Histórico de IHC

Interação Humano-Computador

PUC Minas

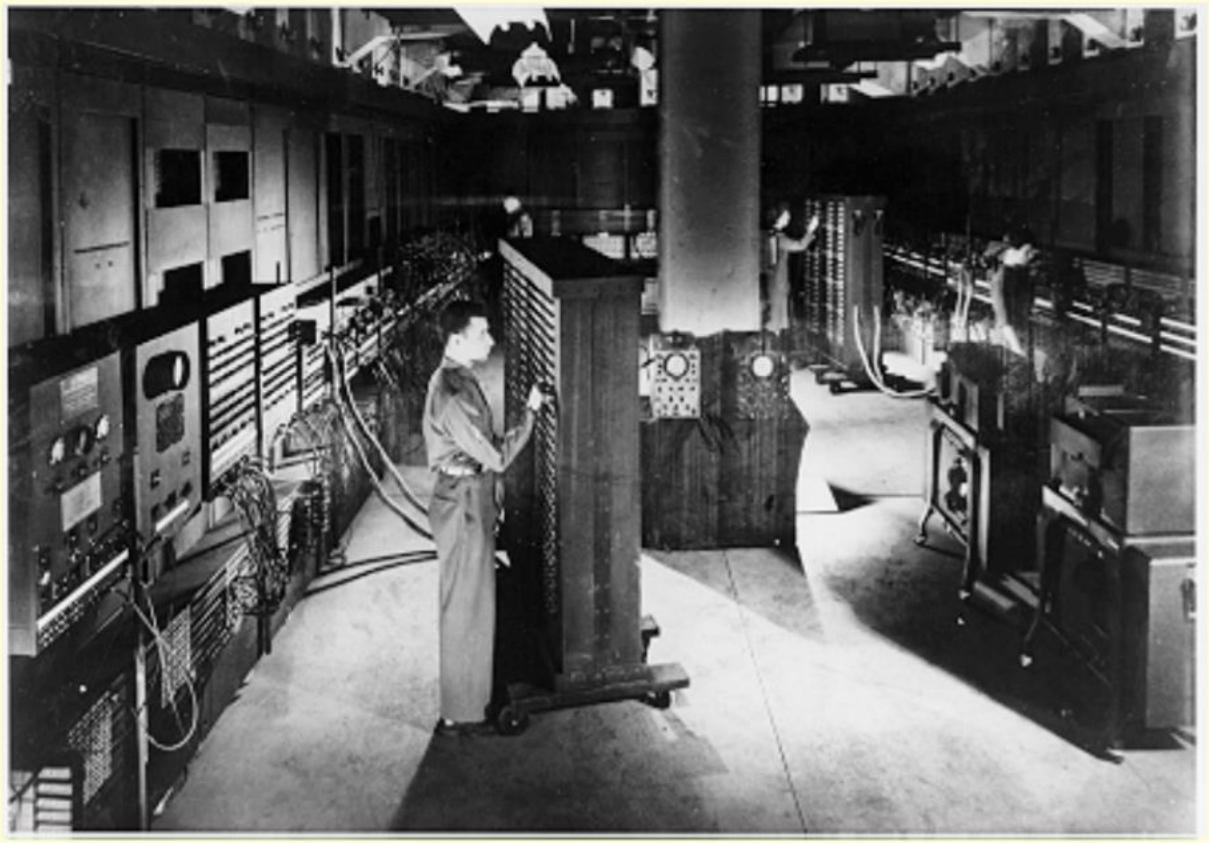
Profa. Lucila Ishitani

QWERTY (1873)

Fonte:
http://www.maquinasantigasdeescrever.com.br/historia.html

ENIAC (1946)

- A general view of the ENIAC, the world's first all electronic numerical integrator and computer.



From IBM Archives.

Saul Greenberg

Fonte: https://pages.cpsc.ucalgary.ca/~saul/hci_topics/pdf_files/history.pdf

Sketchpad

Ivan Sutherland (1962)

https://images.slideplayer.com/25/7903939/slides/slide_5.jpg

Sketchpad: "Direct Manipulation"

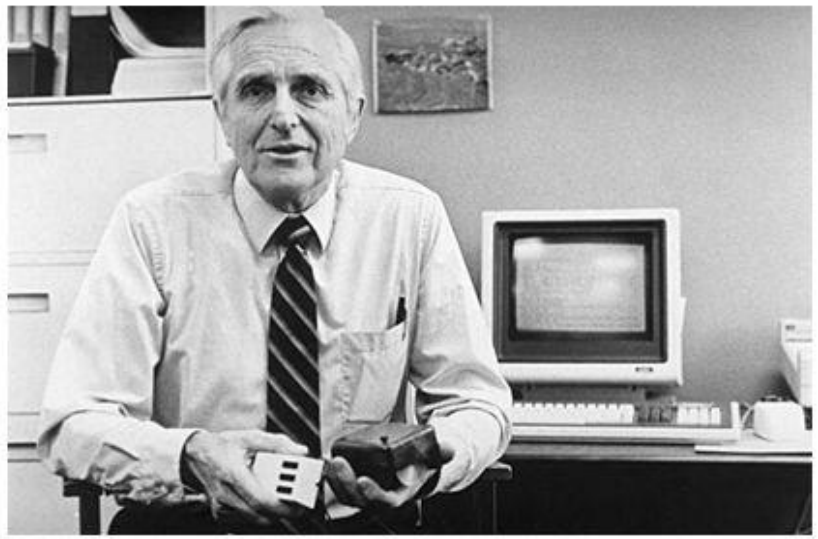
- Direct manipulation features:
  - Visibility of objects
  - Incremental action and rapid feedback
  - Reversibility
  - Exploration
  - Syntactic correctness of all actions
  - Replacing language with action
- Term coined by Ben Shneiderman[1]

[1] Shneiderman, B., Direct manipulation: A step beyond programming languages, in *IEEE Computer*, 1983, August, 57-69.

https://images.slideplayer.com/25/7903939/slides/slide_7.jpg

Invention of the Mouse

Doug Engelbart (1963)

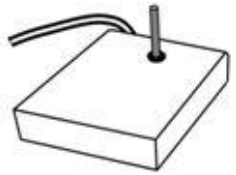


https://images.slideplayer.com/25/7903939/slides/slide_8.jpg

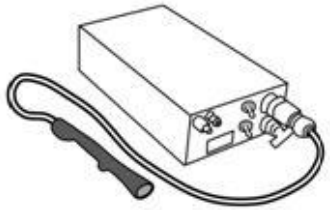
HCI's First User Study[1]

