Interaction Design

Chapter 1 (April 17, 2012, 9am-12pm):

History

History

- Course Overview (Timetable) + Organizational Stuff
- What is Interaction Design?
- The Story of the Mouse
- PARC
- The Desktop Metaphor
- The GUI

Tutorials & Exam

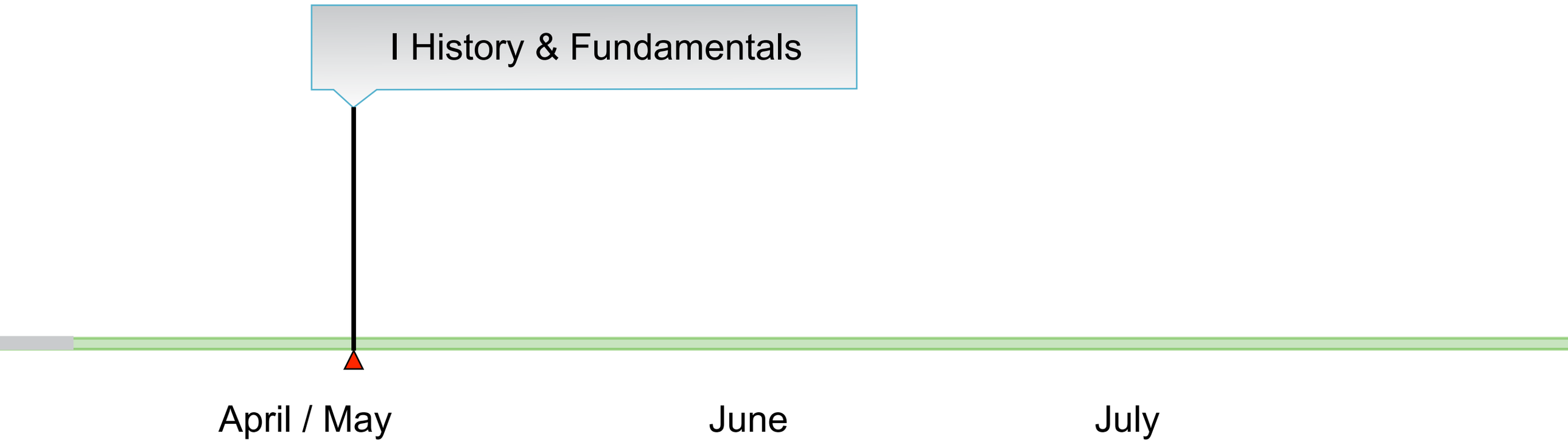
- **Interaction Design** required for Concept Development
- no Podcast, so be here every week :)
- register via Uniworx!

- **tutorials** close to the lecture
- practical exercises to apply theoretical knowledge
- important preparation for the exam
- will be held in breakout sessions during the lecture
- sometimes a bit homework possible

- **Bonus** of 5% in exam possible if you hand in deliverable at the end
- documentation of breakout sessions and homework

- **Written Exam** will be announced on the website shortly
- exact time and location will be announced soon

Course Overview:



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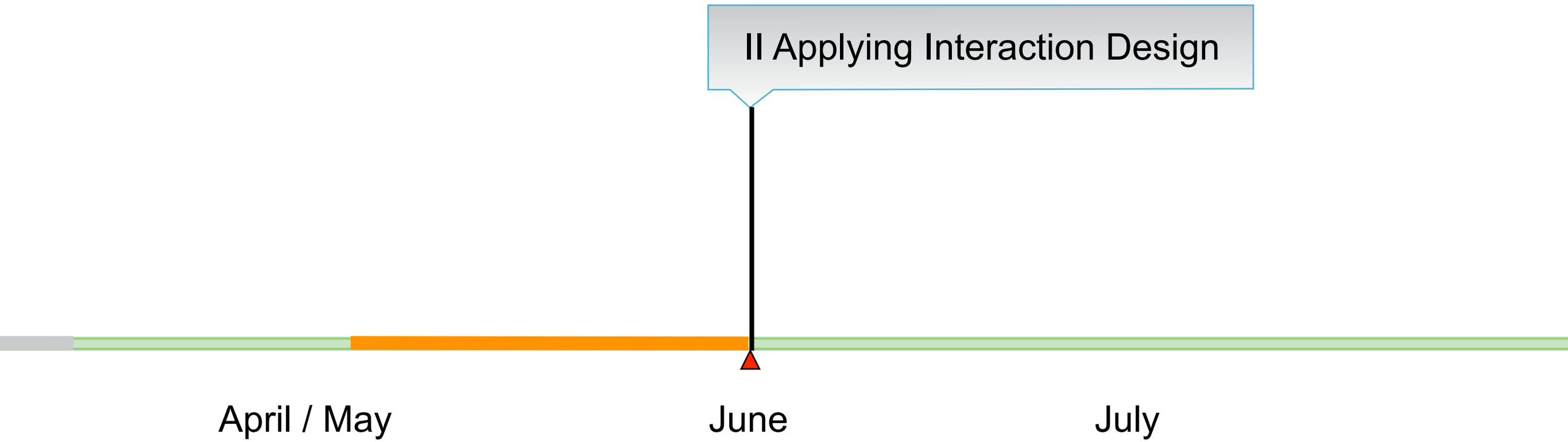

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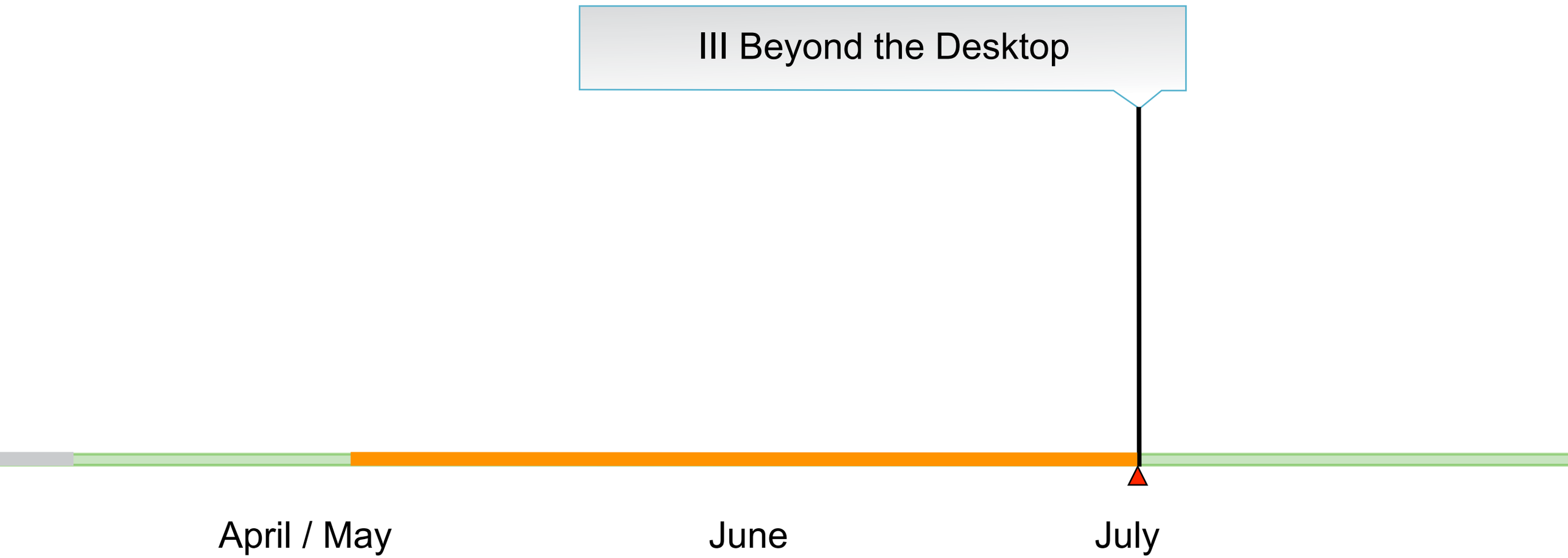

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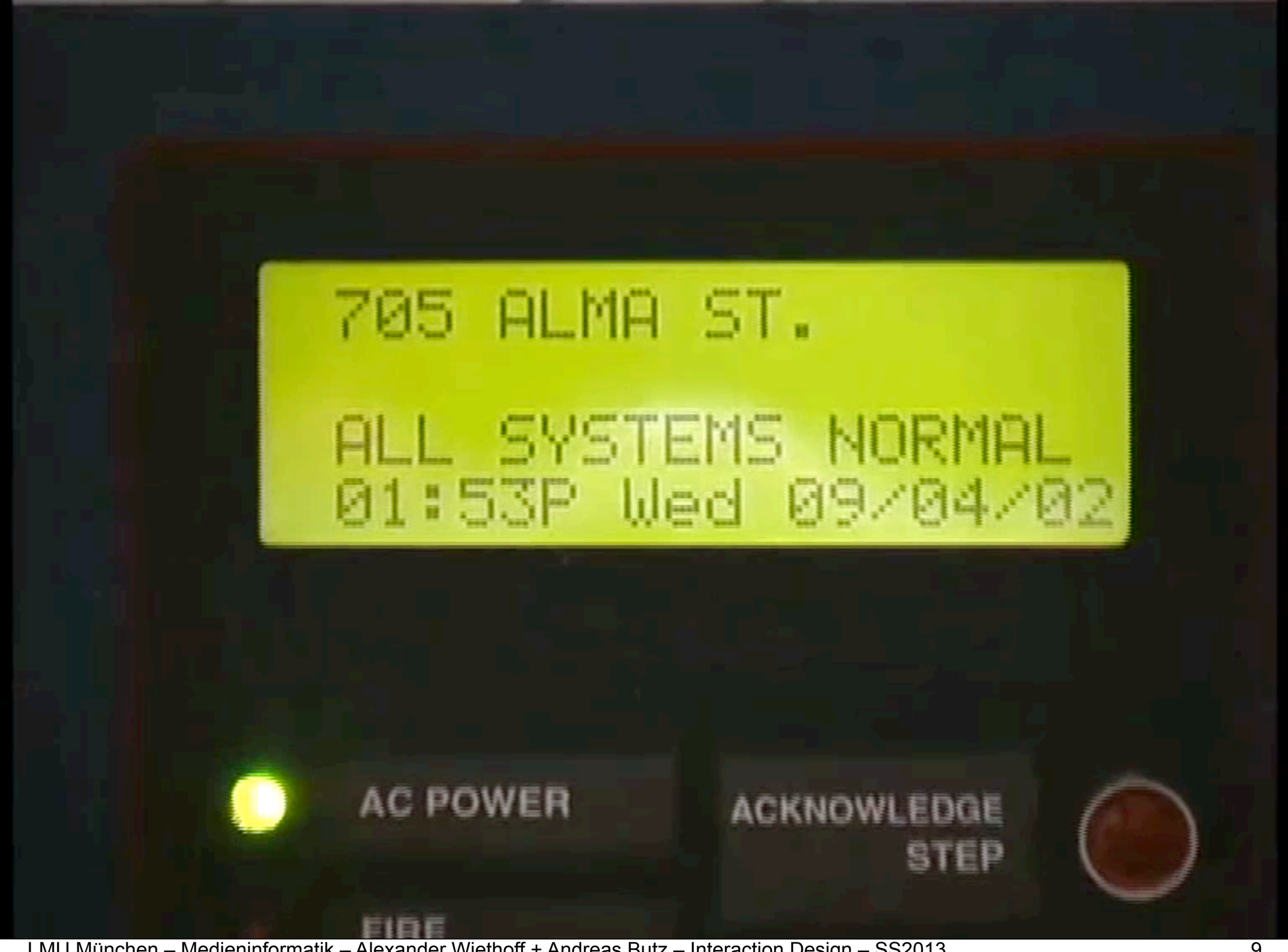
Gillian Crampton Smith

-established the first Interaction Design MA program at the Royal College of Art (RCA)
-was the founder and academic director of the Interaction Design Institute Ivrea (IDII)

http://www.designinginteractions.com/img/interviews/GillianCramptonSmith.jpg

source: [2]


705 ALMA ST.
ALL SYSTEMS NORMAL
01:53P Wed 09/04/02
AC POWER
ACKNOWLEDGE
STEP
FIRE

Looking back... (Discussion Part)

Looking back... (Discussion Part)

-shaping our lives through digital artifacts...

Looking back...

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-good IxD refers to a “mental model”

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-elements of interaction design

Looking back...

