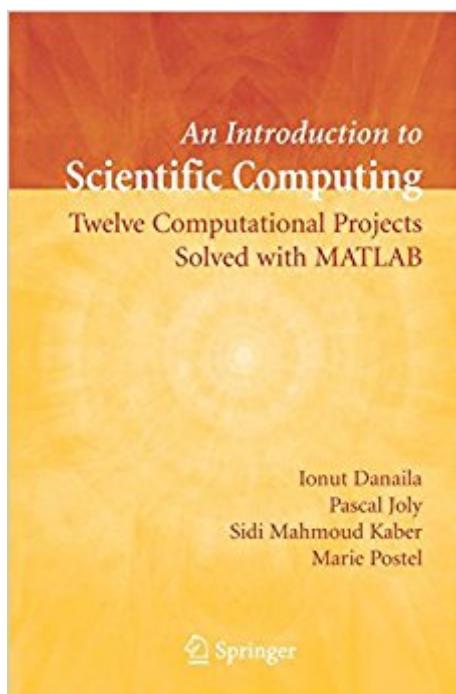


The book was found

# An Introduction To Scientific Computing: Twelve Computational Projects Solved With MATLAB (Texts In Applied Mathematics)



## **Synopsis**

This book demonstrates scientific computing by presenting twelve computational projects in several disciplines including Fluid Mechanics, Thermal Science, Computer Aided Design, Signal Processing and more. Each follows typical steps of scientific computing, from physical and mathematical description, to numerical formulation and programming and critical discussion of results. The text teaches practical methods not usually available in basic textbooks: numerical checking of accuracy, choice of boundary conditions, effective solving of linear systems, comparison to exact solutions and more. The final section of each project contains the solutions to proposed exercises and guides the reader in using the MATLAB scripts available online.

## **Book Information**

Series: Texts in Applied Mathematics (Book 400)

Hardcover: 294 pages

Publisher: Springer; 2007 edition (November 27, 2006)

Language: English

ISBN-10: 038730889X

ISBN-13: 978-0387308890

Product Dimensions: 6.1 x 0.8 x 9.2 inches

Shipping Weight: 1.2 pounds (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #687,680 in Books (See Top 100 in Books) #94 in Books > Science & Math > Mathematics > Number Systems #117 in Books > Science & Math > Mathematics > Popular & Elementary > Counting & Numeration #221 in Books > Textbooks > Computer Science > Artificial Intelligence

## **Customer Reviews**

From the reviews: "In An Introduction to Scientific Computing, the authors present approaches to the numerical solution of problems drawn from a variety of applications. | This is a graduate-level introduction and the pace is brisk. | This is a strong text on scientific computing for advanced students in applied mathematics. | the book is most appropriate for students with some prior experience in scientific computing | ." (William J. Satzer, MathDL, February, 2007) "The book is based on material offered by the authors at Universite Pierre et Marie Curie (Paris, France) and different engineering schools. It is intended as a graduate-level text in applied mathematics, but it may also be used by students in engineering or physical sciences. It may also be used as a

reference for researchers and practicing engineers. Since different possible levels of each project are suggested, the text can be used to propose assignments at different graduate levels." (I. N. Katz, Zentralblatt MATH, Vol. 1119 (21), 2007) "An Introduction to Scientific Computing plunges into solving PDEs by numerical approximation. â | the book is an attempt to completely discuss numerical issues for reasonably complex problems at the level of a graduate textbook. A project-based approach is used. â | Overall, this is a pleasing and useful companion to more complete expositions of the topic. â | If youâ™re preparing advanced students for a workshop, or organizing a numerical analysis club for the semester, then the book is perfect." (Sorin Mitran, SIAM Review, Vol. 50 (1), 2008)

This book provides twelve computational projects aimed at numerically solving problems from a broad range of applications including Fluid Mechanics, Chemistry, Elasticity, Thermal Science, Computer Aided Design, Signal and Image Processing. For each project the reader is guided through the typical steps of scientific computing from physical and mathematical description of the problem, to numerical formulation and programming and finally to critical discussion of numerical results. Considerable emphasis is placed on practical issues of computational methods. The last section of each project contains the solutions to all proposed exercises and guides the reader in using the MATLAB scripts. The mathematical framework provides a basic foundation in the subject of numerical analysis of partial differential equations and main discretization techniques, such as finite differences, finite elements, spectral methods and wavelets). The book is primarily intended as a graduate-level text in applied mathematics, but it may also be used by students in engineering or physical sciences. It will also be a useful reference for researchers and practicing engineers.

[Download to continue reading...](#)

An Introduction to Scientific Computing: Twelve Computational Projects Solved with MATLAB (Texts in Applied Mathematics) Scientific Computing with MATLAB and Octave (Texts in Computational Science and Engineering) Numerical Analysis: Mathematics of Scientific Computing (The Sally Series; Pure and Applied Undergraduate Texts, Vol. 2) Concurrent Scientific Computing (Texts in Applied Mathematics) Differential Equations and Their Applications: An Introduction to Applied Mathematics (Texts in Applied Mathematics) (v. 11) Introduction to the Foundations of Applied Mathematics (Texts in Applied Mathematics) Ideals, Varieties, and Algorithms: An Introduction to Computational Algebraic Geometry and Commutative Algebra (Undergraduate Texts in Mathematics) 2000 Solved Problems in Mechanical Engineering Thermodynamics (Schaum's Solved Problems Series) A Primer on Scientific Programming with Python (Texts in Computational

Science and Engineering) Signals and Systems using MATLAB, Second Edition (Signals and Systems Using MATLAB w/ Online Testing) Accelerating MATLAB Performance: 1001 tips to speed up MATLAB programs Image Processing with MATLAB: Applications in Medicine and Biology (MATLAB Examples) Introduction to High Performance Computing for Scientists and Engineers (Chapman & Hall/CRC Computational Science) Numerical Mathematics (Texts in Applied Mathematics) Numerical Analysis: Mathematics of Scientific Computing Principles of Mathematical Analysis (International Series in Pure and Applied Mathematics) (International Series in Pure & Applied Mathematics) Elementary Fluid Dynamics (Oxford Applied Mathematics and Computing Science Series) Numerical Solution of Partial Differential Equations: Finite Difference Methods (Oxford Applied Mathematics and Computing Science Series) Theory of Lift: Introductory Computational Aerodynamics in MATLAB/Octave Computational Statistics Handbook with MATLAB, Third Edition (Chapman & Hall/CRC Computer Science & Data Analysis)

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)