

The model shows tacit knowledge as the seeds of the tree, explicit knowledge as its trunk, and structured knowledge as its fruit, the coconut. The authors close with a mnemonic, LOVE, which stands for Learning knowledge, setting Objectives, Value-added process, and Efficiency from experience.

The other three chapters in the section are more prosaic, describing a training division of the Royal Navy in Britain, a knowledge requirement system, intended to enhance the systems development process, and the way two consulting companies use chat rooms, e-mail, and meetings to manage tacit knowledge.

In the concluding chapter, the editors reflect on the themes of the book, which they see as the role of the individual, the nature of knowledge, the difficulties in capturing knowledge, the need for knowledge sharing and reuse, the problems with leveraging knowledge to add value, and the need to have a balanced approach or alignment between the various parts of the system.

This is not an easy book to read. Almost every chapter redefines *knowledge* and *knowledge management*, and it isn't always easy to determine whether the definitions are substantially different or only semantically different. The book is academic in orientation. Of the 32 contributing authors, only seven are not obviously connected to a university or research center.

The authors did attempt to make the book somewhat friendly. There are callouts throughout the text, but it took a few pages for me to realize that these are actual sentences removed from the text, not pull quotes. To understand the paragraph, you have to read the callout.

The subtitle, *The graffiti continues*, refers to another book called *The new sociotech: Graffiti on the long wall* (Springer-Verlag, 2000),

coauthored by Elayne Coakes, one of the editors of this book. The relevance of graffiti is not clear to me.

I checked out the index: after all, a book on knowledge management should make the information in it retrievable. It is short—fewer than 90 entries, about a page-and-a-half. One of the entries is “knowledge management,” and the references go up to page 19. (The body of the book has 206 pages.) “Knowledge coconuts” (from the palm tree model in Section 4) didn't make the index.

However, I do like the socio-technical premise of this book. It is easy to forget about people in our lust for technology. I like also the emphasis on the dynamic nature of knowledge management. An organization cannot expect to get its knowledge identified and organized and then quit its efforts. Knowledge changes, the need for the knowledge changes, the application of the knowledge changes, the people change. But, alas, knowledge is meant to be used, and the using process is a messy one.

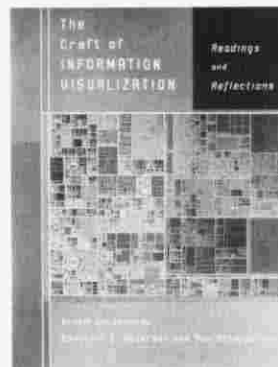
In sum, this book would be a useful addition to the libraries of people who enjoy abstract discussions of models and theories of knowledge management.

Alexa Campbell

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The Craft of Information Visualization: Readings and Reflections

Benjamin B. Bederson and Ben Shneiderman, eds. 2003. San Fran-



cisco, CA: Morgan Kaufmann. [ISBN 1-55860-915-6. 410 pages, including index. \$59.95 USD (softcover).]

HCI Models, Theories, and Frameworks: Toward a Multidisciplinary Science

John M. Carroll, ed. 2003. San Francisco, CA: Morgan Kaufmann. [ISBN 1-55860-808-7. 552 pages, including index. \$59.95 USD.]

Got information? It seems like information is what everyone wants these days, especially from their computers. A company's customers want information about products or services for sale. Collectors want information on collections. Prospective retirees seek info on where to retire. Even preschool children have information wants.

This of course is a call to action. If you design computer information, you want to squeeze it onto computer screens, which is no easy task. Getting information so you can see it on your computer screen is a part art, part science that is moving so fast there has scarcely been time to come up with an accurate vocabulary for it. In just the last few years, for example, we have gone from speaking of *graphical user interfaces* to *user interaction* to *user experience*.

