

Making maps with computers

Freeman, H and Pieroni, G G (eds), 'Map data processing', Academic Press, London, UK (1980) p 374, \$26.00

The book contains a selection of papers presented at a NATO Advanced Study Institute meeting held in Maratea (Potenza), Italy in the summer of 1979. It is one of the Academic Press 'rapid manuscript reproductions' and as such includes unreferenced and unedited papers. As a result readers will have to read some pretty turgid prose, but the collection is redeemed partly by the quality of the scientists who contributed such as Haralick (Virginia, USA), Knapp (Maryland, USA) and Steiner (Zurich, Switzerland) and partly by the comprehensiveness of the collection.

The nature of spatial data is reviewed by Haralick with special reference to handling such data in geographical information systems according to both raster and vector formats and he emphasizes the importance of ordering data to increase the search efficiency. He urges that 'brute force' searching algorithms should be avoided. The integration of spatial data is examined in the context of the applications requirements of a variety of specialists and Knapp reveals a concern about the comparability and compatibility of data sources.

The papers confirm a generally-held feeling that digital image processing and especially texture analysis have an immense potential but as yet this potential has not been confirmed. Papers tend to conclude with such comments as 'further experiments are required before the results reported can be used reliably...' (p 278). Nevertheless the chapters do provide both very useful reviews of the current advances in a large number of techniques and as such the book would be useful to those in the field who did not get to the meeting, or to those with teaching responsibilities who need to have a well-structured set of definitions and a description of common techniques

such as thresholding, edge detection or split and merge segmentation. Computational procedures such as parallel processing are discussed with reference to pattern recognition, and the current state of research is perhaps revealed by the absence of reference to array processors.

Cartographic problems are addressed, especially the compromises of generalization and again it is concluded 'that much more work has to be done in this area' (p 188). Goodchild (p 204) insists that if geographical data processing is to advance from a research and demonstration mode to real utility, it

is essential that far greater emphasis be placed on evaluating accuracy in both design and operation. These and similar comments indicate that despite the increasing automation of spatial data acquisition and the manipulation of such geographical data there are still many problems to address both of a conceptual nature concerning the structuring of data, but also in the horrendous task of ultimately handling the enormous volume of such information.

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Computer graphics for the novice

Scott, E J, 'Introduction to interactive computer graphics', Wiley, USA (1982) p 437, \$39.60

The author of this book claims that the book combines in a single volume both technical information about graphics systems and practical knowledge concerning their use. Considering the coverage, the author feels that the book will be useful for almost everybody; from managers to college students. I would recommend this book to managers and salespersons who are forced to know 'something' about computer graphics but have no knowledge of computer science and mathematics.

I found the first part of the book to be most useful for a novice in the field of computer graphics. This part gives information about various devices used in an interactive computer graphics system. The vendor lists given at the end of the first three chapters may be useful for managers planning to enter the graphics age.

The second part is supposed to be related to the software used in computer graphics. I felt that the author wanted to say many interesting things about different components of graphics systems but hesitated because she was trying to address several groups having very different backgrounds. There are no details of the programming techniques used in graphics systems, which will be disappointing for computer science professionals (one of the groups the author claims to be

addressing). A user cannot be satisfied by this book because there are no details or examples of any technique that will allow the user to understand how things really work. In fact in most places, the reader gets the feeling that something is missing.

The last part of the book mentions different applications of interactive computer graphics without discussing any one technique in sufficient detail to convince a reader that interactive computer graphics is really useful.

I noticed some very interesting comments by the author in several places, i.e. on p 83, it is very correctly pointed out that 'many approaches that are touted as database systems consist of nothing more than conventional techniques for manipulating data and have restricted usefulness'. Such points are, however, not elaborated; leaving the reader guessing. I feel that this book is a brief survey of what is available in interactive computer graphics. No attempt has been made to give enough technical detail to make it useful as a textbook at any level. Computer science professionals will be disappointed by the absence of any information related to their background. Applications people will not find details on using a system. This book, however, appears to be very useful for those who want to know all about computer graphics without getting their feet wet.

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