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-good IxD provides a “map” of where you are in a system, how you can move around and how you get back to the point where you started
-languages of interaction design
-elements of interaction design
-the part of the interaction designer is to design
the **quality** on how the interaction is performed, how the system behaves

Designing for Everyday Life

Designing for Everyday Life

(1) Professional Tools

(2) Game Machines for Teenagers

25 years ago **today**

Designing for Everyday Life

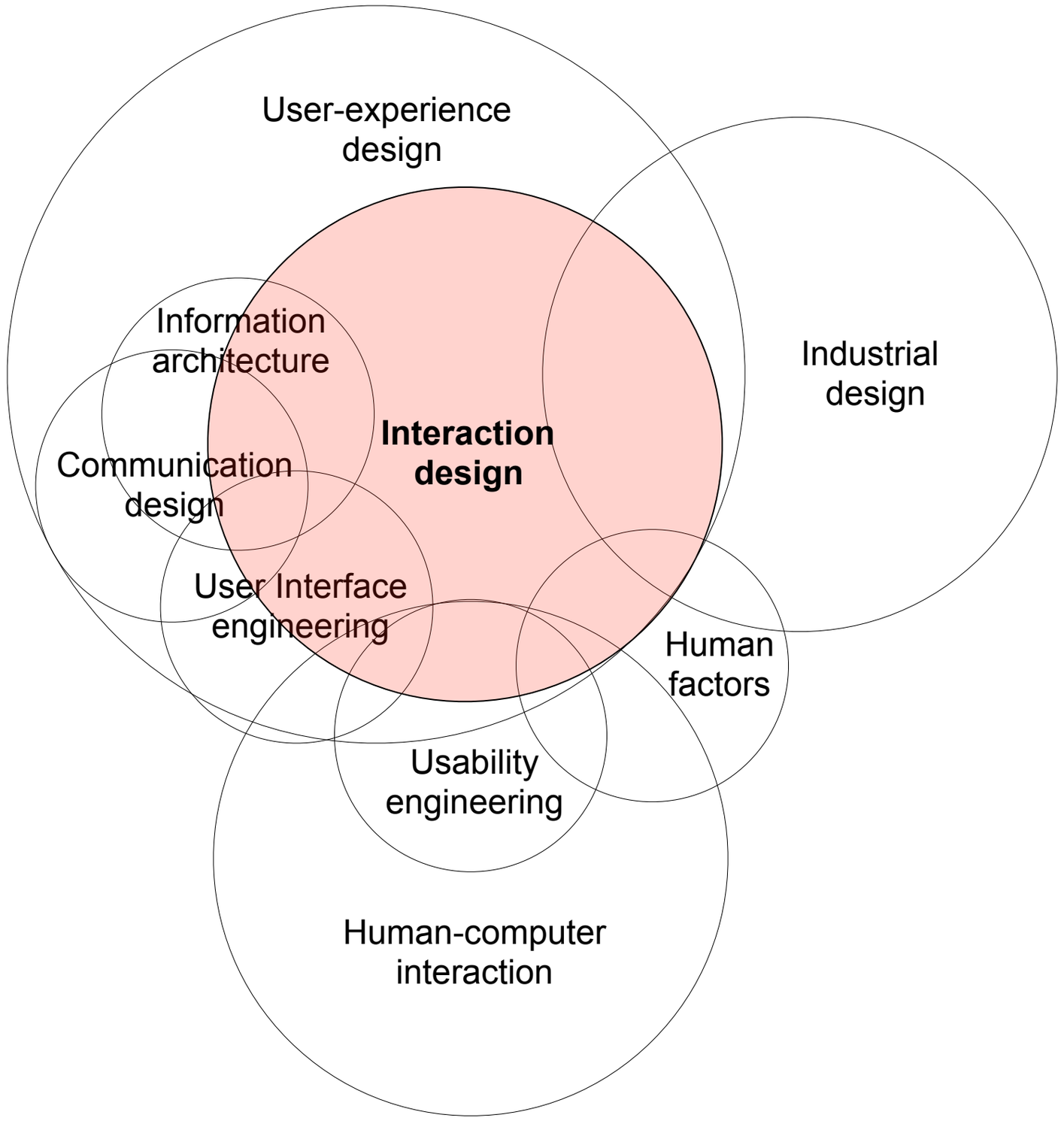
(1) Professional Tools

(2) Game Machines for Teenagers

(1) Larger user groups (e.g. Kids/Parents/ Grandparents)

(2) Various Contexts of use (e.g. Work/School/ Home/Leisure)

25 years ago **today**


User-experience design
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Interaction design
Industrial design
Communication design
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Human factors
Usability engineering
Human-computer interaction

source: [3]

"Great design is as much about prospecting in the past as it is about inventing the future."

Bill Buxton

source: [6]

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The **Beginnings**...(let´s jump back to 1943)

P 38 Lightning Cockpit (1943)

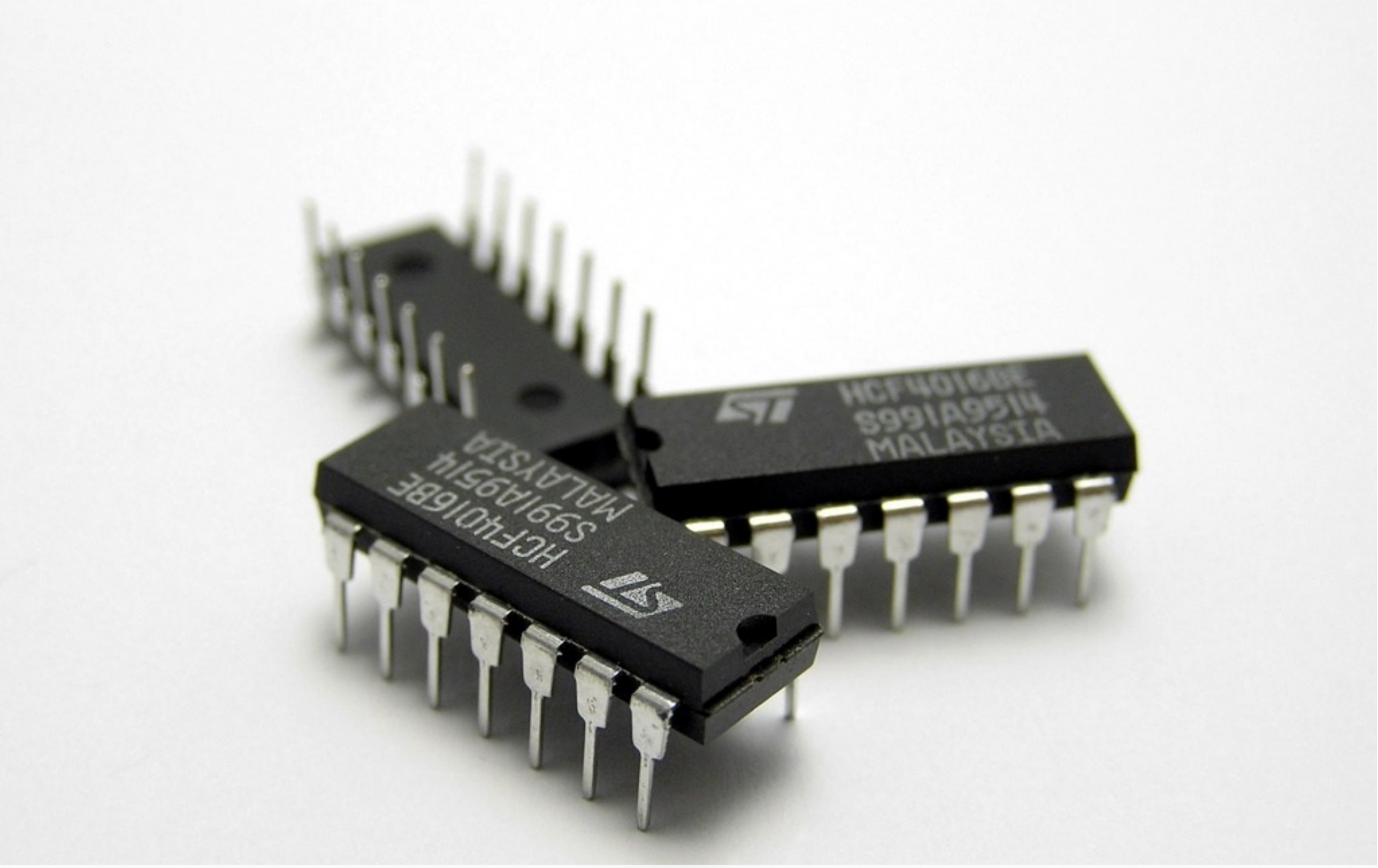
http://www.world-war-2-planes.com/lockheed-p-38.html

EDSAC computer (1949)

http://www.xgn.nl/images/upload/20080908172430.jpg

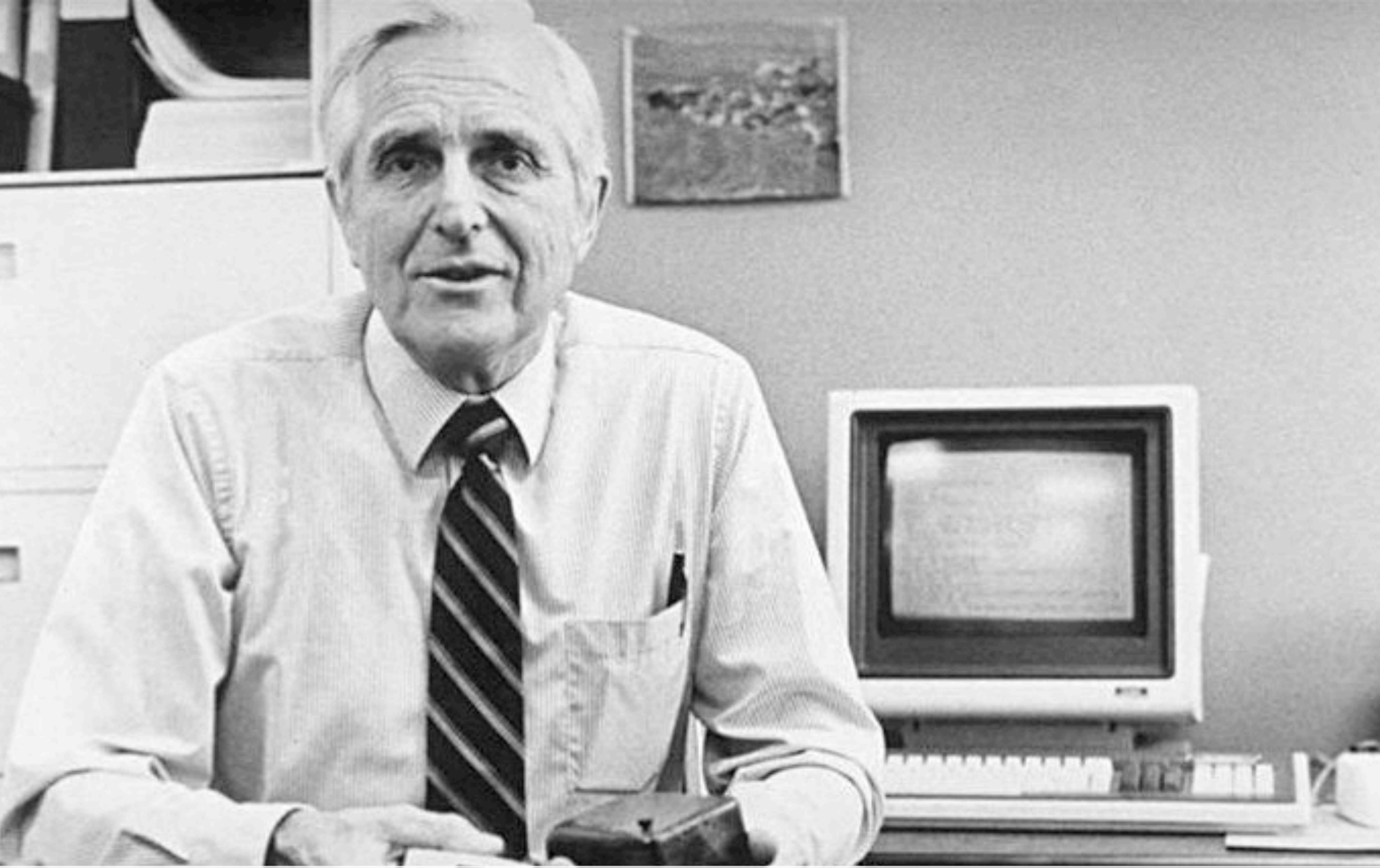
"I think there is a world market for maybe five computers."

