Brad Myers' Class, March 12, 2025

Direct Manipulation and its Many Children

Ben Shneiderman

Founding Director (1983-2000), Human-Computer Interaction Lab
Professor Emeritus, Dept of Computer Science

Member, National Academy of Engineering

UNIVERSITY OF MARYLAND

Photo: BK Adams

Bravos to Brad for his book

Point , Click, Flick!

42 Years of the HCIL

Catherine **PLAISANT**

Ben **BEDERSON**

Allison **DRUIN**

Jen **GOLBECK**

Mona Leigh **GUHA**

June **AHN**

Niklas **ELMQVIST**

Jessica **VITAK**

Years

1983-2000

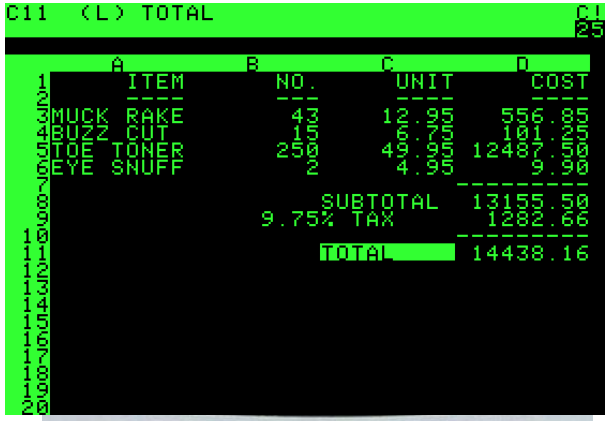
Ben Shneiderman
Catherine Plaisant

Highlights

- Direct Manipulation
- Hypertext & the **link**
- Touchscreens
- Treemaps
- Photo-tagging
- Dynamic Queries
- Query Previews
- Lifelines
- *Designing the User Interface*

Direct Manipulation (1981)

- Mastery of the system
- Competence in performing tasks
- Ease in learning the basic and advanced features
- Confidence in retaining mastery
- Enjoyment in using the system
- Eagerness to show it off to novices
- Desire to explore more powerful features



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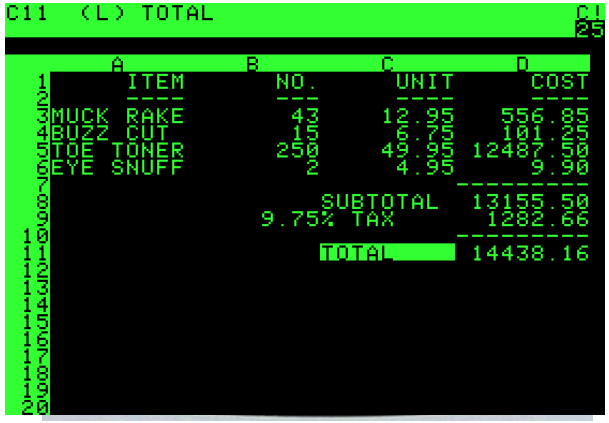

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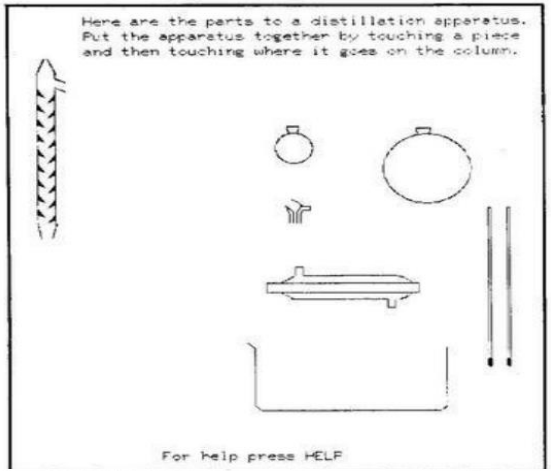

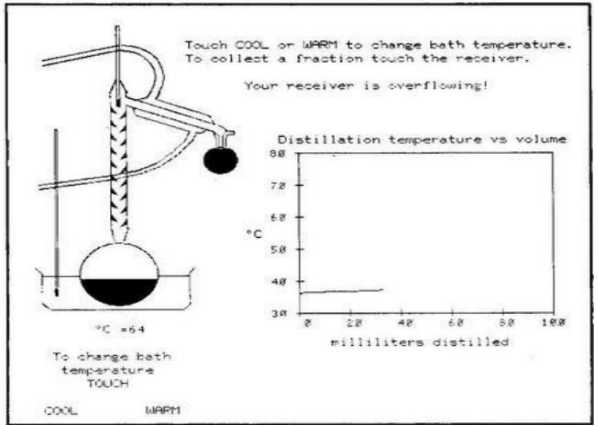

Direct Manipulation (1981)

- Continuous representation of the objects of interest
- Physical actions (movement and selection by mouse, joystick, touchscreen) or labeled buttons instead of complex syntax
- Rapid, incremental, reversible actions whose impact on the object of interest is immediately visible

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- Layered or spiral approach to learning
  that permits usage with minimal knowledge.
  Novices can learn a modest and useful set of commands,
  which they can exercise at level 1 of the system.
  After obtaining reinforcing feedback from successful operation,
  users can gracefully expand their knowledge and gain fluency.

BEN SHNEIDERMAN

Direct Manipulation vs Interface Agents

PATTIE MAES

Ben Shneiderman is a long-time proponent of direct manipulation for user interfaces. Direct manipulation affords the user control and predictability in their interfaces. Pattie Maes believes direct manipulation will have to give way to some form of delegation—namely software agents. Should users give up complete control of their interaction with interfaces? Will users want to risk depending on "agents" that learn their likes and dislikes and act on a user's behalf? Ben and Pattie debated these issues and more at both IUI 97 (Intelligent User Interfaces conference - January 6–9, 1997) and again at CHI 97 in Atlanta (March 22–27, 1997). Read on and decide for yourself where the future of interfaces should be headed—and why.

Excerpts from debates at IUI 97 and CHI 97

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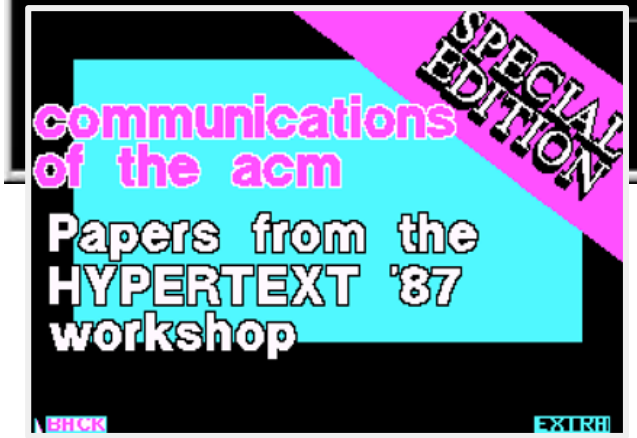
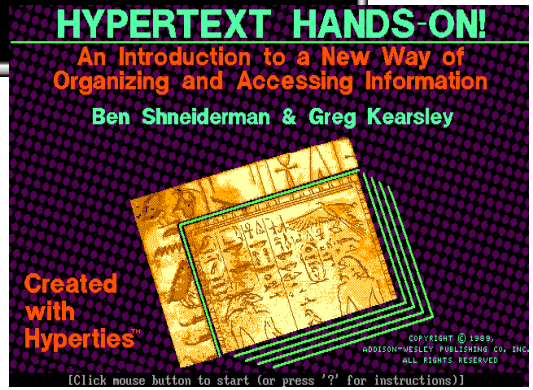
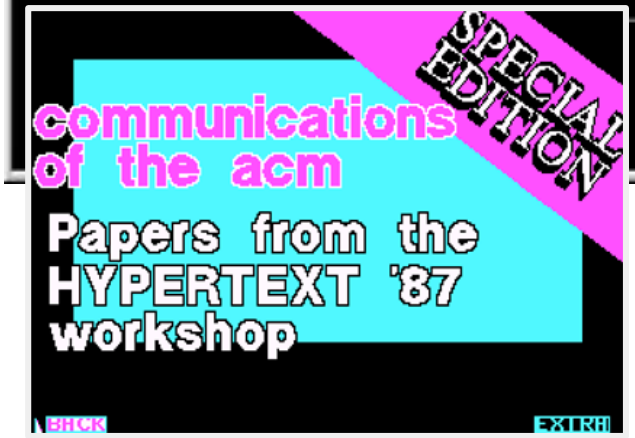
Hypertext Hyperties

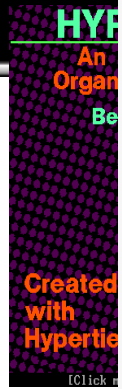
1983...





Hypertext
Hyperties
1983...





