

Into the research literature

- Encyclopedias
- Handbooks
- Reference lists
- Full text databases
- Reference databases
- Citation databases

Veien til faglitteraturen

- Leksika
- Håndbøker
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- Fulltekstdatabaser
- Referansedatabaser
- Siteringsdatabaser

Starting point– 1 special encyclopedias

- *Encyclopedia of computer science*
- *Encyclopedia of computers and computer history*
- *Encyclopedia of cryptography and security*
- *Encyclopedia of data warehousing and mining*
- *Encyclopedia of developing regional communities with information and communication technology*
- *Encyclopedia of human computer interaction*
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Hvor starter man - 1

Referanseverk: spesialleksika

- *Encyclopedia of computer science*
- *Encyclopedia of computers and computer history*
- *Encyclopedia of cryptography and security*
- *Encyclopedia of data warehousing and mining*
- *Encyclopedia of developing regional communities with information and communication technology*
- *Encyclopedia of human computer interaction*
-

Starting point- 2 handbooks

- *Handbook of modal logic*
- *Handbook of optimization in telecommunications*
- *Embedded systems handbook*
- *Handbook of human factors in Web design*
- *Handbook of face recognition*
- *Handbook of graph theory*
- ...

Hvor starter man - 2

Referanseverk: håndbøker

- Handbook of modal logic
- Handbook of optimization in telecommunications
- Embedded systems handbook
- Handbook of human factors in Web design
- Handbook of face recognition
- Handbook of graph theory
- ...

Further on: Full text archives, reference and citation databases, the library collection



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in "Encyclopedia of computer science"

Design of a user interface

Levels of design

User interface management systems

Syntactic level design: interaction styles

- Command language
- Menu
- Form fill-in
- Natural language
- Graphical user interfaces
- Virtual reality
- Other issues

Lexical level design: interaction tasks, devices, and techniques

Input devices

Output devices

Bibliography

1983. Shneiderman, B. "Direct Manipulation: A Step Beyond Programming Languages," *IEEE Computer*, **16**, 8, 57–69.
1986. Hutchins, E. L. Hollan, J. D., and Norman, D. A. "Direct Manipulation Interfaces," in *User Centered System Design: New Perspectives on Human-Computer Interaction* (eds D. A. Norman and S. W. Draper), 87–124. Hillsdale, NJ: Lawrence Erlbaum.
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1987. Foley, J. D. "Interfaces for Advanced Computing," *Scientific American*, **257**, 4, 127–135.
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1992. Shneiderman, B. *Designing the User Interface: Strategies for Effective Human–Computer Interaction*, 2nd Ed. Reading, MA: Addison-Wesley.
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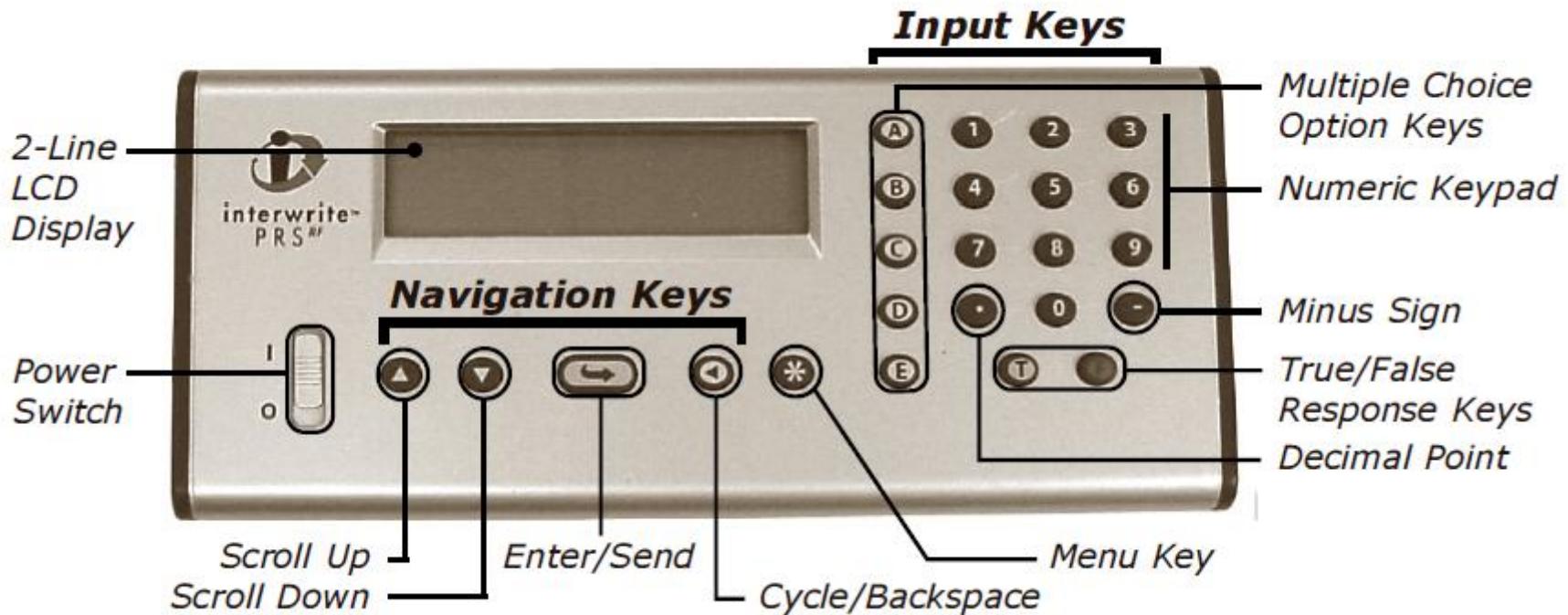
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- technical report

