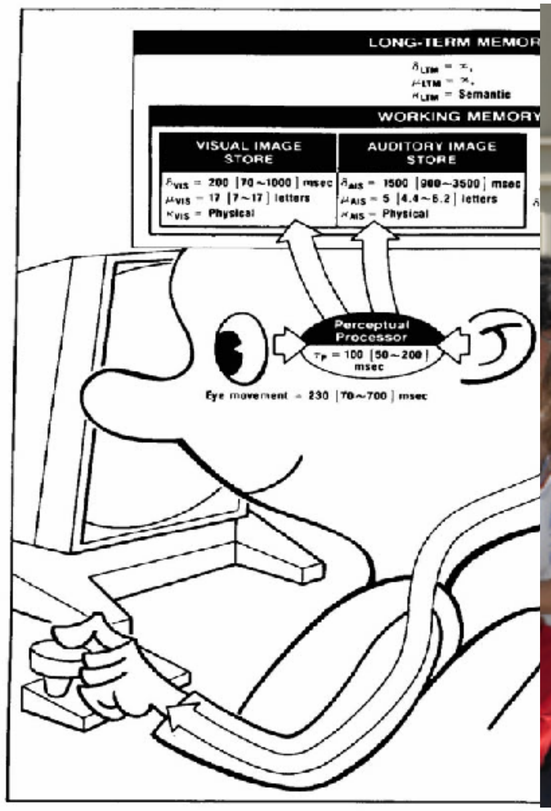
Overview

Historical walk through - Three waves of HCI
mainframes > desktop > ubiquitous

Overview

Historical walk through - Three waves of HCI

human factors > cognition > design (social, situated)



Overview

Key themes

People + Technology + Design

Always multi-disciplinary

But changing mix of disciplines to meet new tech possibilities

Ever expanding set of concerns

Technologies, applications, domains, challenges etc

HCI both leads and lags behind

Overview

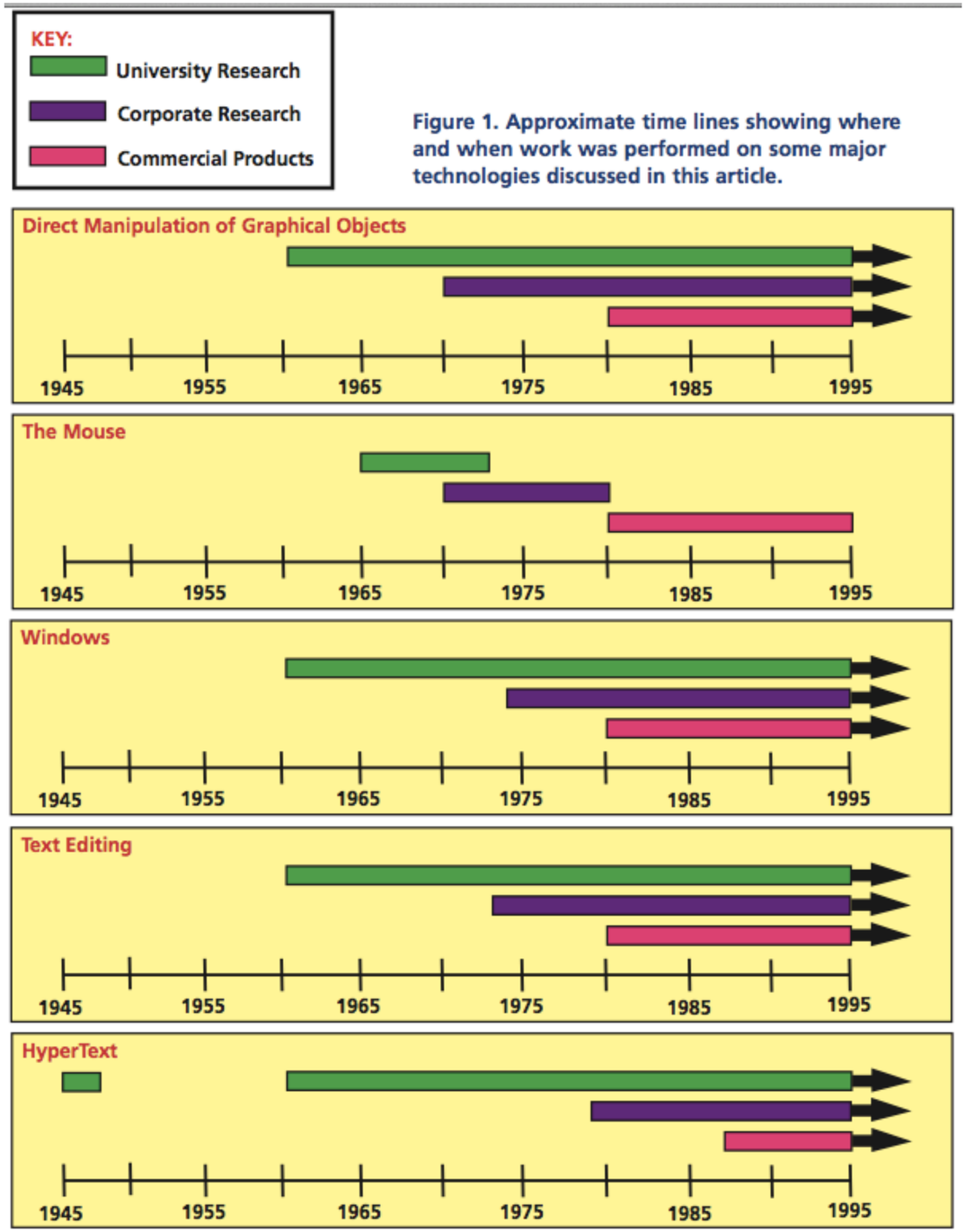


Figure 1. Approximate time lines showing where and when work was performed on some major technologies discussed in this article.

Myers, B. A. (1998). A Brief History of Human-computer Interaction Technology. Interactions, 5(2), 44–54. https://doi.org/10.1145/274430.274436