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Hypertext

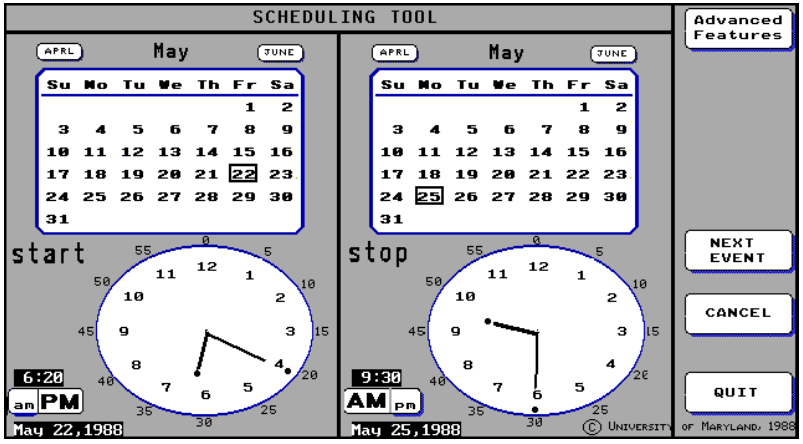
From Wikipedia, the free encyclopedia

For the concept in semiotics, see Hypertext (semiotics).
"Metatext" redirects here. For the literary concept, see Metafic

Hypertext is text displayed on a computer display or other electronic devices with references (hyperlinks) to other text that the reader can immediately access, or where text can be revealed progressively at multiple levels of detail (also called StretchText).[1] Hypertext documents are interconnected by hyperlinks, which are typically activated by a mouse click, keypress set or by touching the screen. Apart from text, the term "hypertext" is also sometimes used to describe tables, images, and other presentational content formats with

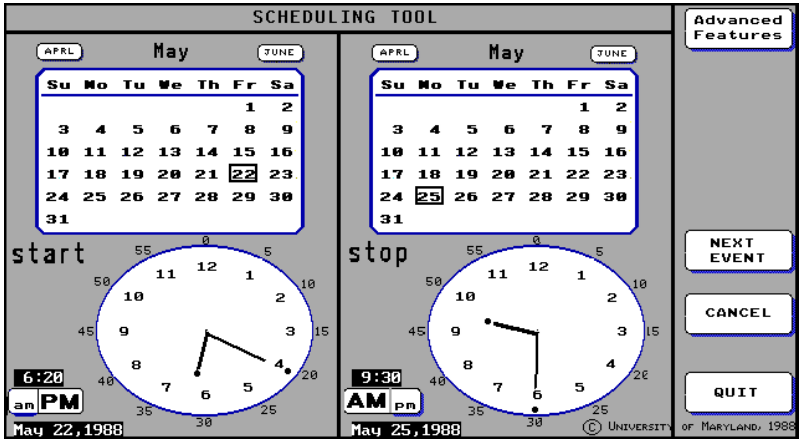
Touchscreen interfaces

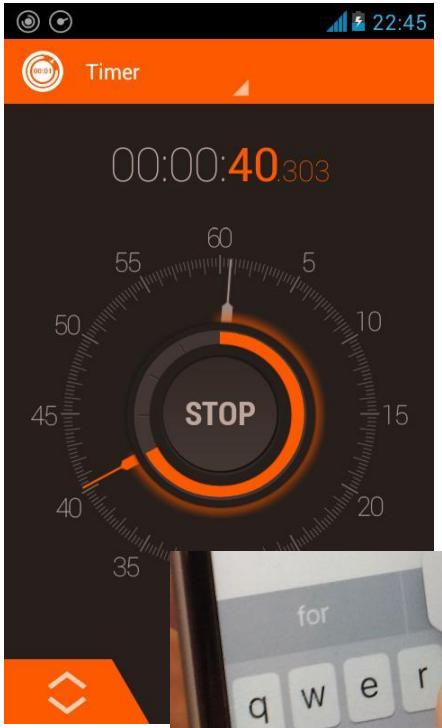
1991

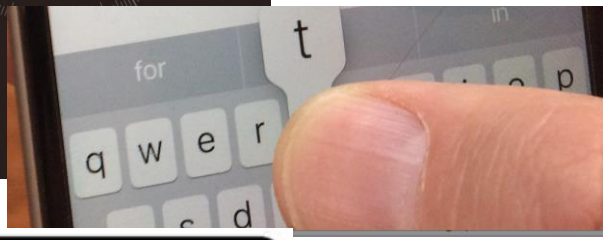


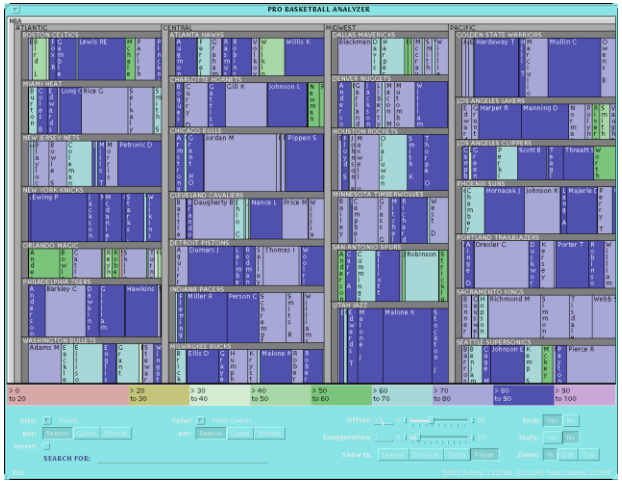
Touchscreen interfaces

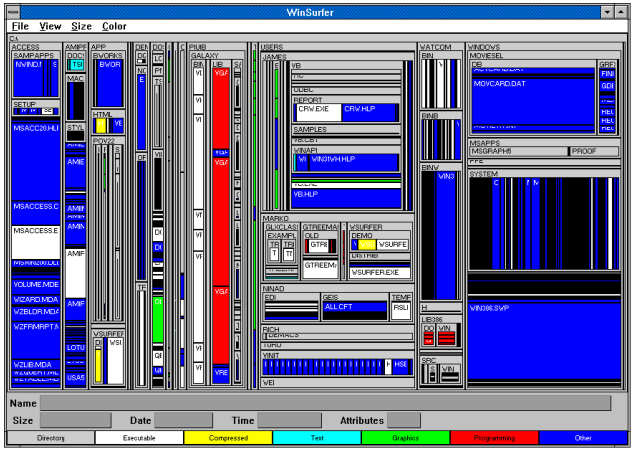
1991...





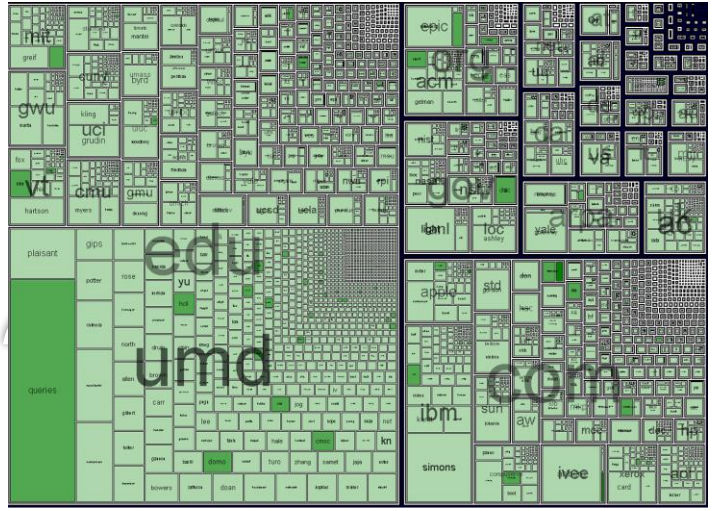






Treemaps

1991



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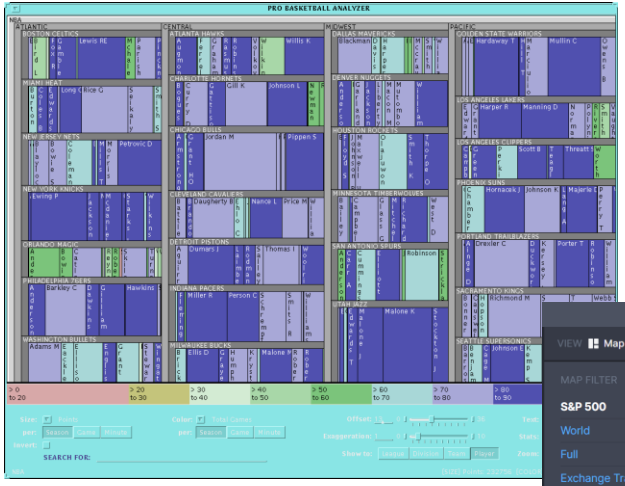

