Book Reviews

GILBERT HELD
Token Ring Networks. John Wiley, 1994, £29.95, 309 pp., hardbound, ISBN 0 471 94041 0

Token Ring (TR) networks appeared on the LAN market a little later than Ethernets, but their operating rules were much more sophisticated. This is the reason why they are more expensive. They found users first of all in the office environment and among IBM customers. General books about computer networks contain only short, incomplete or disjointed descriptions of this standard. I was very glad to see a book exclusively devoted to TR standards.

The author assumes that this book is for readers with 'divers backgrounds of knowledge and experience'. Readers with little knowledge and experience should be able to read the first two chapters of this book while those with general knowledge about models used in computer networks can skip these chapters.

The presentation of TR nets is done atypically. The author begins with elements with which the user is familiar, i.e. cabling system, devices and network operating systems (Chapter 3). Afterwards, he presents data formats and operational details (Chapter 4).

An interesting, but controversial idea is to include in a book about TR also a chapter about FDDI networks (Chapter 5). The same topology and the presence of a token are not sufficient grounds to say that FDDI is a kind of TR net (p. 59). The only reason to include this chapter is to explain to the end-user of big mesh networks with an FDDI backbone the differences between TR and FDDI. Unfortunately this is not clearly done. My doubts found confirmation in the absence of FDDI networks in Chapters 6 and 7.

An important part of this book is dedicated to devices which enable networks to grow (Chapter 6 and 7). With bridges and routers one can build big and wide structures. The author concentrates his attention on internetwork devices. He also explains many routing algorithms. It will be useful to see more examples of network structures which set off advantages and disadvantages of bridges, routers and routing algorithms. These structures are very important in order to understand how to use well-known devices.

As we approach the end of this book we cease to move in a world of ideas and we are in the world of products. In Chapter 8 we have IBM gateway devices and software, in Chapter 9 the author presents parts of different network management software. The goal of this presentation is to illustrate the facilities needed to realise management tasks.

It is a very good book for TR network users who want to know 'which way the wind lies'. It is a clearly written book with many examples and illustrations.

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AMIT SHAH and G. RAMAKRISHNAN
FDDI: A High Speed Network. 1994, PTR Prentice-Hall, £45.50, 229 pp., hardbound, ISBN 0 13 308388 8

This is the first book completely dedicated to FDDI networks, which I have found. Even though the book is not so big one can find all that is needed for future administrators of FDDI networks. One can find here the history of this standard, comparison of FDDI nets with older solutions, cabling and hardware descriptions, and a complete description of operational rules at all network levels.

There is one particularly important matter: we can find information about management of FDDI-based computer networks. One could not forget that FDDI nets are used in many cases as backbone networks and metropolitan networks. To manage such sophisticated and complex structures with so many different users requires an administrator with very large experience and qualifications. This book will be very useful for such people before they become acquainted with concrete firmware.

This book has also disadvantages. I expected more of the kind of information needed to decide when to use or to think about FDDI networks. Such a decision has not only technical aspects but also an economical dimension. Without doubt we must use these nets in all multimedia applications, but is this really true for all client–server solutions? I am sure it is not. This is not a marginal problem. FDDI is a new solution on the computer network market and I know of some cases of unnecessary installation.

Thus, this a book for all who want to know details about FDDI nets, who want to use FDDI nets in future projects, but it is not a book for those who have to answer the question: 'FDDI, or could it be something cheaper?'.

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JOHN B. GOSLING
Simulation in the Design of Electronic Systems. Cambridge University Press, 1993, 273 pp., softbound £15.95, hardbound £45.00, ISBN 0 521 42672 3

They say that you should not judge a book by its cover and as I read the preface I wondered if this sentiment should be extended to include this too, since it contained so many errors. The first paragraph read well enough until the part which says '... a comprehensive introduction to all aspects of ...', at which point I questioned the validity of the use of 'all'. Was I being too pedantic? Unfortunately I encountered no fewer than 49 syntactic and semantic errors in 3 pages. Not a good start for a

subject which relies on precise logical formuation. For example, the distinction between may and can seems to have eluded the author just as it seems to elude many undergraduates, when at times the distinction is most important. Another omission which is rife is the hyphen between compound words; but since this endemic perhaps it too should be forgiven. Fortunately the style improves and by Chapter 2 the text becomes more interesting to read, even though many sentences remain irritatingly terse. Another change of style occurs at the start of Chapter 3 where the prose becomes more decisive, indicating that the author is more confident with the technical details of the design process than general introductory comments.

