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This second edition of the author?s acclaimed textbook covers the major topics of computational linear algebra, including solution of a system of linear equations, least-squares solutions of linear systems, and computation of eigenvalues, eigenvectors, and singular value problems.

Important features of the original edition have been updated and improved:

? The author covers a variety of motivating applications drawn from numerous disciplines of science and engineering. When a physical problem is posed, the scientific and engineering significance of the solution is clearly stated.

? Each chapter contains a summary of the important concepts developed in that chapter, suggestions for further reading, and numerous exercises, both theoretical and MATLAB® and MATCOM based. The author also provides a list of key words for quick reference.

? The MATLAB® toolkit MATCOM contains implementations of the major algorithms associated with the book and enables students to study different algorithms for the same problem, comparing efficiency, stability, and accuracy.

? The topics of generalized and quadratic eigenvalue problems, which arise in practical engineering

applications, are described in great detail. This feature, along with an important overview of Krylov subspace methods and an extensively updated bibliography, enhances the book?s value as a reference

for both engineers and students.

Audience
This book is intended for undergraduate and graduate students in applied and computational mathematics, scientific computing, computer science, financial mathematics, actuarial sciences, and electrical and mechanical engineering. It will also appeal to researchers in mathematics, computer science, physics, chemistry, biology, economics, statistics, and aerospace, electrical, mechanical, and chemical engineering as well as practicing engineers and industrial mathematicians.

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About the Author
Biswa Nath Datta is Professor of Mathematical Sciences, Adjunct Professor of Electrical and Mechanical Engineering, and Distinguished Research Professor at Northern Illinois University. He has authored more than 115 interdisciplinary research papers, the books Numerical Methods for Linear Control Systems Design and Analysis and Numerical Linear Algebra and Applications, and several associated software packages. He was elected a Fellow of IEEE in 2000, inducted in Academician of the Academy of Nonlinear Sciences in 2002, and named a recipient of a Senior Fulbright Specialist award, an IEEE Distinguished Lecturer award, and several IEEE Plaques of Honor. He has also served on the editorial boards of more than a dozen mathematics and engineering journals.