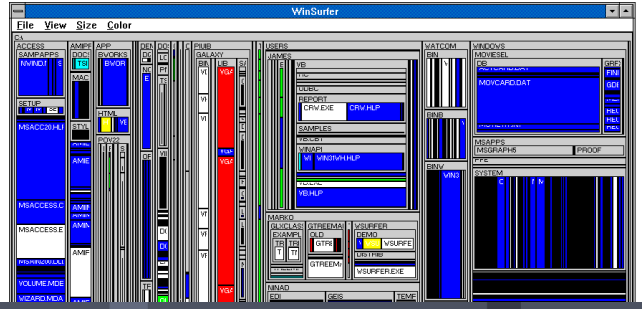

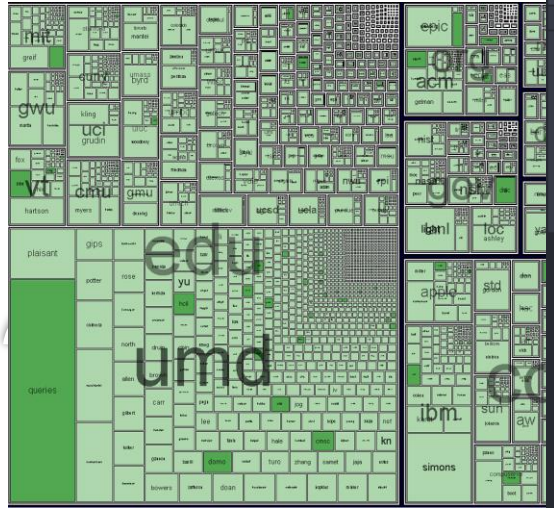

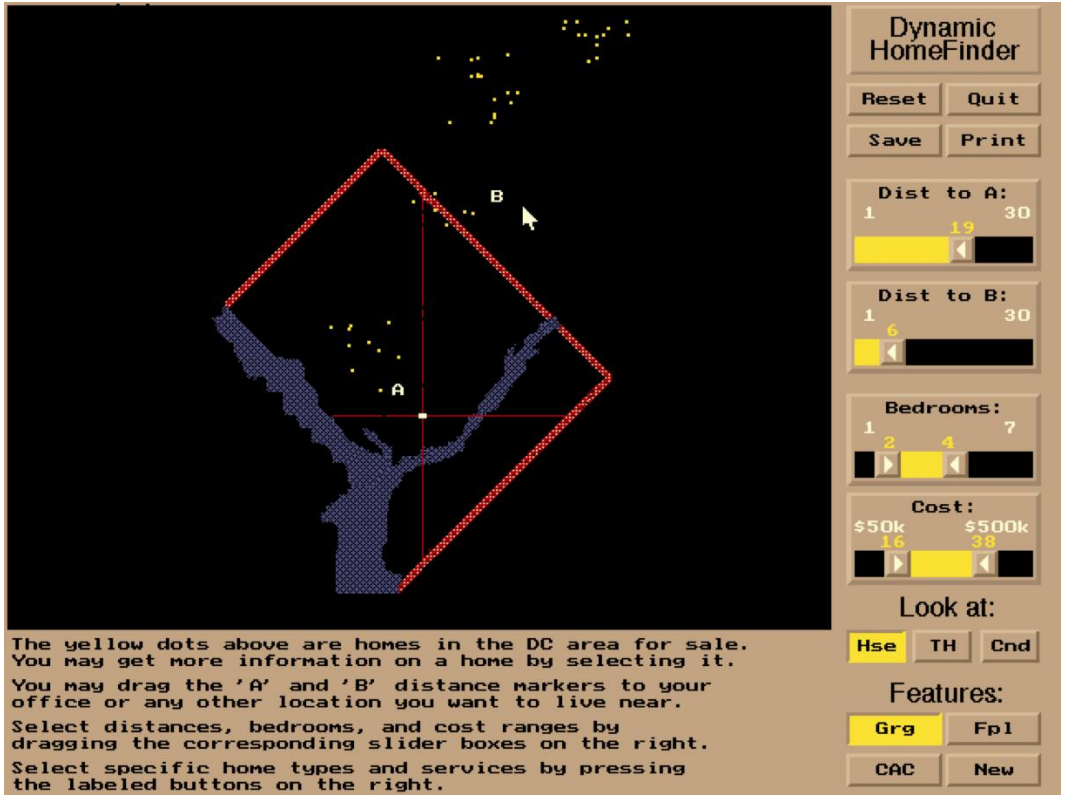

Dynamic queries

for database search

1992

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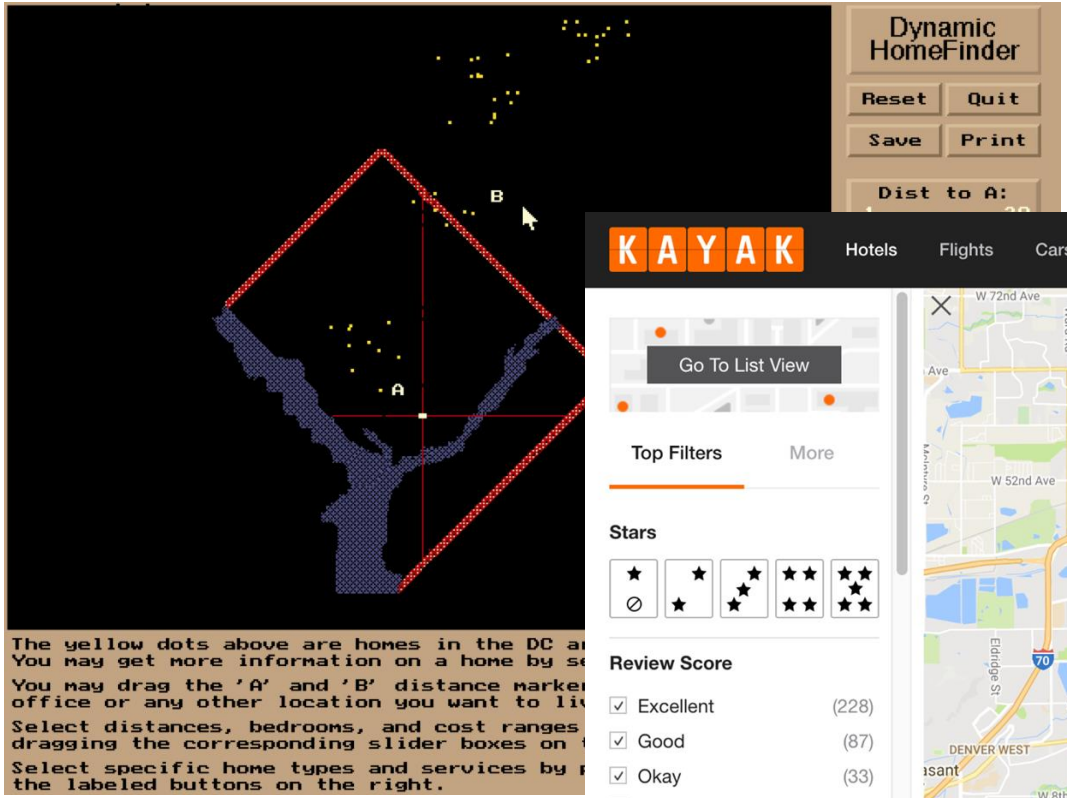