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- kapittel i bok (antologi)
- foredrag på konferanse
- teknisk rapport

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3. Sigrid Undset
4. Arild Nyquist
5. John Steinbeck
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3. Sigrid Undset
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6. Dag Solstad



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- T. True
- F. False



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T. True

F. False



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1983. Shneiderman, B. "Direct Manipulation: A Step Beyond Programming Languages," *IEEE Computer*, **16**, 8, 57–69.

- author: **A. Journal article** Shneiderman, B
- article title: **B. Book** Direct Manipulation: a Step Beyond ...
- journal title: **C. Chapter in book** IEEE Computer
- volume: **D. Conference paper** 16
- no: **E. Technical report** 8
- pages: **F. Technical report** 57-69
- year: **G. Technical report** 1983

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• tidsskrifttittel:

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C. Et kapittel i bok

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1983. Shneiderman, B. "Direct Manipulation: A Step Beyond Programming Languages," *IEEE Computer*, **16**, 8, 57–69.

Direct manipulation systems offer the satisfying experience of operating on visible objects. The computer becomes transparent, and users can concentrate on their tasks.

Direct Manipulation: A Step Beyond Programming Languages

Ben Shneiderman, University of Maryland

Leibniz sought to make the form of a symbol reflect its content. "In signs," he wrote, "one sees an advantage for discovery that is greatest when they express the exact nature of a thing briefly and, as it were, picture it; then, indeed, the labor of thought is wonderfully diminished."

Frederick Kreiling, "Leibniz,"
Scientific American, May 1968

Certain interactive systems generate glowing enthusiasm among users—in marked contrast with the more common reaction of grudging acceptance or outright hostility. The enthusiastic users' reports are filled

Examples of direct manipulation systems

No single system has all the attributes or design features that I admire—that may be impossible—but those described below have enough to win the enthusiastic support of many users.

Display editors. "Once you've used a display editor, you'll never want to go back to a line editor. You'll be spoiled." This reaction is typical of those who use full-page display editors, who are great advocates of their systems over line-oriented text editors. I heard similar