A comparative evaluation of…

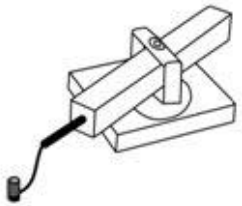
Mouse



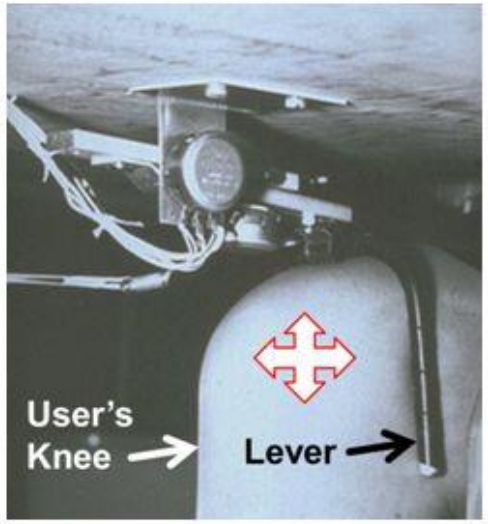
Joystick



Lightpen



Grafacon

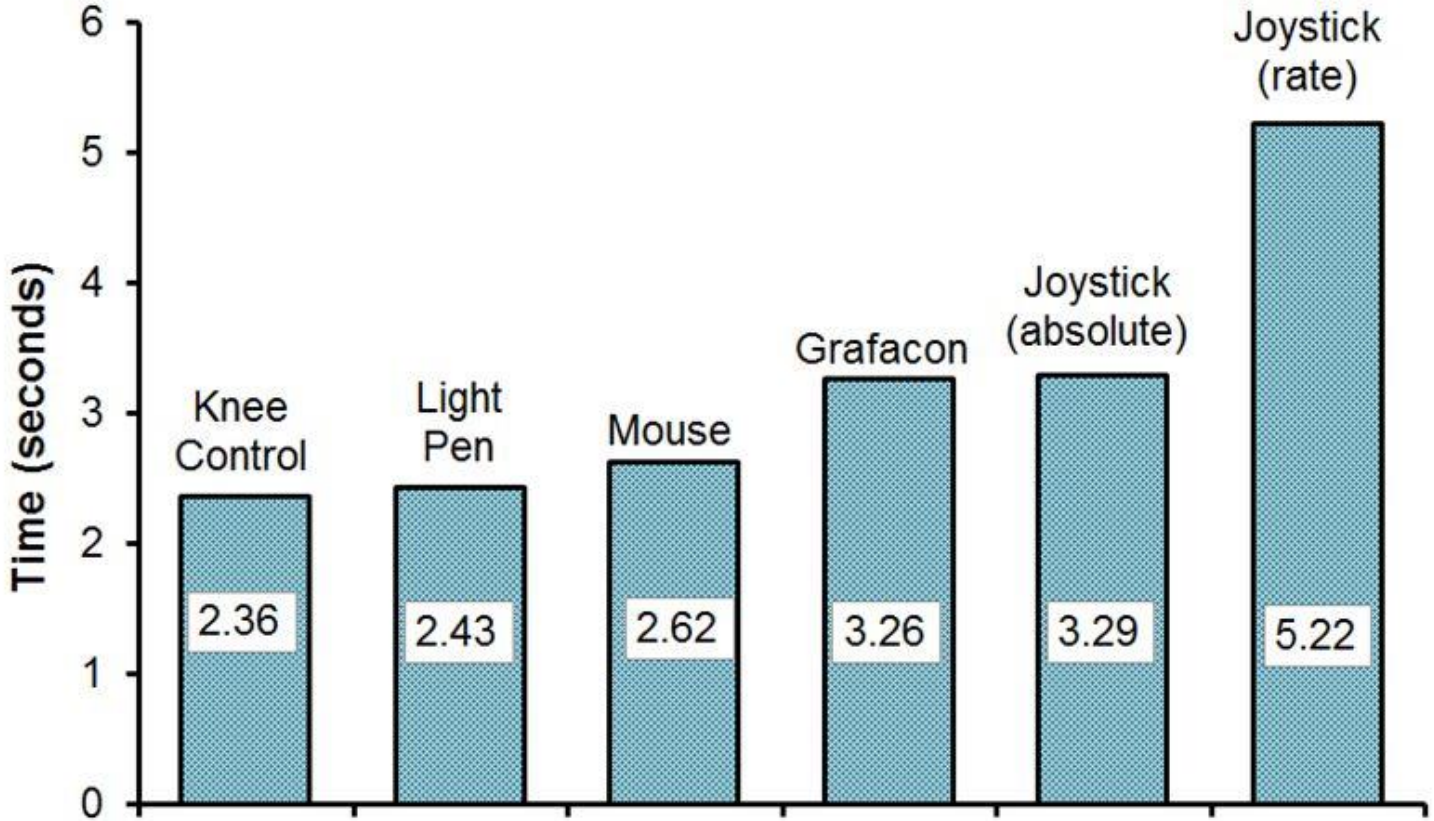


Knee-controlled lever

[1] English, W. K., Engelbart, D. C., & Berman, M. L. (1967). Display selection techniques for text manipulation. *IEEE Transactions on Human Factors in Electronics*, *HFE-8*(1), 5-15.

https://images.slideplayer.com/25/7903939/slides/slide_10.jpg

Results (1)



Notes:

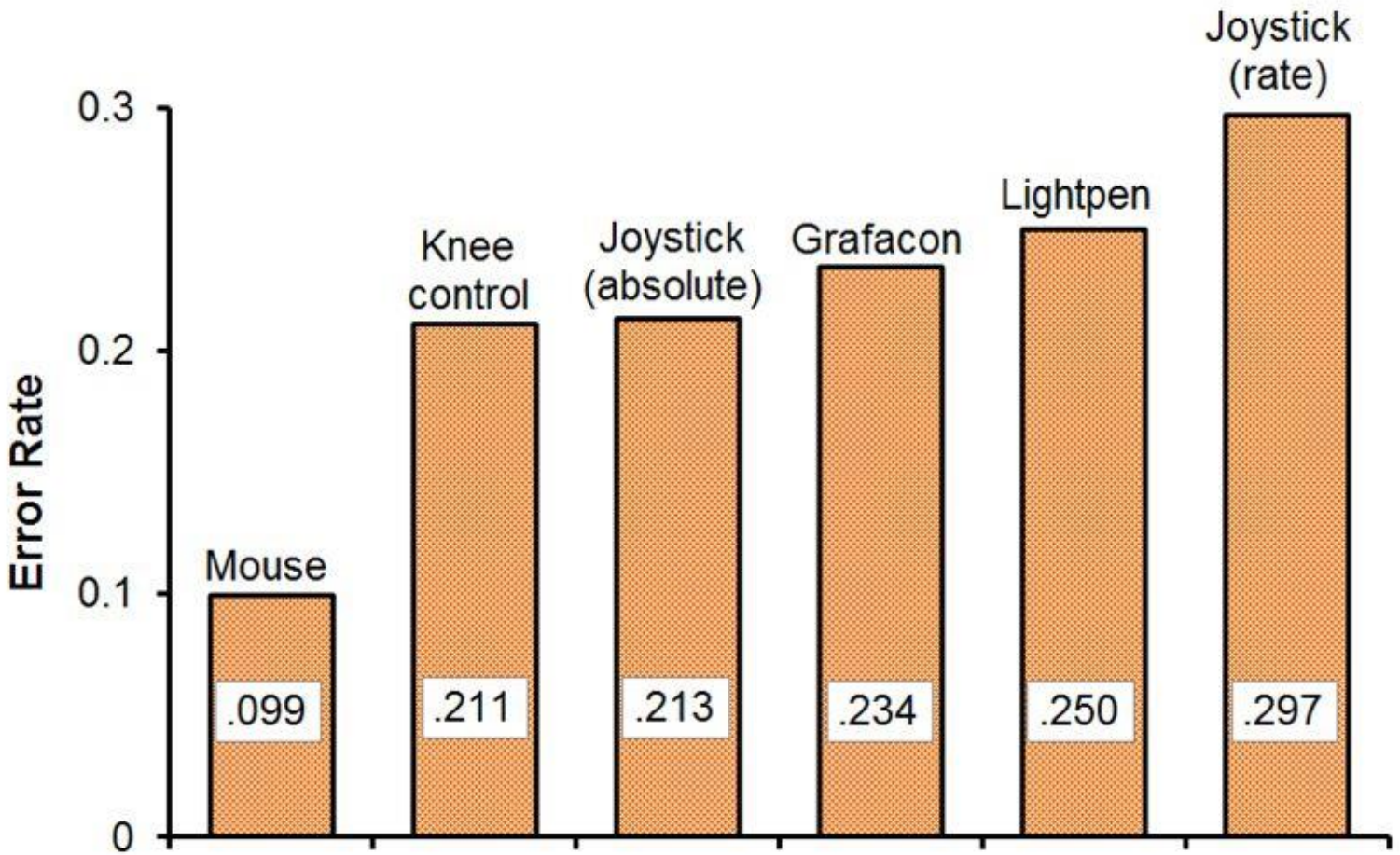
[1] Access time with the knee-controlled lever was zero (since the device is always "acquired").

[2] Light pen use is fatiguing, since the user's arm is held in the air in front of the display.

12

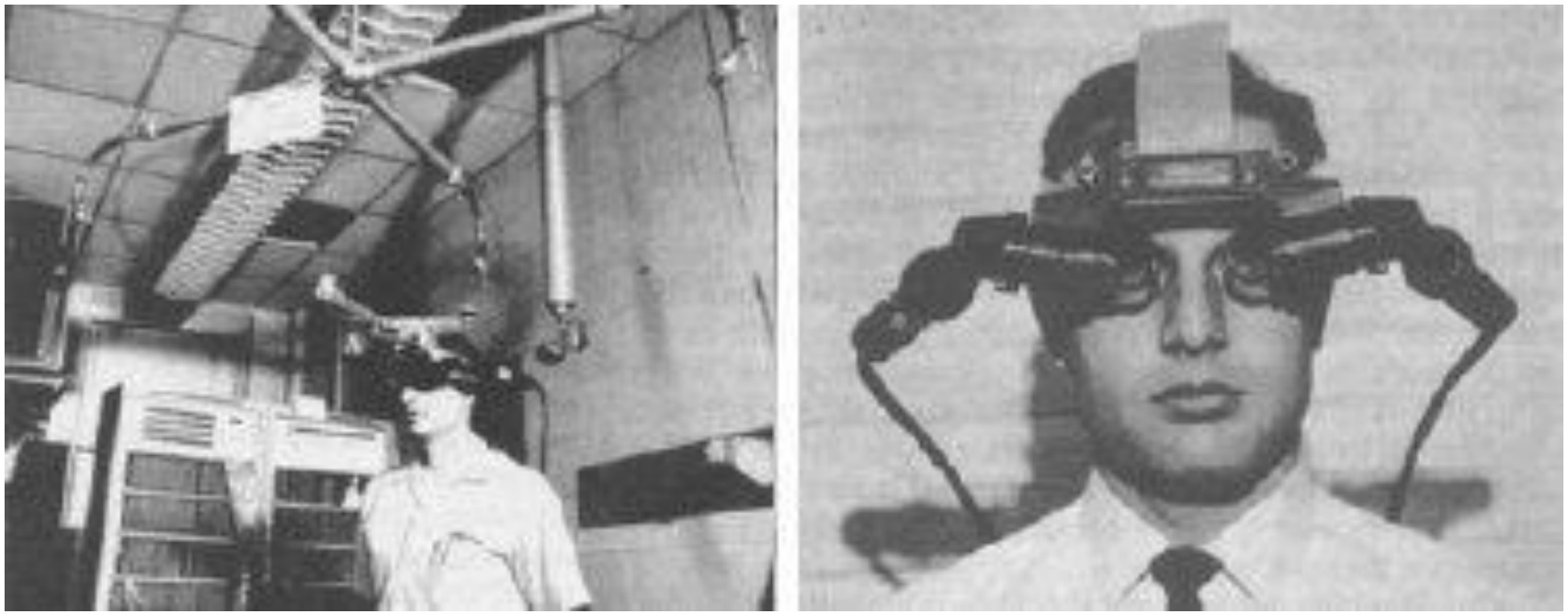
https://images.slideplayer.com/25/7903939/slides/slide_12.jpg

