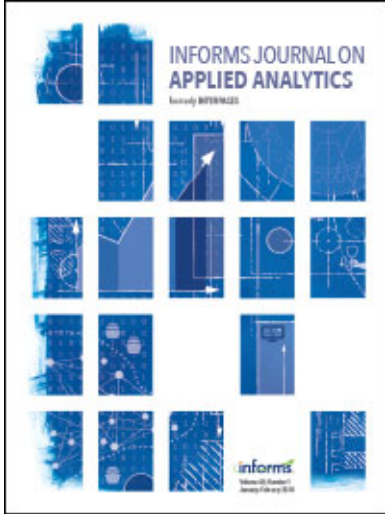




Interfaces

Publication details, including instructions for authors and subscription information:
<http://pubsonline.informs.org>

Book Reviews

To cite this article:

(1987) Book Reviews. Interfaces 17(6):94-97. <https://doi.org/10.1287/inte.17.6.94>

Full terms and conditions of use: <https://pubsonline.informs.org/Publications/Librarians-Portal/PubsOnLine-Terms-and-Conditions>

This article may be used only for the purposes of research, teaching, and/or private study. Commercial use or systematic downloading (by robots or other automatic processes) is prohibited without explicit Publisher approval, unless otherwise noted. For more information, contact permissions@informs.org.

The Publisher does not warrant or guarantee the article's accuracy, completeness, merchantability, fitness for a particular purpose, or non-infringement. Descriptions of, or references to, products or publications, or inclusion of an advertisement in this article, neither constitutes nor implies a guarantee, endorsement, or support of claims made of that product, publication, or service.

© 1987 INFORMS

Please scroll down for article—it is on subsequent pages

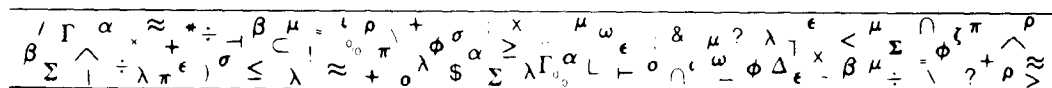


With 12,500 members from nearly 90 countries, INFORMS is the largest international association of operations research (O.R.) and analytics professionals and students. INFORMS provides unique networking and learning opportunities for individual professionals, and organizations of all types and sizes, to better understand and use O.R. and analytics tools and methods to transform strategic visions and achieve better outcomes. For more information on INFORMS, its publications, membership, or meetings visit <http://www.informs.org>

Book Reviews

MARION G. SOBOL

Edwin L. Cox School of Business
Southern Methodist University
Dallas, Texas 75275



The range of books reviewed is wide, covering theory and applications in operations research, statistics, econometrics, mathematics, computers, and information systems. In addition, we include books in other fields that emphasize technical applications. We list the books and proceedings received; not all books received can be reviewed because space and time are limited. Those who would like to review books are urged to send the editor their names, addresses, and specific areas of expertise. The editor commissions all reviews and does not accept unsolicited book reviews. Readers are encouraged to suggest books that might be reviewed or to ask publishers to send copies of such books to the editor.

OSYCZKA, ANDRZEJ 1984, *Multicriterion Optimization in Engineering with FORTRAN Programs*, John Wiley and Sons, New York, 178 pp., \$51.95.

CARLSSON, C. and KOCHETKOV, Y. 1983, *Theory and Practice of Multiple Criteria Decision Making*, North Holland Publishing, New York, 170 pp., \$42.50.

Osycka is an associate professor at the Technical University of Cracow; the translation editor was B. J. Davies of the University of Manchester. Osyczka's book is intended to serve as an introductory text to the topic of multicriterion optimization. "It is written for a person interested in

operational research, but without an extensive mathematical background. The presentation should be easy for engineers to understand with the number of examples given."