FAKULTÄT FÜR !NFORMATIK
Faculty of Informatics

Overview

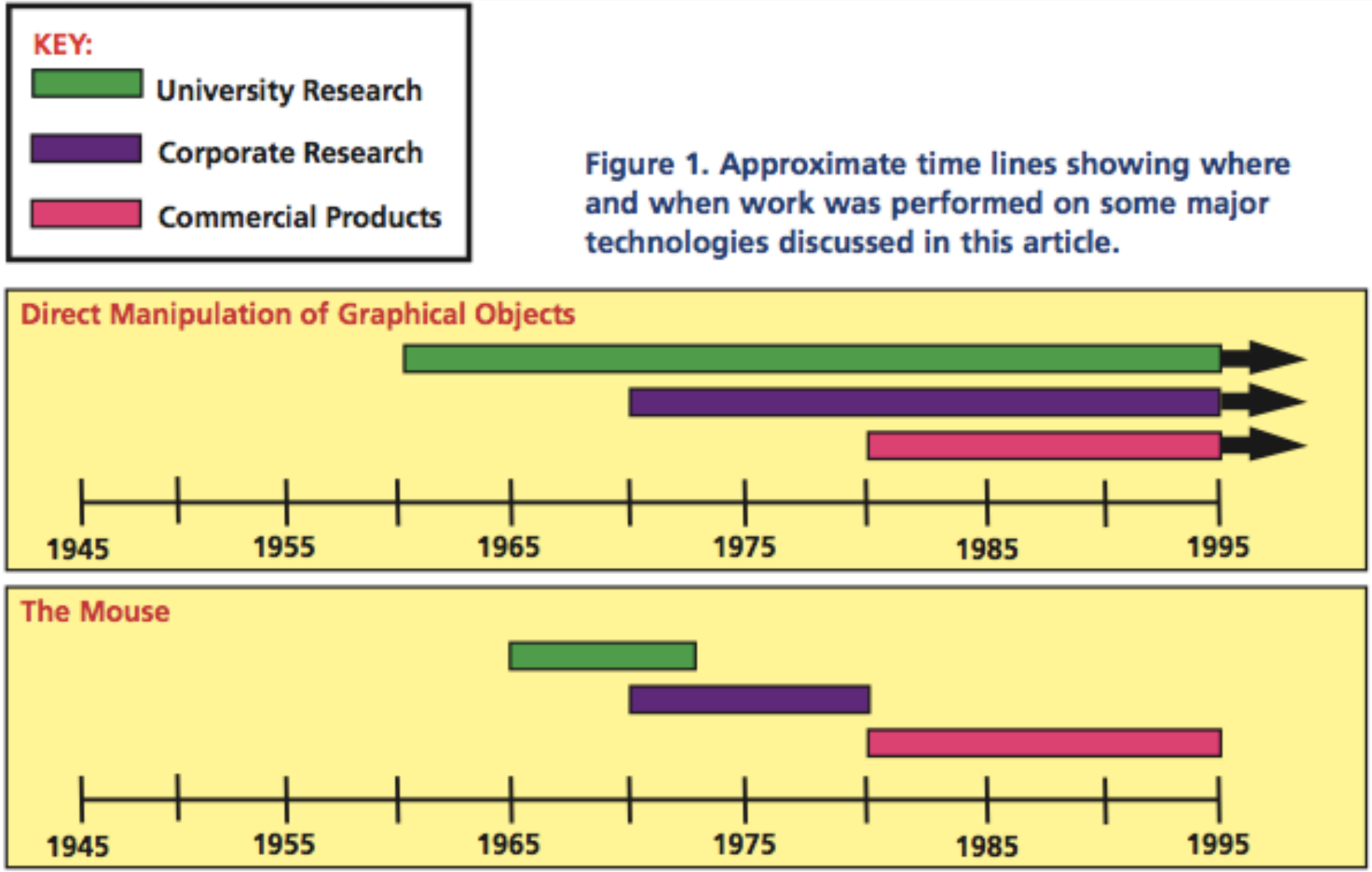
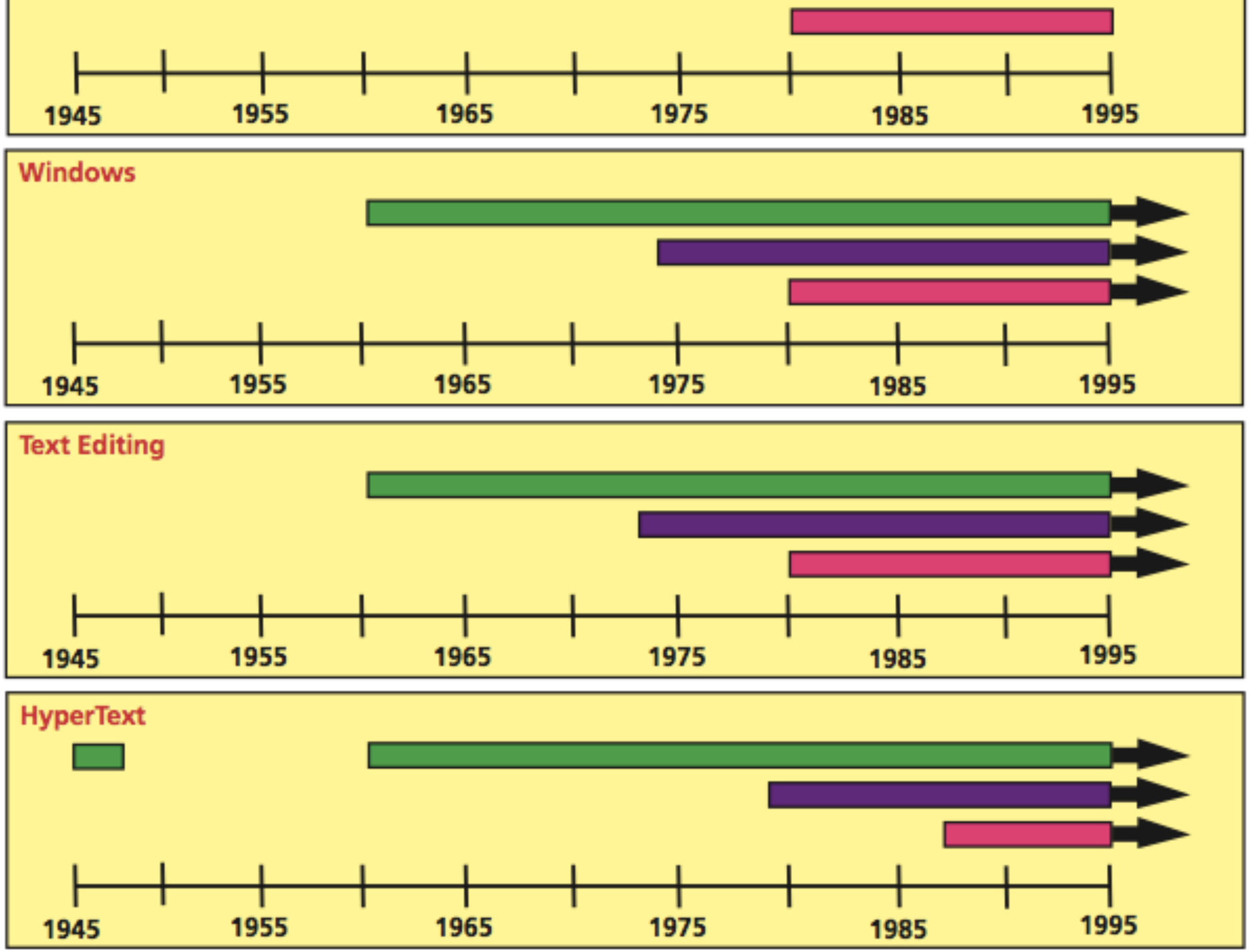


Figure 1. Approximate time lines showing where and when work was performed on some major technologies discussed in this article.

FAKULTÄT FÜR !NFORMATIK
Faculty of Informatics

Overview



FAKULTÄT
FÜR !NFORMATIK
Faculty of Informatics

Learning Goal

Reflect on: What is ‘HCI’ at each stage?

Consider the »inter-relationship« between the technology of the time and what »human interaction« means:

- Where is the technology?
- Who are the users? What is their role?
- Where is the interface?
- What constitutes interaction?
- What are the particular challenges?

Origins of HCI

1940's

Psychologists called upon to help in design and use of aircraft during WWII to improve aviation safety

1957

Human Factors and Ergonomics Society

Origins of HCI

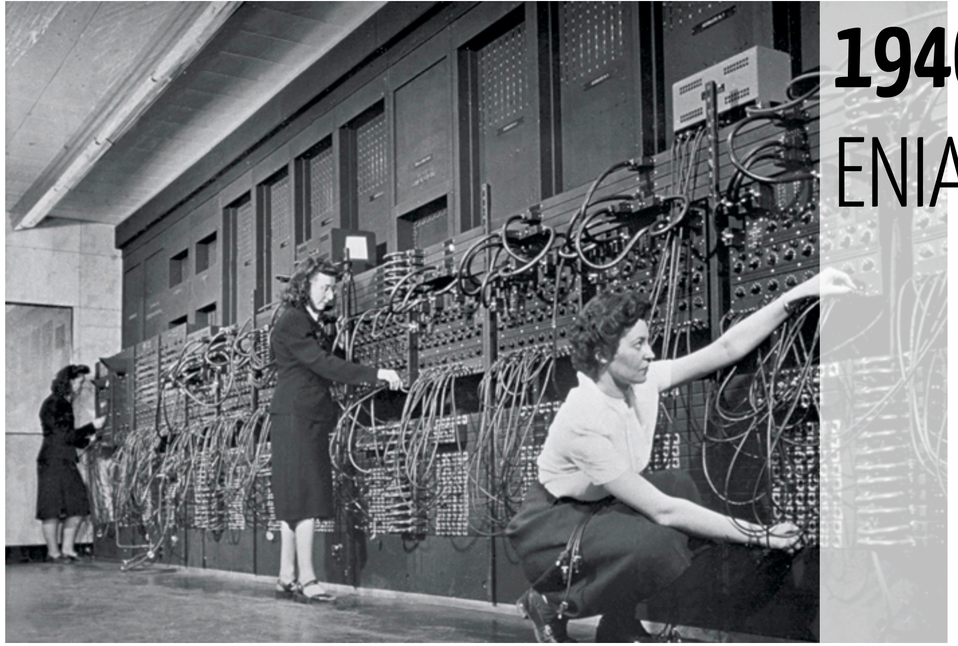
FAKULTÄT
FÜR !NFORMATIK
Faculty of Informatics