Results (2)



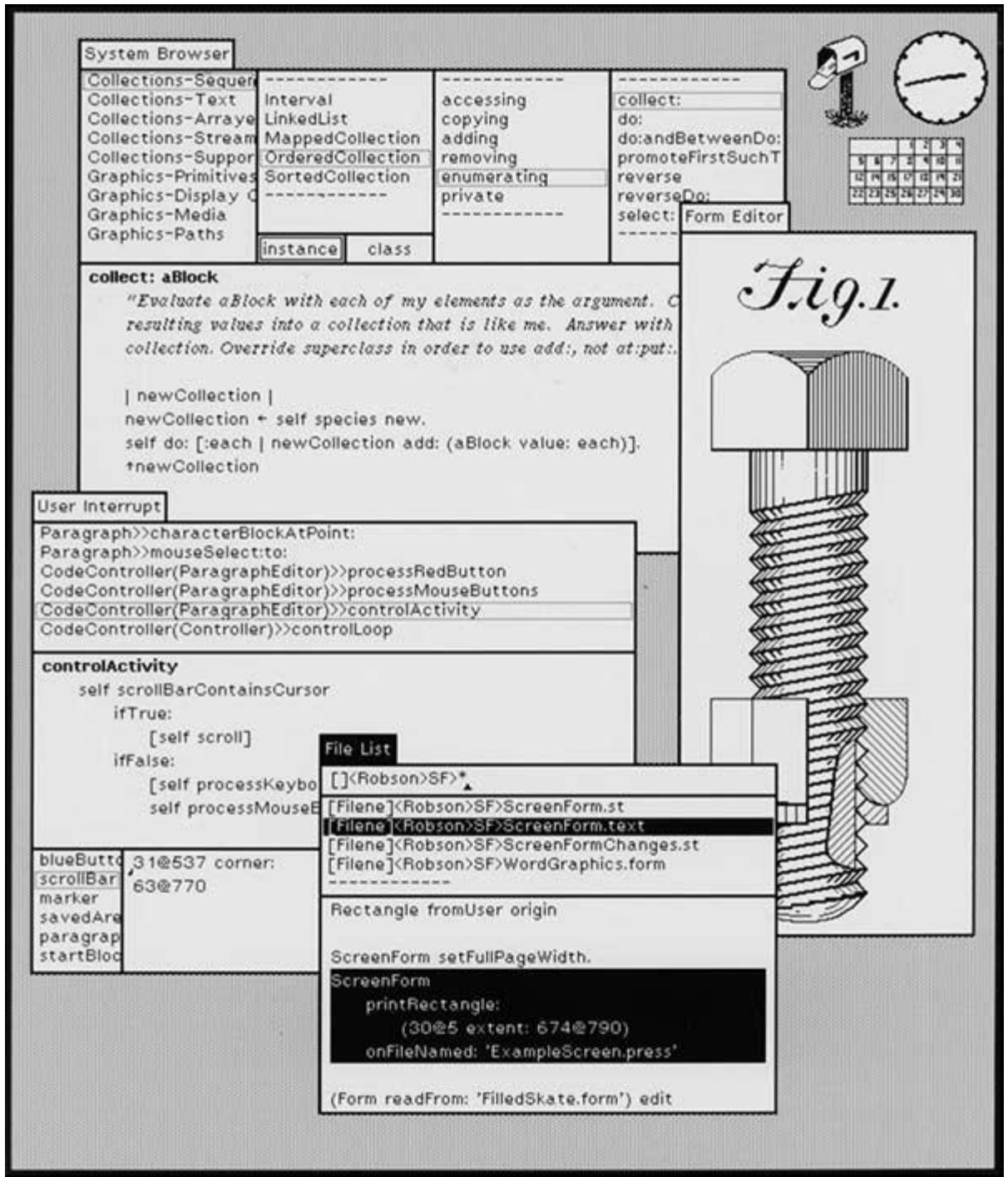
https://images.slideplayer.com/25/7903939/slides/slide_13.jpg

Realidade virtual (1968)



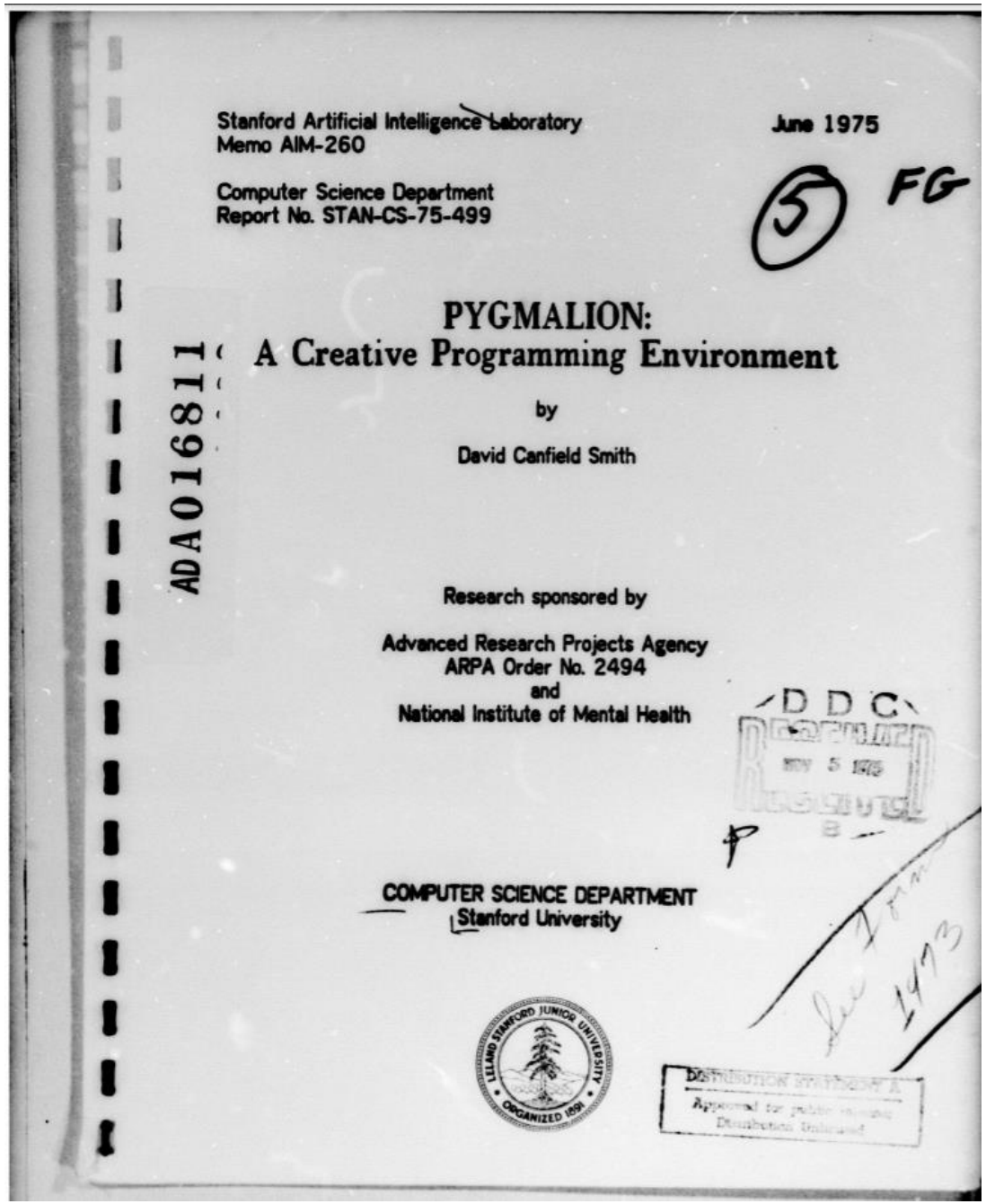
The world's first head-mounted display

Fonte:
https://www.researchgate.net/publication/292150312_Augmented_Reality_Technologies_Applications_and_Limitations/figures?lo=1



Smalltalk (1974)

Fonte: https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/human-computer-interaction-brief-intro#:~:text=Human%2Dcomputer%20interaction%20(HCI),science%20and%20human%20factors%20engineering.