Thomas Watson,
chairman of IBM, 1943



Mid sized ICs

http://upload.wikimedia.org/wikipedia/commons/8/80/Three_IC_circuit_chips.JPG

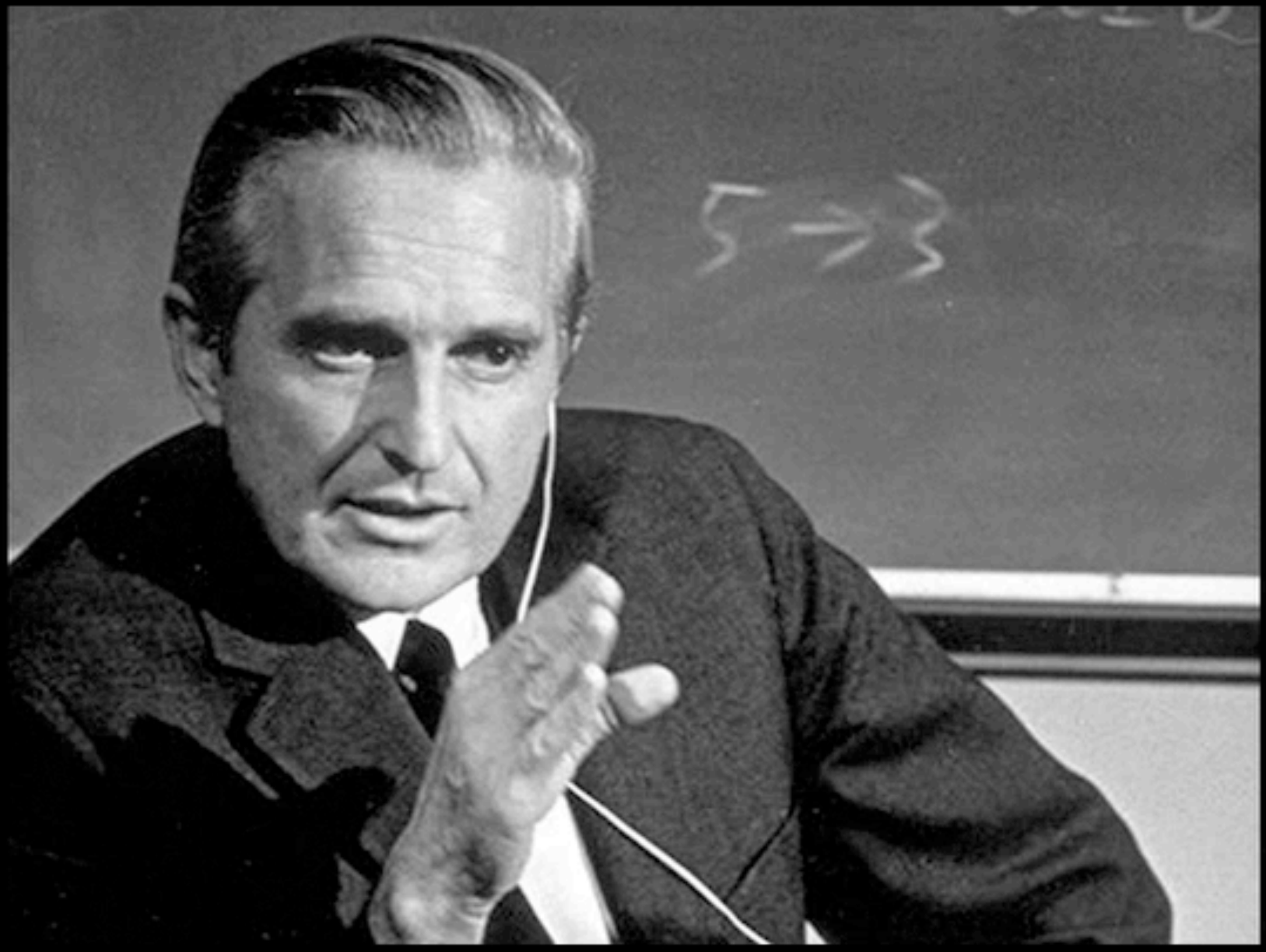


Douglas Engelbart

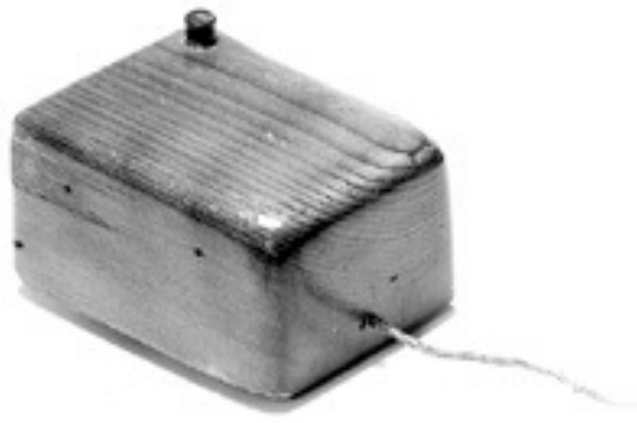
http://www.corporationtocommunity.com/wp-content/uploads/2011/02/engelbart.jpg

“When you were interacting considerably with the screen, you needed some sort of device to select objects on the screen, to tell the computer that you wanted to do something with them.”

Douglas C. Engelbart, 2003, referring to 1964



Looking back... (Discussion)



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Looking back... (Discussion)

-reflection of the process (concept generation)

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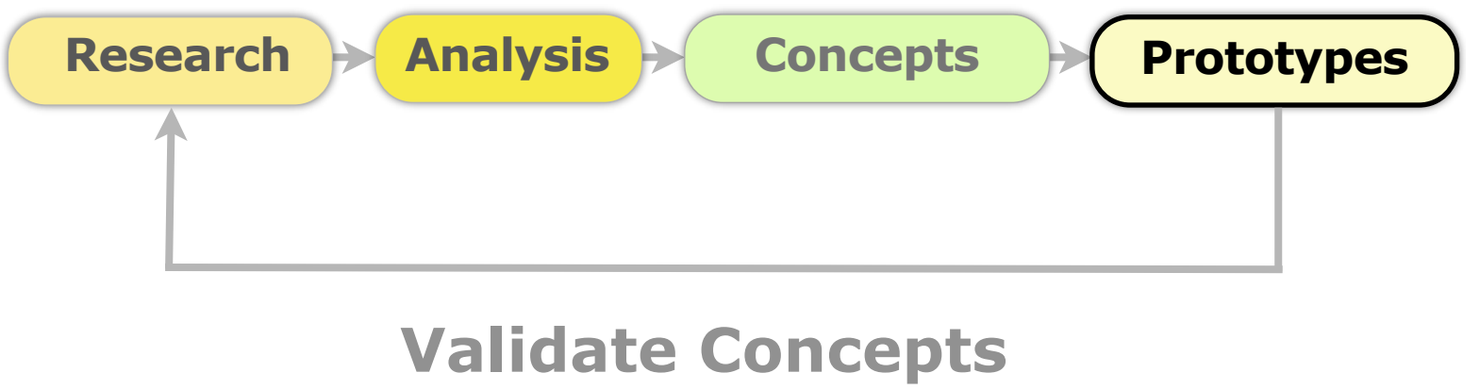
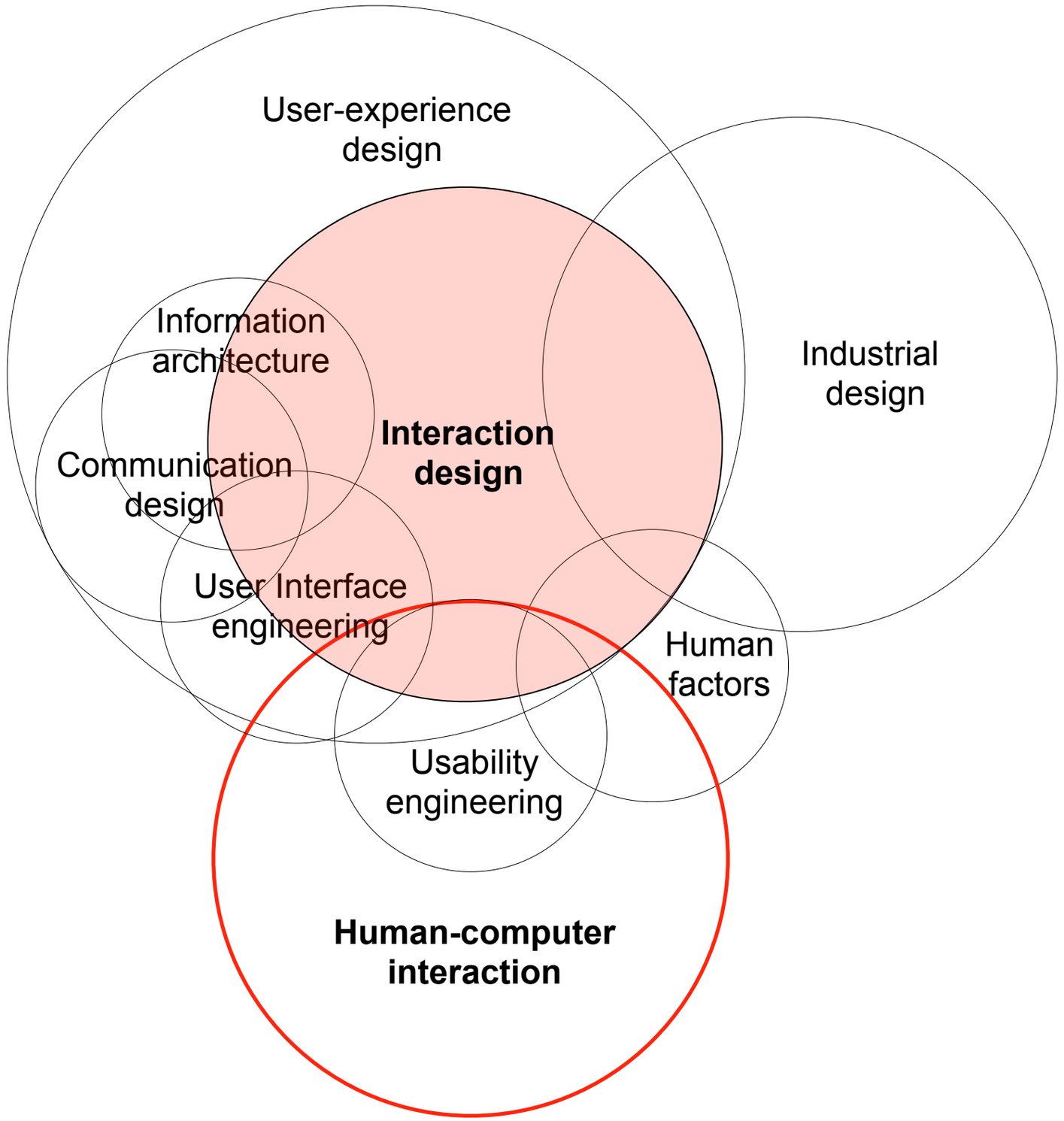
-iterative development of prototypes (prototyping and testing)



Looking back... (Discussion)

-reflection of the process (concept generation)
-construction of different prototypes (alternative design)
-iterative development of prototypes (prototyping and testing)
-tests with users to validate the approach and make decisions (usability testing)

http://www.usabilis.com/img/user-research-france/usability-testing.jpg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Douglas C. Engelbart : **Augmenting human intellect: A Conceptual Framework**

Stanford Research Institute (SRI), 1962.

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4. Training—the conditioning needed by the individual to bring his skills in using augmentation means 1, 2, and 3 to the point where they are operationally effective.

The system we wish to improve can thus be visualized as comprising a trained human being, together with his artifacts, language, and methodology.

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founded 1970 by Xerox

http://upload.wikimedia.org/wikipedia/commons/e/e8/PARC-logo-color.png

founded 1970 by Xerox

http://de.academic.ru/pictures/dewiki/80/Parcentrance.jpg

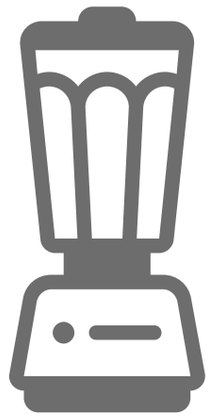
Stu Card

-joined Xerox Palo Alto Research Center (PARC) in 1974
-aimed at perfecting scientific methods to integrate with creative design
-developed a process to predict the behavior of a proposed design, using task analysis, approximation, and calculation
-proposed a partnership between designers and scientists, by providing a science that supports design.

http://www.designinginteractions.com/interviews/StuCard

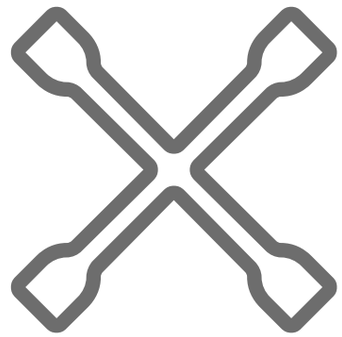
Looking back...

-exploration of the design space through the integration of industrial design



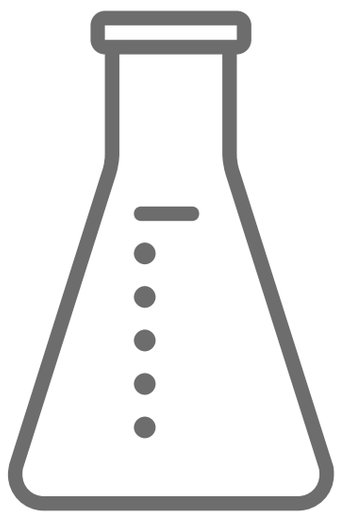
Looking back...

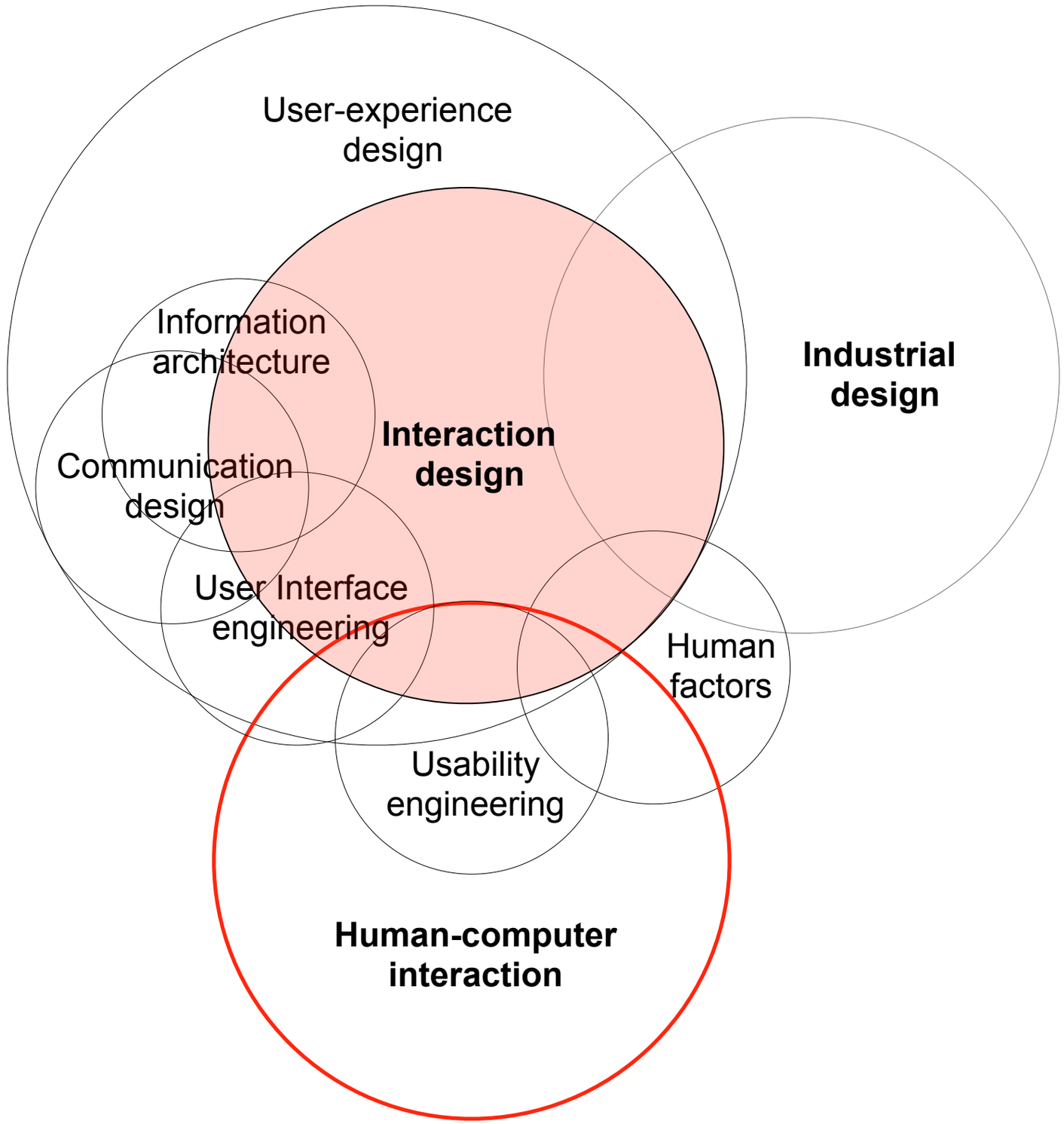
-exploration of the design space through the integration of industrial design
-designers and engineers had to work together (interdisciplinary approach)



Looking back...

