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Human Computer Interface

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Introduction to Human Computer Interface and Interaction



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HCI

Human Computer Interaction VS Human Computer Interface

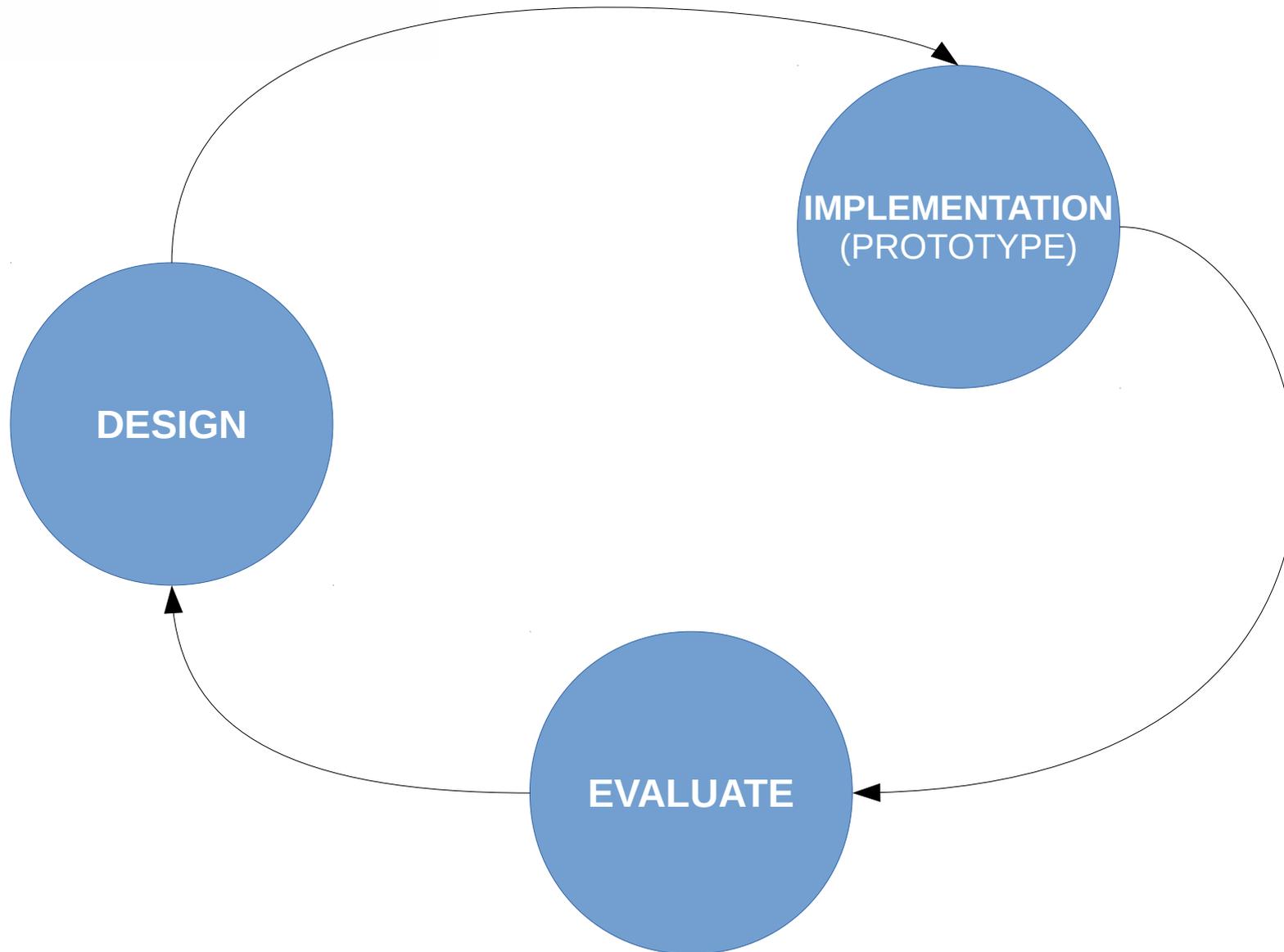


HCI vs HCI





What is HCI





1. HCI design is “Shaping everyday life through digital artifacts”
2. Perfect HCI is using an interface intuitively
3. The study of interaction between people and computer-based systems
4. Getting knowledge of the physical, psychological and theoretical aspects of interaction process