1st Wave of HCI

1950 ~ 80's

Mainframes and Human Factors

Origins of HCI



1946
ENIAC

Fortran	’50
LISP	’58
COBOL	’59

1950 / 60
Mainframe

ARPANET	’69
Email	’71
Xerox Alto	’72
TCP/IP, LAN	’73

Concerns & Responses

Ergonomics

Perceptual-motor focus

Operators & Experts

Goal

Optimise the fit between human & machines

Maximising efficiency

Skilled performance

Task analysis

Improving the design of buttons, switches, displays

Emergence of the field

1959

first HCI paper: Brian Shackel ‘Ergonomics for a computer’

1973

Most widely read HCI book: James Martin ‘Design of Man-Computer Dialogues’

70s, early 80s

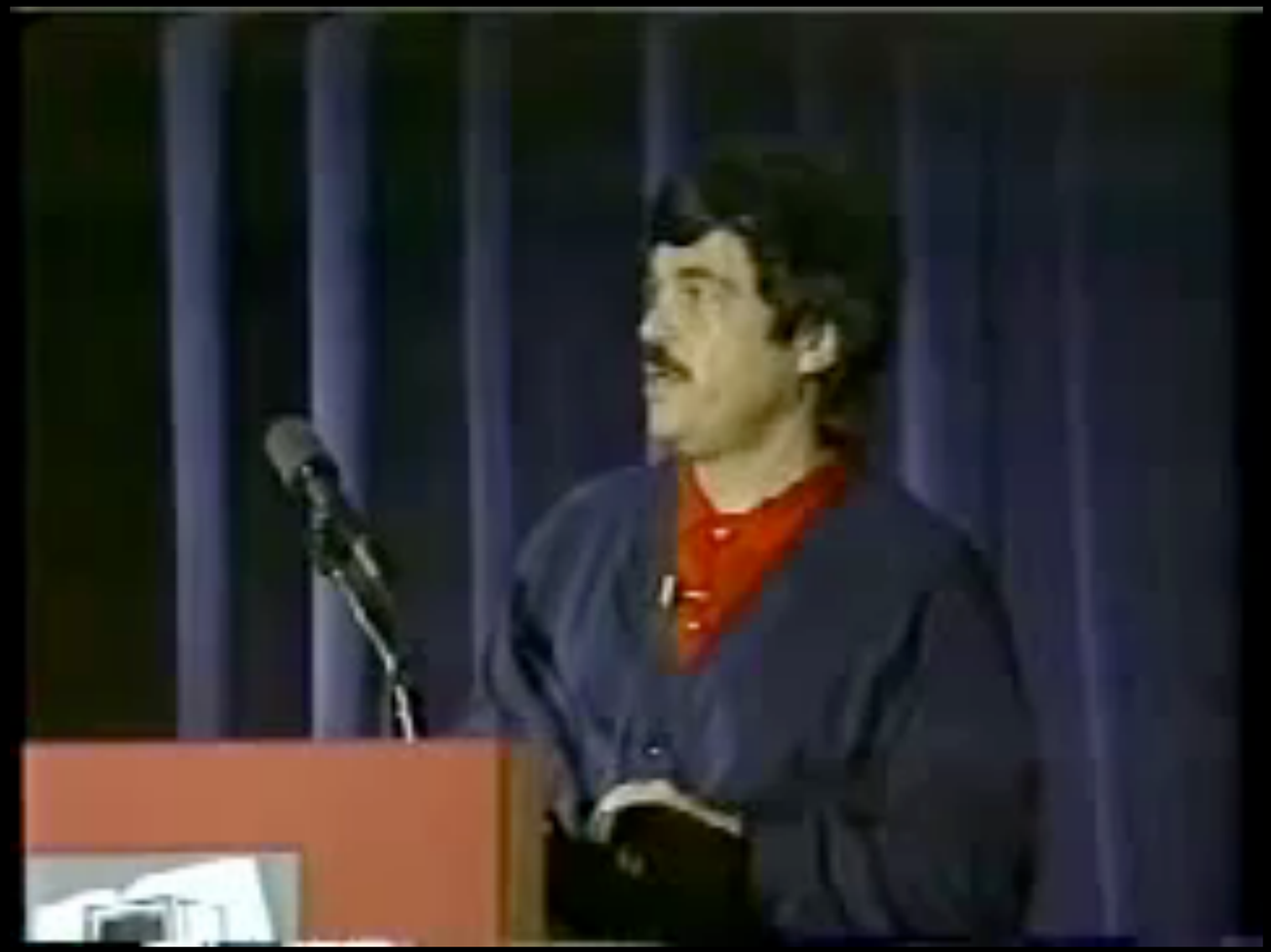
university level HCI courses

1982

ACM SIGCHI formed; First CHI conference

1961 Electronic Medical Records

https://www.youtube.com/watch?v=t-aiKllc6uk#t=29



1963 SketchPad [Ivan Sutherland]