Two new books address those concerned with developing user interfaces. *The craft of information visualization* makes a valuable step toward understanding what has gone before and what might be done in the future. Benjamin B. Bederson and Ben Shneiderman, the editors of these 38 papers contributed by a number of scholars, are well known for their work at the University of Maryland Human-Computer Interaction Laboratory. Much different is *HCI models, theories, and frameworks*, edited by John M. Carroll of Virginia Tech.

The craft of information visualization is part history and part news and practical information and includes a list of software applications and tools that can be downloaded for education and research. Developers looking to come up with new tools should find it useful to know what has been tried before.

Chapter 1, "Database discovery with dynamic queries," is about information visualization tools. These tools help users discover what to ask when trying to understand a database's schema, attributes, and attribute values. By enabling interactive exploration with controls such as sliders, buttons, and check boxes, dynamic queries allow users to update two-dimensional graphical displays in less than 100 milliseconds, even with databases of a million items.

Papers in the chapter define principles of user interface design; describe a novel visual information seeking system called the FilmFinder; introduce Dynamaps (a generalized map-based information-visualization tool for dynamic queries); and show how dynamic query interfaces differ from existing database query methods, how to get more data points into an information visualization display, and how to generalize query previews to broaden access to large online databases.

Chapter 2, "Seeing the world through image libraries," is about accessing databases of digital photographs and is applicable to museum collections, professional collections (including medical records), and private and personal collections such as your photos from your last vacation. Papers cover designing a user interface for accessing any of thousands of scans of the same human body, using a drag and drop strategy to annotate photos for easy identification, using the PhotoMesa zoomable image browser to present large numbers of images groups by directory or other available meta data, and computer-archiving a 20-year collection of photographs of human-computer interaction.

Chapter 3, "Preserving context with zoomable user interfaces," addresses the problems that occur when there is more information than fits the screen. Papers examine animated transitions, scene graphics, zoomable user interfaces, and navigation patterns.

Chapter 4, "The world's information in digital libraries," focuses on making accessible the information in large collections or bodies. Papers document the design development of user interfaces for the Library of Congress and the Baltimore City Public Schools, speeding the search process with categorical and hierarchical axes, and creating interfaces for children.

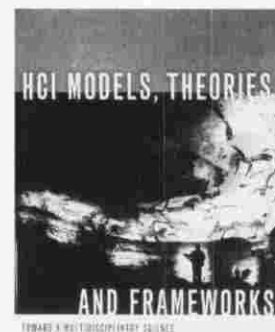
Chapter 5, "Making sense of the World Wide Web," addresses ways to improve browsing, searching, and navigation on the Web. Papers present such answers as a hierarchical table of contents, a hierarchical multi-window browser, and Pad-Prints.

Chapter 6, "Understanding hierarchical data," concerns the problem of diminishing disk space and identifying unneeded files that can be eliminated. Papers cover treemaps; pro basketball data; a network con-

figuration management system; and projects that go beyond original treemaps with new algorithms, interfaces for a million items, and SpaceTree (a novel interface that combines the conventional layout of trees with a zooming environment that lays out branches of the tree to best fit the available screen space).

Chapter 7, "Innovating the interaction," covers the emerging work of the Human-Computer Interface Laboratory. Papers describe how real problems were solved with concrete solutions such as a fisheye approach to long menus, a one-screen overview of a patient's medical records, rectangular screen regions (time-boxes) to speed time series dataset exploration and guide data mining, labeling techniques to make information visualization more usable, a fish-eye calendar for PDAs, a software program for viewing data in microbiology and genetics experiments, and a tool for accessing information on the parts of a large whole.

The four papers in Chapter 8, "Theories for understanding information visualization," are about organized systems, or taxonomies, and the future. "Image-browser taxonomy and guidelines for designers" suggests improvements for scrolling and how they might take form. "The eyes have it: a task by data type taxonomy for information visualization" classifies data types (one-, two-, three-dimensional data; temporal and



multi-dimensional data; and tree and network data) and tasks (overview, zoom, filter, details-on-demand, relate, history, and extracts). "Supporting creativity with advanced information-abundant user interfaces" provides a look at what could be the future of information visualization with computers. "Inventing discovery tools: Combining information visualization with data mining" is about two approaches to discovery tool design.