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History overview



History of HCI

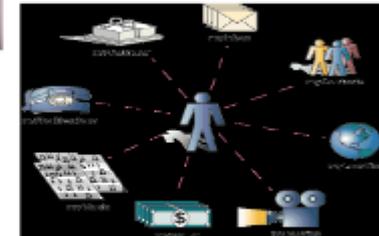
batch computing



handheld
computing



UbiComp / pervasive
computing



time-sharing



personal
computing



1940s

50s

60s

70s

80s

90s

2000s



The origins of HCI:
beginning of WW II

Why?

New machines = new interface (Interface for aircrafts)





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“As we may think”



Vanaver Bush (1890 – 1974)

American engineer, designer, MIT Associate prof.

Identified the information storage and retrieval problem: “new knowledge does not reach the people who could benefit from it “

(<http://www.theatlantic.com/magazine/archive/1945/07/as-we-may-think/303881/>)



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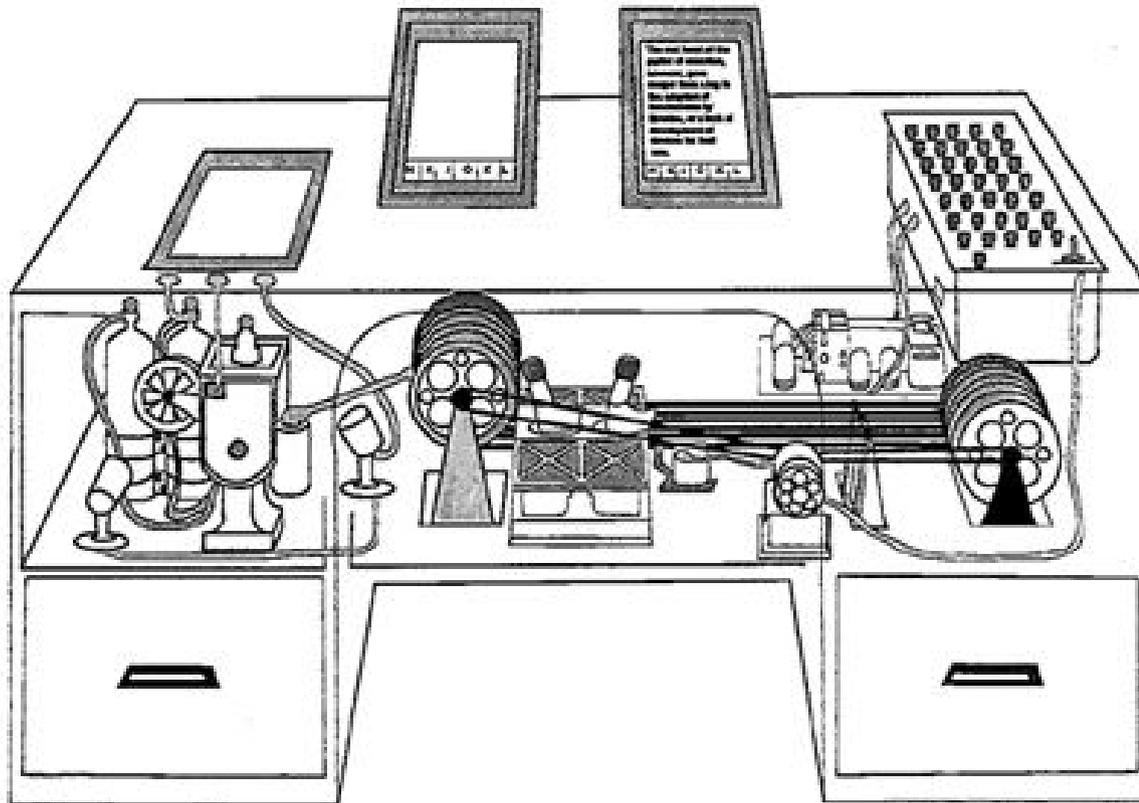
Vanaver Bush - Memex

device in which individuals would
compress and **store** all of their
books, **records,** and
communications



