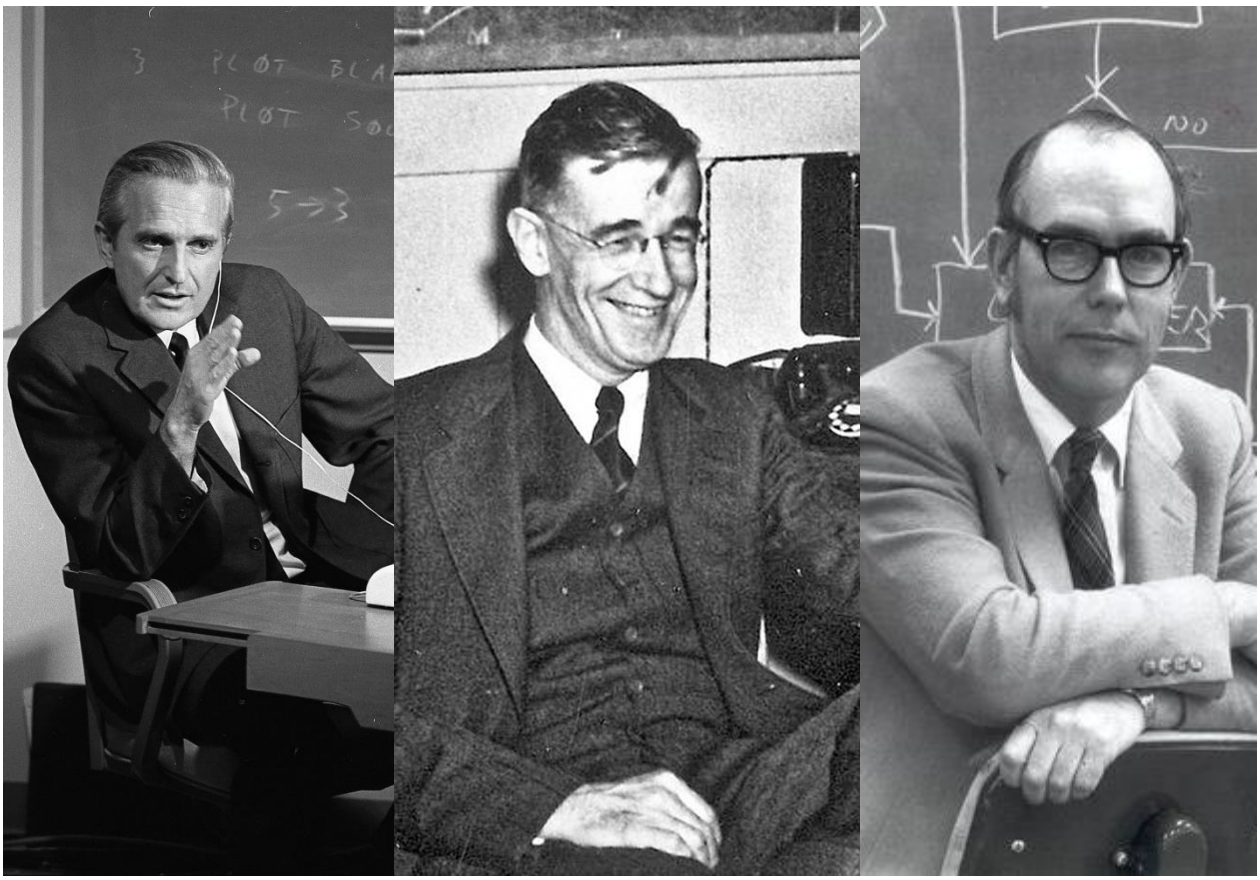
Chapter 2:

History of Human Computer Interaction

Overview



Interactive Computing: People and Inventions

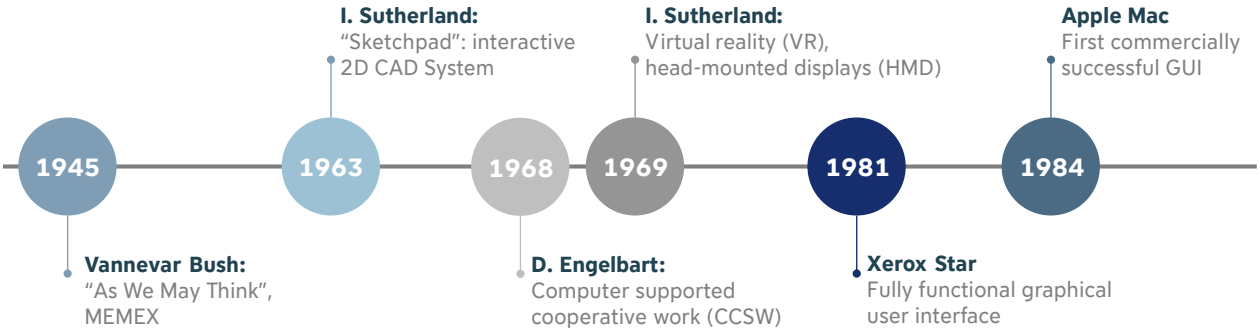
Before we start with this chapter: What were central innovations in Human Computer interaction in the last 50 years?

Many people shaped the early stages of Human Computer Interaction. Please watch the following video and find out more about important inventions and milestones of Vannevar Bush, Douglas Engelbart, Ivan Sutherland and many more.

History of HCI: Interactive Computing:
https://www.fau.tv/clip/id/41600

Timeline

In the video you just watched, you learned a lot about the most important people and inventions that shaped the beginning of Human Computer Interaction. Here you can see a summary of the most important milestones of related technological inventions in the 20th century.