A good background in mathematics is required for the engineer to be comfortable reading this text. It is designed as a specialized reference book, combining mathematics, examples, and problem formulations along with FORTRAN programs and flow charts. This should provide engineers with ideas or motivation to use multicriteria optimization in those cases where reasonable formula-

Copyright © 1987, The Institute of Management Sciences
0091-2102/87/1706/0094\$01.25

INTERFACES 17: 6 November-December 1987 (pp. 94-97)

BOOK REVIEWS

tions are possible. The particular methodologies are based upon Pareto optimization, hierarchical optimization, a min-max approach, interactive methods, and network optimization. The FORTRAN programs influence the text more than the methodology.

This text could familiarize an audience with the methodology now being employed for rather sophisticated engineering multicriteria optimization problems. It contains specialized exercises in areas of specific interest to the author, is readable, and provides a broad range of interpretations from the underlying mathematics to a cookbook approach.

The *Theory and Practice of MCDM* is the edited proceedings of an east-west European conference held in Moscow in May 1981. The conference was to compare achievements in the area of MCDM and the papers are competitively terse. There are three different groups of papers: those dealing with methodology; solving problems with multiple criteria; and the design of software tools to assist in solving practical problems. This book is not as structured as the one edited by M. Zeleny [1984]. Compared to Osyczka's book or to previous texts such as Zeleny [1984], Raiffa and Keeney [1976] and Saaty [1982], the book requires a more advanced level of understanding. This could be a technical one-up-manship or simply the way these authors write. The authors provide no software code to support the various software programs discussed in the papers. The papers range from how-to-do-its to theoretical outlines of proposed approaches. In contrast, the Osyczka book achieves a good balance be-

tween FORTRAN code, flow charts, and mathematical notation.

Both books require some prior knowledge of mathematical programming or Pareto optimization. If they are translated works, they were translated very well. The reader of these books would have to be doing research or have a specialized requirement for a particular approach to a specific MCDM problem covered by a paper or a chapter. For specific applicability, I prefer the Osyczka book to the edited proceedings. The 1981 papers are necessarily historical. However, they provide academicians or researchers with insight as to what was represented as the state of the art of MCDM in the Soviet Union and Finland in 1981.

References

- Keeney, R. L. and Raiffa, H. 1976, *Decisions with Multiple Objectives: Preferences and Value Tradeoffs*, John Wiley and Sons, New York.
- Saaty, T. L. 1982, *Decision Making for Leaders*, Lifetime Learning Publications, Belmont, California.
- Zeleny, Milan 1984, *MCDM: Past Decade and Future Trends, A Source Book of Multiple Criteria Decision Making*, JAI Press, Greenwich, Connecticut.
- Glen D. Self
*Electronic Data Systems, 7223 Forest Lane,
Dallas, Texas 75230*
- TIJMS, HENK C. 1986, *Stochastic Modeling and Analysis: A Computational Approach*, John Wiley and Sons, Chichester, England, 418 pp., \$36.95.

This carefully and lucidly written book is concerned with discrete mathematical models of real-world phenomena that are sequential and uncertain (by uncertain we mean describable by probability). Practical application areas include inventory/

production control, maintenance, reliability, and queuing. Although an appropriate amount of attention is paid to basic concepts, the book is characterized by careful discussions of practical computational methods for the solution of the stochastic models of interest and by a variety of reasonably realistic examples used as illustrations. A number of exercises emphasizing modeling and numerical solution procedures are provided, which is appealing to the teacher.

The book contains four long chapters: Chapter 1: Renewal processes with applications to inventory/production and reliability; Chapter 2: Markov chains with operations research and computer science applications; Chapter 3: Markovian decision processes and their applications; and Chapter 4: Algorithms and approximations for queuing models. Of four appendices, two are concerned with important computational issues. Each chapter ends with fairly complete and up-to-date bibliographical notes that would help the student.