Stanford Artificial Intelligence Laboratory
Memo AIM-260

June 1975

Computer Science Department
Report No. STAN-CS-75-499

5 FG

ADA016811

PYGMALION:
A Creative Programming Environment

by

David Canfield Smith

Research sponsored by

Advanced Research Projects Agency
ARPA Order No. 2494
and
National Institute of Mental Health

DDC

COMPUTER SCIENCE DEPARTMENT
Stanford University

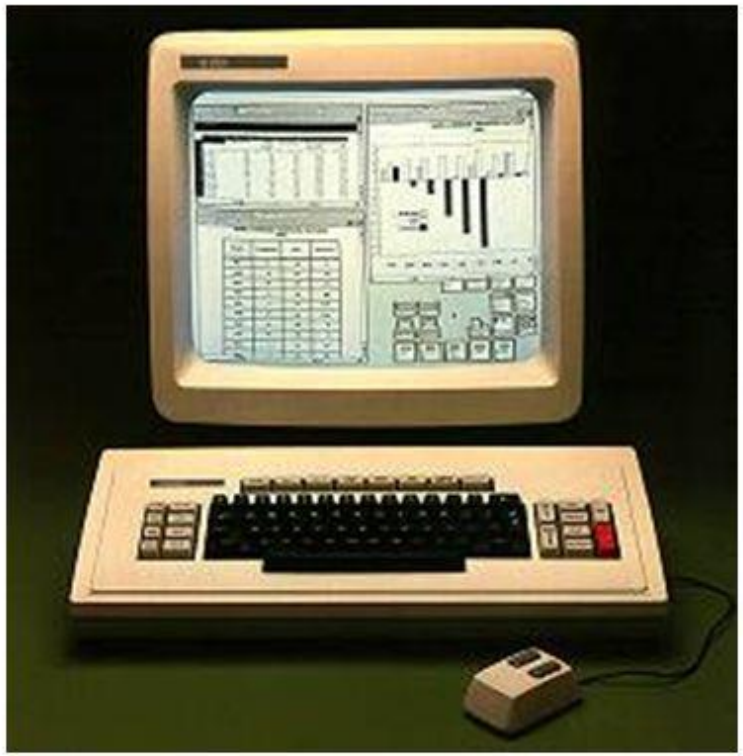
LELAND STANFORD JUNIOR UNIVERSITY ORGANIZED 1891

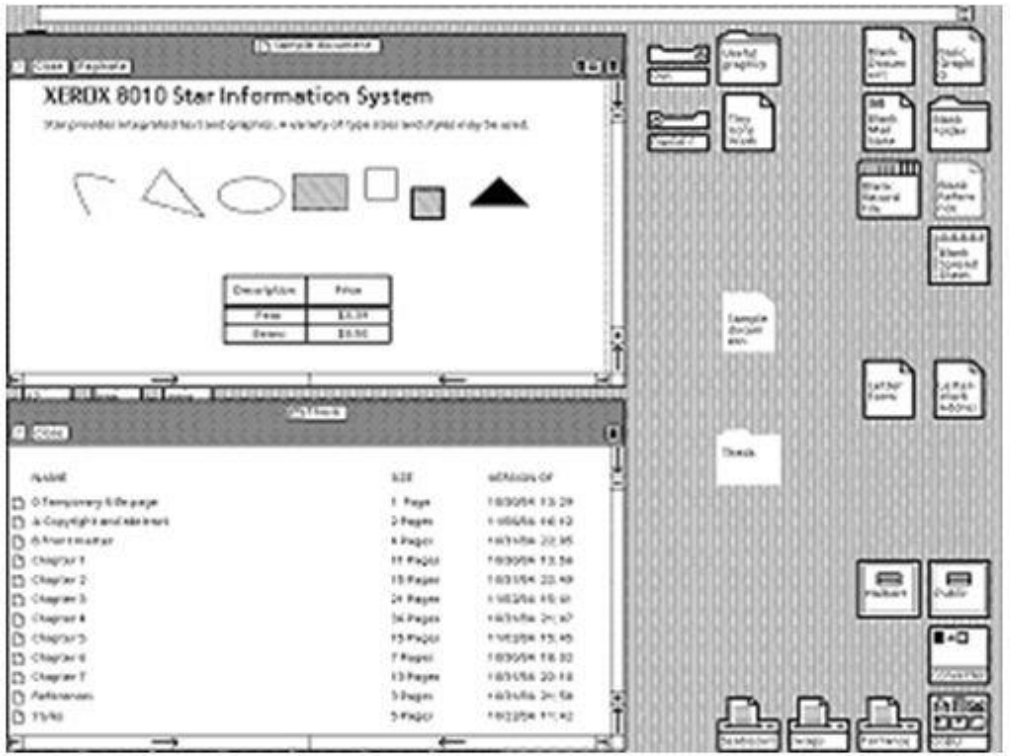
DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

Criação de ícones (1975)

Fonte: http://worrydream.com/refs/Smith%20-%20Pygmalion.pdf

Xerox *Star* (1981)





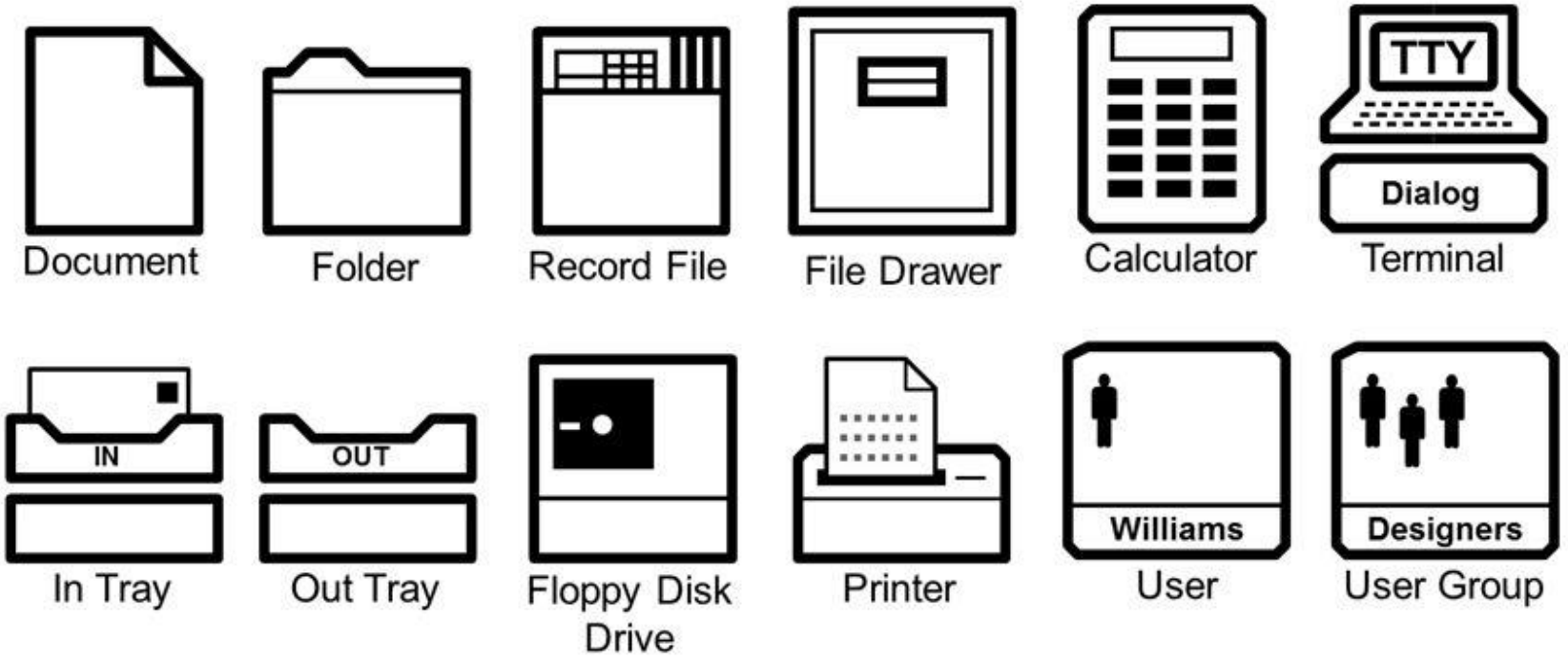
First commercial personal computer designed for “business professionals”