https://www.youtube.com/watch?v=495nCzxM9PI

2nd Wave of HCI

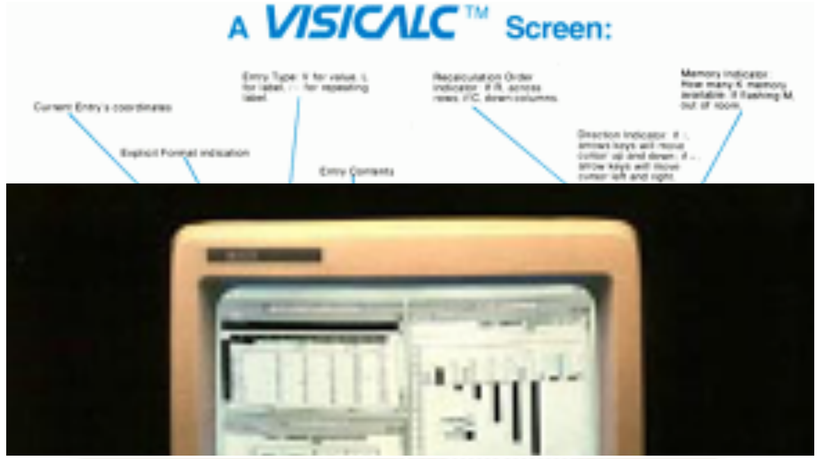
1980's ~ 90's

Desktops and Human Cognition

FAKULTÄT FÜR !NFORMATIK

Faculty of Informatics

Origins of HCI



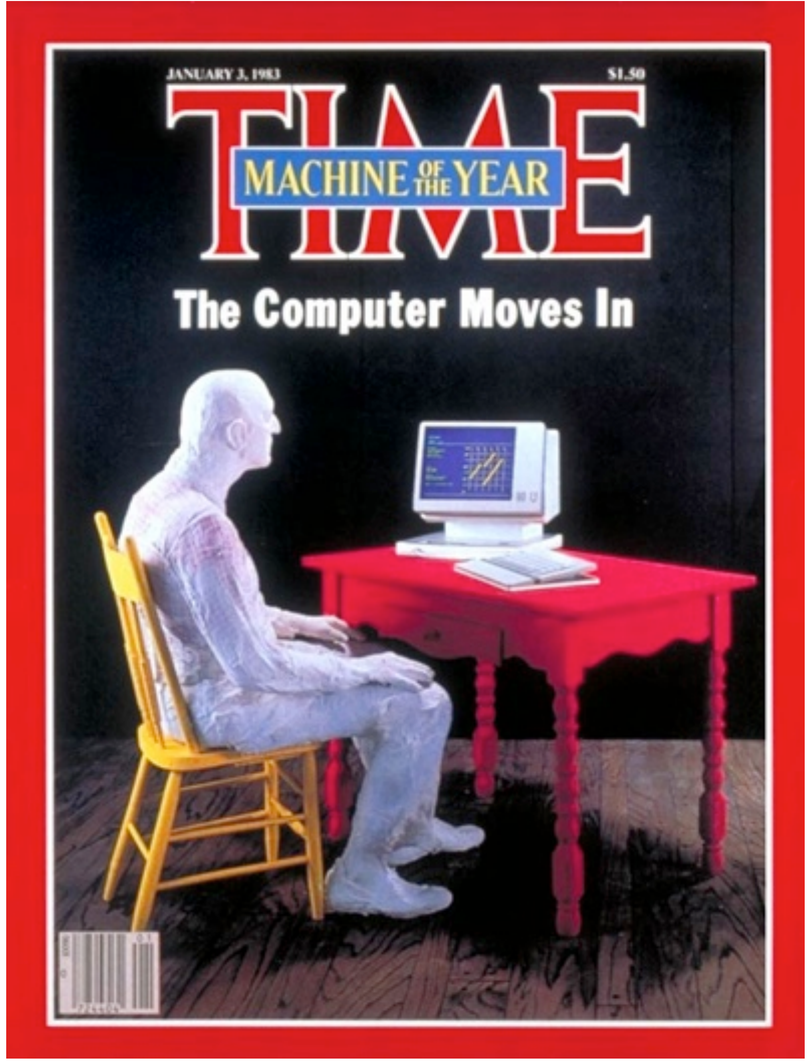
79
First spreadsheet programme for the PC

81
Xerox Star

83
Apple Lisa

84
Apple Mac

85
Microsoft Windows

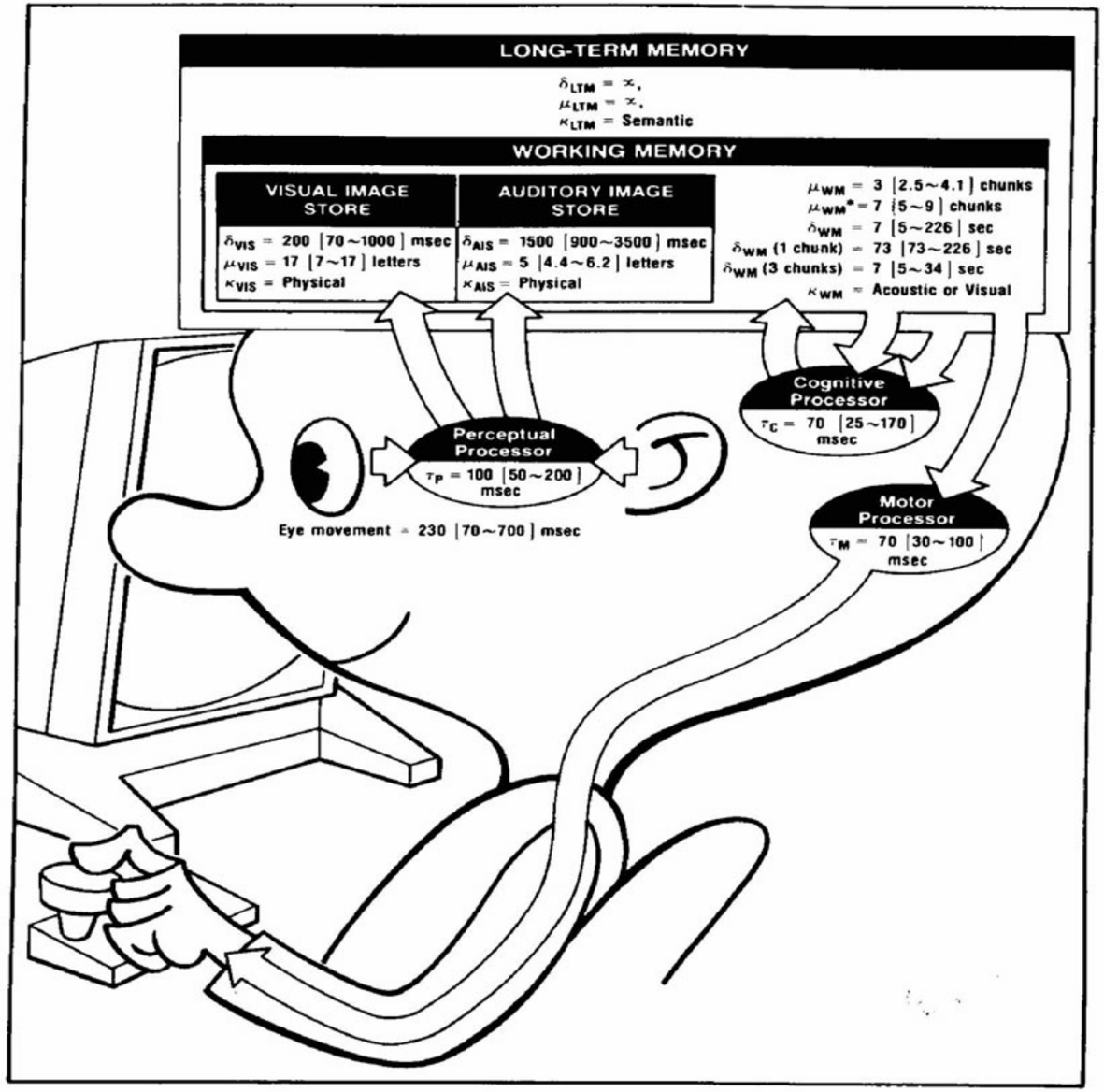


Machine of the Year

»There's a New World coming again, looming on the desktop. Oh, say, can you see it?«

Time Magazine 1982

Concerns & Responses	Information Processing	Goal
	Computers in offices	Bring in the psychologists
	Individuals	Behavioural science
		Quantitative empirical studies
		Formalising HCI in Usability Labs (e.g. Think Aloud)
		Guidelines, Heuristics



Card, Moran & Newell: The Psychology of HCI (1983)