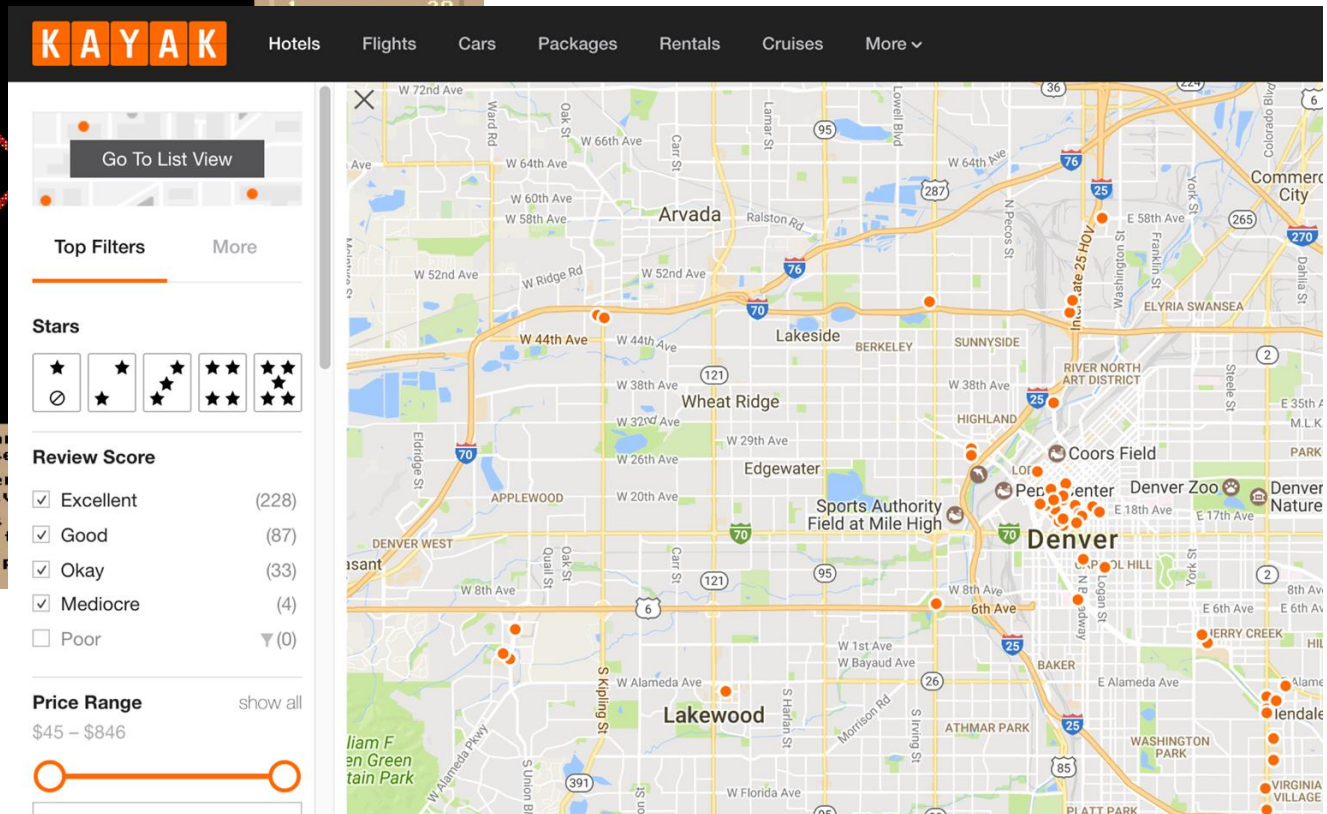

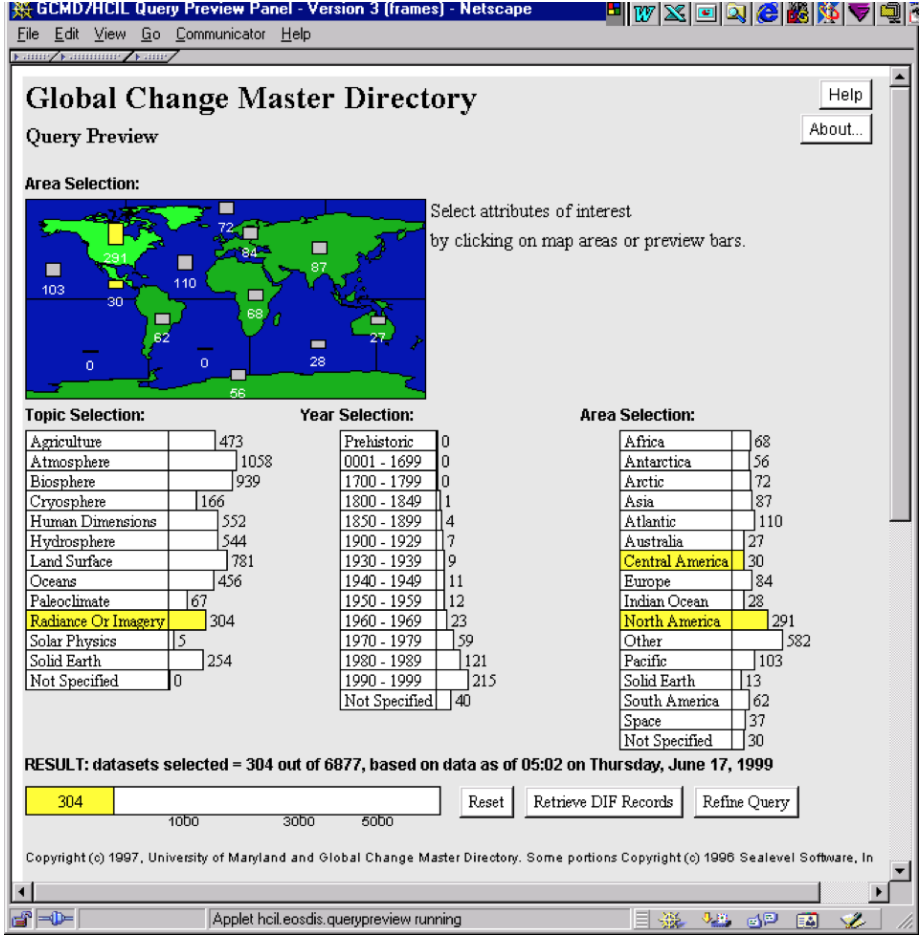

Query previews

1996

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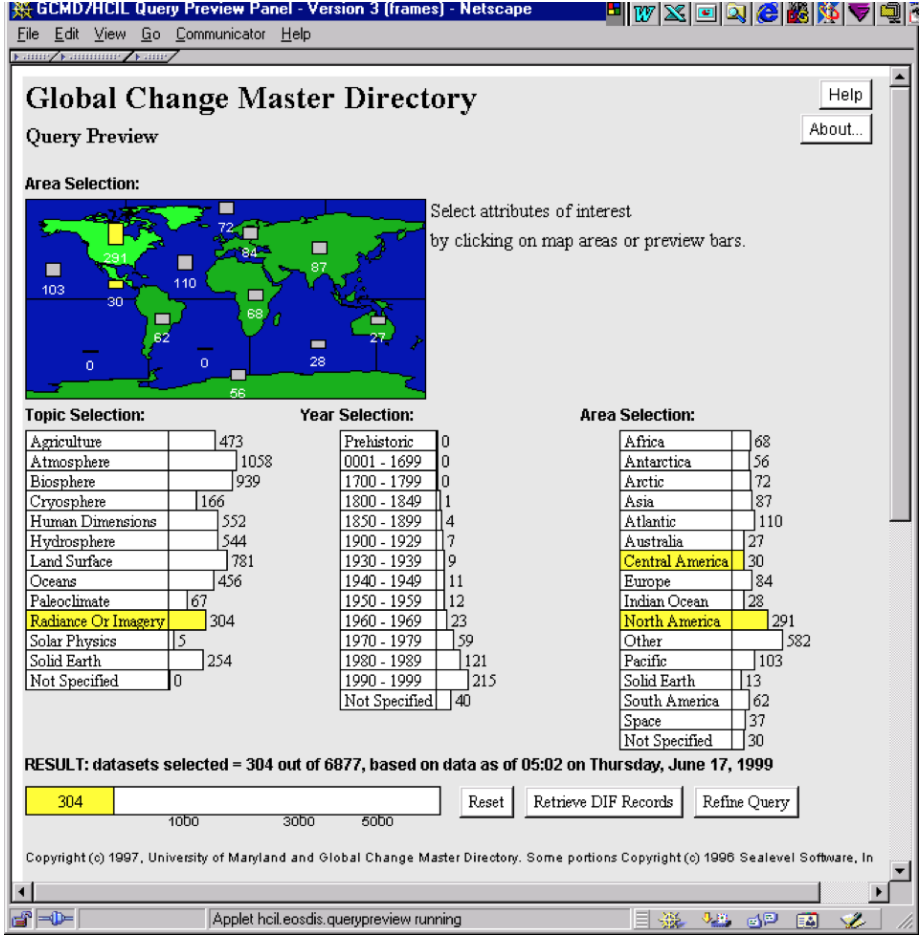