WYSIWYG

(Commercial failure – cost: $15,000)

https://images.slideplayer.com/25/7903939/slides/slide_14.jpg

Star GUI Icons



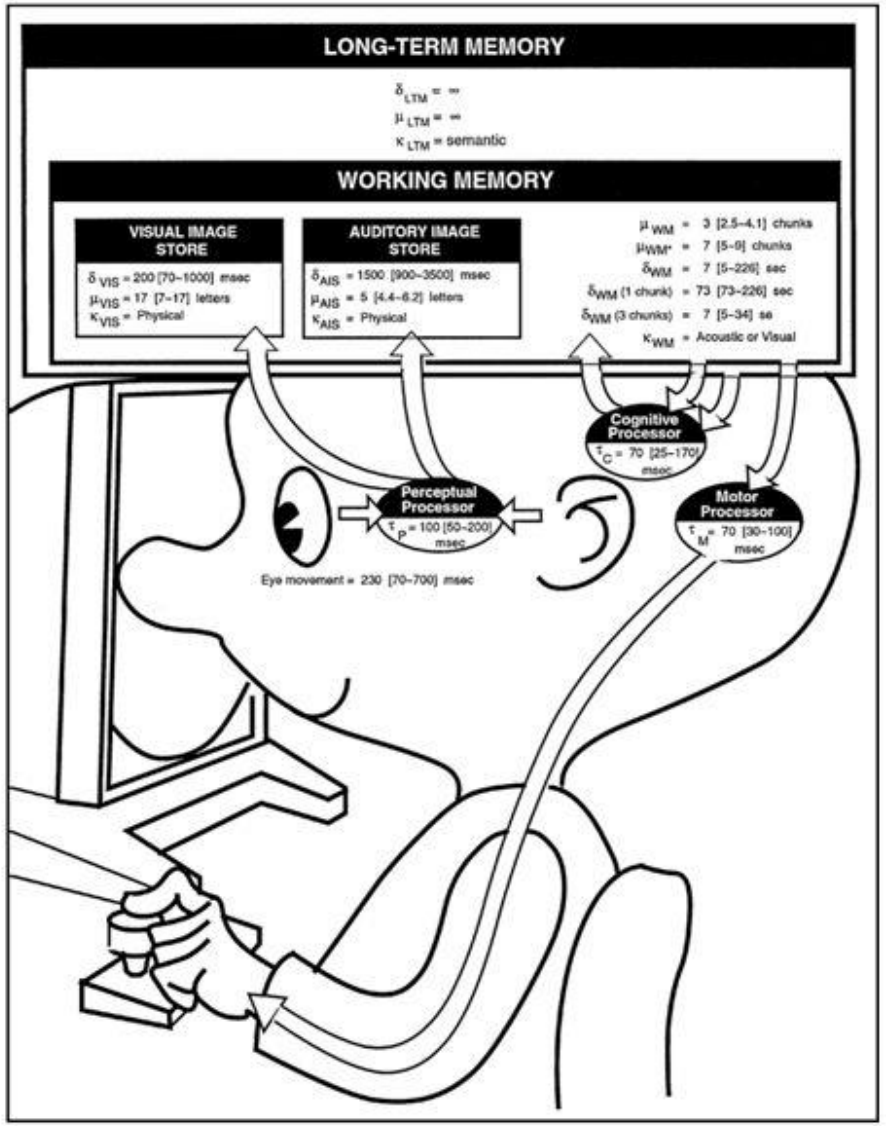
https://images.slideplayer.com/25/7903939/slides/slide_15.jpg

Birth of HCI - 1983

- Notable events:
  1. First ACM SIGCHI conference (1983)
  2. Publication of *The Psychology of Human-Computer Interaction* by Card, Moran, and Newell (1983)
  3. Apple *Macintosh* announced via brochures (December, 1983) and launched (January, 1984)

https://images.slideplayer.com/25/7903939/slides/slide_16.jpg

The Model Human Processor



https://images.slideplayer.com/25/7903939/slides/slide_21.jpg

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.

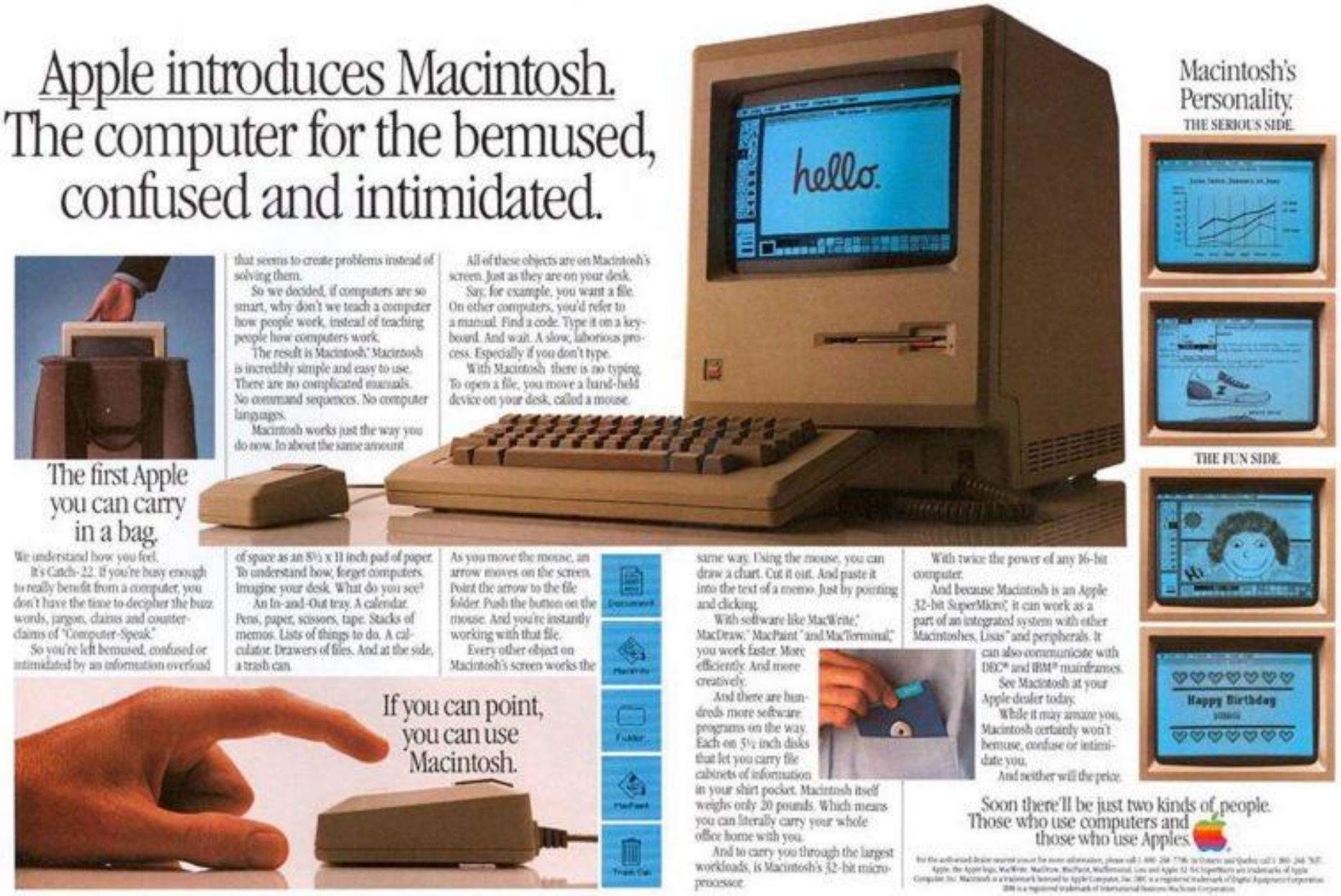
USING THE → KEY, MOVE THE CURSOR THROUGH THE MATERIAL TO BE DELETED, THE WORD regular.

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.

Evolução na documentação

Fonte: https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-computer-interaction-2nd-ed/human-computer-interaction-brief-intro#:~:text=Human%2Dcomputer%20interaction%20(HCI),science%20and%20human%20factors%20engineering.