-exploration of the design space through the integration of industrial design
-designers and engineers had to work together (interdisciplinary approach)
-science served to constrain the design space

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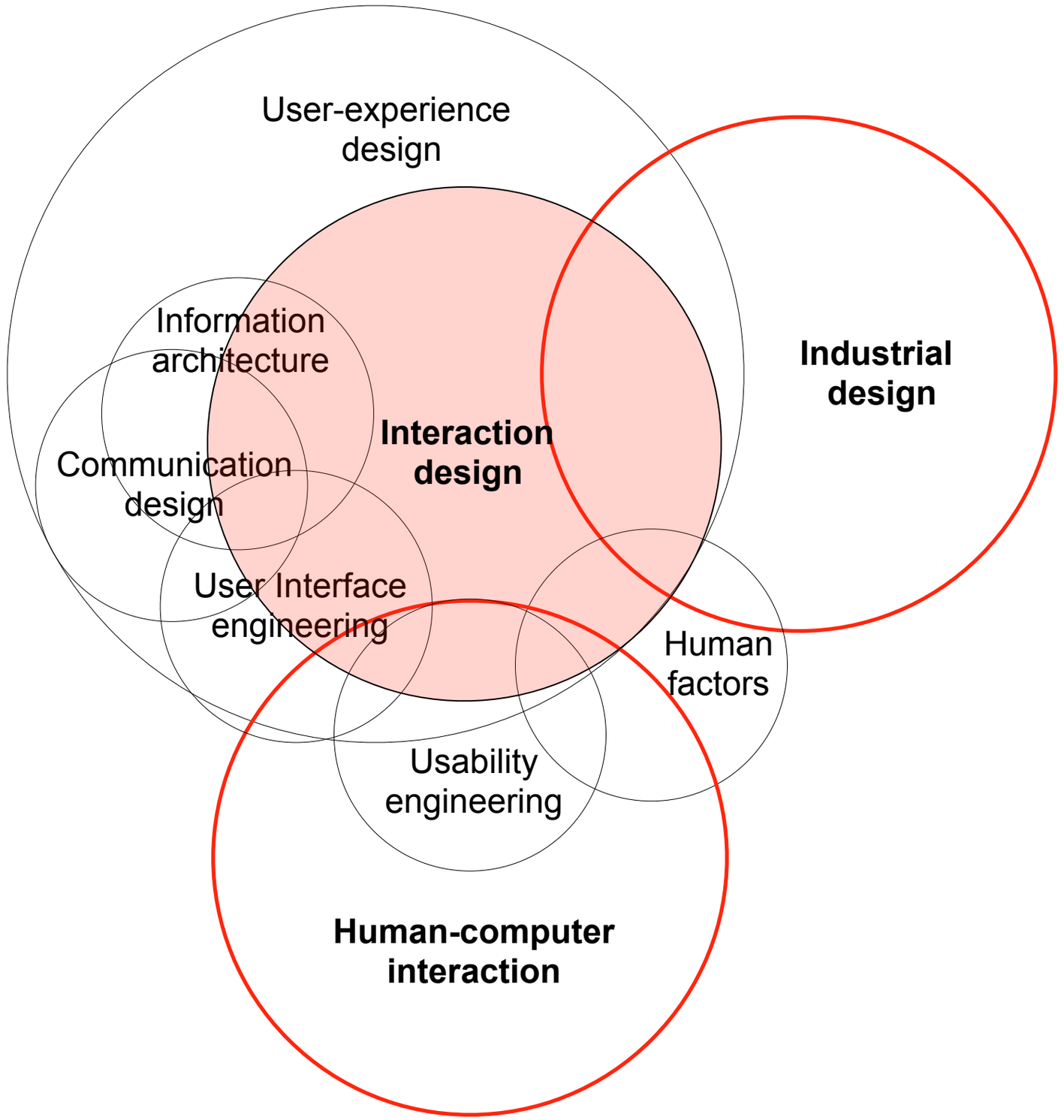
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Microprocessor early 1970s

img src: wikimedia creative commons

Tim Mott

-collaborated remotely with Xerox Palo Alto Research Center (PARC) and Larry Tesler
-worked on a new publishing system that included a “desktop metaphor”
-invented a “user centered design process” with Larry Tesler
-later co founded Electronic Arts (EA)

http://www.designinginteractions.com/interviews/TimMott

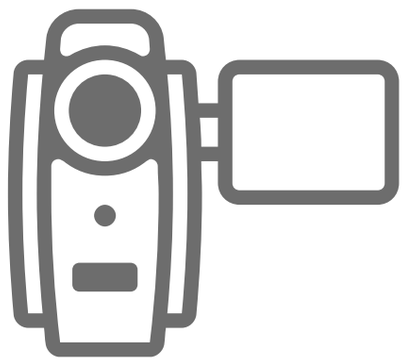
Indent for paragraph	The injured were taken to MeritCare Hospital,
Begin new paragraph	where they were treated. According to Sheriff
Eliminate paragraph	Larry Costello, none were seriously hurt.
	The driver of the southbound vehicle
Transpose (letters, words)	the spokesperson MeritCare said
Use figures (or words)	about seventeen workers attended 7 sessions
Spell out (or abbrev.)	the delegate from N.D. came to Moorhead, Minn.
Uppercase	majored in english literature at Msum
Lowercase	Bachelor's Degree in Mass Communications
Remove space	extra effo rt will be required
Insert space	according to sourceclose to the president
Retain original	will be completed in ~~early~~ January
Delete	the ~~very~~ exciting climax of the film
Insert word	the exciting climax of the film

STET

winning

Looking back...

-spending time to understand users (design research)



Looking back...

-spending time to understand users (design research)
-designing by involving the users of the system (participatory design techniques)

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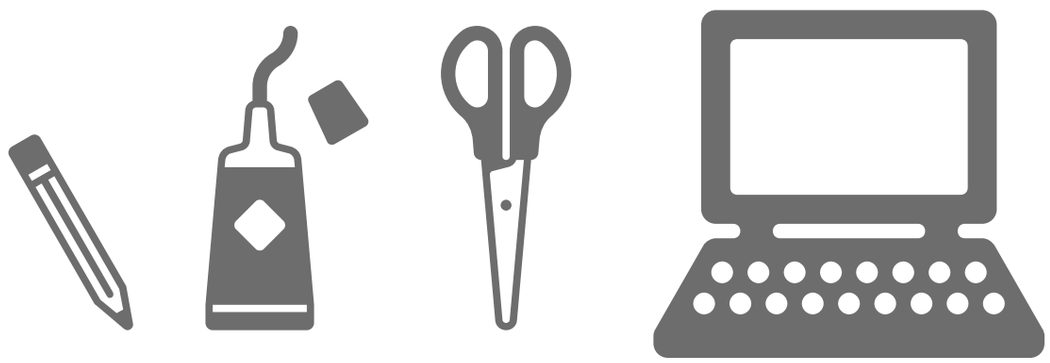
-prototyping parts of the system with non functional elements (wizard-of-oz prototyping)



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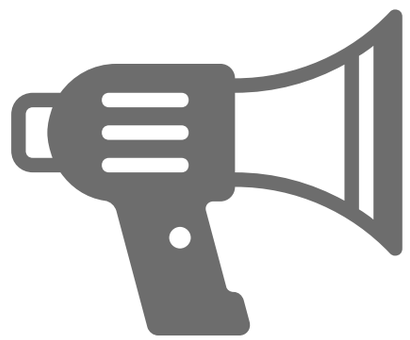
-asking users to “walk” them through the system (think aloud method)



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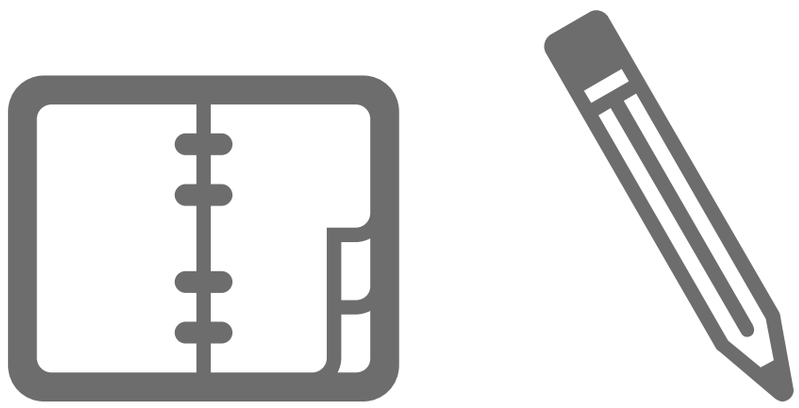
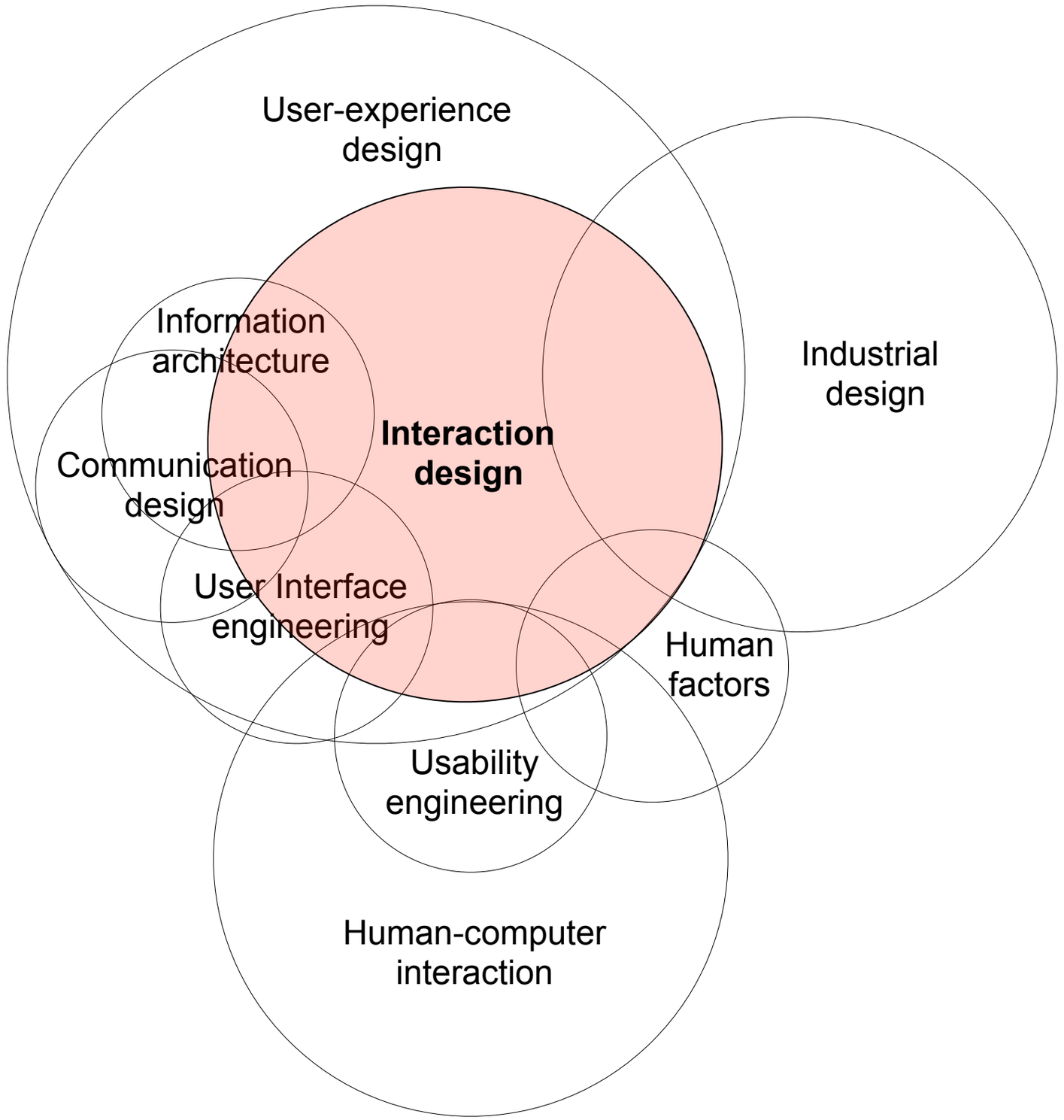
-designing by involving the users of the system (participatory design techniques)
-prototyping parts of the system with non functional elements (wizard-of-oz prototyping)
-asking users to “walk” them through the system (think aloud method)
-designing the system using mental models user could refer to (metaphors+scenarios)