While the information in *The craft of information visualization* is presented in the form of papers, this fact should not be taken to mean that they are impossible to read. This book should serve as a welcome reference not only for human-computer interaction or usability students and professionals, but also for the other members of the user interface design team including technical communicators and program managers.

Without nonsense and with very little humor, *HCI models, theories, and frameworks* probes the underpinnings of human-computer interaction. Editor John M. Carroll has collected 15 papers by an array of professors and scientists that includes Colin Ware (director of the Data Visualization Research Laboratory at the University of New Hampshire), Penelope Sanderson (professor of Cognitive Engineering and Human Factors at the University of Queensland), Peter Priolli (principal scientist in the User Interface Research Area at the Palo Alto Research Center), Robert Kraut (professor of Social Psychology and Human Computer Interaction at Carnegie Mellon University), and mathematician and professor of Computing (Lancaster University) Alan Dix ("I have long hair, a beard and am the son of a carpenter. Thereafter all pretensions to saintliness end" [p. 548]).

The papers are not without controversy. Ware's paper, "Design as applied perception," proceeds on the

assumption that there is such a thing as the human visual system, which may raise some eyebrows.

Associate professor I. Scott MacKenzie of York University in Toronto contributes "Motor behavior models for human-computer interaction," which discusses models of human movement called the Fitts' Law model and Guiard's model of bimanual skill.

Human behavior modeler Bonnie E. John of Carnegie Mellon University focuses on the design of the interface in "Information processing and skilled behavior." Particular attention is paid to GOMS (Goals, Operators, Methods, and Selection rules) models.

Make no mistake. This is not a book for light summer perusing, and it is probably not for every technical communicator. The models, theories, and frameworks are presented by professors and professionals in human-computer interaction, a field with its roots in the serious study of psychology. Those with the scholarly makeup and perhaps the patience for this study will find this book invaluable.

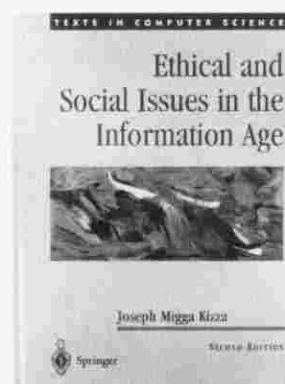
Bill Sullivan

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Ethical and Social Issues in the Information Age

Joseph Migga Kizza. 2003. 2nd ed. New York, NY: Springer-Verlag. [ISBN 0-387-95421-X. 374 pages, including index. \$49.95 USD.]

As information technology (IT) grows and becomes more sophisticated, it presents new ethical, legal, and social concerns. The creators of new IT systems and software must understand these concerns. Developers of new technology have a responsibility to consider the poten-



tial social impact of their creations. One can't leave the responsibility entirely in the hands of the user; engineers share responsibility for what they build. Incorporating ethics instruction into the education of IT professionals provides the best way to ensure that the social impact of technology is properly considered.

Joseph Kizza's *Ethical and social issues in the information age* is an introduction to ethics and the significant areas of ethical concern in IT. Kizza sees a clear need for "a plan of action that will work with the changing computing technology and at the same time deal with the ethical issues that do arise" (p. 15). Aimed at the undergraduate student, the book is a primer for IT ethics that includes thorough discussions of the background material on the technology as well as on ethics theory.

Each chapter opens with a specific case study that highlights that chapter's primary focus. The case studies and the closing questions in each chapter do a good job of prompting the student to think about the issues, but Kizza steers away from thorough analysis and speculation on the possible solutions to the ethical issues he covers. The matter-of-fact descriptions stand in place of in-depth analysis. Because this is a textbook, the author's intent may have been to provide background details to support discussion in the

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