

# Announcements

## Books Received For Review

**READINGS IN DISTRIBUTED  
ARTIFICIAL INTELLIGENCE**  
Alan H. Bond & Les Gasser (Eds.)

Reviewer: Linda K. Cook, Lockheed  
Center for Artificial Intelligence,  
O/96-20 B/259, 3251 Hanover Street,  
Palo Alto, CA 94304-1191;  
415/354-5237

## PUBLICATION NOTES

Morgan Kaufmann, 1988

**HUMAN-COMPUTER  
INTERACTION: A DESIGN  
GUIDE**

Mark K. Jones  
Educational Technology Publications,  
1989

**INTERACTIVE VIDEO**

The Educational Technology  
Anthology Series  
Volume One  
Educational Technology Publications,  
1989

If you are interested in reviewing any books mentioned or some other book, please contact me and I'll arrange for you to receive a review copy. If you have recently read a book that you think would be of interest the CHI community, feel free to submit a review for publication. Also, if anyone comes across a good article or book that is not in the mainstream publishing channels, please let me know about it and I'll pass it along to everyone.

## Books Sent Out For Review

**KNOWLEDGE ACQUISITION  
FOR KNOWLEDGE-BASED  
SYSTEMS**

B. Gaines & J. Boose  
Academic Press, 1988

**KNOWLEDGE ACQUISITION  
TOOLS FOR EXPERT SYSTEMS**

J. Boose & B. Gaines  
Academic Press, 1988

**HUMAN-COMPUTER  
INTERACTION: A  
MULTIDISCIPLINARY  
APPROACH**

Ronald M. Baecker & William A.S.  
Buxton (Eds.)  
Morgan Kaufmann, 1988

Reviewer: Maxine Cohen,  
Department of Computer Science,  
SUNY at Binghamton, Binghamton,  
NY 13901

**COMPUTER-SUPPORTED  
COOPERATIVE WORK: A BOOK  
OF READINGS**

Irene Greif (Ed.)  
Morgan Kaufmann, 1988

Reviewer: Dan Drew, Lockheed  
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Palo Alto, CA 94304-1191;  
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## BOOK REVIEWS

**COGNITIVE SCIENCE: AN  
INTRODUCTION**

N.E. Stillings, M.H. Feinstein, J.L.  
Garfield, E.L. Rissland, D.A.  
Rosenbaum, S.E. Weisler, & L.  
Baker-Ward

MIT Press: Cambridge, MA, 1988,  
533 pp., \$25 hardcover

Reviewed by: Linda K. Cook,  
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As a formal academic discipline, Cognitive Science is difficult to describe and even that much harder to teach. This text, however, appears to have done an admirable job of providing a coherent introduction to a new discipline which draws from a number of older, more traditional academic domains. This introductory text covers, in-depth, the following areas: Cognitive Psychology, Artificial Intelligence, Neuroscience, Philosophy, Vision, and a number of Language-related areas, including the

following: Linguistics, Language Acquisition, Semantics and Natural Language Processing.

There are two outstanding features typical of all of the chapters in this book. First, the authors consistently relate material in their areas of expertise to relevant concepts in other domains, giving readers a sense of the subtle inter-relationships that exist between the different disciplines that contribute to Cognitive Science. Second, the writing style of all of the authors is clear and concise. Information is presented in a manner that readers can understand, regardless of the level of their background knowledge in a domain. The authors' extensive use of examples helps convey major concepts in a manner that serves the reader well in other chapters.

Both of these positive features can be attributed, in part, to the fact that the authors have worked together in teaching a cognitive science course for a number of years. Thus, they are not only familiar with their own area of specialization but also have a clear understanding of the inter-disciplinary nature of this science. In addition, they have developed instructional techniques and strategies which will help the reader understand the unique role their various disciplines play in Cognitive Science. In short, they are all very experienced at explaining their field of study to individuals whose training has been, perhaps, in another discipline. This understanding of their readers' background and their ability to compensate for that will make this an excellent introductory textbook or even a good personal resource for those interested in the domains that make up Cognitive Science.