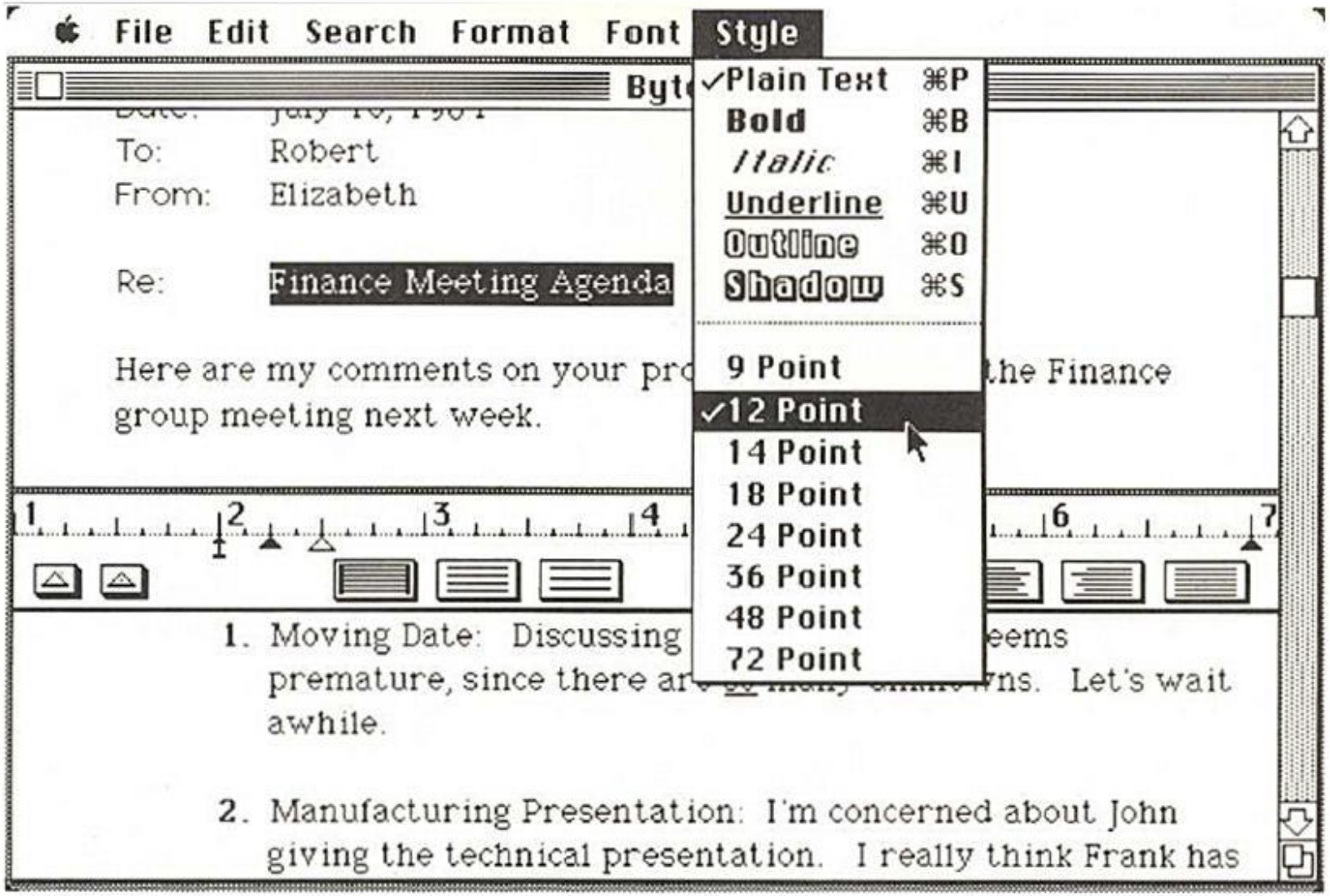
Fonte: https://pbs.twimg.com/media/Dxru9p0WoAAkofT.jpg

Apple *Macintosh* (1984)

"Old ideas" but well done!
Aggressive pricing: $2500

https://images.slideplayer.com/25/7903939/slides/slide_22.jpg

MacWrite Software



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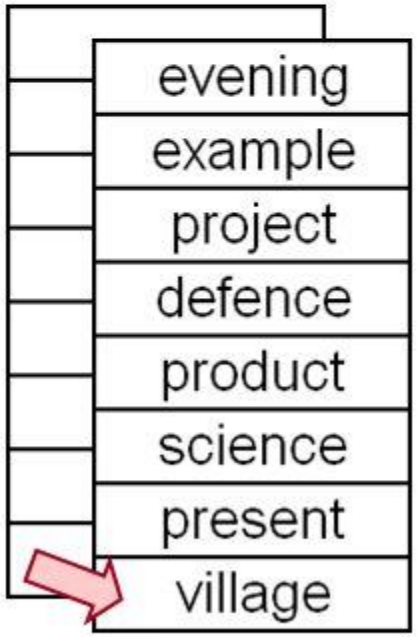
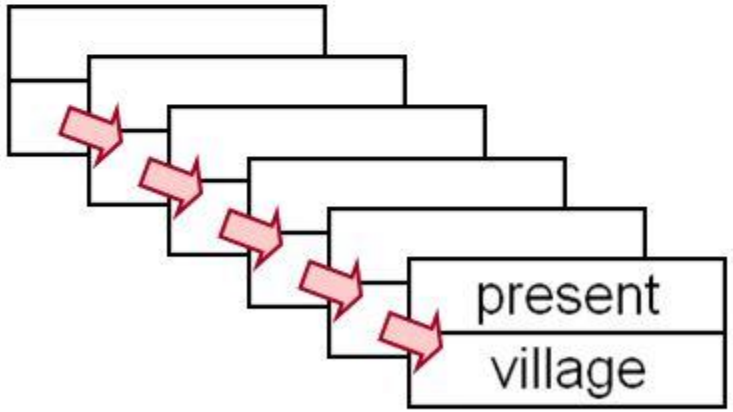
Growth of HCI (1983-…)

- Example of an early research topic
  - Breadth vs. depth in menu design

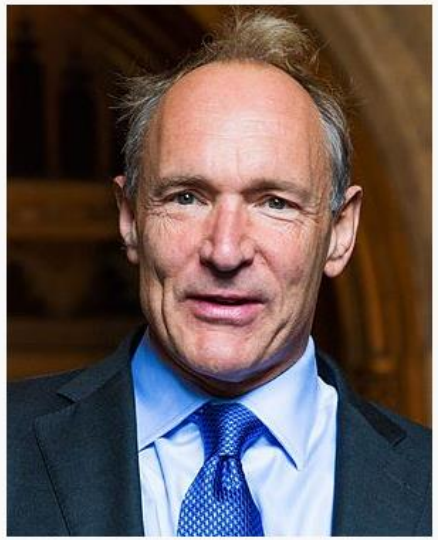




https://images.slideplayer.com/25/7903939/slides/slide_26.jpg

Data oficial: 6 de agosto de 1991

Tim Berners-Lee



Tim Berners-Lee em 2014

Conhecido(a) por	invenção da World Wide Web
Nascimento	8 de junho de 1955 (66 anos) Londres, Inglaterra
Residência	Boston
Nacionalidade	britânico
Prêmios	Prêmio W. Wallace McDowell (1996), Medalha Mountbatten (1996), EFF Pioneer Award (2000), Medalha Real (2000), Medalha Sir Frank Whittle (2001), Prêmio Japão (2002), Prêmio de Tecnologia do Milênio (2004), Prêmio Charles Stark Draper (2007), Prêmio Maxwell IEEE (2008), Internet Hall of Fame (2012), Prêmio de Engenharia Rainha Elizabeth (2013), Prêmio Turing (2016)

Não seguro | info.cern.ch/hypertext/WWW/TheProject.html

World Wide Web

The WorldWideWeb (W3) is a wide-area hypermedia information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an executive summary of the project, Mailing lists , Policy , November's W3 news , Frequently Asked Questions .

What's out there?
Pointers to the world's online information, subjects , W3 servers, etc.

Help
on the browser you are using

Software Products
A list of W3 project components and their current state. (e.g. Line Mode ,X11 Viola , NeXTStep , Servers , Tools , Mail robot , Library)

Technical
Details of protocols, formats, program internals etc

Bibliography
Paper documentation on W3 and references.

People
A list of some people involved in the project.

History
A summary of the history of the project.

How can I help ?
If you would like to support the web..

Getting code
Getting the code by anonymous FTP , etc.