Memex - 1945

two projected screens



interfaces include keyboard, pen, speech, and even direct transmission between machine and human brain

gigabytes of storage (based on microfilm)

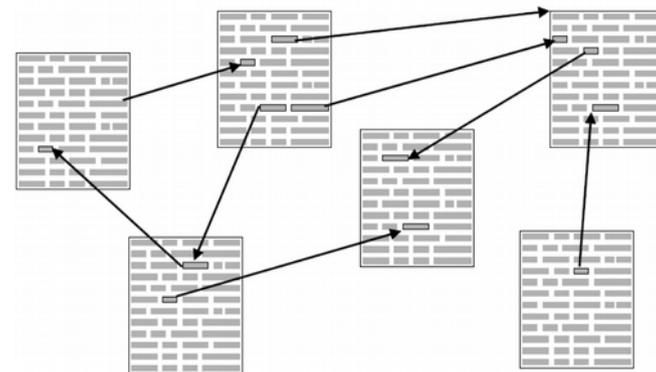


Hypertext by V. Bush

“Hypertext (as we know it)- references (hyperlinks) to other text which the reader can immediately access”

items retrieved through indexing, keywords, cross references can construct and save a trail (chain of links) through the material

acts as an external memory





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“Man computer symbiosis” (1960)

Joseph Carl Robnett Licklider (1915 – 1990)

American psychologist, computer scientist
first to foresee modern-style interactive
computing

Internet pioneer with an early vision of a
worldwide computer network

early pioneer of cybernetics and artificial
intelligence





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AKAT-1 - 1959

Jacek Karpinski (1927-2010) Polish engineer, electronic engineer and computer scientist

In 1959 he constructed the AKAT-1

Awarded the scholarship at Harvard and MIT in 1961-1962





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LINC - 1962



Wesley Allison Clark (1927 – 2016)

American physicist and computer designer

Creator of LINC computer (along with Charles Molnar)



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LINC - (not) The first PC?



Display & keyboard
“small”

Designed for
biomedical
specialists

*source: <http://www.digibarn.com/stories/linc/Charlie-Molnar-Wes-Clark-LINC-Dedication.jpg>



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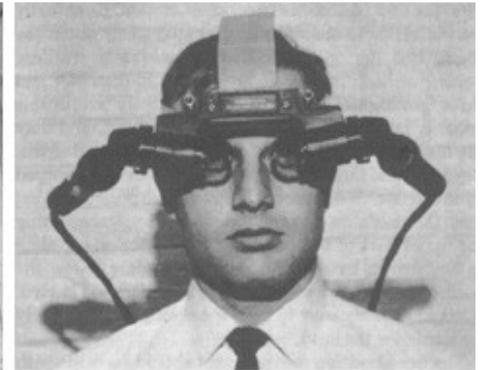
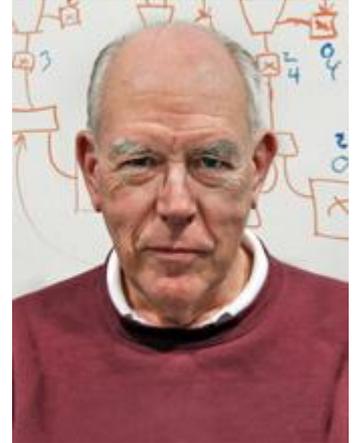
SketchPad (1962)

Ivan Sutherland (1938-...)