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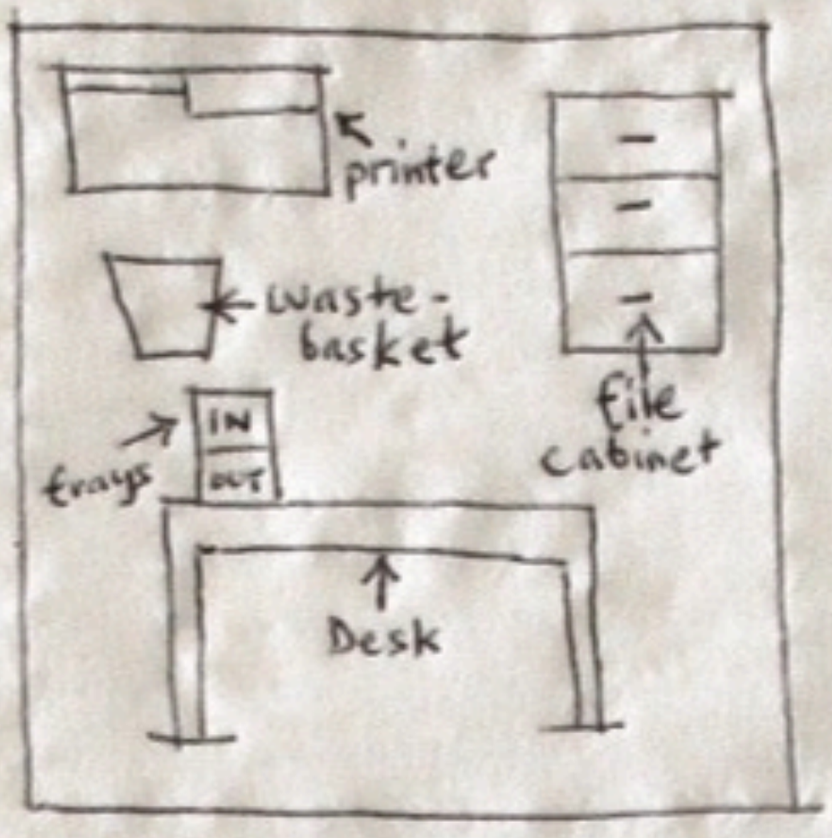


Office Schematic

all are inter-doc

Office Schematic / Desktop Metaphor

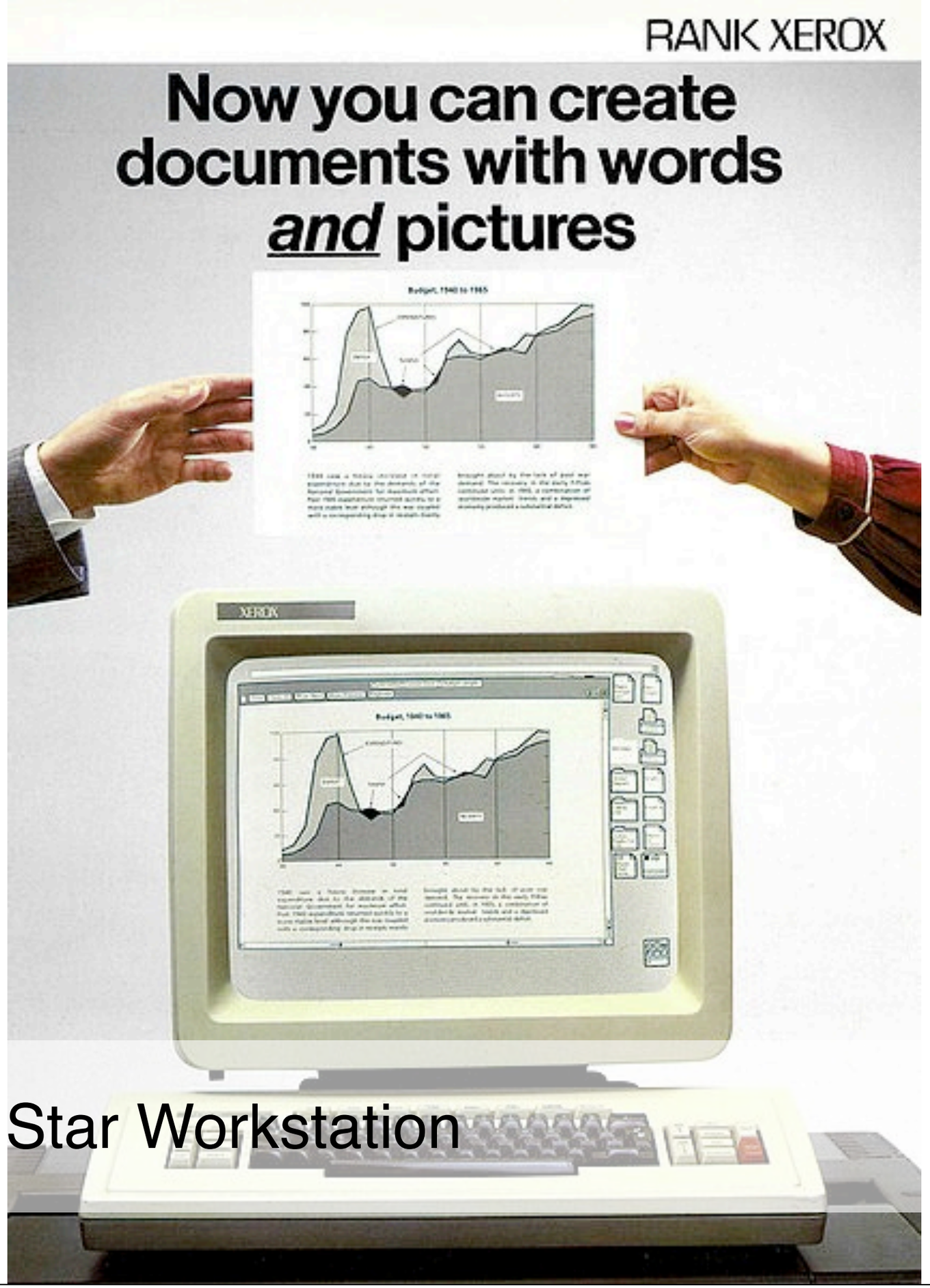
Xerox Alto 1973

http://dl.maximumpc.com/galleries/25oldpcs/xerox_alto_front_full.jpg

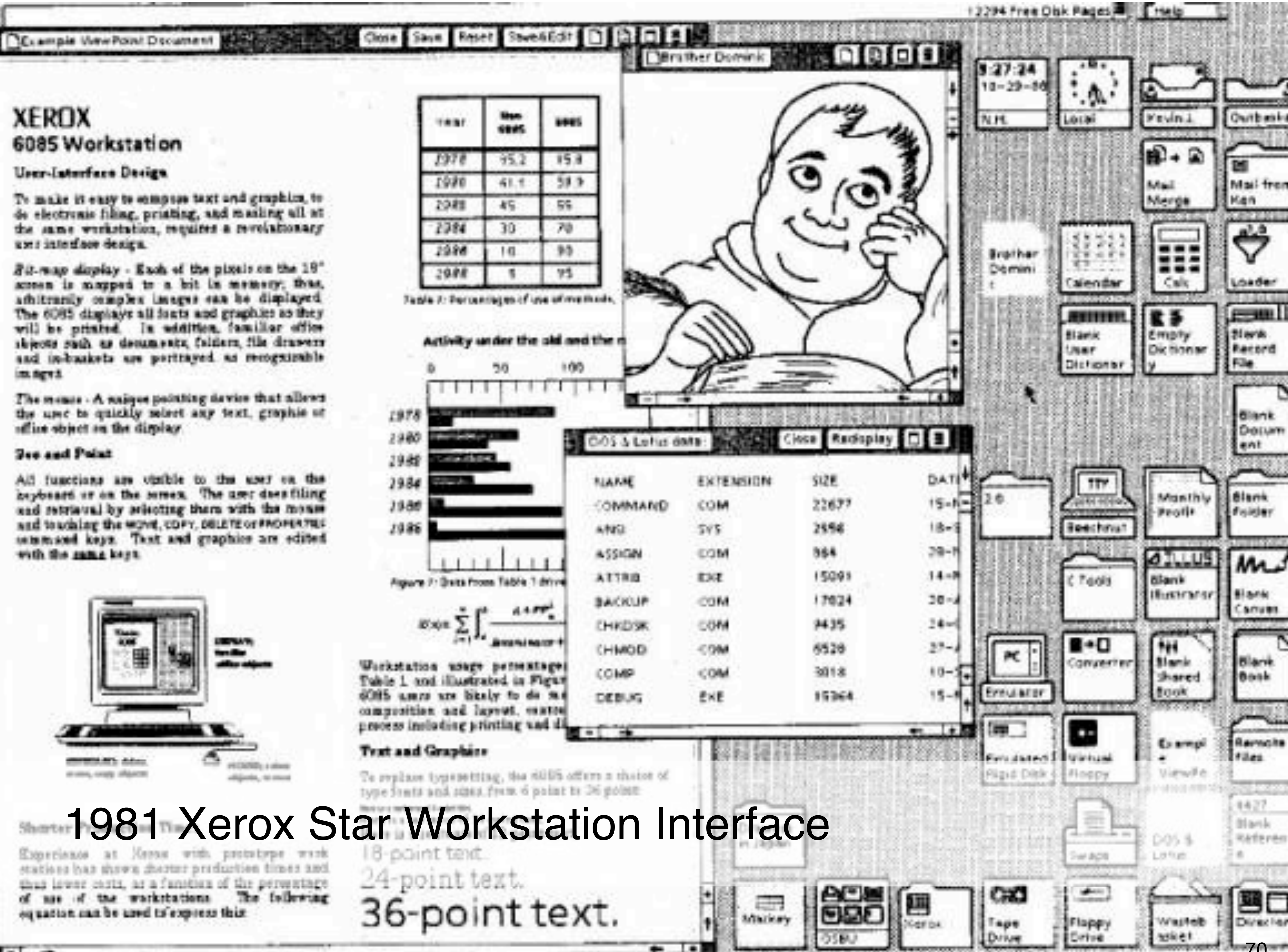
"There is no reason anyone would want a computer in their home."

Ken Olson,
president, chairman and founder of DEC, 1977

© Turner Communications



1981 Xerox Star Workstation



1981 Xerox Star Workstation Interface

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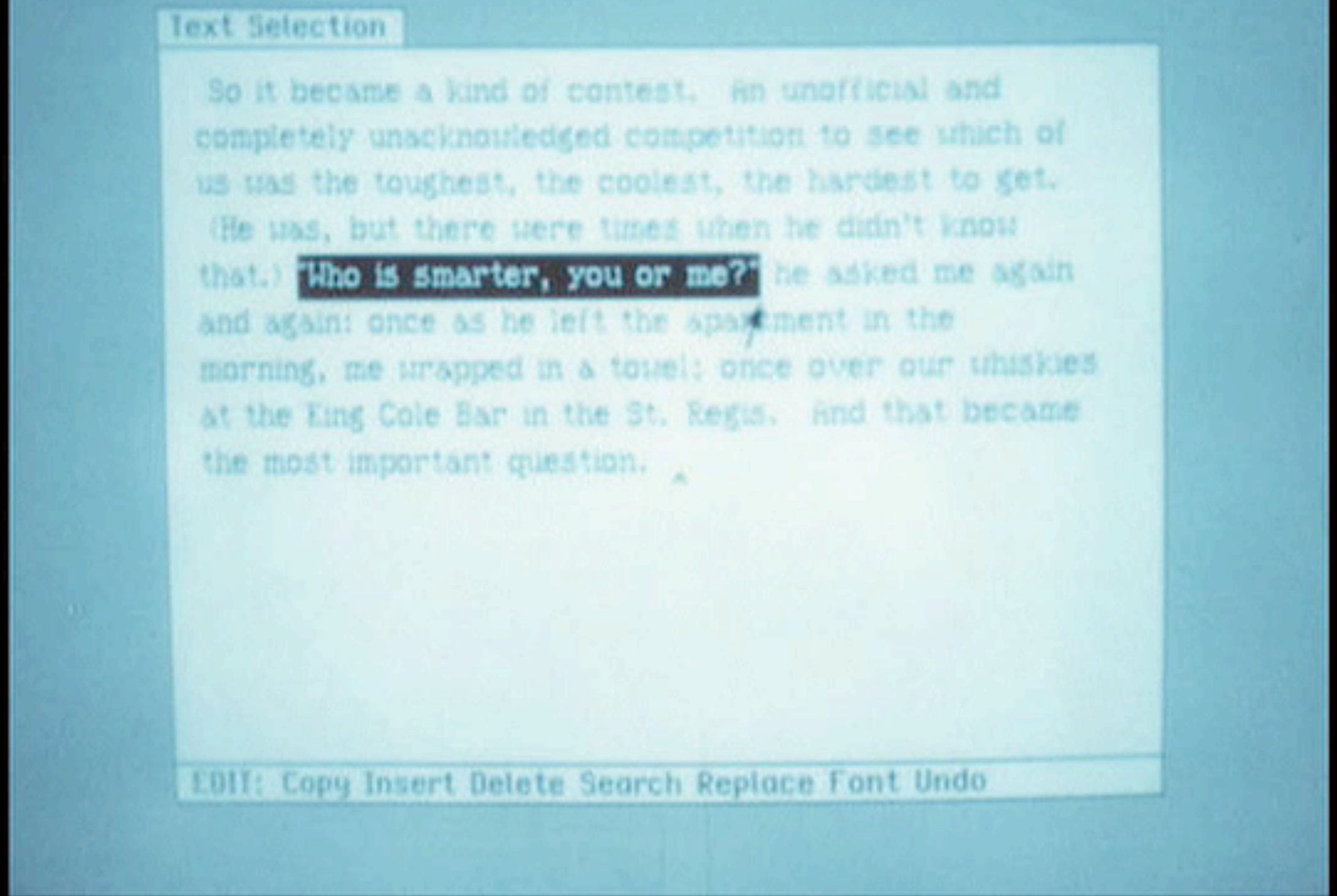
Larry Tesler

