User Centered Design Process
January 4 - March 1

History of user centered design in HCI
March 6, March 8

Academic HCI
March 13, March 15

Special topics in HCI
March 20, March 22

Course Review
March 27

Presentation 2
March 29

Last class
April 3
User Centered Design in Computer Systems

History

- Waterfall Model
- GUI and WIMP
- Agile Development

User Centered Design in Computer Systems

- HFE and Ergonomics
- Socio-Technical Systems Design
- Cognitive Psychology
- Cooperative Design
- Interaction Design
User Centered Design in Computer Systems

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Waterfall Model

The first mentioning:
Herbert D. Benington,
Symposium on advanced programming methods for digital computers, 1956

The first formal description:
Winston W. Royce,
"Managing the Development of Large Software Systems", 1970
History

Waterfall Model

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Winston W. Royce,
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Waterfall Model

The first formal description:

Additional requirements:
1. Program design comes first
2. Document the Design
3. Do it twice
4. Plan, Control and Monitor testing
5. Involve the Customer
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NLS - oN-Line System - developed by Douglas Engelbart and his colleagues at the Augmentation Research Center, SRI

First demonstrated December 19, 1968 at the Fall Joint Computer Conference, San Francisco.
Was called “The mother of all demos”

“We were not just building a tool, we were designing an entire system for working with knowledge.” Douglas Engelbart
1. ORANGES
2. APPLES
3. BANANAS
4. CARROTS
5. SOUP
6. NEWSPAPER
7. LETTUCE
8. FRENCH BREAD
9. BEAN SOUP
10. TOMATO SOUP
11. PAPER TOWELS
12. ASPIRIN
13. NOODLES (ELBOW KIND)
14. BEANS
15. SCOTCH TATE
16. CHAPSTICK
17. MILK
18. FILM
19. BROOM
History

Doug Engelbart at an NLS workstation

Bill English with several ergonomic setups for the oNLine System (NLS); late 1960s
DATAR Trackball, 1952
Doug Engelbart's mouse prototype, 1968
Hypertext Editing System (HES) console, 1969
PARC 5-key Chord Keyboard
Dynabook by Alan Kay, "A personal computer for children of all ages", 1972

Concept of a portable educational device. Target audience was children.

“If the computer is to be truly ‘personal’, adult and child users must be able to get it to perform useful activities without resorting to the services of an expert. Simple tasks must be simple, and complex ones must be possible.” Alan Kay
Developed at Xerox PARC, inspired by NLS and Dynabook

First computer to support operating system using GUI, used bitmap display, first to use an early version of the desktop metaphor

“If our theories about the utility of cheap, powerful personal computers are correct, we should be able to demonstrate them convincingly on Alto,” Butler Lampson

PARC’s Alto computer, 1973  Xerox Alto GUI
History

**Bravo** - the first WYSIWYG document preparation program, 1974

**Gypsy** - the first document preparation program to use mouse as a point-and-click interface tool, 1975

Tim Mott and Larry Tesler

Tim Mott’s sketch of a desktop on a bar napkin, From: Bill Moggridge and Bill Atkinson. Designing interactions.
Developed at Xerox PARC, inspired by NLS and Dynabook

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“If our theories about the utility of cheap, powerful personal computers are correct, we should be able to demonstrate them convincingly on Alto,” Butler Lampson
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Apple Lisa (1983)  
Apple Macintosh (1984)
Texas Instruments Silent 700, 1973

Osborne 1 computer, 1981
History

**GRiD Compass 1101**, 1982

Designed by [Bill Moggridge](https://en.wikipedia.org/wiki/Bill_Moggridge) and [John Ellenby](https://en.wikipedia.org/wiki/John_Ellenby)

First laptop computer, clamshell design, easy-to-read screen, allowing full 80x24 text, used graphical GRID-OS, no mouse
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Agile Development

The Manifesto for Agile Software Development, 2001

- Focus on Individuals and Interactions
- Presenting Working Software
- Continues process of Customer Collaboration
- Responsiveness to Changes and Continuous Development
History

Agile Development Principles

- Customer satisfaction by early and continuous delivery of valuable software
- Welcome changing requirements, even in late development
- Working software is delivered frequently (weeks rather than months)
- Close, daily cooperation between business people and developers
- Projects are built around motivated individuals, who should be trusted
- Face-to-face conversation is the best form of communication (co-location)
- Working software is the principal measure of progress
- Sustainable development, able to maintain a constant pace
- Continuous attention to technical excellence and good design
- Simplicity—the art of maximizing the amount of work not done—is essential
- Best architectures, requirements, and designs emerge from self-organizing teams
- Regularly, the team reflects on how to become more effective, and adjusts accordingly
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