American computer
scientist

Winner of the Turing
Award (1988)

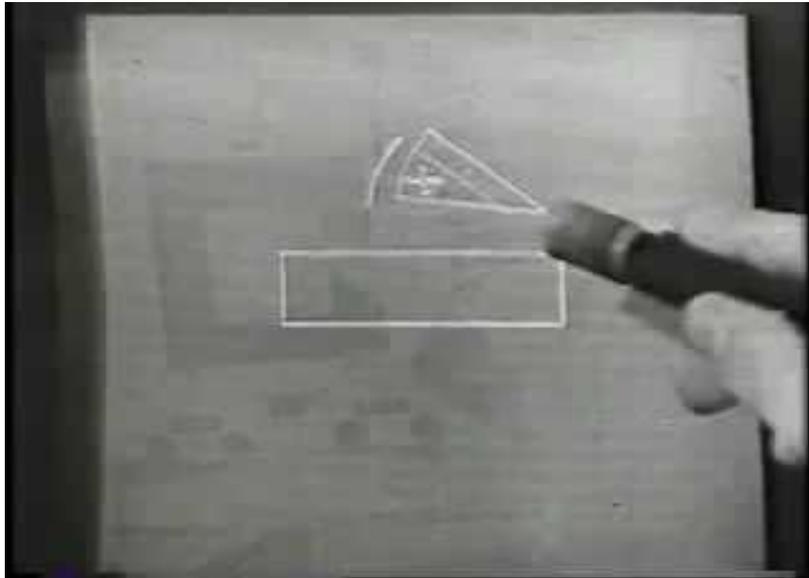
Creator of head
mounted display





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Sketchpad



sophisticated drawing
package developed as
part of Ph.D. thesis

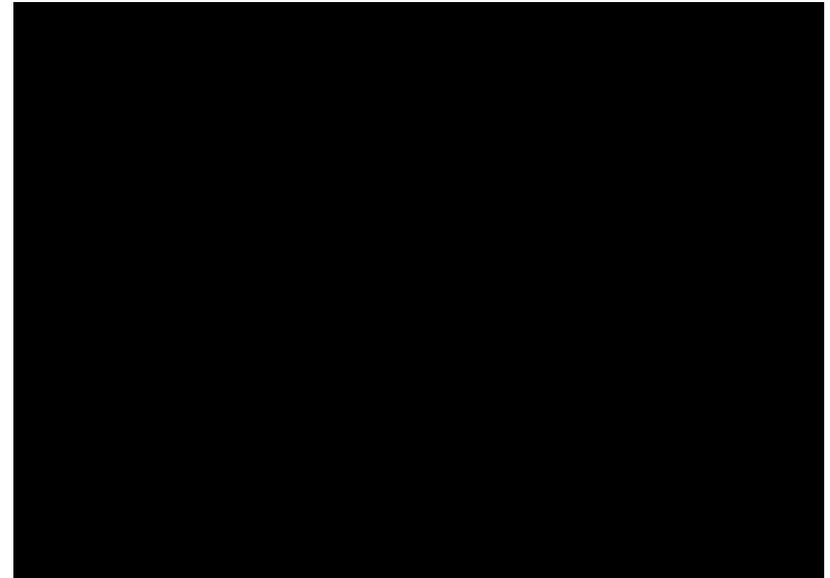
introduced many present-
day interface concepts in
HCI, computer graphics,
and CAD

program ran on machine
with only 272 kbytes of
memory



First computer mouse (1964)

- Douglas Engelbert (1925 – 2013)
- American engineer and innovator, computer and internet pioneer
- Awarded with Turing Award
- used a new device to facilitate computer interaction - the mouse





The personal computer (1968)

- Allen Key
- Dynabook
- “A children's computer of all ages”
- Concept of and “prototype” of notebook/tablet PC





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K 202 (1970-1973)

16-bit computer

More than 90 instructions

Operating memory of up
to 4 million words

Direct addressing of up
to 64k words

8 MB of virtual memory

Size: 48 cm x 21 cm x 58
cm





Designed at Xerox (1973)

first modern networked PC

Start of the Xerox PARC's and development of:

- Ethernet
- Window interface as we know it
- WYSIWYG
- Laser printing
- Object oriented programming
- Network file system



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Commercial Computers - STAR

Developed by Xerox
(1981)

First GUI

Computer mouse (2
buttons)

Networked
workstation

Succeeded - NO





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Commercial Computers - LISA

Developed by Apple

“Inspired” by ideas
implemented in Xerox
STAR

GUI

Mouse ...

One step before
Macintosh





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Commercial computers - Mac

Developed by
Apple (1984)

Well... slightly
polished copy of
Lisa

Great commercial
success