If you would like to find out more:

- Sketchpad Demo:
  https://www.youtube.com/watch?v=YB3saviltTI
- Douglas Engelbart:
  http://www.youtube.com/watch?v=SQ7totFRh4g
- The mother of all demos:
  https://www.youtube.com/watch?v=B6rKUf9DWRI

When we now change the perspective, from the technological side to the actual user, we can see how the interaction of humans with computers has changed over time.

1950 **Interface at hardware level for engineers (switch panels):**
Experimental computers, specific tasks

1970 **Interface at the programming level (COBOL, FORTRAN):**
Batch / offline mode; punch cards / printer

1980 **Interface at the terminal level (command languages):**
Timesharing / text terminals (IBM 3270, DEC VT100)

1990 **Interface at the interactions dialogue level (GUIs, multimedia):**
Raster graphics / GUI on PCs / workstations

2000 **Interface at the work setting (network systems, groupware):**
Multimedia: graphics, video and audio; Internet

2010 **Interface is pervasive, everywhere and more and more natural:**
Mobile, wearable, embedded, ubiquitous

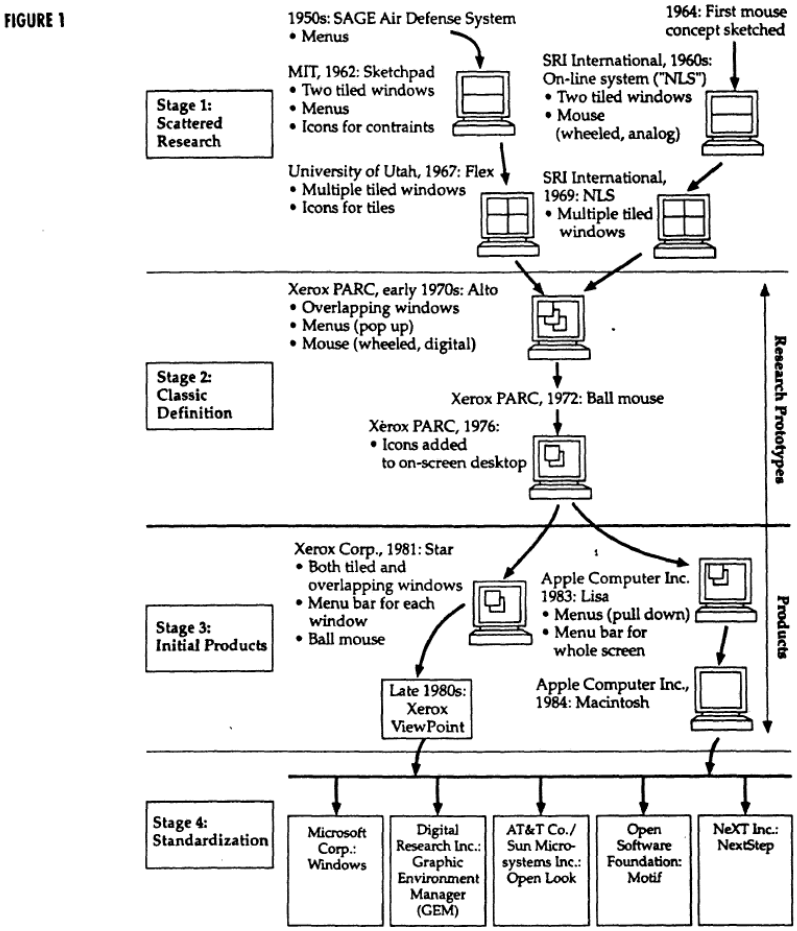
As you probably know, today we have computers everywhere. The standard and closed form of a computer we had for quite long time. So modern engineers will have to think about new concepts for displays and interaction technology in all kinds of settings.

Historic visions of the future:

- Home computer and tele-shopping:
  https://www.youtube.com/watch?v=EC5sbdvnvQM
- View of the future at&t (ad):
  https://www.youtube.com/watch?v=sYNUcFMCIzw
- Arthur C. Clarke- Predicting the Future (more general):
  http://www.youtube.com/watch?v=FxYgdX2PxyQ

The Evolution of Graphical User Interfaces (GUI)

In the early days of Human Computer Interaction, the research was scattered and many institutions created their own island solutions. In the book *Pioneers and Settlers: Methods Used in Successful User Interface Design from 1995* the authors tried to analyse and summarize success stories, emerging methods and the real-world context of the research that has been conducted so far.
As shown in the following figure, in the evolution of GUIs, the interfaces came from this scattered exploratory research to a development of a series of classic systems like the Xerox PARC. Based on that, initial products were created (Apple Lisa 1983) that finally went into standardization.



While different GUIs evolved over time, they have specific characteristics in common:

- Replacement of command-language
- Direct manipulation of the objects of interest
- Continuous visibility of object and actions of interest
- Graphical metaphors (desktop, trash can)
- Windows, icons, menus and pointers
- Rapid, reversible, incremental actions

References

1. Image of Douglas Engelbart: https://www.washingtonpost.com/business/douglas-engelbart-computer-visionary-and-inventor-of-the-mouse-dies-at-88/2013/07/03/1439b508-0264-11e2-9b24-ff730c7f6312_story.html
2. Image of Vannevar Bush: https://mondediplo.com/outsidein/vannevar-bush-prophet-of-high-tech
3. Image of Ivan Sutherland: https://ethw.org/Ivan_E._Sutherland
4. Jef Raskin, The Humane Interface, ACM Press 2000
5. Brad A. Myers. "A Brief History of Human Computer Interaction Technology." ACM interactions. Vol. 5, no. 2, March, 1998. pp. 44-54. http://www.cs.cmu.edu/~amulet/papers/uihistory.tr.html