Fonte: https://pt.wikipedia.org/wiki/Tim_Berners-Lee

General-Purpose Wearable Computing in everyday life:

World's first wristwatch videophone

Steve Mann, 1998, June 1999, July 2000

Canadian Intellectual Property Office — An Agency of Industry Canada
Office de la propriété intellectuelle du Canada — Un organisme d'Industrie Canada
Canada

Canadian Patents Database

Patent Summary

(12) Patent:	(11) CA 2275784
(54) English Title:	WRISTWATCH-BASED VIDEOCONFERENCING SYSTEM
(54) French Title:	SYSTEME DE VIDEOCONFERENCE SUR MONTRE-BRACELET

Patent Details

(72) Inventors (Country):	MANN, STEVE (Canada)
(45) Issued:	2000-10-24
(22) Filed Date:	1999-06-29
(41) Open to Public Inspection:	1999-12-29
Examination requested:	1999-06-29
(30) Availability of licence:	Yes

(30) Application Priority Data:

Application No.	Country	Date
2,237,939	Canada	1998-06-29
2,247,649	Canada	1998-10-13
2,248,473	Canada	1998-10-29

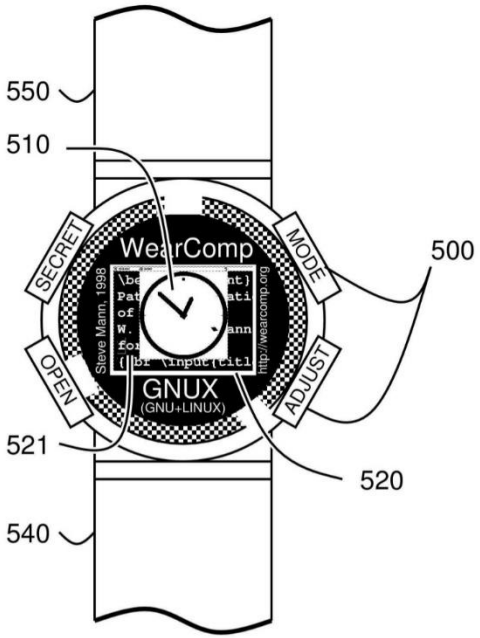


FIG. 5a: WRISTWATCH VIDEOPHONE CLOCKFACE

ISSCC: 'Dick Tracy' watch watchers disagree

By Peter Clarke
EE Times
(02/08/00, 9:12 p.m. EST)

SAN FRANCISCO -- Panelists at a Monday evening (Feb. 7) panel session at the International Solid State Circuits Conference (ISSCC) here failed to agree on when the public will be able to buy a "Dick Tracy" style watch for Christmas, with estimates ranging from almost immediately to not within the next decade.

Steve Mann, a professor at the University of Toronto, was hailed as the father of the wearable computer and the ISSCC's first virtual panelist, by moderator Woodward Yang of Harvard University (Cambridge Mass.).
...

A GNU/Linux Wristwatch Videophone

Jul 01, 2000 By Steve Mann
in Audio/Video

This fully fuctioning prototype, designed and built by Steve Mann in 1998, was demonstrated in 1999, and later used to deliver a videoconference at ISSCC 2000. ...
...
http://www.linuxjournal.com/issue/75

Cite/Reference the above patent and LJ 2000 article:
Title "A GNU/Linux Wristwatch Videophone", by Steve Mann, Linux Journal, Issue 75, July, 2000, Pp 86-91+Cover.

Fonte:
http://wearcam.org/smartwatch/

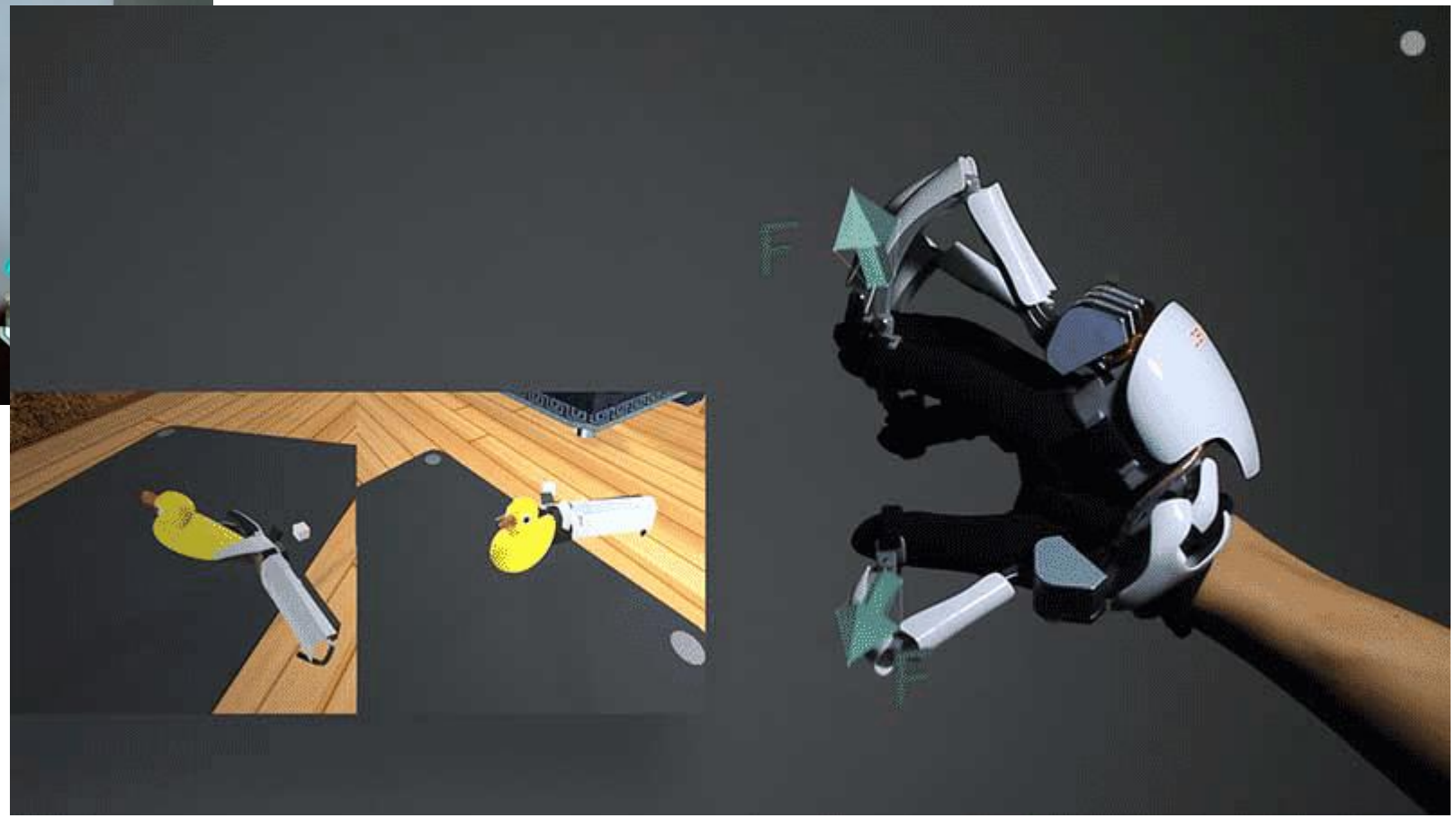
Nintendo Wi (2006)

Fonte: https://www.nintendoblast.com.br/2018/04/nintendo-wii-console-revolucionario.html

Xbox Kinect (2010)

Fonte: https://tecnoblog.net/197175/microsoft-xbox-kinect-morto/

Dexmo exoskeleton (2016)

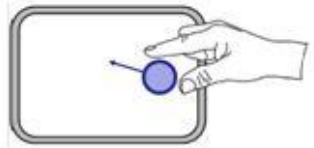
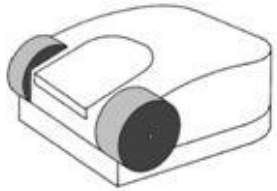
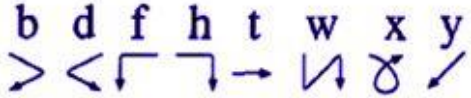


Fonte: https://www.engadget.com/2016-08-24-dexmo-exoskeleton-glove-force-feedback.html

HCI Research

- Research precedes products
- Consider…
  - Two-finger gestures (Apple *iPhone*, 2007)
  - Acceleration-sensing (Nintendo *Wiimote*, 2005)
  - Wheel mouse (Microsoft *Intellimouse*, 1996)
  - Single-stroke text input (Palm's *Graffiti*, 1995)
- Were these ideas born out of engineering or design brilliance? Not really…

https://images.slideplayer.com/25/7903939/slides/slide_27.jpg

- Two-finger gestures: ~~2007?~~  1978 [1]
- Acceleration-sensing: ~~2005?~~ 1998 [2]
- Wheel mouse: ~~1996?~~  1993 [3]
- Single-stroke text input: ~~1995?~~  1993 [4]

[1] Herot, C. F., & Weinzapfel, G. (1978). One-point touch input of vector information for computer displays. *Proc SIGGRAPH '78*, 210-216, New York: ACM.
[2] Harrison, B., Fishkin, K. P., Gujar, A., Mochon, C., & Want, R. (1998). Squeeze me, hold me, tilt me! An exploration of manipulative user interfaces. *Proc CHI '98*, 17-24, New York: ACM.
[3] Venolia, D. (1993). Facile 3D manipulation. *Proc CHI '93*, 31-36, New York: ACM.
[4] Goldberg, D., & Richardson, C. (1993). Touch-typing with a stylus. *Proc CHI '93*, 80-87, New York: ACM.