Resources

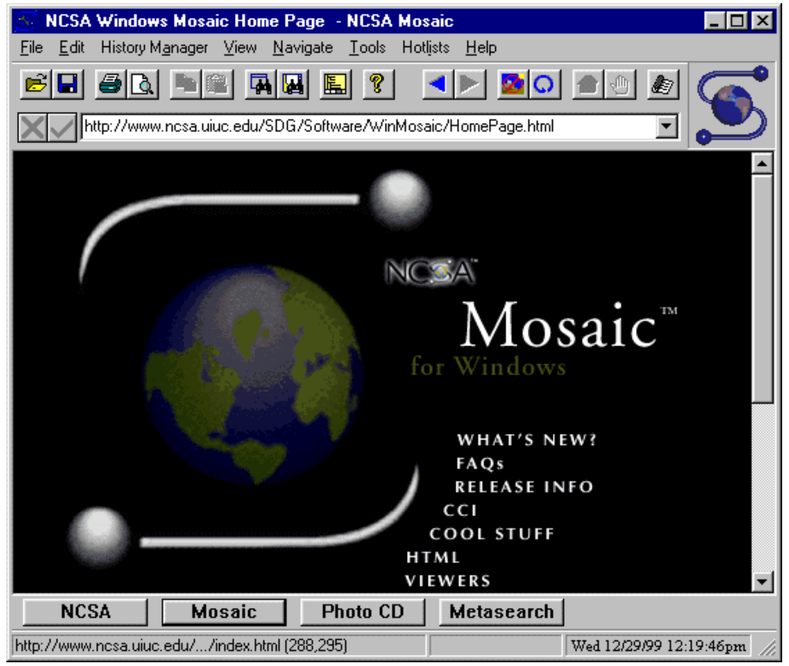
1980

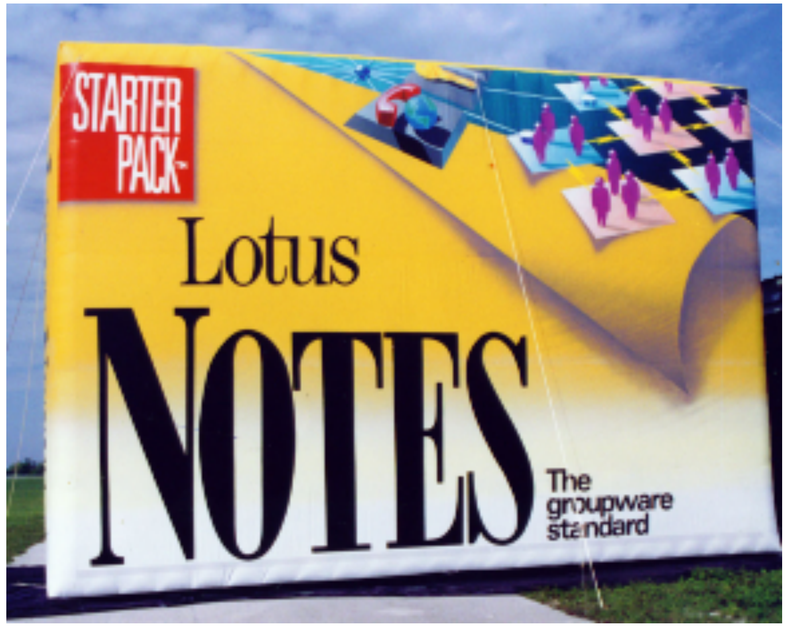
First HCI textbook: Software Psychology: Human Factors in Computer and Information Systems (Schneiderman)

1983

Psychology of Human Computer Interaction (Card, Moran, Newell 1983)

Networking





82
Symposium on Distributed Computing

84
CSCW (Groupware) conf.

89
The World Wide Web

93
Mosaic Browser

95
Amazon, eBay

Concerns & Responses

Distributed Work

Networked people & information

Increasingly non-work

Moving into the home

Goal

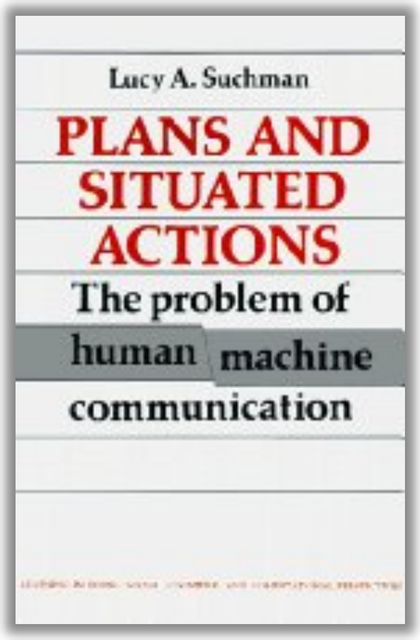
Distributed Cognition

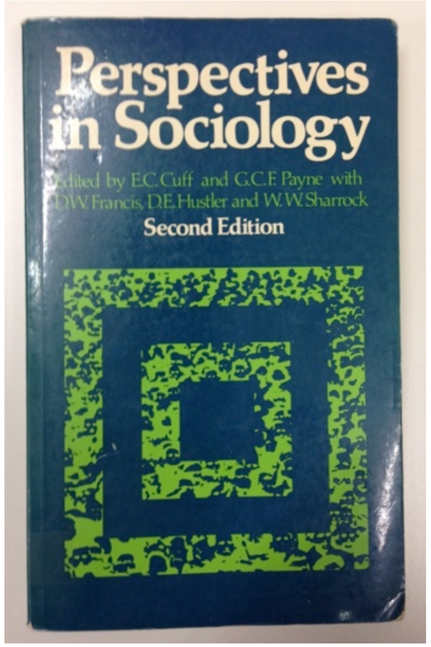
Human-Centred Design

Interaction Design

»Advent of the internet and WWW substantially changed the HCI [design] game again, just when its specialists were beginning to think they had a handle on things.« [Pew 2003]