Three other texts cover the same general area [Bertsekas 1976; Denardo 1982; and Heyman and Sobel 1982]. The second edition of Bertsekas is scheduled to appear soon; it is primarily concerned with sequential stochastic control from both an OR and an engineering perspective and therefore considers both continuous and discrete state models and partially observed Markov decision processes. Denardo's primary interest is in the control of countable state dynamic systems subject to uncertainty. The Heyman and Sobel book is somewhat broader in perspective; Volume 1 is devoted to stochas-

tic models and Volume 2 is concerned with their optimization and is somewhat narrower in perspective than Bertsekas in that continuous state models are not considered. *Stochastic Modeling and Analysis* is an excellent possibility for a text for an advanced undergraduate or graduate course in operations research or in computer science. Bertsekas would perhaps be more appealing to students oriented towards engineering.

References

- Bertsekas, D. P. 1976, *Dynamic Programming and Stochastic Control*, Academic Press, New York.
- Denardo, E. V. 1982, *Dynamic Programming: Models and Applications*, Prentice-Hall, Englewood Cliffs, New Jersey.
- Heyman, D. P. and Sobel, M. J. 1982 (Vol. 1) and 1984 (Vol. 2), *Stochastic Models in Operations Research*, McGraw-Hill, New York.
- Chelsea C. White
Department of Systems Engineering,
University of Virginia, Thornton Hall,
Charlottesville, Virginia 22901

Books Received for Review

- Anderson, Edward J. and Nash, Peter 1987, *Linear Programming in Infinite-Dimensional Spaces*, John Wiley and Sons, New York, pp. 172, \$44.95.
- Annaloro, John and Kersey, Bert 1987, *The Big Tip for the Commodore 64/64c/128*, Bantam Books, New York, pp. 175, \$16.95.
- Asmussen, Soren 1987, *Applied Probability and Queues*, John Wiley and Sons, New York, pp. 318, \$67.95.
- Axsater, S.; Schneeweiss, Ch.; and Silver, E., eds. 1986, *Multi-Stage Production Planning and Inventory Control*, Springer-Verlag, New York, pp. 264, \$24.60.
- Bandyopadhyay, R. 1982, *The Small Diesel Engine Industry: A Systems Study*, K. P. Basu Publishing, Calcutta, India, pp. 207, \$25.00.
- Boland, R. J. and Hirschheim, R. 1987, *Critical Issues in Information Systems Research*, John Wiley and Sons, New York, pp. 394, \$54.95.
- Carlson, D. A. and Haurie, A. 1987, *Infinite Horizon Optimal Control: Theory and Applications*, Springer-Verlag, New York, pp. 254, \$29.70.