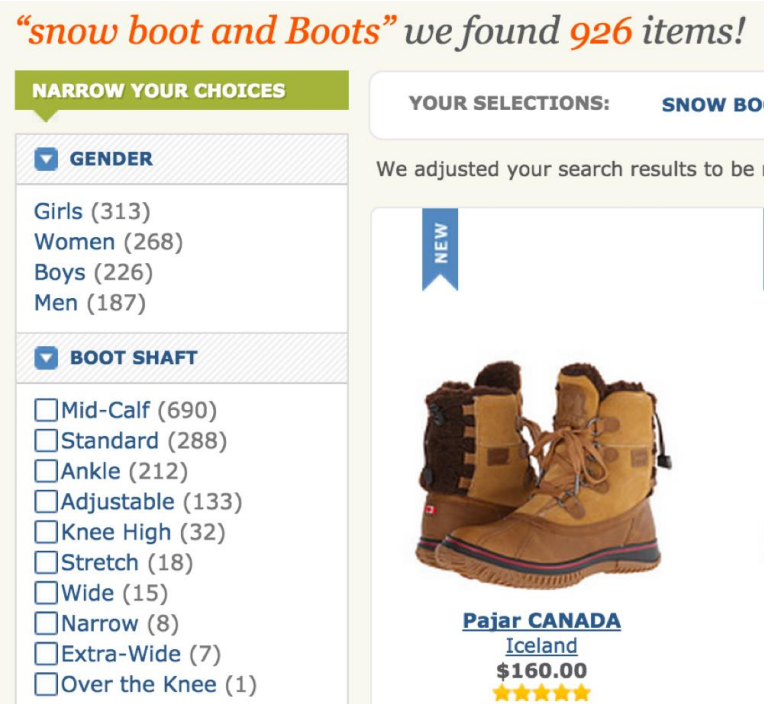

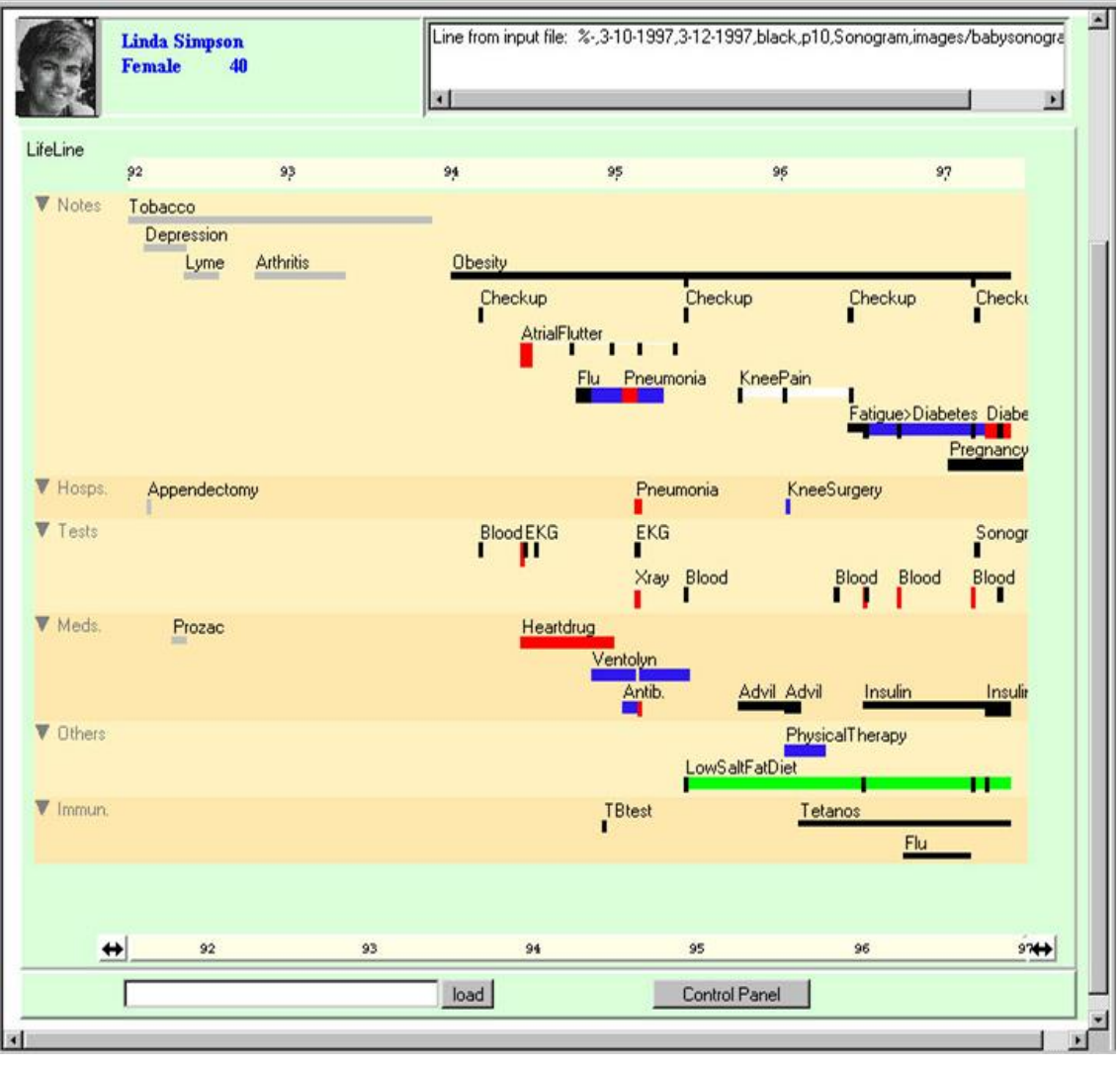

Lifelines

1996

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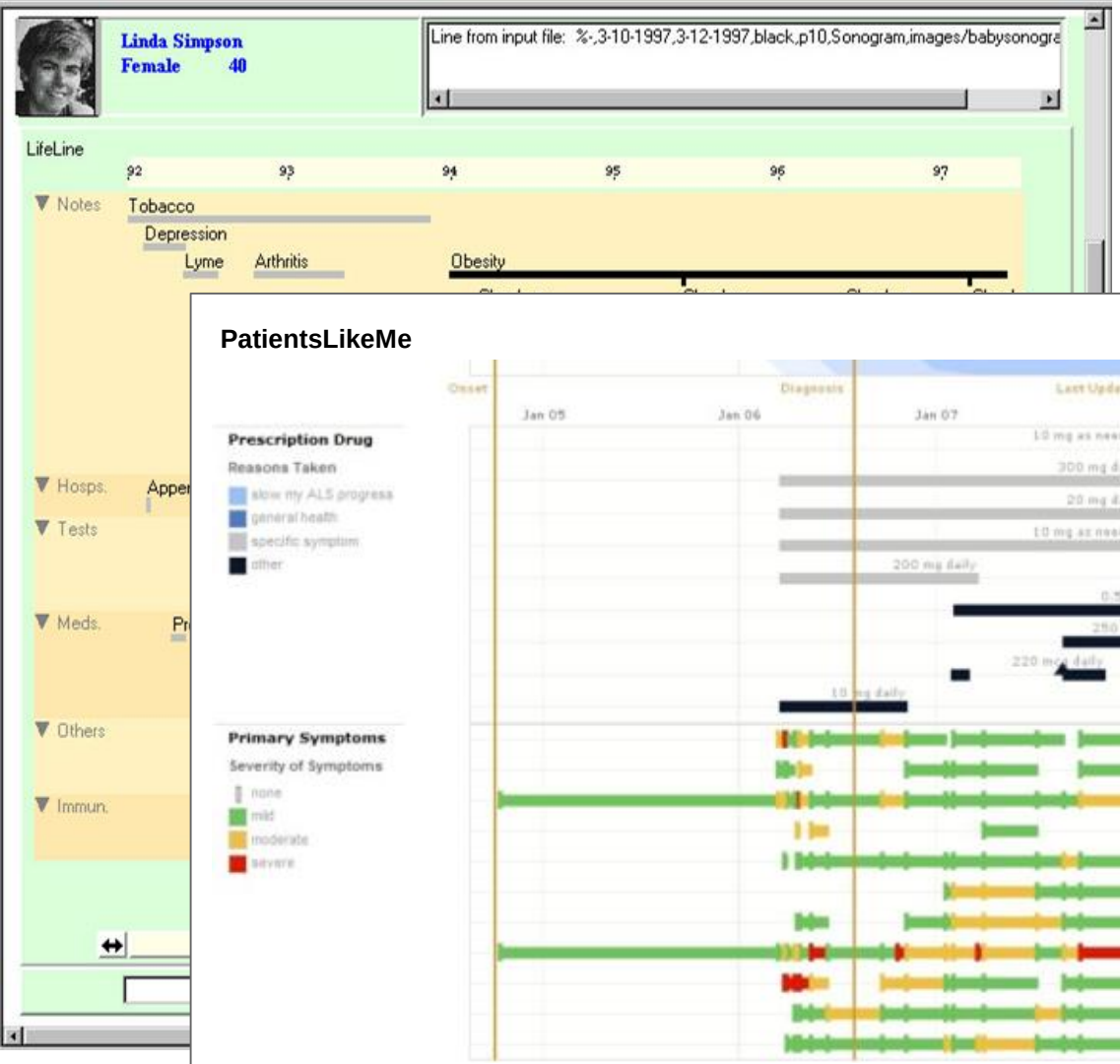

