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Classical Methods of Statistics

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In the preface the author states “This monograph presents a selection of fundamental ideas and procedures in probability theory and statistics and has been written to provide a working background for physicists involved in the interpretation of scientific data”.

This reviewer found it so fascinating to read the book written in a very mature level and in a characteristic style that in the opinion of the reviewer, very few statistics books reach this height in terms of conciseness and clarity.

The first three chapters dwell on elementary probability theory, elementary statistical theory and applied linear regression. Each chapter is rich in its content and the exposition is just adequate. It really combines some of the classic texts in statistical theory and applications in a judicious manner with very mature and selective outlook and exposition. One is constantly reminded of CRRao’s treatise of mathematical statistics in the classic text : *Linear Statistical Inference and Its Applications*.

Chapter 4 is a blend of statistical concepts (e.g., least squares principle, normality-based models and related inference) and profile analysis. Herein the author gives a systematic overview and discussion of the statistical techniques to analyse plasma profiles and their associated global quantities, while restricting attention to the framework of parametric profile presentations. Introduction to profile analysis is brief but again, it is clear and concise. It addresses and narrates the statistical issues of model selection, model building, model fitting and model testing.

Chapter 5 provides a brief discussion on the essentials of discriminant analysis with an illustrative example. Chapter 6 provides a brief but very informative overview of available statistical software packages (in particular SAS and S-PLUS) for data analysis related to plasma physical datasets which are well arranged and explained in a planned manner in Chapter 7. In Chapters 4 and 5, description and use of available statistical packages are well explained.

The author has provided some annotated statistical literature, covering

a list of 40 books and edited volumes. More than that, there is an impressive reference to 754 scientific publications (from books, journal articles, monographs and proceedings volumes] which includes around 300 references exclusively in the area of probability and statistics.

The author also provides a list of key words in probability theory, statistics, applied regression, plasma physics and their translations in three other languages. The book comes with a CD containing data sets (in ascii and csv format) and SAS programs.

The reviewer found it extremely gratifying to read this book and therefore recommends its permanent place in the book shelf of most statisticians as a reference text.

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