-involved users also in the software design process
-joined PARC in 1973
-moved to Apple in 1980
-was the core designer of Apples “Lisa” computer
-invented the “copy and paste” function

http://www.designinginteractions.com/interviews/LarryTesler


Text Selection
So it became a kind of contest. An unofficial and completely unacknowledged competition to see which of us was the toughest, the coolest, the hardest to get. (He was, but there were times when he didn't know that.) "Who is smarter, you or me?" he asked me again and again: once as he left the apartment in the morning, me wrapped in a towel; once over our whiskies at the King Cole Bar in the St. Regis. And that became the most important question.
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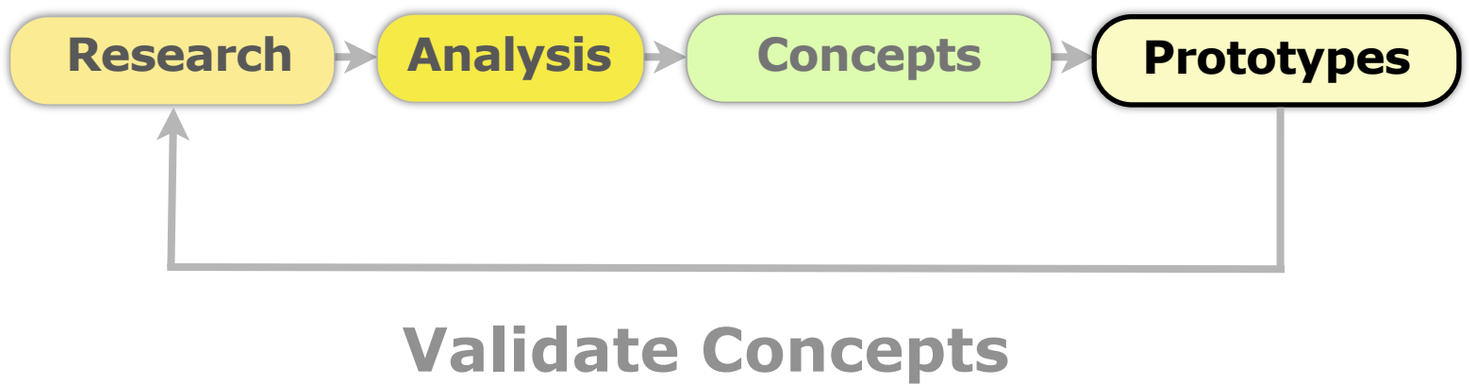
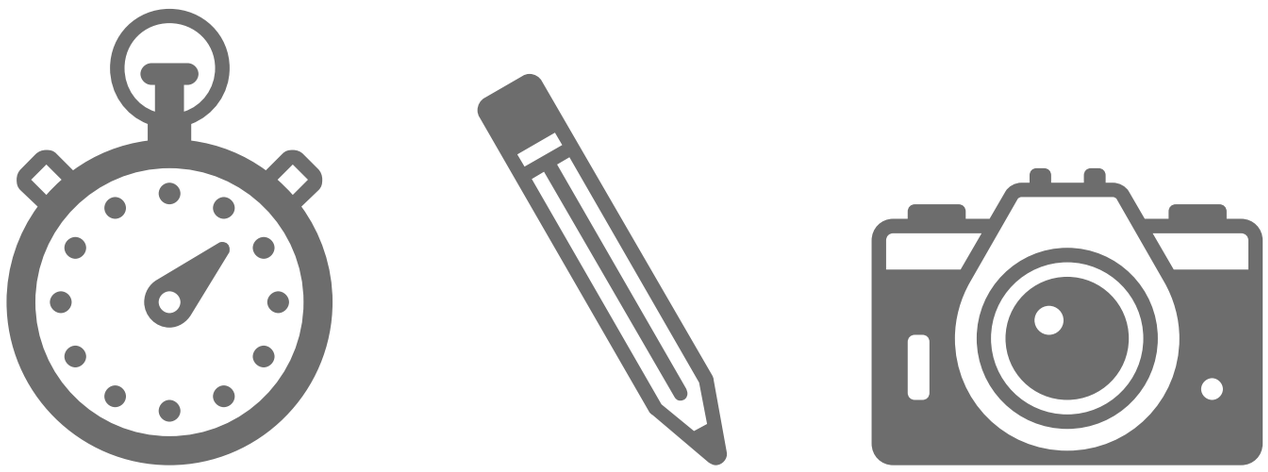
Looking back...

-brainstorming and iterative trying and testing (iterative design process)



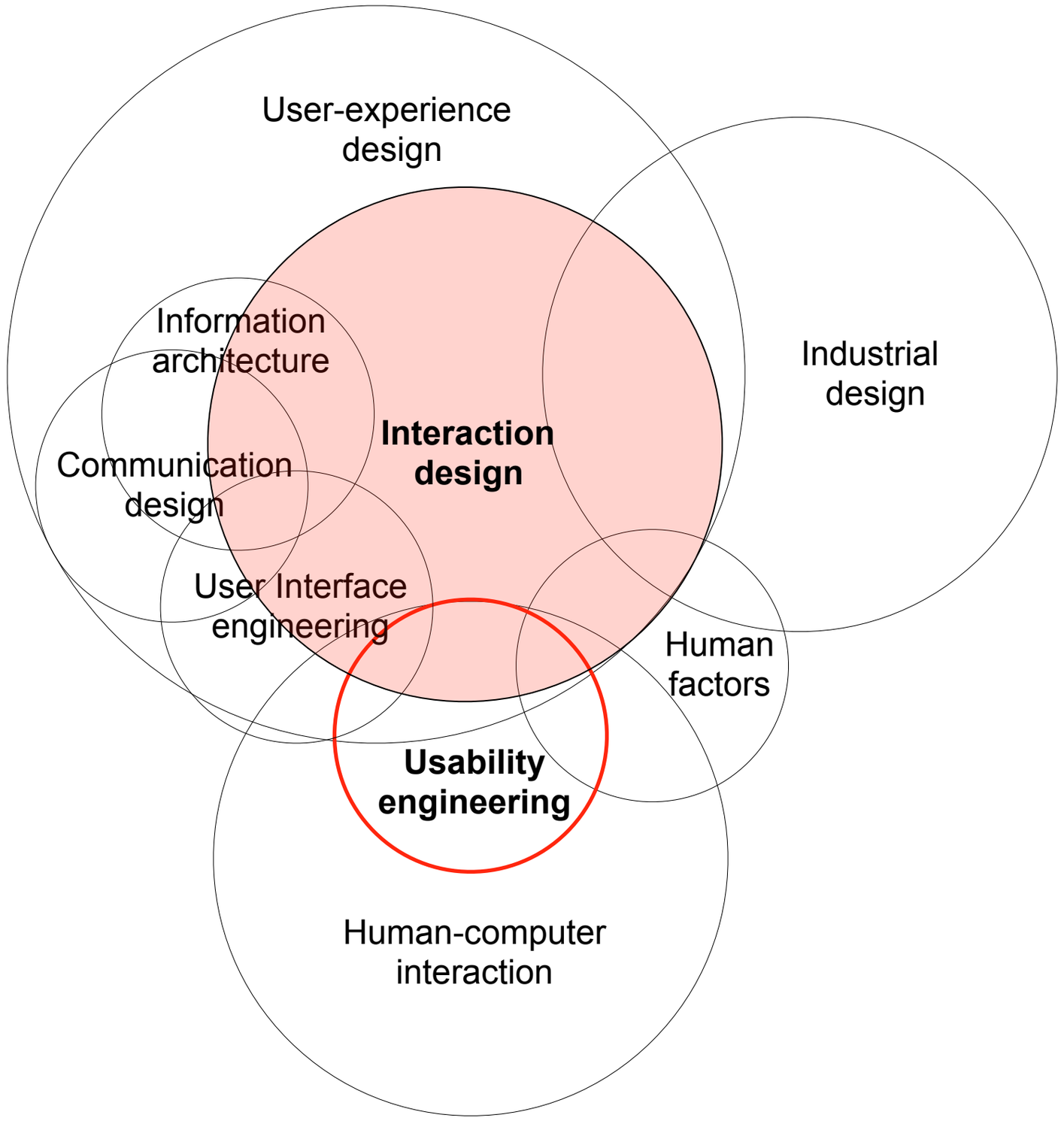
Looking back...

-brainstorming and iterative trying and testing (iterative design process)
-constant, quick and efficient tests with users to improve the system (experience prototyping)



Looking back...