Theories





From Sociology

Distributed Cognition

Activity Theory

Situated Action

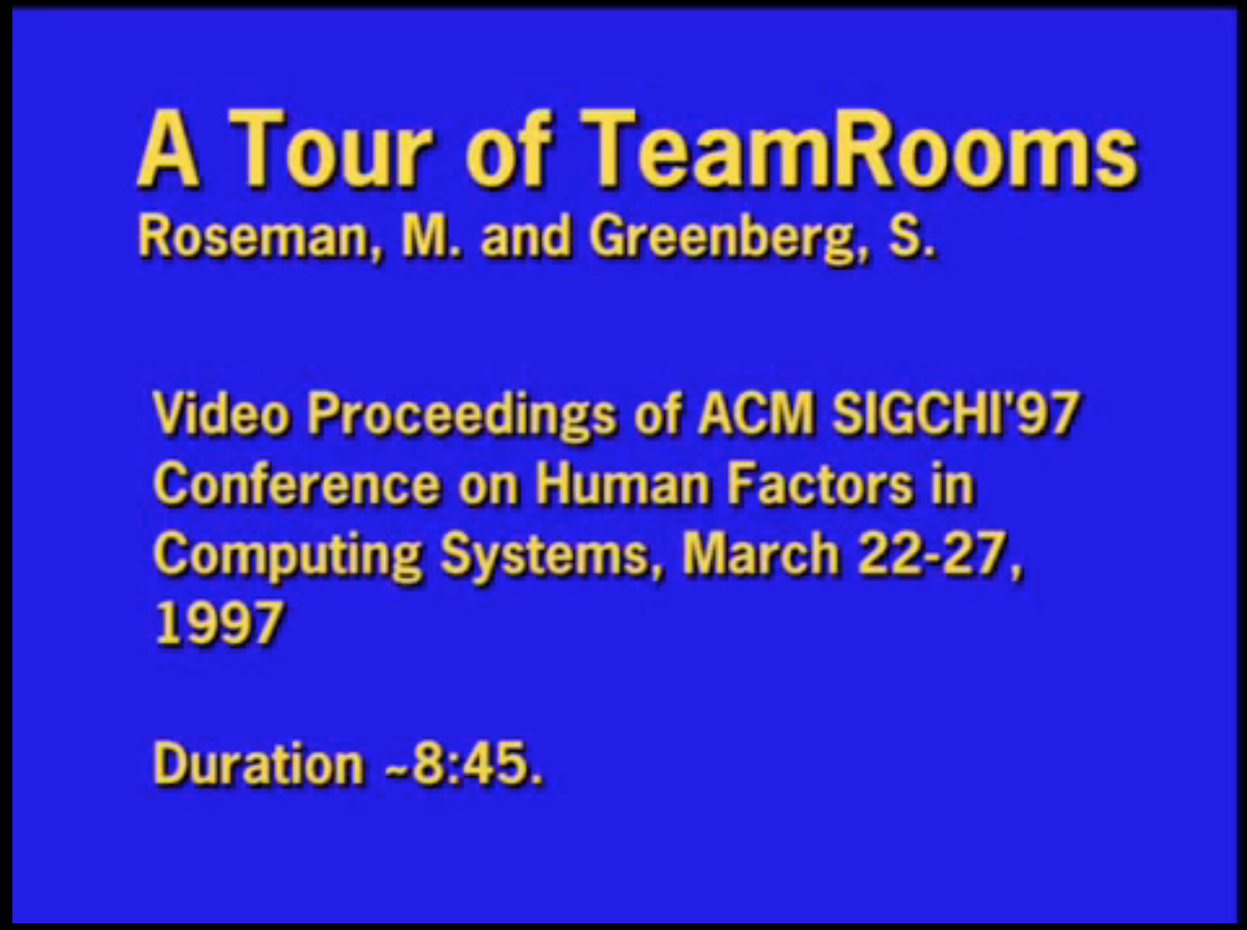
Ethnography

Qualitative Methods

Guidelines

User Experience - usable, useful & desirable

FAKULTÄT
FÜR !NFORMATIK
Faculty of Informatics



TeaRooms - 1997

https://www.youtube.com/watch?v=kUfonc2-yfE

UbiComp

Marc Weiser - 1988

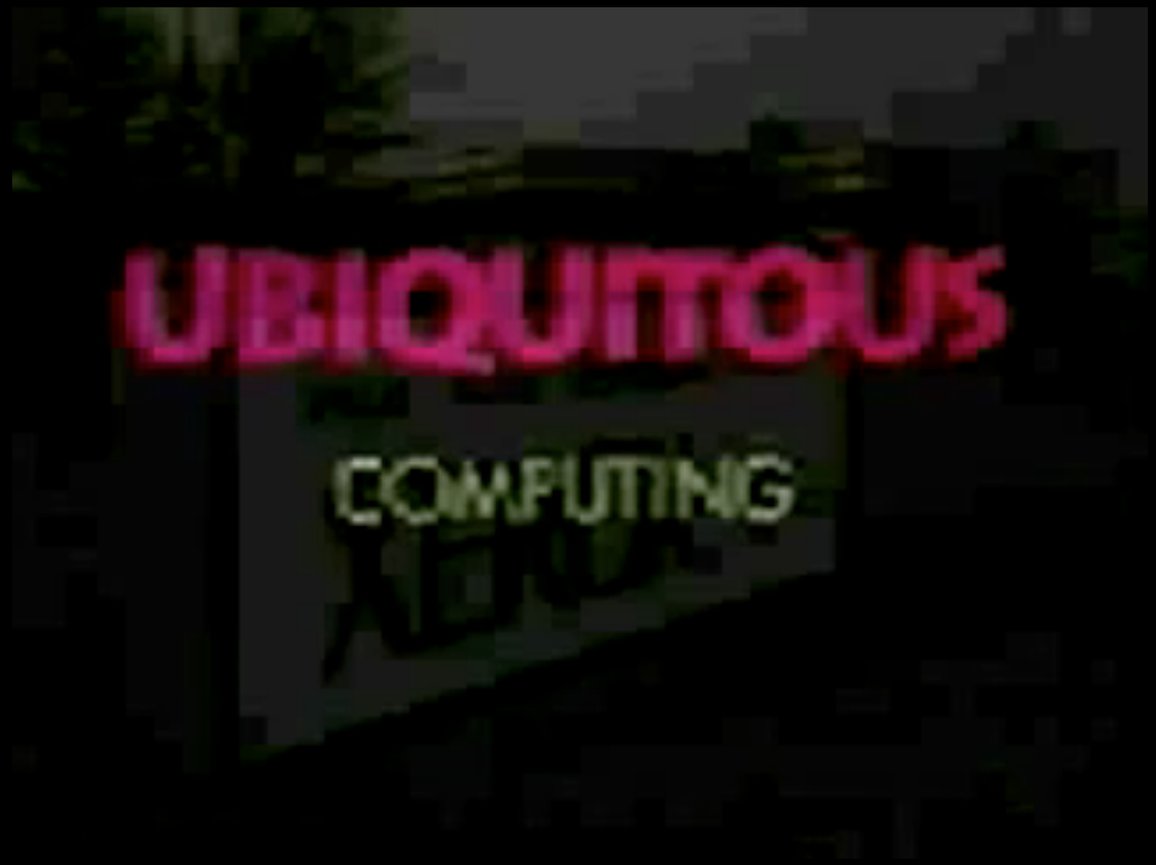
UbiComp

Inspired by the **social scientists, philosophers, and anthropologists** at PARC, we have been trying to take a **radical look at what computing and networking ought to be like.** We believe that people live through their practices and tacit knowledge so that the most powerful things are those that are effectively invisible in use. This is a challenge that affects all of computer science.

UbiComp

Our preliminary approach: **Activate the world. Provide hundreds of wireless computing devices** per person per office, of all scales (from 1" displays to wall sized). This has required new work in operating systems, user interfaces, networks, wireless, displays, and many other areas. **We call our work "ubiquitous computing"**. This is different from PDA's, dynabooks, or information at your fingertips. It is **invisible**, **everywhere** computing that does not live on a personal device of any sort, but is **in the woodwork** everywhere."

http://www.ubiq.com/hypertext/weiser/UbiHome.html



Xerox PARC circa 1991

https://www.youtube.com/watch?v=b1w9_cob_zw

Wearable computing 1999 [Thad Starner]

https://www.youtube.com/watch?v=ge0wbagV34o

3rd Wave of HCI

2005 ~

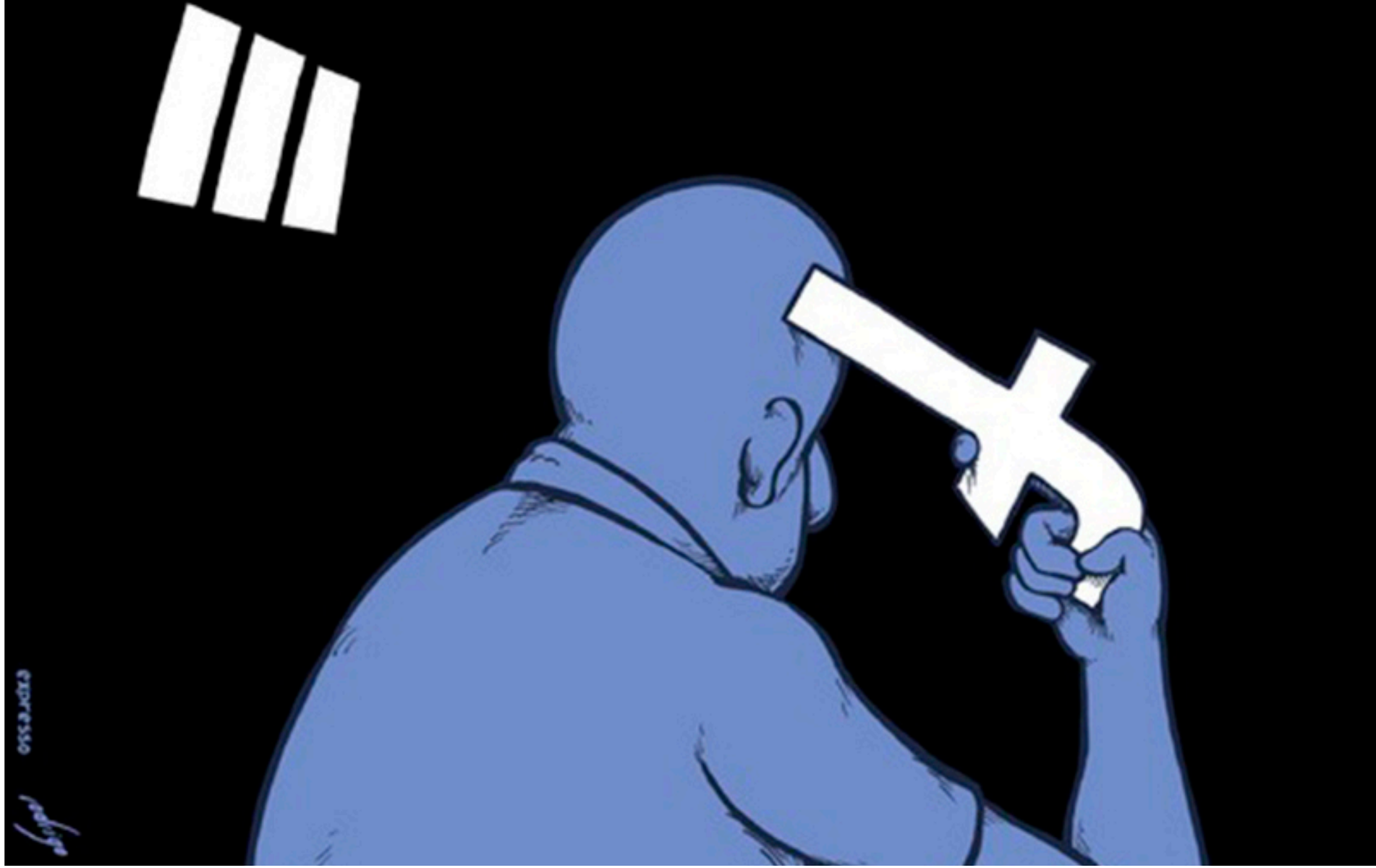
UbiComp and Design (social, embodied & situated)

