fields which are growing from classical fields, like inductive inference. Some papers are devoted to this area and the main feeling is that the classical guidelines of statistical inference can be imbedded in a more general framework which is now growing in an operational way in spite of the philosophers' dilemmas.

As a final comment we remind of the Carnap program for building up an inferential machine. The modern approach is to copy the human intelligence, to add computer fastness and to cast in the mathematical framework such that we cannot solve the Turing test for distinguishing between natural thinking and artificial thinking. As a consequence we can ask: why artificial? From the point of view of operations research we can say that artificial intelligence can be considered the natural evolution of operations research, system theory and statistics. The book shows that this evolution is already over and the term 'artificial' can be used just for 'physical' substitution of human abilities, at the upper level, where the notion of 'physical' can be understood in very general terms.

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Numerical Recipes: The Art of Scientific Computing + Example Book (FORTRAN) + Example Book (PASCAL)

CUP, Cambridge, 1986, xx + 818 + 179 + 236 pages, £25.00 + £15.00 + £15.00

The purpose of this book is to present, in an essentially self-contained form, a complete text on the art of scientific computing. The book is intended to be a guide to professional scientists, engineers, teachers and students, and to anybody else who ever needs numerical solutions to mathematical problems. In particular, the book fills the gap that has arisen since the position of the personal computer became so strong and the users miss the familiar routines from the libraries of the mainframes.

The four authors are leading scientists in academic research and industry. They have wide-ranging experience in scientific computing.

For understanding the book only mathematical knowledge on the level of an undergraduate degree in engineering or economics is required, and some experience with programming.

All the standard topics of numerical analysis are considered, and in addition a number of other topics, not usually found in standard numerical analysis texts, such as special functions, Monte Carlo methods, sorting, linear programming. With respect to the numerical solution of partial differential equations an introduction is given.

The approach used by the authors is to introduce each topic with a certain amount of general discussion, a certain amount of analytical mathematics, a certain amount of discussion of algorithmics, and then to give an implementation as a computer routine (in FORTRAN and in PASCAL). The routine is thus not presented as a black box only. This would be dangerous anyway, since in a nonstandard situation an algorithm may behave differently; then some background knowledge is necessary for correct interpretation of the obtained results. At the end of each section a number of references are given, among which specialized ones. The references of more general interest are, in addition, collected in a list at the end of the book.

There are nearly 200 computer routines printed in the book. Two companion books contain respectively Fortran and Pascal source programs (driver programs). The aim is to demonstrate the subroutines, contained in the main text book, on simple examples. This not only gives an exact description of how to incorporate the subroutines in a main program, but also allows testing the subroutines in case they have been copied directly from the textbook. Diskettes, containing the subroutines from Numerical Recipes and the programs from the example books, are available.

The book is very well written, easy to read and understand. Only on very rare occasions I felt a little inclined to do some eyebrow frowning while reading the text. I recommend this book highly, for all people mentioned in the beginning of this book review.

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