

culus, some notions about complex variables and a tiny bit of linear algebra. Of course this implies that only the most simple (yet often most practical) cases are discussed and even then, only the most elementary proofs are included, while more complicated cases are approached with a lot of typical engineering heuristics. Continuous and discrete, finite and infinite signals are treated in parallel. Also two-dimensional transforms are included. Always the practical aspects are emphasized thus sampling, the DFT and FFT, quantization, but also some notions from linear system theory get a fair amount of attention. Relations with the Laplace transform and other transforms like wavelets are only touched upon. The book is mainly intended as a textbook and as such it contains many exercises after each chapter. The contents is most accurately described by the title: An introduction to Fourier transforms for engineering (students).

A. Bultheel

Practical Parallel Programming

Gregory V. Wilson

Scientific and Engineering Computation Series, The MIT Press, Cambridge, 1995, ISBN 0-262-23186-7, ix + 564 pages, Hardcover £42.5

The Scientific and Engineering Computation Series focusses on rapid advances in computing technologies and attempts to facilitate transferring these technologies to applications in science and engineering. Previous volumes in this series dealt with such topics as data-parallel programming on MIMD computers, high performance scientific computing, the High Performance Fortran language, portable parallel programming using MPI and networked parallel computing with PVM.

The aim of the volume "Practical Parallel Programming" is to explain how one can develop parallel software and achieve good computational performance on contemporary hardware. The fundamentals of parallel programming are reviewed in an introductory chapter, which presents the basic architectural ideas, a classification of parallel architectures, some example applications and a discussion of parallel performance measures. Each of the four subsequent chapters is devoted to a particular parallel programming

paradigm - data parallelism, shared variables, message passing and generative communication. The latter is a paradigm which has the simplicity of the shared variables approach, yet scales more like the message passing paradigm. The best-known implementation of the generative model is LINDA, which was developed by Gelernter and Carriero. Each of the paradigms is illustrated by a number of small and well-chosen examples, drawn from a variety of domains in scientific computing and computer science. The language used in the book is Fortran-K, a subset of Fortran-90. The text is very clearly written. I can recommend it to anyone as a first introduction to parallel computing, and I am convinced that more experienced parallel computing researchers or users of the parallel computing technology will find the book very informative. The text does not answer the question, however, of what algorithm to select when faced with a particular numerical problem in scientific or engineering computations. Hence, for that matter the book should be used in conjunction with sources covering parallel algorithms for particular applications in more detail.

S. Vandewalle

Monte Carlo: Concepts, Algorithms, and Applications

George S. Fishman

Springer-Verlag, 698 pages with 98 illustrations, 1996, ISBN 0-387-94527-X

This book considers the Monte Carlo method. A short historical introduction is given in Chapter 1. Chapter 2, 'Estimating Volume and Count,' introduces the reader to fundamental issues that arise when applying the Monte Carlo method. Two model problems are studied: evaluating the volume of a bounded region in multi-dimensional euclidean space, and counting the number of subsets of a given set that exhibit a specified property. Error and sample size considerations prevail.

Chapter 3, 'Generating Samples,' discusses general methods for generating samples (inverse transform method, cutpoint method, composition method, alias method, acceptance-rejection method, ratio-of-uniforms method, and exact-approximation method), and procedures for gen-