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Sinopsis

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From the Preface (1964): "This book presents a general theory of iteration algorithms for the numerical solution of equations and systems of equations. The relationship between the quantity and the quality of information used by an algorithm and the efficiency of the algorithm is investigated. Iteration functions are divided into four classes depending on whether they use new information at one or at several points and whether or not they reuse old information. Known iteration functions are systematized and new classes of computationally effective iteration functions are introduced. Our interest in the efficient use of information is influenced by the widespread use of computing machines ... The mathematical foundations of our subject are treated with rigor, but rigor in itself is not the main object. Some of the material is of wider application ... Most of the material is new and unpublished. Every attempt has been made to keep the subject in proper historical perspective ... "

Readership

Graduate students and research mathematicians.

Reviews

"There is a vast amount of material in the book and a great deal is either new or presented in new form ... Although the mathematical treatment is rigorous throughout, attention is definitely focused on the computational aspects of the topic ... Many examples are provided to show how well-known I.F. are special cases of the general results ... The author has certainly succeeded in presenting a systematic account of a large class of known I.F. and this makes the work an interesting basic text as well as a valuable reference book."

-- Mathematical Reviews

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