-brainstorming and iterative trying and testing (iterative design process)
-constant, quick and efficient tests with users to improve the system (experience prototyping)
-developing products for the users´core needs (user centered design process)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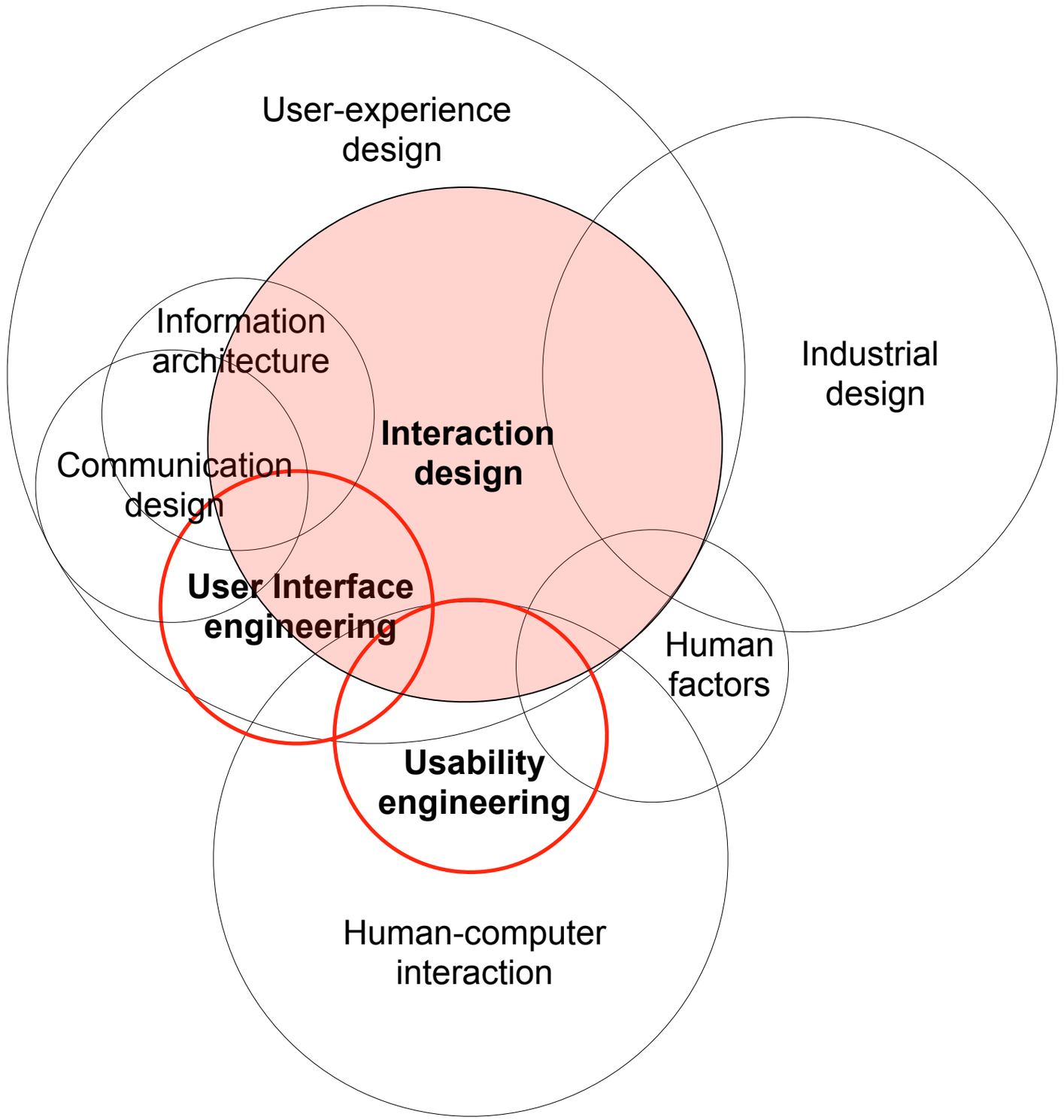
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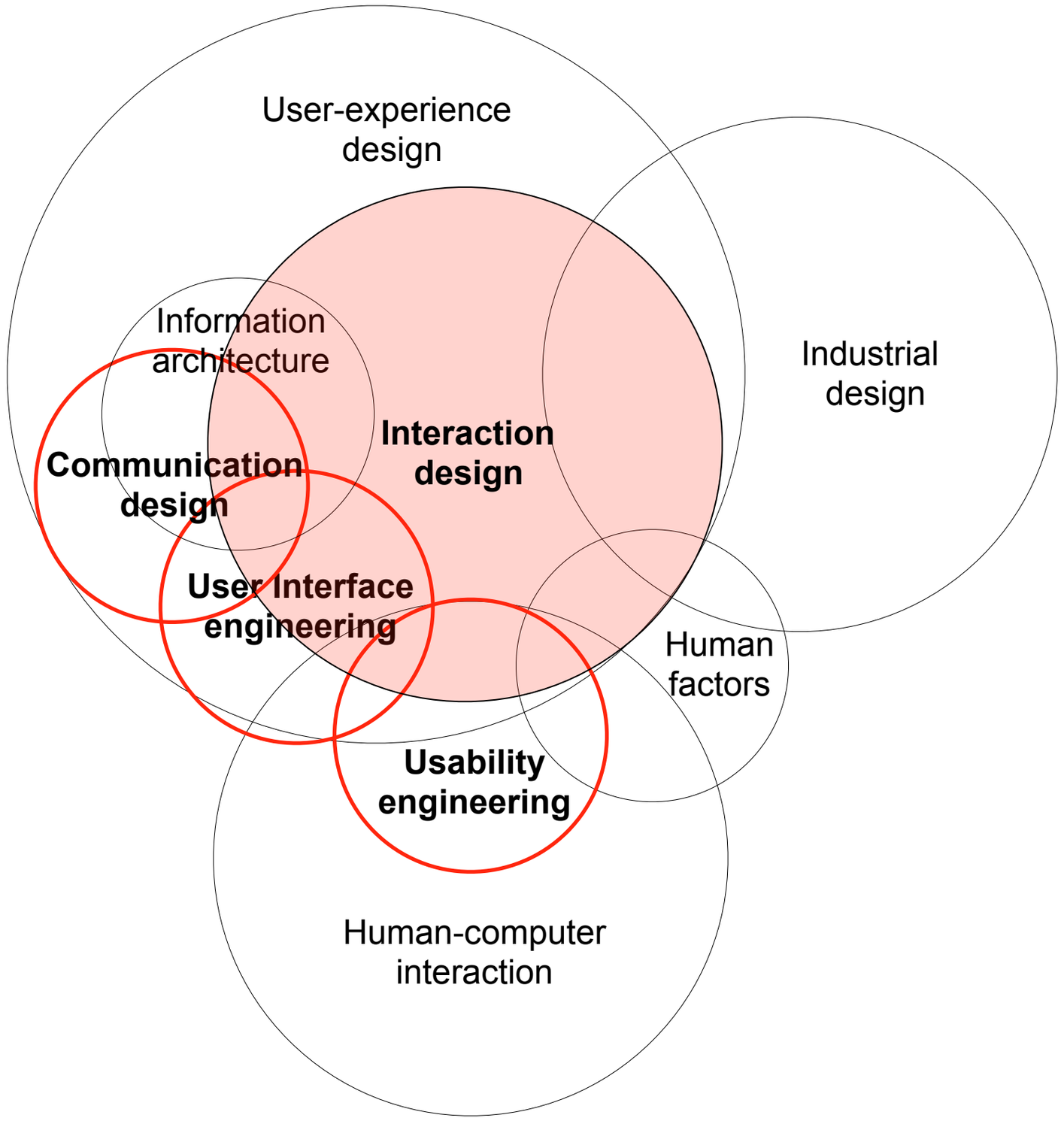
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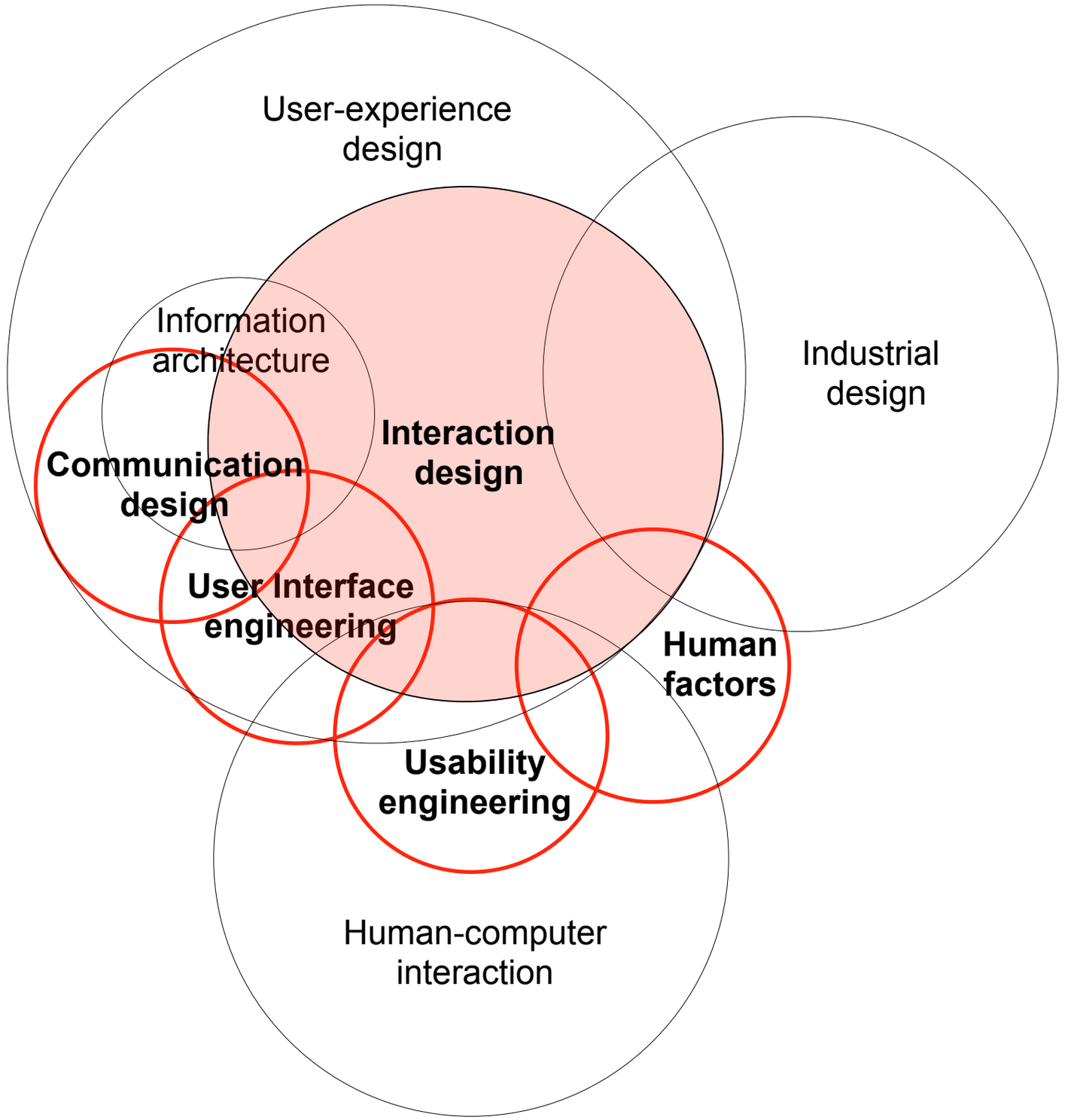
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Bill Atkinson

-was hired by Apple as the “Application Software Department”
-invented the “pull down” menu structure
-was the lead designer of the “Lisa” and the initial “Mac”

http://www.designinginteractions.com/interviews/BillAtkinson

Looking back...

-alternative designs in a variety (sketches & prototypes)

Looking back...

-alternative designs in a variety (sketches & prototypes)
-proposal of a participatory design approach, creating better UIs

Apple Lisa 1983

http://media.arstechnica.com/images/gui/11-Mac1.gif

File Edit View Special

Mac System Software

3 items 227K in disk 173K available

System Folder

Empty Folder

SysVersion

System Folder

5 items 211K in folder 173K available

Finder System Imagewriter Note Pad File Scrapbook File Clipboard File

Mac System Softwa

Trash

Macintosh System 1.0. January 1984

http://media.arstechnica.com/images/gui/11-Mac1.gif

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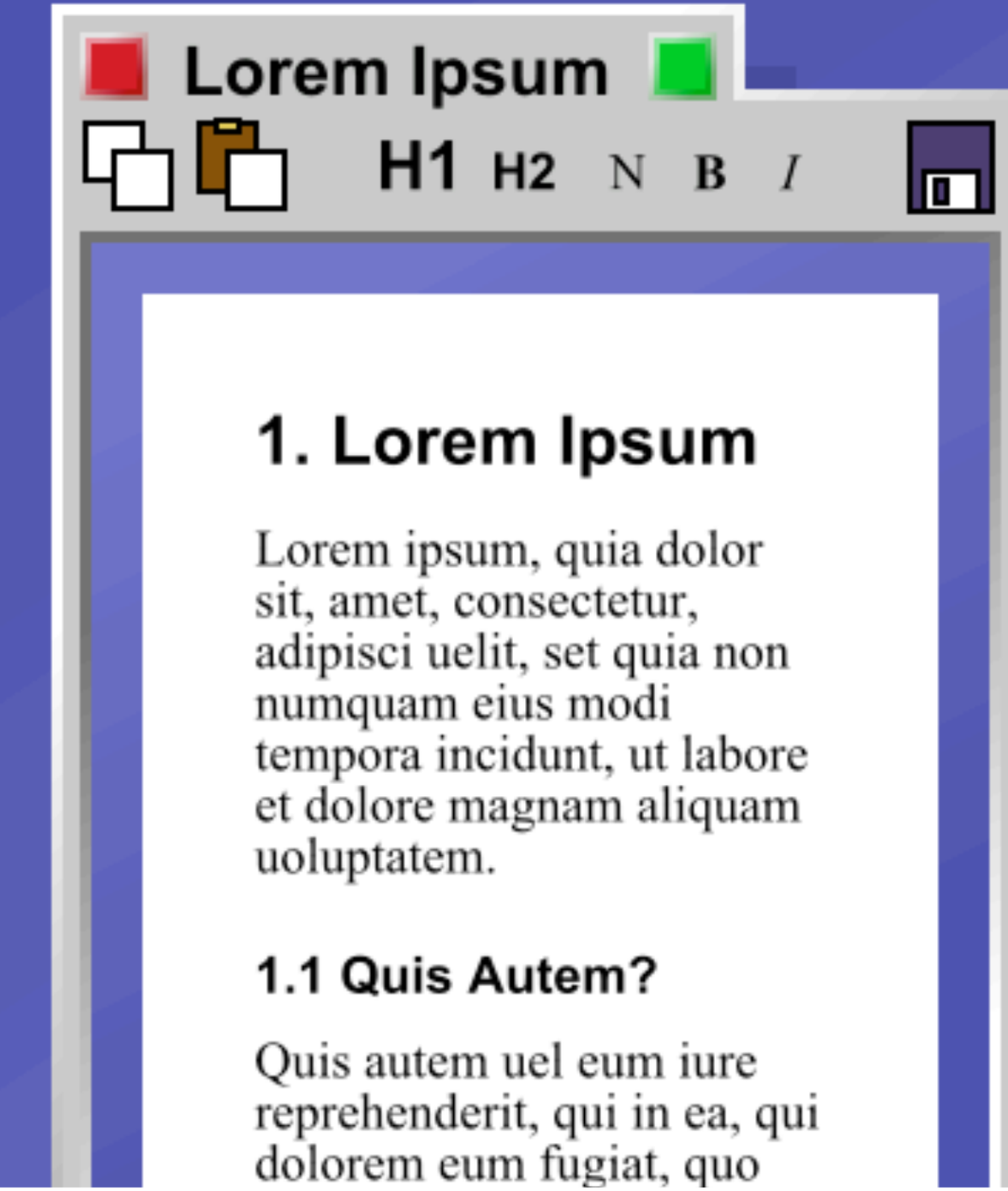
Finder System Imagewriter Note Pad File Scrapbook File Clipboard File

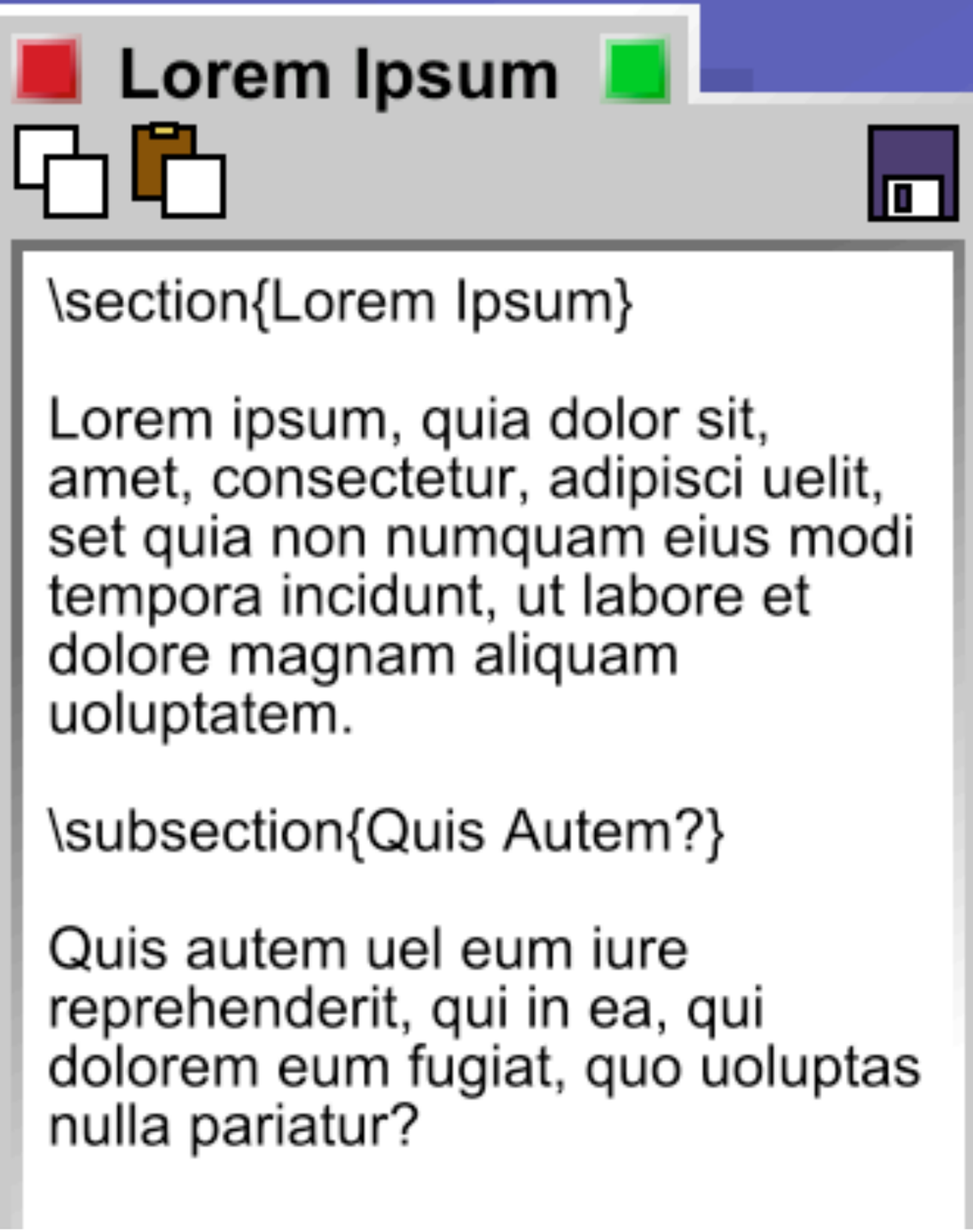
Mac System Softwa

WIMP

-stands for "window, icon, menu, pointing device"
-coined by Merzouga Wilberts in 1980
-is often incorrectly used as an approximate synonym of "GUI".