FAKULTÄT FÜR !NFORMATIK

Faculty of Informatics

Mobile

FAKULTÄT
FÜR !NFORMATIK
Faculty of Informatics



Social

Embodied

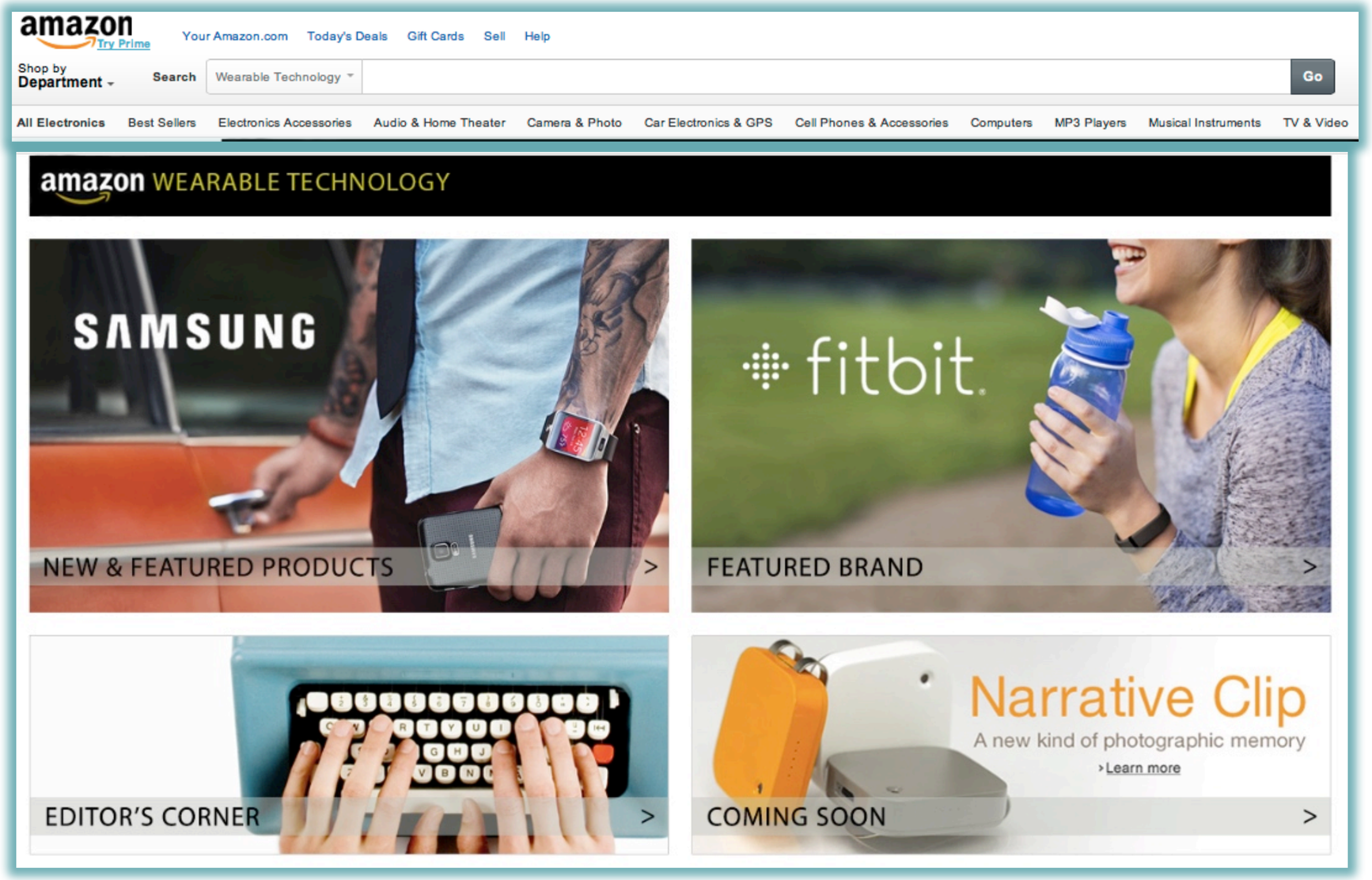
https://www.youtube.com/watch?v=VVUMMorJTC8

Example: Ambient Wood

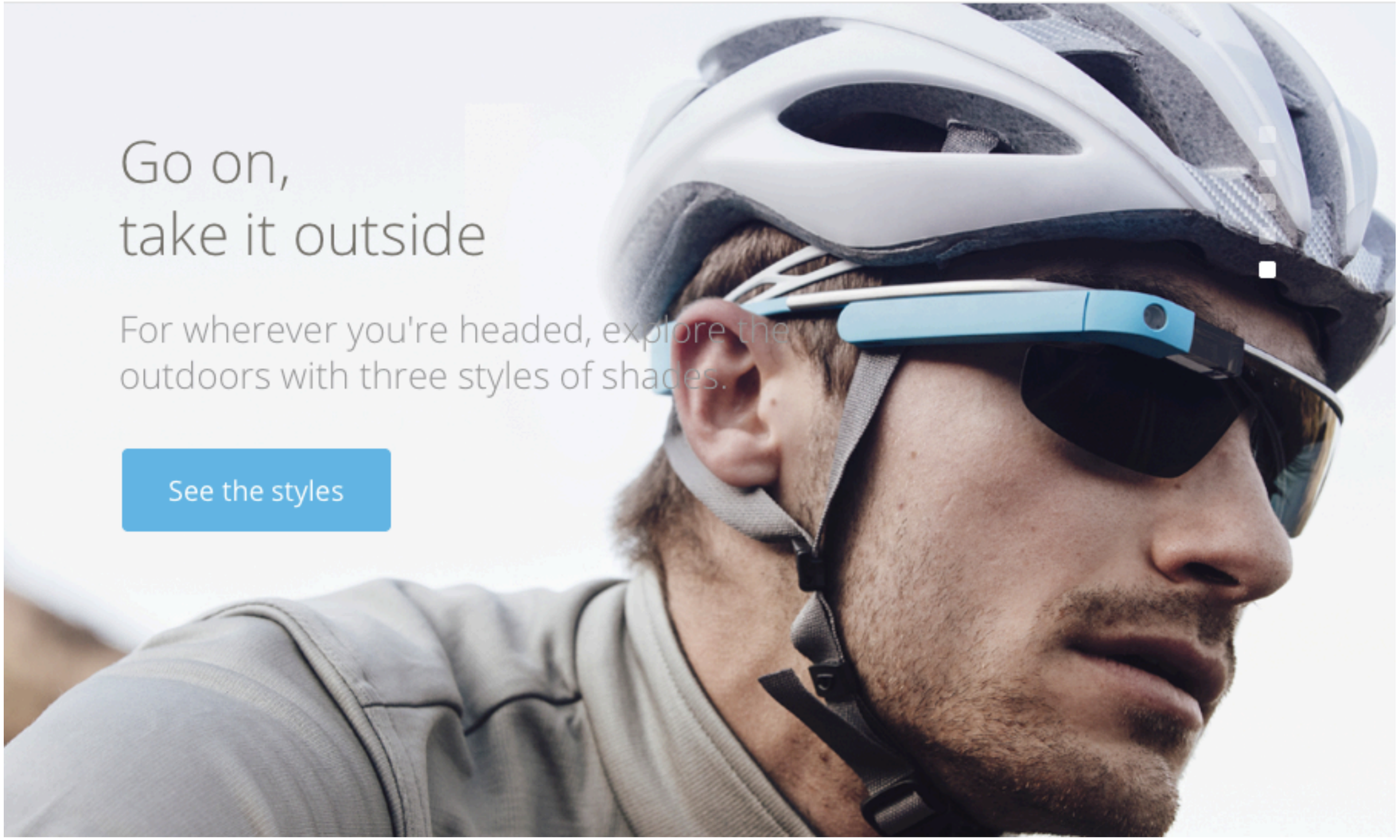
https://www.youtube.com/watch?v=FEVWVzqg_Yc

Pervasive Computing, its everywhere...