BOOK REVIEWS

- Carrington, Tim 1987, *The Year They Sold Wall Street*, Viking Penguin, New York, pp. 245, \$6.95.
- Chang, Yih-Long and Sullivan, Robert S. 1986, *Quantitative Systems for Business*, Prentice-Hall, Englewood Cliffs, New Jersey, pp. 175, \$21.33.
- Constantine, Gregory M. 1987, *Combinatorial Theory and Statistical Design*, John Wiley and Sons, New York, pp. 472, \$52.95.
- Cyert, Richard M. and DeGroot, Morris H. 1987, *Bayesian Analysis and Uncertainty in Economic Theory*, Rowman and Littlefield, Totowa, New Jersey, pp. 206, \$34.95.
- Fryer, M. J. and Greenman, J. V. 1987, *Optimization Theory: Applications in Operational Research and Economics*, Edward Arnold Publishers Ltd., Baltimore, Maryland, pp. 293, \$26.95.
- Gulledge, Thomas R., Jr. and Womer, Norman K. 1986, *The Economics of Made-to-Order Production*, Springer-Verlag, New York, pp. 134, \$14.60.
- Hampton, David R.; Summer, Charles E.; and Webber, Ross A., eds. 1987, *Organizational Behavior and the Practice of Management*, fifth edition, Scott Foresman and Company, Glenview, Illinois, pp. 876, \$27.50.
- Hixson, Amanda C. 1987, *RapidFile for Business Users*, Bantam Books, New York, pp. 428, \$24.95.
- Hurriion, R. D., ed. 1986, *Simulation: International Trends in Manufacturing Technology*, Springer-Verlag, New York, pp. 331, \$65.00.
- Itami, Hiroyuki and Roehl, Thomas W. 1987, *Mobilizing Invisible Assets*, Harvard University Press, Cambridge, Massachusetts, pp. 186, \$20.00.
- Kim, K. H. and Roush, F. W. 1987, *Team Theory*, John Wiley and Sons, New York, pp. 246, \$54.95.
- Kruse, H. J. 1986, *Degeneracy Graphs and the Neighbourhood Problem*, Springer-Verlag, New York, pp. 128, \$14.60.
- Lesko, Matthew 1987, *Getting Yours: The Complete Guide to Government Money*, Viking Penguin, New York, pp. 368, \$8.95.
- Markland, Robert E. and Sweigart, James R. 1987, *Quantitative Methods: Applications to Managerial Decision Making*, John Wiley and Sons, New York, pp. 827, \$40.25.
- Meijboom, Bert R. 1987, *Planning in Decentralized Firms: A Contribution to the Theory on Multilevel Decisions*, Springer-Verlag, New York, pp. 168, \$23.90.
- Otter, Pieter W. 1985, *Dynamic Feature Space Modeling, Filtering and Self-Tuning Control of Stochastic Systems: A Systems Approach with Economic and Social Applications*, Springer-Verlag, New York, pp. 177, \$16.50.
- Piercy, Nigel 1987, *Management Information Systems: The Technology Challenge*, Nichols Publishing, New York, pp. 323, \$39.50.
- Ravindran, A.; Philips, Don T.; and Solberg, James J., eds. 1987, *Operations Research: Principles and Practice*, second edition, John Wiley and Sons, New York, pp. 637, \$40.95.
- Rubel, Malcolm C. 1987, *Programming the dBase III Plus User Interface*, Bantam Books, New York, pp. 304, \$21.95.
- Sawaragi, Y.; Inoue, K.; and Nakayama, H., eds. 1987, *Toward Interactive and Intelligent Decision Support Systems*, Volume 2, Springer-Verlag, New York, pp. 400, \$39.90.
- Schager, Nils Henrik 1987, *Unemployment, Vacancy Durations and Wage Increases: Applications of Markov Processes to Labour Market Dynamics*, Almqvist and Wiksell International, Stockholm, Sweden, pp. 217, price unavailable.
- Slavin, Nathan S. 1987, *Instructors' Manual to Accompany Cost Accounting*, John Wiley and Sons, New York, pp. 413, \$27.50.
- Snelling, Robert O., Sr. 1987, *The Right Job: How to Get the Job That's Right for You*, Viking Penguin, New York, pp. 246, \$7.95.
- Takahashi, Nobuo 1987, *Design of Adaptive Organizations: Models and Empirical Research*, Springer-Verlag, New York, pp. 140, \$18.30.
- Tietjen, Gary L. 1986, *A Topical Dictionary of Statistics*, Chapman and Hall, New York, pp. 171, \$22.50.
- Vartia, Pentti; Jensen, Rolf; Eliasson, Gunnar; and Selvik, Arne 1987, *Growth Policies in a Nordic Perspective*, published jointly by The Industrial Institute for Economic and Social Research (Stockholm, Sweden), The Research Institute of the Finnish Economy (Helsinki, Finland), Institute for Futures Studies (Copenhagen, Denmark), and The Institute of Industrial Economics (Norway), pp. 367, SEK 308.
- Wright, George and Ayton, Peter 1987, *Judgmental Forecasting*, John Wiley and Sons, New York, pp. 293, \$59.95.

Copyright 1987, by INFORMS, all rights reserved. Copyright of Interfaces is the property of INFORMS: Institute for Operations Research and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.