The strongest segment in this text is the coverage given to Cognitive Science and Cognitive Psychology. These chapters provide one of the most coherent and easily understood descriptions of the development of this discipline. They introduce numerous psychological experiments which are presented in a format that is easily understood by the novice. Stillings' ability to summarize information for an audience unfamiliar with psychological research is excellent. He discusses numerous landmark experiments in a manner which does not dwell on the details of the experiment but which leaves the reader with a clear sense of why the research was performed in the first place, how the experiments were

structured, what the results were and, finally, what the implications of the research were for the field of Cognitive Science. These chapters provide an excellent introduction for those readers who have very little or no background in psychology.

An extremely well-written two chapters on artificial intelligence covers the following topics: Knowledge Representation, Search, Control, and Learning. At the outset the author introduces several examples of AI programs (AM, MYCIN & HYPO) to demonstrate the fundamentals of computer programming and to serve as a vehicle with which to explain the theoretical underpinnings of AI research. While all topics are covered with clarity, the discussion on machine learning is exceptional.

The chapter on Neuroscience begins with a well written discussion of the structure and function of the nervous system. This serves as a good introduction to the basic concepts of neurophysiology (i.e. terminology, structural/functional anatomy), and succeeds in laying a solid foundation for discussion of more specialized research topics. Subsequent discussions include: control of simple actions, vision, learning and memory, and hemispheric specialization. Because of the strong introduction in the first part of this chapter, the specialized research topics are easy to follow and understand.

The role that Philosophy has played and continues to play in the development of Cognitive Science is often neglected in introductory texts. However, this chapter tells a fascinating story of how the early, traditional philosophical concerns have formed the basis for the field of Cognitive Science. The active role Philosophy continues to play today is examined in the following segments: the philosophy of science (behaviorism, computer models, information-processing systems), ontological issues (the nature of psychological processes and states and their relation to physical states and processes) and epistemology (the nature and origin of knowledge).

In the language related areas, the chapter on Linguistics serves as an introduction to Language Acquisition, Semantics and Natural Language Processing. However, this chapter represents a formidable reading task for those unfamiliar with linguistics in general. It introduces the concept of linguistic competence and develops in

depth the sub-domains of phonology (the study of sound systems) and syntax (the study of sentence structures which bridge sound and meaning). While the coverage on syntax is fairly easy to understand, the discussion on phonology is rigorous and requires a great deal of attention to detail. Additional readings/lectures may be necessary. The chapter on Language Acquisition provides a developmental analysis of the stages in language acquisition (i.e. from babbling to a two word stage), the theoretical positions attempting to explain the acquisition process and finally, emerging philosophical perspectives on language acquisition. The final chapter in language related issues and AI is on Semantics. This chapter on the study of meaning provides an informal overview of the meaning of linguistic expressions and entailment, reference (compositionality and truth-conditional semantics) and sense. In general, the coverage on language is well written, informative and well-coordinated.

The final chapter of the book is on Vision. This overview provides an good discussion of the computational approach to vision, using terminology and examples well within the grasp of individuals lacking a solid mathematical background. Low-level visual processes (i.e. bottom-up processing, Marr's primal sketch) are discussed first, followed by intermediate and then high-level visual processing. This chapter ends with a brief discussion of the role of connectionist theories in vision. This chapter is hard reading but well worth the effort.

In conclusion, by careful attention to the variability in reader background and the extensive use of examples as explanation, the authors have succeeded in creating an excellent book. It would be an outstanding introductory text for a Cognitive Science course.

#### **"C" AS A SECOND LANGUAGE: For Native Speakers of Pascal**

Tomasz Muldner & Peter W. Steele  
Addison-Wesley: MA, 1988

Reviewed by: Brent Auernheimer,  
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Beginning computer science students frequently ask their professors to recommend a book about C programming. These students usually