Friedrich-Alexander-Universität
Technische Fakultät

Machine Learning
Data Analytics

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Human Computer Interaction

Chapter 2: History of HCI

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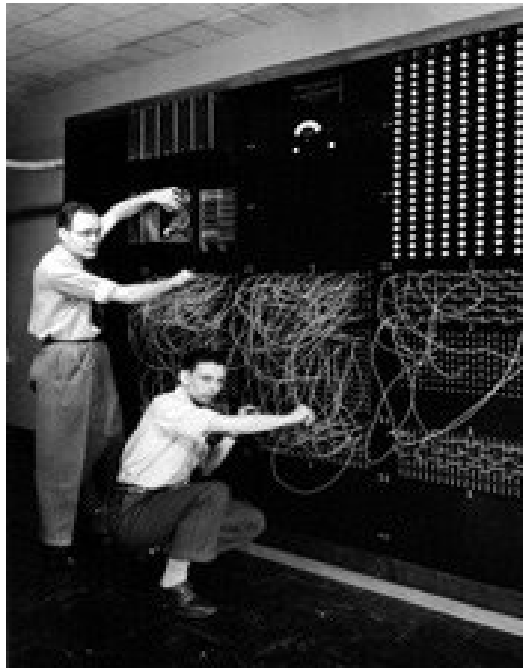
Interactive Computing

People and Inventions

Early Computer Operators and Engineers



https://www.computerhistory.org/

Foundations for Interactive Information Processing
– Vannevar Bush

digital file from b&w film copy neg.
http://hdl.loc.gov/loc.pnp/cph.3a37339

- As We May Think (1945) article in **Atlantic Monthly**
- Seed the problem of **storing**, **accessing**, **distributing**, and **annotating** information
- Understands the **wealth** of large amounts of information and easy access to it
- Identifies **organization** of information as key issue

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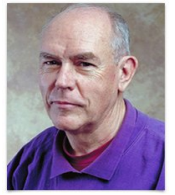
MEMEX

- Extending human memory
- Concepts of links and annotations
- Focus on search and indexing
- Many ideas for the **WWW**
- “microfilm-age” solutions not really feasible

Screenshot from (last access 20.04.2022)
https://www.youtube.com/watch?v=c539cK58ees

Inventing interactive computing – Ivan Sutherland

image from: https://www.computer.org/profiles/ivan-sutherland



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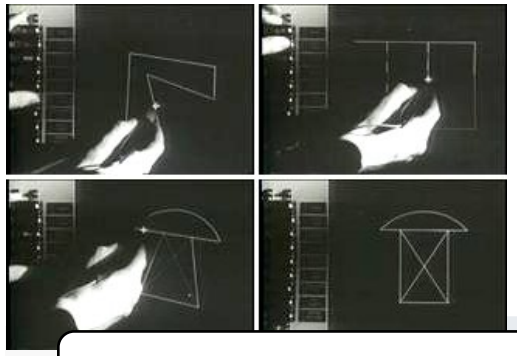
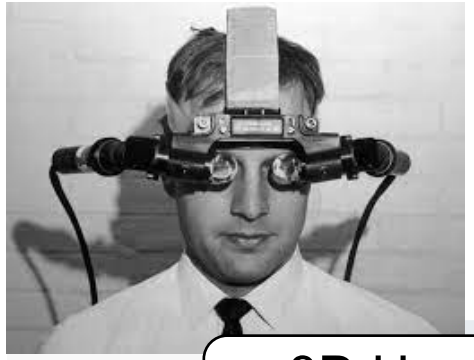


SketchPad (1963)

- Drawing Package
- User interface included: icons, copying, light-pen input
- Development based on „OO“-principles
- Many ideas are still in use

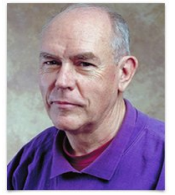


3D Head Mounted Display (1965 – 1970)

- 3D „visualization“ (very basic)
- Large apparatus

Sketchpad Demo
– Ivan Sutherland

image from: https://www.computer.org/profiles/ivan-sutherland



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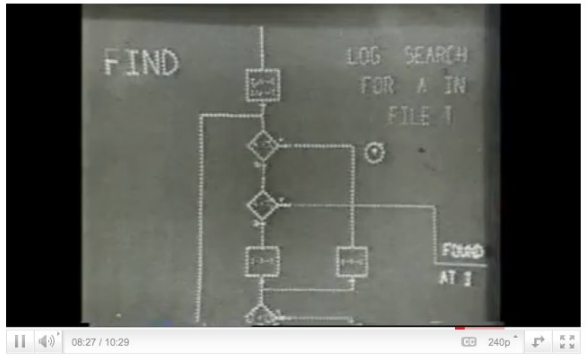
Part 1 of 2: https://www.youtube.com/watch?v=FDC9UOY-c9g&t=319s



