Direct Methods for Sparse Matrices: Numerical Mathematics and Scientific Computation

Sparse matrices are a type of matrix that has a large number of zero entries. This makes them very efficient to store and compute with, especially when the matrix is large. Direct methods for sparse matrices are a class of algorithms that solve linear systems of equations with sparse matrices. These algorithms are typically much faster than traditional methods that are designed for dense matrices.

Direct Methods for Sparse Matrices (Numerical Mathematics and Scientific Computation) by Robert E. Moyer

★★★★★ 5 out of 5

Language	: English
File size	: 20134 KB
Text-to-Speech	: Enabled

Screen Reader	: Supported
Enhanced typesetting	: Enabled
Print length	: 449 pages
Lending	: Enabled

This book provides an to direct methods for sparse matrices. It covers a wide range of topics, from basic concepts to advanced algorithms and applications. The book is written in a clear and concise style, with numerous examples and exercises to help the reader understand the material.

Contents

The book is divided into four parts:

* Part I: * Part II: Basic Methods * Part III: Advanced Methods * Part IV: Applications

Part I provides an overview of sparse matrices and direct methods. Part II covers the basic methods for solving linear systems of equations with sparse matrices. Part III covers the more advanced methods, such as multigrid methods and preconditioned iterative methods. Part IV discusses the applications of direct methods to various fields, such as computational fluid dynamics, structural analysis, and image processing.

Audience

This book is intended for students, researchers, and practitioners who are interested in learning about direct methods for sparse matrices. It is also a

valuable resource for anyone who uses sparse matrices in their work.

Author

The author of this book is Dr. Timothy A. Davis. Dr. Davis is a professor of computer science at the University of Florida. He is a leading expert in sparse matrix computations and has written several books and papers on the subject.

Reviews

"This book is an excellent to direct methods for sparse matrices. It is well written and provides a comprehensive overview of the subject." - Professor George Karypis, University of Minnesota

"This book is a valuable resource for anyone who uses sparse matrices in their work. It provides a clear and concise explanation of the basic concepts and algorithms." - Dr. Iain Duff, Rutherford Appleton Laboratory

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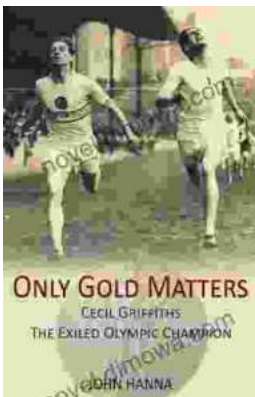
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