FAKULTÄT FÜR !NFORMATIK
Faculty of Informatics


amazon
Try Prime
Your Amazon.com
Today's Deals
Gift Cards
Sell
Help
Shop by Department
Search
Wearable Technology
Go
All Electronics
Best Sellers
Electronics Accessories
Audio & Home Theater
Camera & Photo
Car Electronics & GPS
Cell Phones & Accessories
Computers
MP3 Players
Musical Instruments
TV & Video
amazon WEARABLE TECHNOLOGY
SAMSUNG
NEW & FEATURED PRODUCTS >
fitbit
FEATURED BRAND >
EDITOR'S CORNER >
Narrative Clip
A new kind of photographic memory
›Learn more
COMING SOON >

Mainstream



Google Glass

FAKULTÄT FÜR !NFORMATIK
Faculty of Informatics

Ludic - For no reason at all...

FAKULTÄT FÜR !NFORMATIK
Faculty of Informatics

Concerns & Responses

Everything Everywhere

Work & Play

On-the go

Wearable

Emotions & Values

Goal

Not solving problems - creating opportunities

Engaging

Experiencing

Connecting

Disciplines

Art
Design
Architecture
Urban Planning
Product Design
Fashion
Neuroscience

Theories

Critical Theory
Feminism
Phenomenology
Actor-Network Theory

Methods

In-the-wild
Probes
Participatory Design
Design Research
Action Research

Resources

Harper, R. Rodden, T. Rogers, Y., Sellen, A. (2008). Being Human: Human-Computer Interaction in the Year 2020. Microsoft, Cambridge, UK. http://research.microsoft.com/hci2020

A. Sellen, Y. Rogers, R. Harper, T. Rodden. 2009. Reflecting human values in the digital age. Commun. ACM 52, 3 (March 2009), 58-66. http://doi.acm.org/10.1145/1467247.1467265

Questions

What sort of future?

Ethical and moral perspectives?

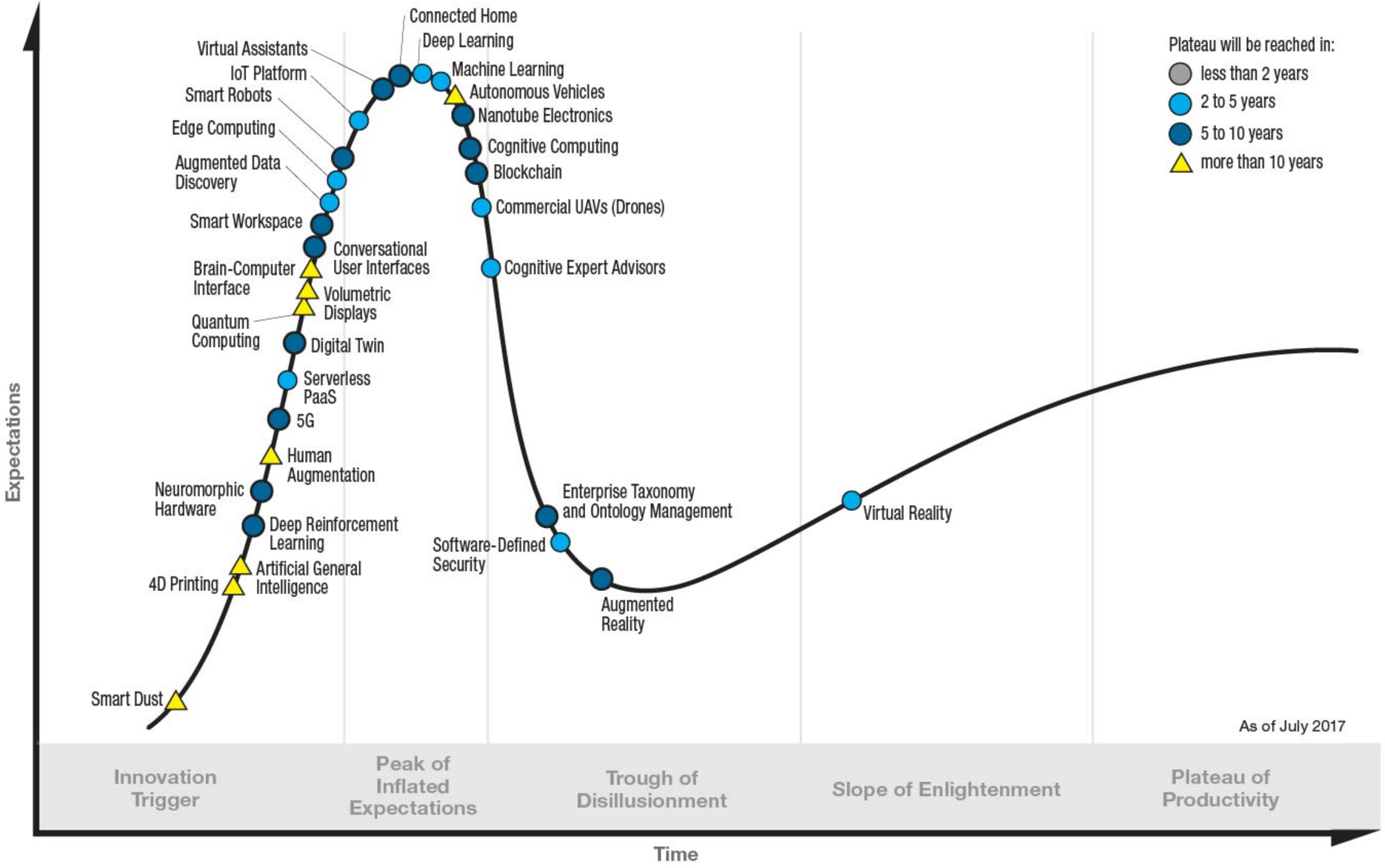
4th Wave of HCI

2017 ~

?

FAKULTÄT
FÜR !NFORMATIK

Faculty of Informatics



Gartner Hype Cycle 2017

FAKULTÄT FÜR !NFORMATIK
Faculty of Informatics

What do you think?

Recap

	Paradigm 1: Human Factors/ Engineering	Paradigm 2: Cognitive Revolution	Paradigm 3: Situated Perspectives
Metaphor of interaction	Interaction as man-machine coupling	Interaction as information communication	Interaction as phenomenologically situated
Central goal for interaction	Optimizing fit between man and machine	Optimizing accuracy and efficiency of information transfer	Support for situated action in the world
Typical questions of interest	How can we fix specific problems that arise in interaction?	What mismatches come up in communication between computers and people? How can we accurately model what people do? How can we improve the efficiency of computer use?	What existing situated activities in the world should we support? How do users appropriate technologies, and how can we support those appropriations? How can we support interaction without constraining it too strongly by what a computer can do or understand? What are the politics and values at the site of interaction, and how can we support those in design?

Comparison - The Three Paradigms [Harrison et al, 2007]

Reflection on today

- Where is the technology?
- Who are the users? What is their role?
- Where is the interface?
- What constitutes interaction?
- What are the particular challenges?
- What could be the responses?

DISCUSS in CLASS