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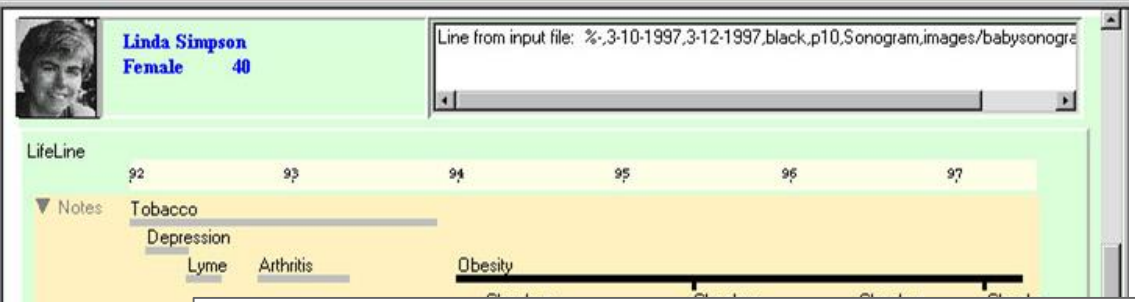
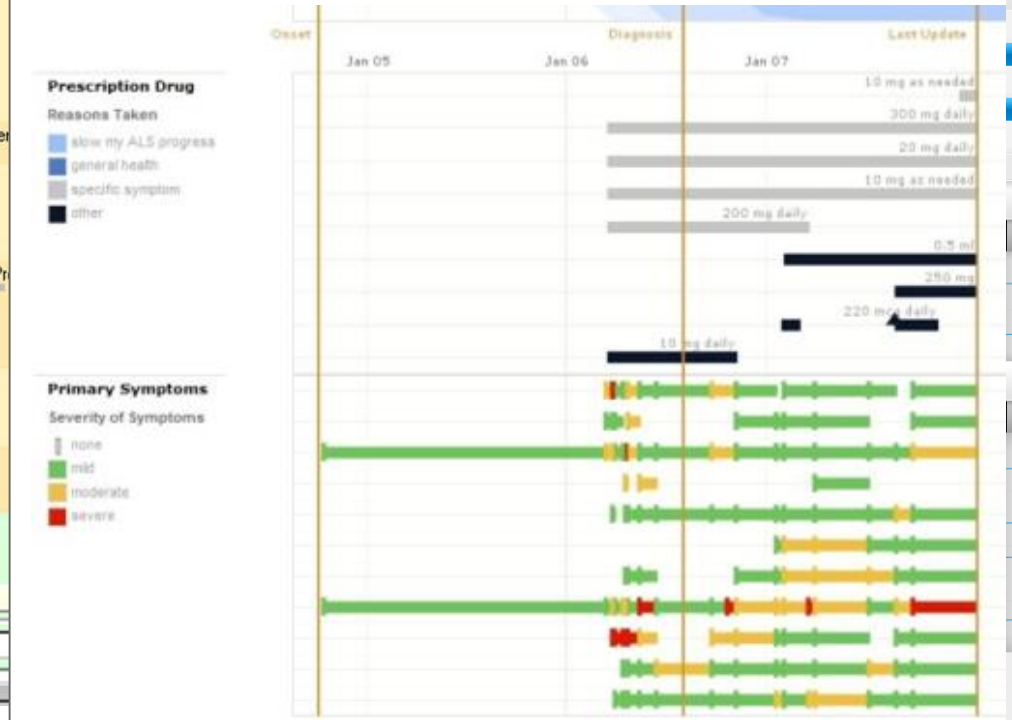


PatientsLikeMe



Allscripts

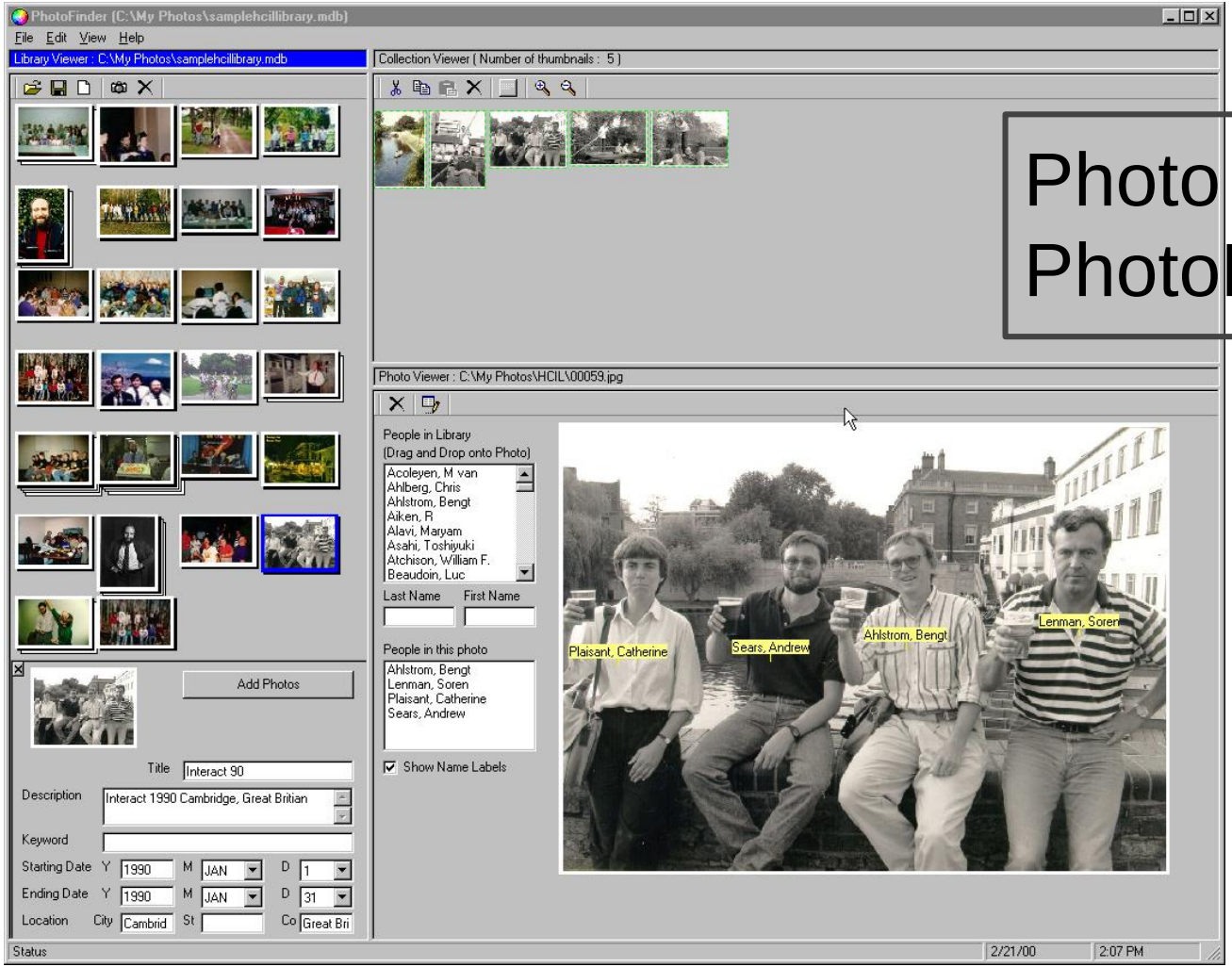
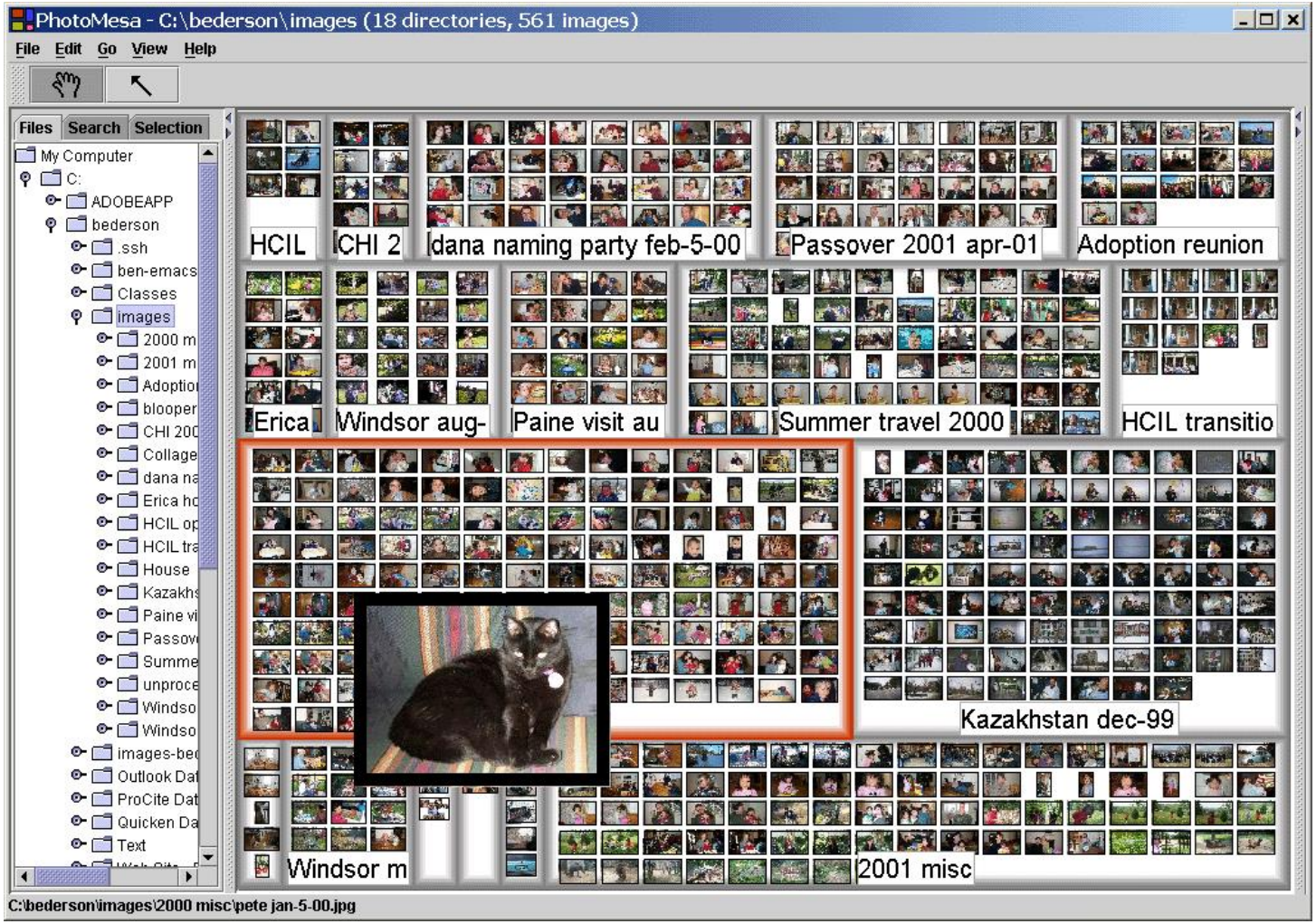


