chapters on nonlinear models and decision analysis; an appendix illustrating computation using the software packages R (general statistics) and Bugs (Bayesian inference); and a remarkable collection of applied examples from the authors' recent research. The book concentrates on applications and computing on the view that the field has moved beyond philosophical debate about foundations of inference. :./

Some statistical maturity is expected of the audience, and in return the reader is rewarded with exceptionally cogent and precise discussions of Bayesian inference, data analysis and computing. It is a pleasure to learn from this book. It is a masterful consolidation of recent developments, especially as a snapshot of the many rapidly expanding areas of application. This is an essential reference for current and future Bayesian data analysts.

Brookfield, U.S.A. CA Fung

THE ANALYSIS OF TIME SERIES. AN INTRODUCTION, 6th edition. C. Chatfield. Boca Raton, Florida: Chapman and Hall/CRC Press, 2003, pp. xiii + 333.

Contents:

Readership: Probabilists, statisticians, time series specialists

The author has succeeded in writing an accessible textbook which is wide-ranging, up-to-date and covering both theory and practice. Following his guideline that rigorous mathematics and practicality can go together, the author offers a wealth of applicable concepts and methods by which real life time series can be analyzed. The text offers a plethora of worked examples while the last section in each chapter contains exercises of different levels of difficulty. Its sixth (and final) edition (first edition 1975) should continue to hold the book's reputation on the market as one of the most accessible and popular textbooks on time series currently available.

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" NONLINEAR TIME SERIES: NONPARAMETRIC AND PARAMETRIC METHODS. J. Fan and Q. Yao. 4\Jew York: Springer-Verlag, 2003, pp. xix + 551, US$79.95.

Contents:

Readership: Academic (researchers and postgraduate students in statistics, economics, finance, business); industry (investment banking, insurance)

A couple of quotations from the Preface serve to convey the style and purpose of the book: "The aim of this book is to advocate those modern nonparametric techniques that have proven useful for analyzing real timeseries data, and to provoke further research in both methodology and theory for nonparametric time-series analysis"; "We hope that this book will reflect the power of the integration of nonparametric and parametric approaches in analyzing time-series data."

The book is aimed at a broad readership, the pre-requisites being just a grounding in probability (not measure-theory) and statistical methods. The more technical material (proofs of theorems, etc.) is generally relegated to "Complements" sections. Also, most chapters end with "Further Reading" or "Bibliographic Notes".

Chapter 1 gives some examples of time series: linear (white noise, AR, MA, etc.) and nonlinear (ARCH, threshold, nonparametric autoregressive). Chapter 2 covers stationarity, autocorrelation, spectral densities, the periodogram, long-memory processes and mixing conditions. Chapter 3 focuses on ARMA models (best linear prediction, maximum likelihood estimation, order determination, diagnostics, and linear forecasting). Chapter 4 covers threshold models, ARCH and GARCH, and bilinear models. Various aspects of kernel density estimation are discussed in Chapter 5, including windowing and whitening, bandwidth selection, boundaries, and asymptotics. In Chapter 6 smoothing is addressed, in both time and state domains, splines, and estimation of conditional densities. Spectral density estimation occupies Chapter 7 with material on tapering, kernel estimation and prewhitening, "automatic" methods, and tests for white noise. Chapter 8 addresses multivariate local polynomial regression, functional-coefficient autoregressive models, adaptive versions, additive models, and conditional variance models. In Chapter 9 model validation is considered: generalized likelihood ratio tests, tests on spectral densities, autoregressive *versus* nonparametric models, and threshold *versus* varying-coefficient models. The last chapter, Chapter 10, covers nonlinear prediction, with material on characteristic features thereof, point and interval prediction, and predictive distributions.

This is a book that one can read as a beginner or as an expert. Although there are plenty of theorems, there are also plenty of numerical examples, with both real and simulated data, and lots of pictures and graphics (SPLUSstyle). The topics are very fully explained and discussed, and there are many pointers to the literature for further study (with about six hundred references listed).

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CASE STUDIES IN RELIABILITY AND MAINTENANCE. W.R. Blischke and D.N. Prabhakar Murthy (Eds.). Hoboken, New Jersey: Wiley, 2003, pp. xxvii + 661, £64.50.

Contents: