Learning objectives:

1. Understand the difference between interactions and interfaces
2. Understand the different interaction paradigms over time
3. Understand how Bush, Sutherland, Engelbart, Kay, and Weiser contributed to these paradigms through their own visions
4. Understand how interactions today meet, exceed, or fall short of these visions

Adapted from materials originally created by Prof. Jamie Ruiz
History of Interaction

History of moving a system’s interactive language closer to the user’s language, needs, and task domains
History of Interaction

Interaction paradigms:

• Batch interfaces
• Conversational interfaces
• Graphical interfaces
• “Ubicomp”

Visionaries who inspired advances:

Vannevar Bush, Ivan Sutherland, Douglas Engelbart, Alan Kay, Mark Weiser
Interaction vs. Interface

Interface

Mediating layer between user and computational artifact

Includes physical, visual, auditory, haptic communication channels

Interaction

Activity of manipulating, communicating through the interface
Interaction vs. Interface

- Interface: physical representation that can be seen, partially assessed

- Interaction: behavior and activity
  - Harder to model, design, assess activity
Interaction vs. Interface

Both dictate the *language* of interaction:
How we accomplish tasks

Keep distinction between the two in mind when you assess systems

– Helps you avoid “pearls on a pig” syndrome and focus on real needs
Batch Interfaces

Time period: ca. 1945-1965

Interaction style

No interaction possible during execution

Responses received in hours, days

Users

Only used by highly trained individual

System time costs more than human time

$100’s/hr vs. $10-30/hr
Conversational Interfaces

Time period: ca. 1965 – 1985+

Command line interface

Interaction style

User types command, waits for response

System in control during execution

User only has structured interaction
Graphical User Interfaces

Time period: ca. 1984 – present

Hardware interface
  High resolution graphics display
  Keyboard
  Pointing device (e.g., mouse)

Typical instantiation: WIMP interface
  Windows, Icons, Menus, and Pointer
XEROX 8010 Star Information System

Star provides integrated text and graphics. A variety of type sizes and styles may be used.

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This is some text in a text frame.
“Ubicomp”

“There will be so many IP addresses ... so many devices, sensors, things that you are wearing, things that you are interacting with that you won’t even sense it. It will be part of your presence all the time. Imagine you walk into a room, and the room is dynamic. And with your permission and all of that, you are interacting with the things going on in the room.”

–Eric Schmidt Jan, 24, 2015
Vannevar Bush

“As We May Think”
Ivan Sutherland
Beyond the Knowledge Worker
Douglas Engelbart
“Augmenting Human Intellect”
Alan Kay
Amplifying Imagination
Mark Weiser

1990s: Get off the Desktop