Photo annotation
PhotoFinder 1999



PhotoMesa (2001)

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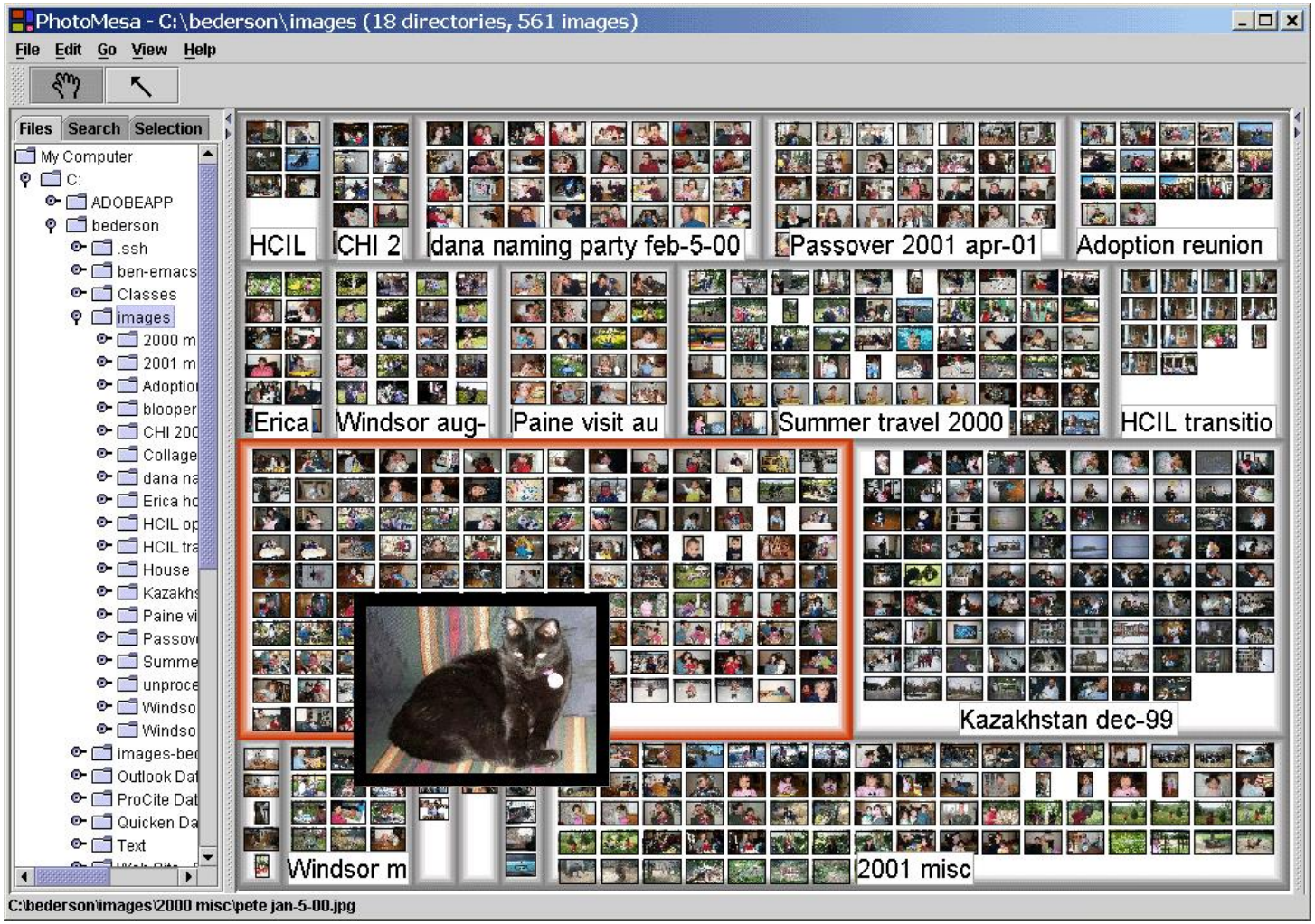
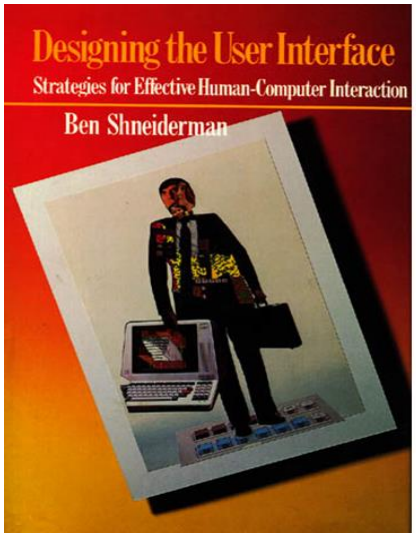
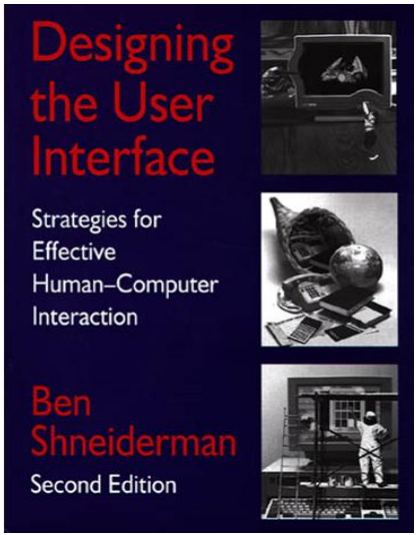


Designing the User Interface

1986



1992



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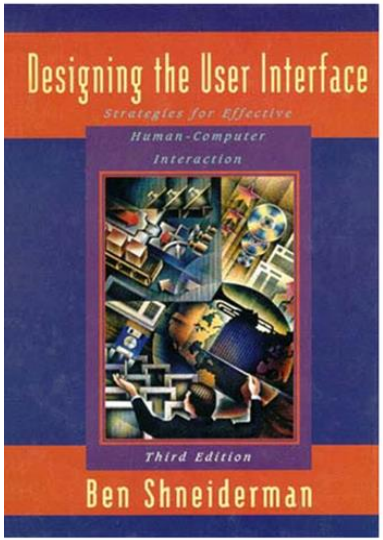