https://images.slideplayer.com/25/7903939/slides/slide_28.jpg

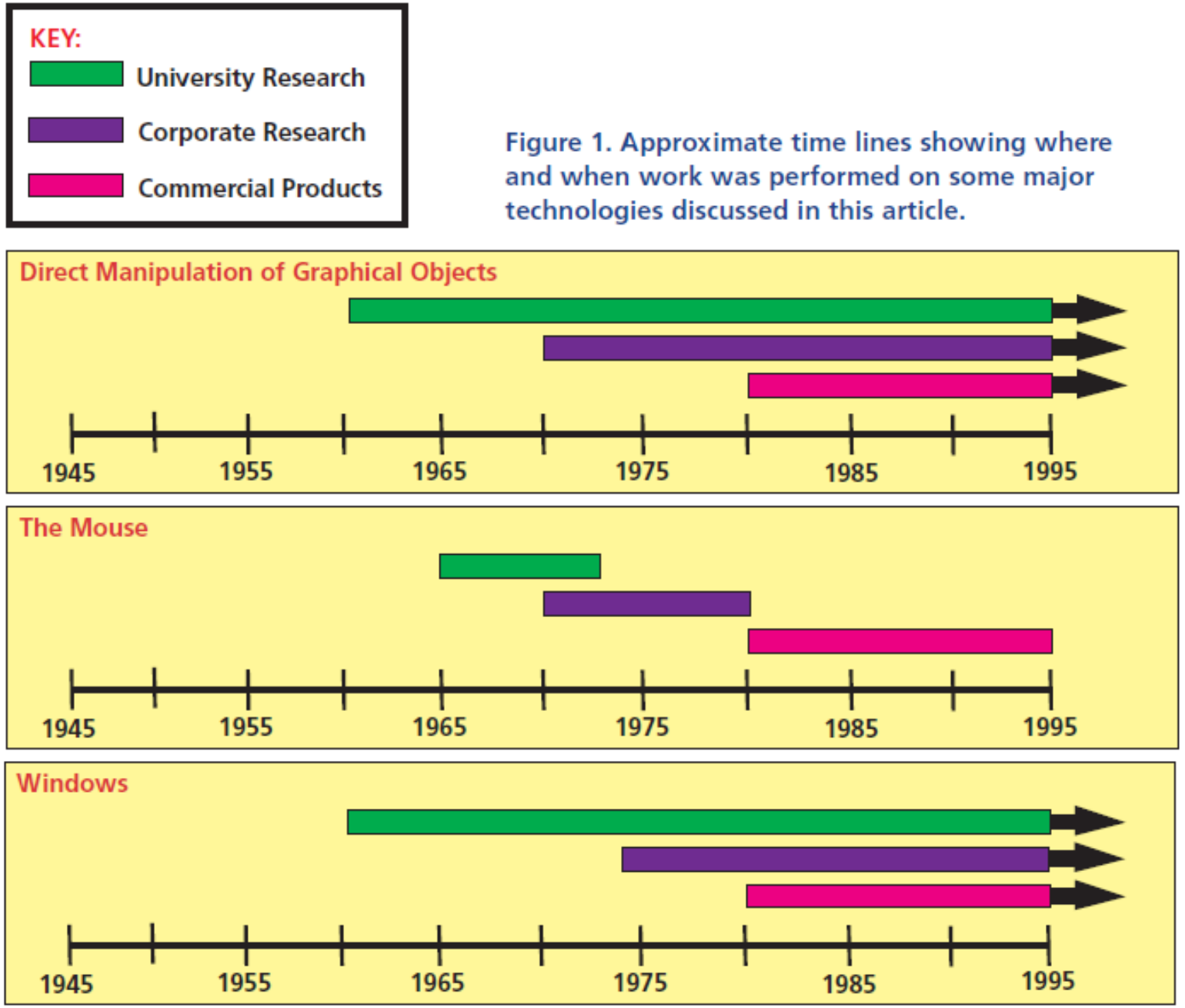


Figure 1. Approximate time lines showing where and when work was performed on some major technologies discussed in this article.

(MYERS, 1998)

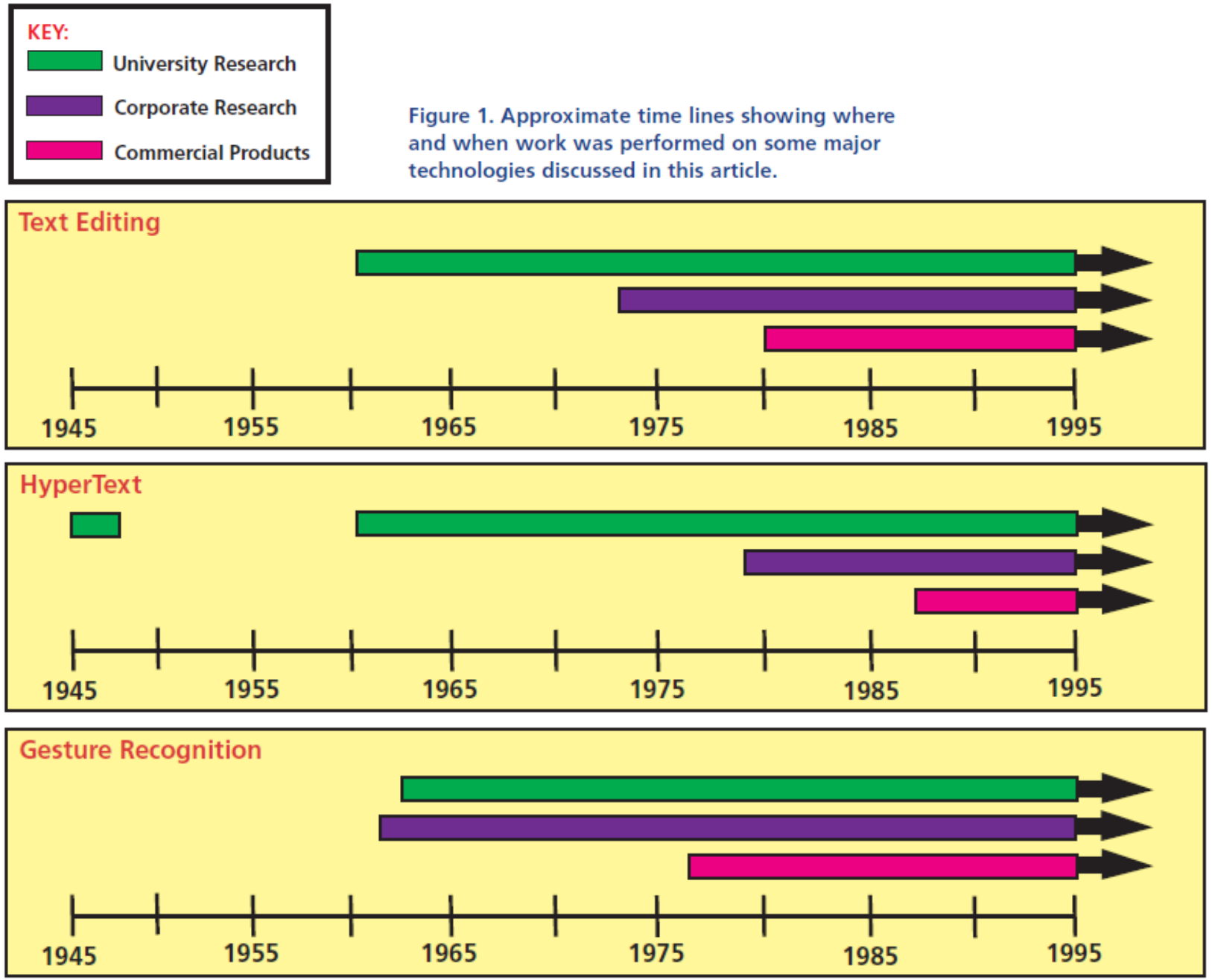


Figure 1. Approximate time lines showing where and when work was performed on some major technologies discussed in this article.

(MYERS, 1998)

E o que vem depois?

Fonte: https://medium.com/bcg-digital-ventures/deep-design-the-next-paradigm-of-human-computer-interaction-8bbe9a4c17e2

E o que vem depois?

- *Affective computing* e *Emotion sensing*: por exemplo, percepção de expressões faciais
- Linguagem natural
- Questões ecológicas
- Quais novas experiências de imersão e colaboração existirão?

Referências

- BARBOSA, Simone D. *et al*. **Interação humano-computador e experiência do usuário**. Autopublicação. 2021. [livro eletrônico]
- MYERS, Brad A. A brief history of human-computer interaction technology. **interactions**, v. 5, n. 2, p. 44-54, 1998. Disponível em: https://dl.acm.org/doi/pdf/10.1145/274430.274436. Acesso em 12 jul. 2021.