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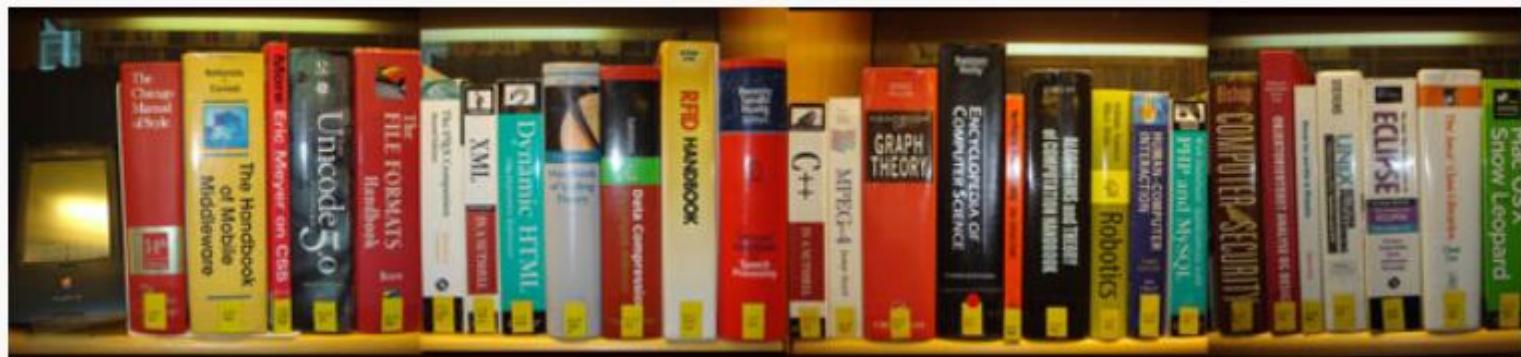
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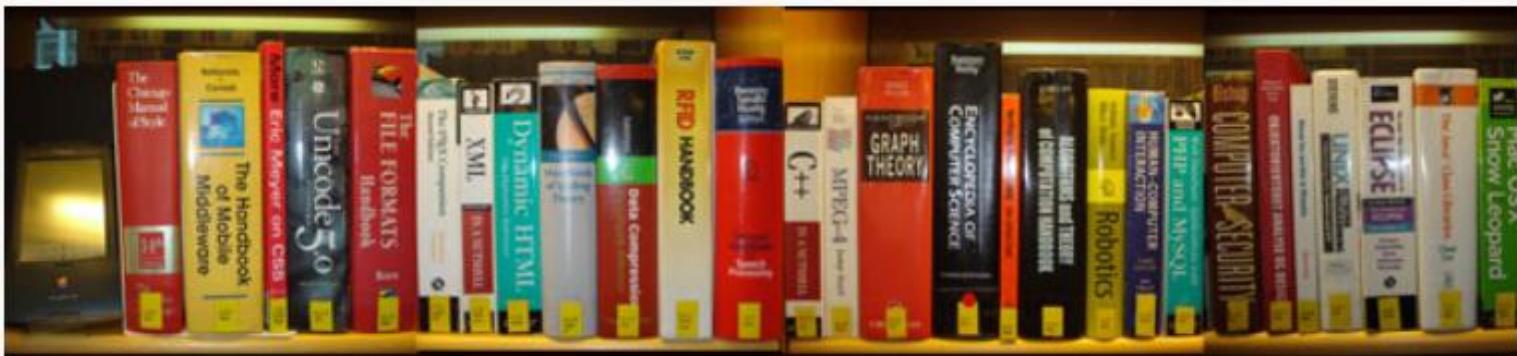
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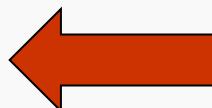
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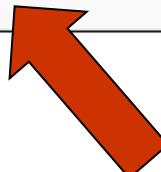
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A Specification Language for Direct-Manipulation User Interfaces

ROBERT J. K. JACOB
Naval Research Laboratory

A direct-manipulation user interface presents a set of visual representations on a display and a repertoire of manipulations that can be performed on any of them. Such representations might include screen buttons, scroll bars, spreadsheet cells, or flowchart boxes. Interaction techniques of this kind were first seen in interactive graphics systems; they are now proving effective in user interfaces for applications that are not inherently graphical. Although they are often easy to learn and use, these interfaces are also typically difficult to specify and program clearly.

Examination of direct-manipulation interfaces reveals that they have a coroutine-like structure and, despite their surface appearance, a peculiar, highly moded dialogue. This paper introduces a specification technique for direct-manipulation interfaces based on these observations. In it, each locus of dialogue is described as a separate object with a single-thread state diagram, which can be

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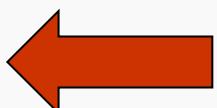
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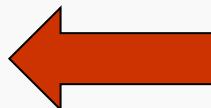
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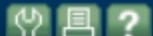
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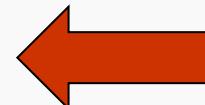
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