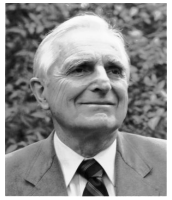
Part 1 of 2: https://www.youtube.com/watch?v=FDC9UOY-c9g&t=319s

- Sketchpad, A Man-Machine Graphical Communication System
- Ivan Sutherland‘s Ph.D. theses from Massachusetts Institute of Technology 1963
- Republished by University of Cambridge in 2003 as Technical Report Number 574

http://www.cl.cam.ac.uk/TechReports/UCAM-CL-TR-574.pdf

Inventing Interactive Technologies – Douglas Engelbart

image from: https://www.computer.org/profiles/douglas-engelbart



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- A Conceptual Framework for Augmenting Human Intellect (SRI Report, 1962)
- Understand **need** for collaborative (several potentially distributed people together) and immediate **problem solving**
- A key issue is to **improve abilities** of people to make use of information
- Invention of the **mouse** (1964) as a pointing device
- **“Hi-res”** video conferencing, shared applications, window-concept (1968)

Parallel Inventions (1965/1968)

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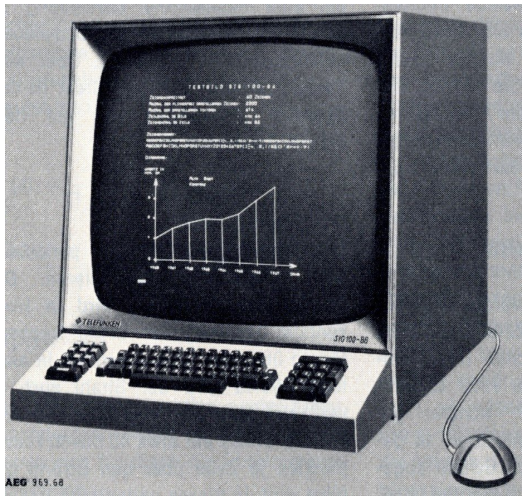
Pointing devices: Rollkugel

Image:
Computermuseum
Fakultät Informatik
Universität Stuttgart

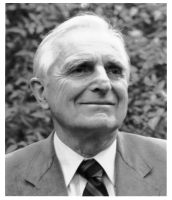


SIG-100 with
Rollkugel. Image:
Computerschau-
sammlung der FH Kiel

http://www.heise.de/ct/meldung/Auf-den-Spuren-der-deutschen-Computermaus-216255.html

The Mother of All Demos
– Douglas Engelbart

image from: https://www.computer.org/profiles/douglas-engelbart

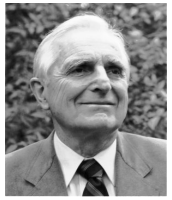


Part 1 of 10
https://www.youtube.com/watch?v=VScVgXM7lQQ&index=1&list=PLCGFadV4FqU2yAqCzKaxnKKXgnJBUrKTE

Further reading: Augmenting the Human Intellect
http://dougengelbart.org/pubs/augment-3906.html

Douglas Engelbart (Exam Relevant)

image from: https://www.computer.org/profiles/douglas-engelbart



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Inventor of the Computer Mouse

http://www.youtube.com/watch?v=SQ7totFRh4g (2 min)

Engelbart explains binary text input

http://www.youtube.com/watch?v=DB_dLeEasL8 (1 min)

The Mother of All Demos

https://www.youtube.com/watch?v=B6rKUf9DWRI (5 min)

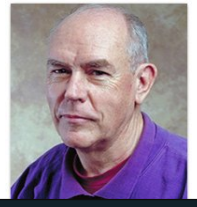
Many people shaped early HCI

Vannevar Bush

- Foundation for Interactive Information Processing
- MEMEX (1963)

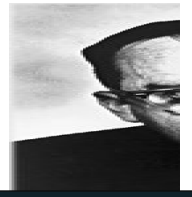
Douglas Engelbart

- Computer Mouse
- Mother of all Demos



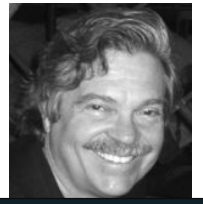
Ivan Sutherland

- Sketchpad (1963)
- HMD (1965-1970)



J.C.R. Licklider

- Man-computer symbiosis (1960)
- Interactive Computing



Alan Kay

- Vision of a notebook computer Dynabook(1969)
- Computing for everyone

Many Others …

Lessons Learned from History

What can we learn from the evolution of user interfaces

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Lessons Learned

Technology drives new user interface concepts and interaction metaphors

New user interfaces create **new applications**

Designs and user interface concepts **evolve**

You cannot hide the user interface
– **good ideas spread out**

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The **first** to come out with a new user interface is not necessarily the most successful

Thank you for your attention