http://media.arstechnica.com/images/gui/11-Mac1.gif



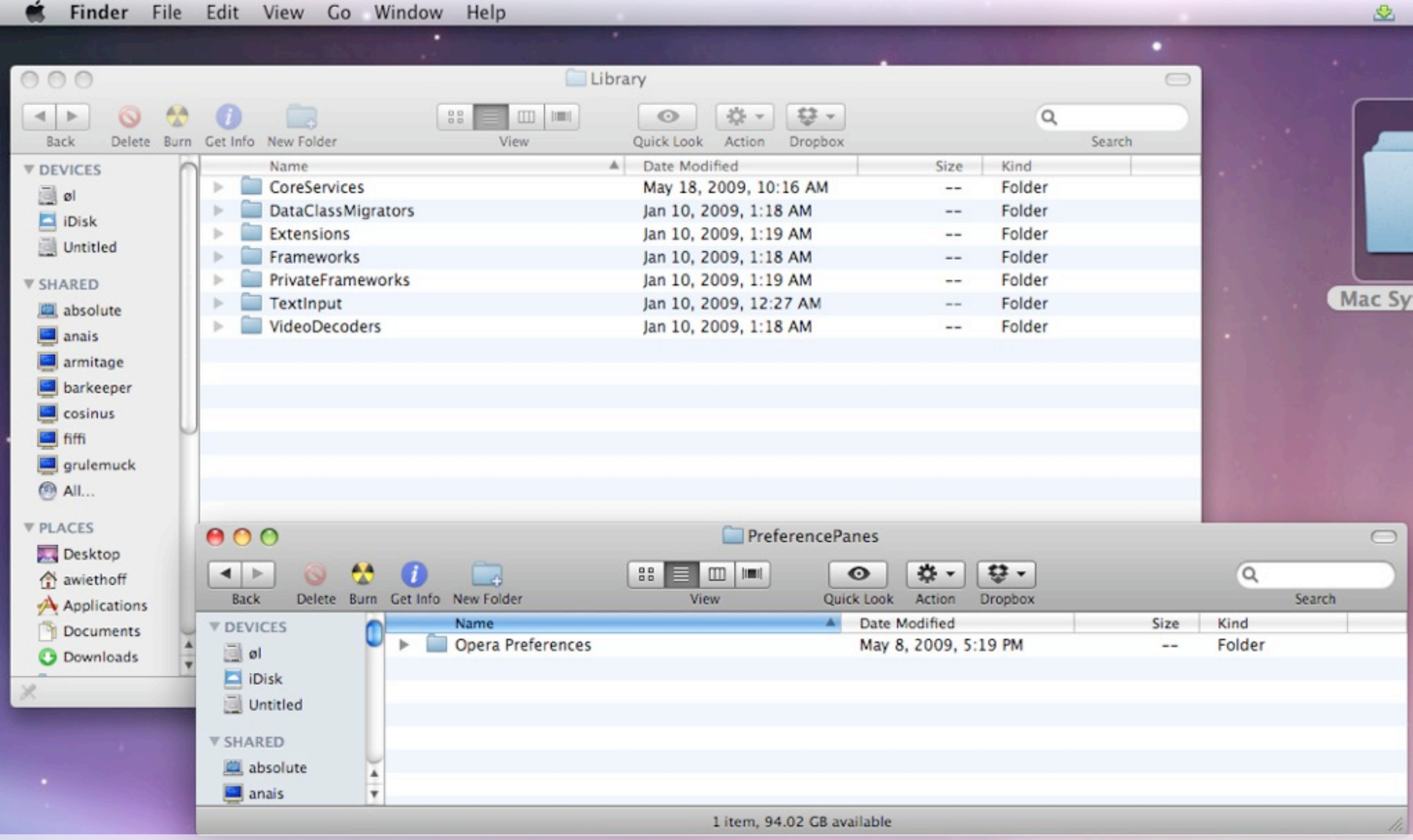


WYSIWYG

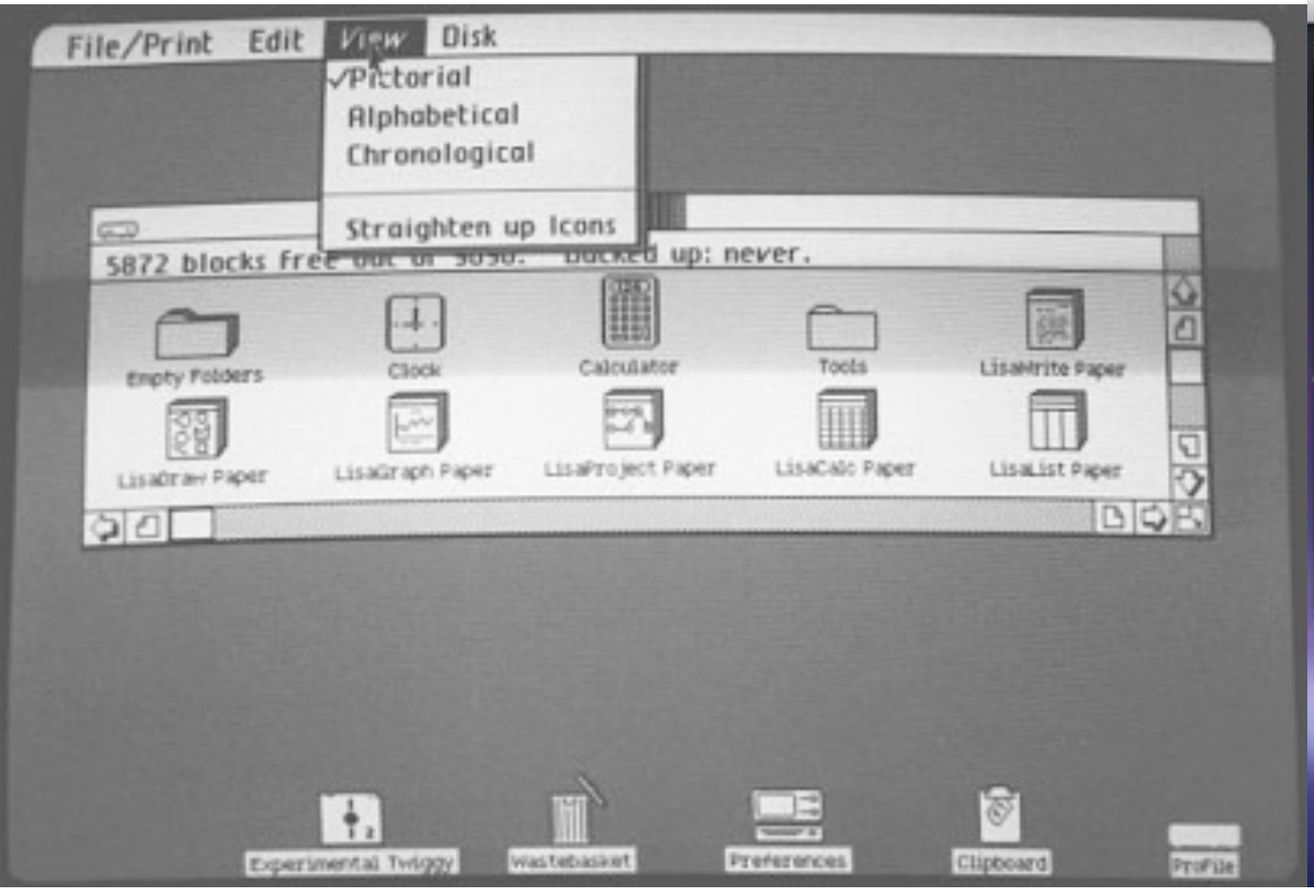
-user interface that allows the user to view something very similar to the end result

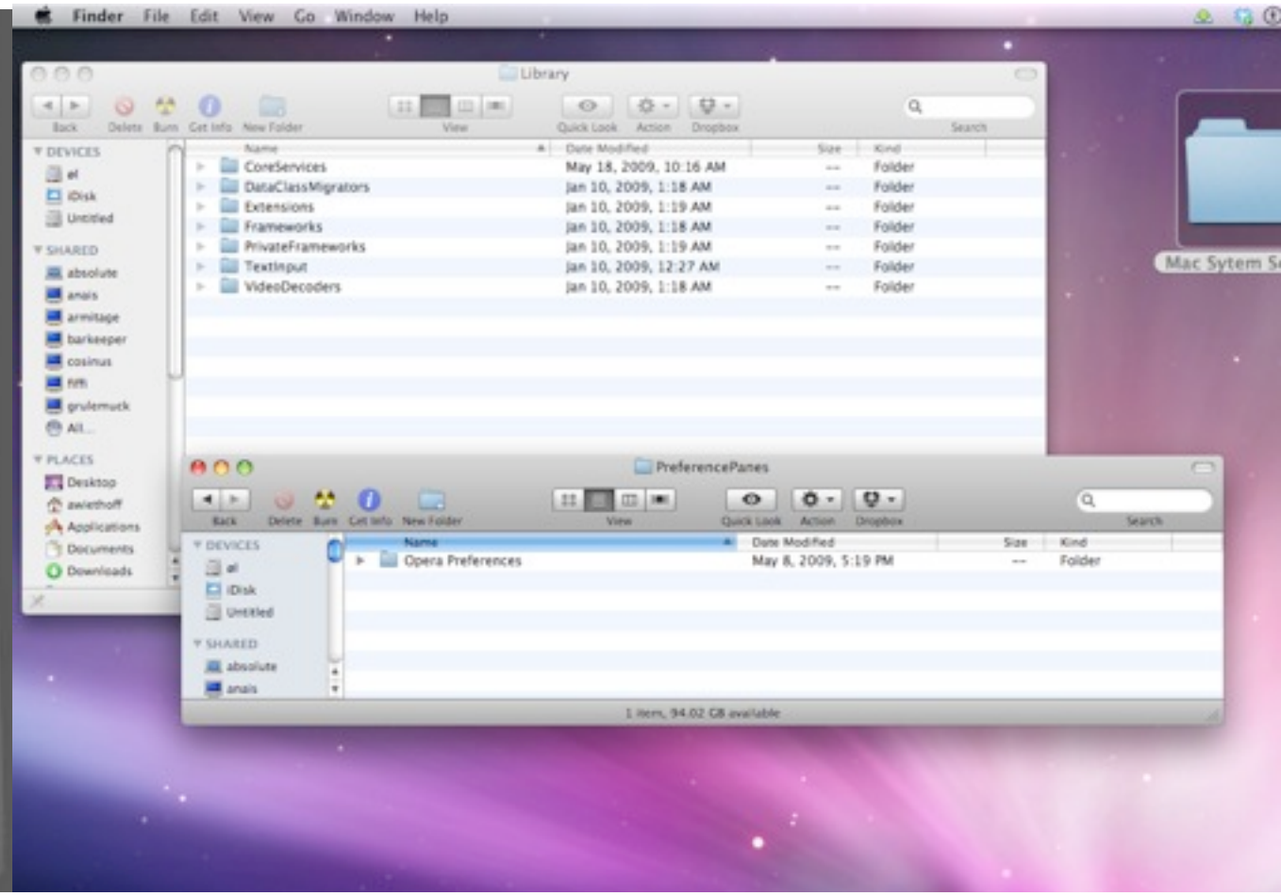
-implies the ability to directly manipulate the layout of a document/presentation/3D model without having to type or remember names of layout commands.

http://en.wikipedia.org/wiki/File:Lorem_Ipsum_-_WYSIWYG_en_Latex_-_tekst_als_paden.svg



October 2007: Mac OS X 10.5





over 25 years in between....

INTERACTION DESIGN

photo credits © bill verplank

“There is an objectivity in the process of letting the user decide, the value of which is a recurring theme in this story of designing the desktop and the mouse. **Come up with an idea, build a prototype, and try it on the intended users.** That has proved, time and time again, to be the best way to create innovative solutions.”

Bill Moggridge - Designing Interactions

References (Books):

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[5] Sanders, E. Stepping Stones Across the Gap.Essay in DAIM – Rehearsing the Future, *DKDS Press 2010.*

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[6] http://www.businessweek.com/innovate/next/archives/2008/12/what_apple_lear.html