Chapters 4–9 represent the body of the text and here important ideas are introduced in a methodical manner. Considerable time is spent explaining the nature and variety of faults that can exist in real circuit implementations and how difficult it is to model all possible fault conditions. The complexity of the arguments and ideas increases rapidly and students of computer science may have difficulty in keeping up with some aspects of electronic engineering. Similarly programming concepts such as 'a table based event driven simulator' may be difficult to grasp by students of engineering. This is an intrinsic difficulty of the subject and the author does well to maintain a sensible balance for readers new to the problems of digital simulation. Of key importance is completeness of formulation and the astute reader will realise that there are many subtle unanswered questions. For the experienced reader much that is already taken for granted is placed on a more formal footing and some *ad hoc* design rules may be seen in a new light. In particular the chapter on Models and Model Design show just how difficult it is to model even a simple flip–flop!

As a definitive text on the design and use of simulators the style in the early chapters is too informal, and as an introductory text for undergraduates it lacks any tutorial examples. This is not to say that it is not worth reading, since the author is correct when he points out that there are very few texts in this area. Of considerable potential help is the extensive list of over 150 references to related technical papers.

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J. R. PARKER
Practical Computer Vision Using C. John Wiley, 1993, 476 pp., softbound, £24.50, ISBN 0 471 59262 5 (book/disk), 0 471 59259 5 (paper), 0 471 59411 3 (disk)

This volume from Wiley is intended to provide the non-mathematical reader with a basic, wide-ranging and extremely practical cookbook of standard low-level computer vision procedures. It is optionally accompanied by a diskette (my review copy wasn't) which contains the

entire suite of algorithms described, written in Borland C. Most of the core routines are also printed in the book, about half of which is given over to code listings which appear at the end of each chapter. Dotted throughout the text are stripped-down code and pseudocode listings intended to illustrate the basic structure of each procedure.

The book is organized by increasing complexity. The early chapters review image types and describe simple operations on two-level images such as the measurement of geometric properties of regions, before moving on to greyscale images and basic operations such as thresholding. Chapters on simple feature extraction, object counting and classification follow, and the final chapters cover computer-readable codes, optical character recognition and the analysis of scientific imagery with examples from astronomy (stellar photometry) and biology (DNA gel electrophoresis). The three appendices contain source code descriptions, a partial review of available imaging software and an excellent bibliography which could perhaps also have included the near-standard reference to Geman and Geman in the simulated annealing section, and some reference to the neural network literature under character recognition and classification.

What the book is not, and does not attempt to be, is a complete and rigorous treatment of the field of computer vision. As the author writes in the preface, the book is pitched at 'the general computing public and students of subjects in which computer vision is a useful tool'. The mathematical content is minimal and instruction is by copious examples which are intended to generate intuition in the reader. Inherently mathematical topics are omitted altogether; there is no coverage, for example, of restoration save for a very heuristic treatment of small linear masks ('Giving a higher weight to the center pixel seems like a good idea') and median filters. There is no general treatment of filtering; simple filter masks are introduced on an *ad hoc* basis as, for example, edge or line detectors, without reference to the optimality criteria which characterize the more academic signal processing approach to such problems.

While a desire for currency is commendable, the publisher really should employ a proofreader even if it delays publication by a week. I found quite a number of word-substitution errors in the text which had presumably survived a spelling check. There were also some typographical errors in formulae, and figures which did not match their captions. The author boldly states that the DNA double helix is a string of *amino acids* (emphasis his) rather than nucleotide bases, which howler should also have been spotted before causing public embarrassment.

These minor grumbles apart, though, the book is a fairly clear and easy read, and provides a wide ranging cook's tour around basic computer vision problems, complete with a large assortment of ready-made routines with which to tackle them. It is likely to be of utility to those involved in programming low-level industrial