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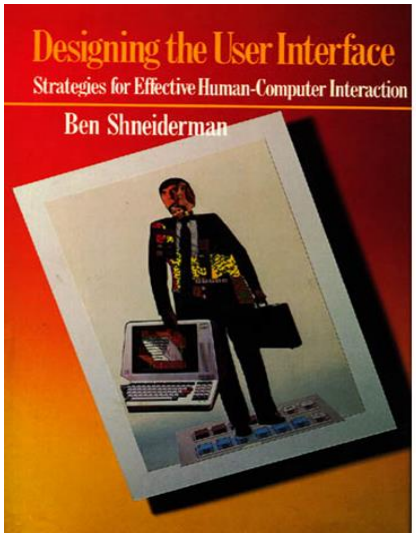

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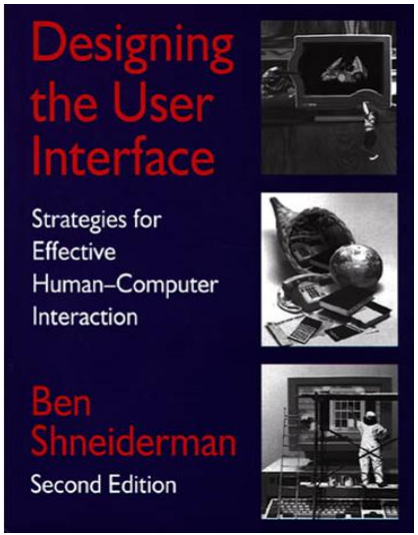
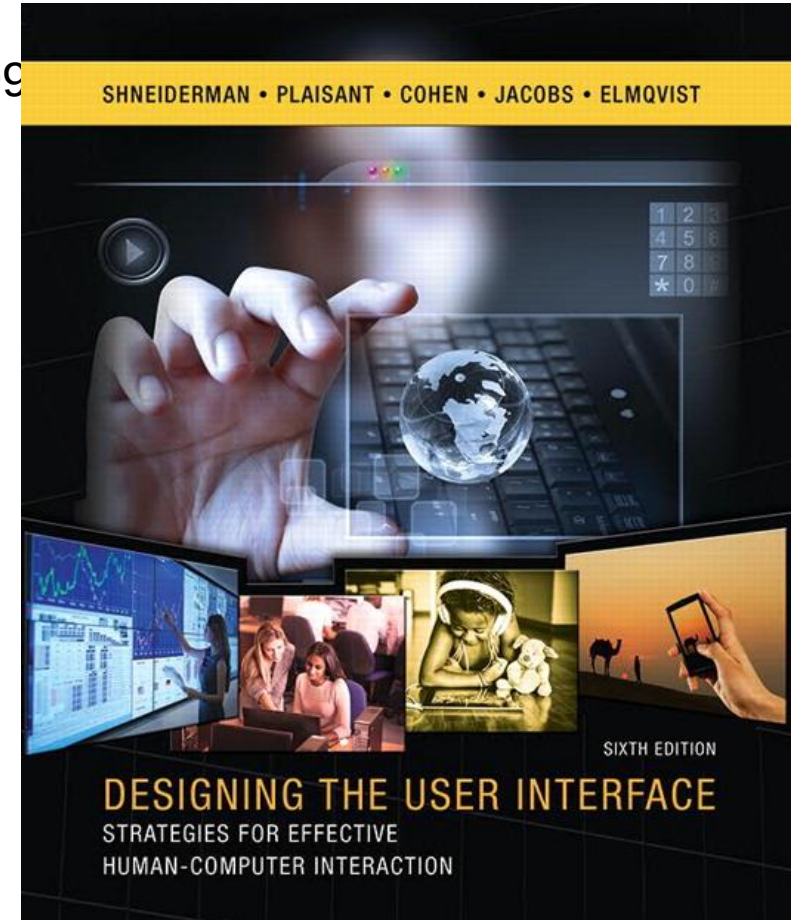


199

2016
6th edition



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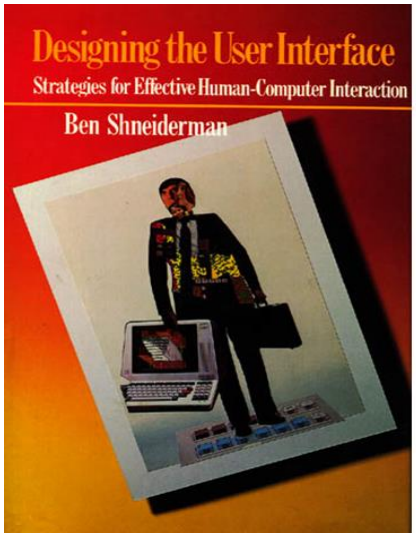

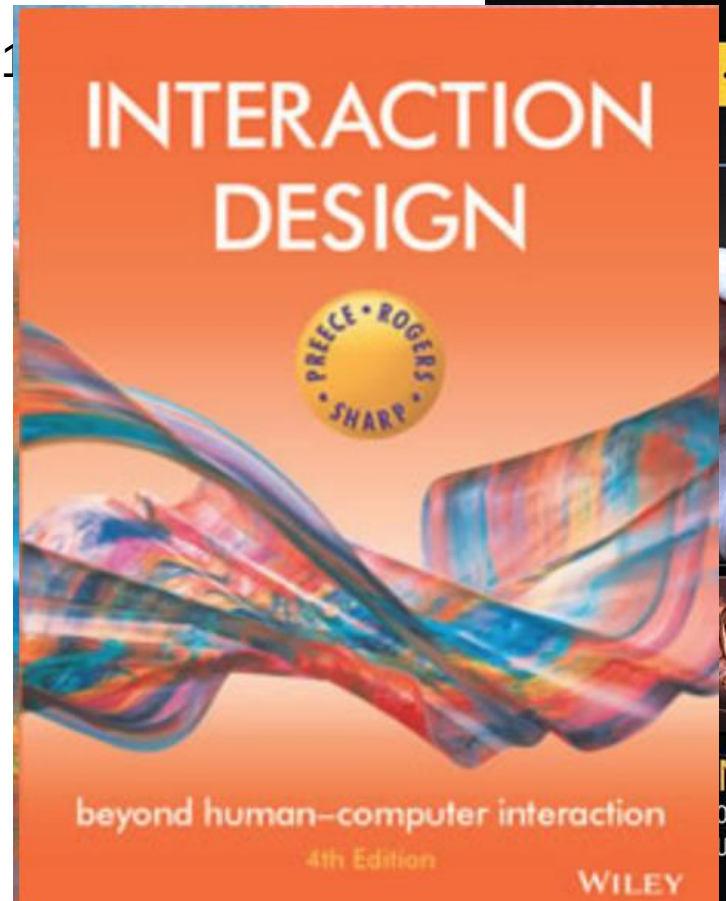

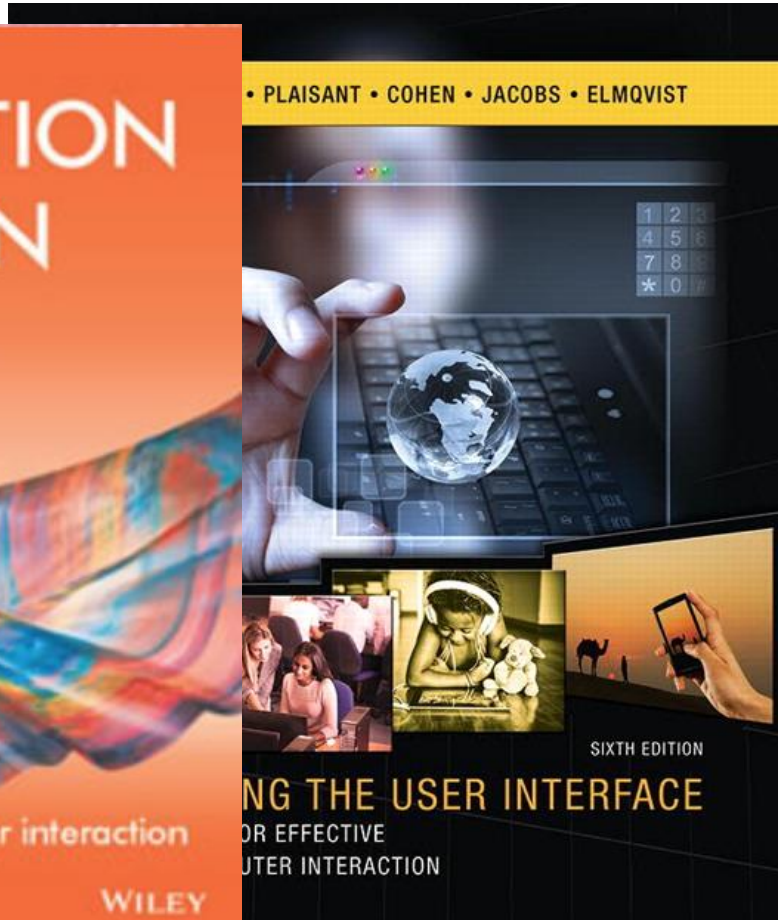

HCIL