

Handbook of computational statistics : concepts and methods

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Abstrak

This book contains additional comments and updated information on the existing chapters, as well as three new chapters addressing recent work in the field of computational statistics. This new edition is divided into 4 parts in the same way as the first edition. It begins with how computational statistics became the backbone of modern data science (Ch.1) : an overview of the field of computational statistics, how it emerged as a separate discipline, and how its own development mirrored that of hardware and software, including a discussion of current active research. The second part (Chs. 2 - 15) presents several topics in the supporting field of statistical computing. Emphasis is placed on the need for fast and accurate numerical algorithms, and some of the basic methodologies for transformation, database handling, high-dimensional data and graphics treatment are discussed. The third part (Chs. 16 - 33) focuses on statistical methodology. Special attention is given to smoothing, iterative procedures, simulation and visualization of multivariate data. Lastly, a set of selected applications (Chs. 34 - 38) like bioinformatics, medical imaging, finance, econometrics and network intrusion detection highlight the usefulness of computational statistics in real-world applications.