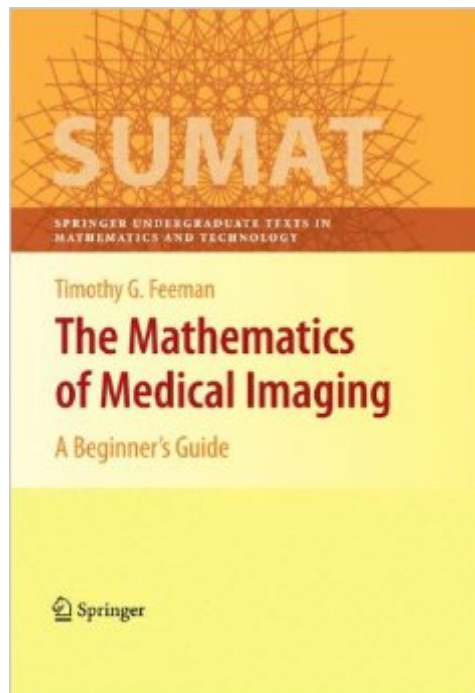# The Mathematics Of Medical Imaging: A Beginner's Guide (Springer Undergraduate Texts In Mathematics And Technology)

Synopsis

This text explores medical imaging, one of the most significant areas of recent mathematical applications, in a concise manner accessible to undergraduate students. The author emphasizes the mathematical aspects of medical imaging, including not only the theoretical background, but also the role of approximation methods and the computer implementation of the inversion algorithms. In twenty-first century health care, CAT scans, ultrasounds, Â and MRIs are commonplace. Significant computational advances, along with the development, design, and improvement of the machines themselves, can only occur in conjunction with a proper understanding of the mathematics. This book is inherently interdisciplinary in nature, and therefore is appropriate for students of engineering, physics, and computer science, in addition to mathematics.

Book Information

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Customer Reviews

This is a short and self-contained introduction to the mathematics of tomography reconstruction, with specially focus to the CT reconstruction.The book is clear, didactic and easy to read. It has with a nice collection of proposed problems at the end of the chapter.In my option, the book has three fails 1. There is no appendix with detailed the solution of the exercises. This feature is always

appreciated for me, although many of the problems are easy, they are direct applications of the theory, they always gives the opportunities to discuss interesting features or advance something that will be explaining in the next chapters. 2. The chapter about complex numbers is unnecessary; because I think that everyone who reads this book will has knowledge in this topic.A good compromise would be to suppress this chapter and adding an appendix with detailed solutions of the problems 3. the book would improve with an introduction to algorithms and codes in some high level language like MatLab or Mapple. This point is mention inside the book, but it should be more explicit.I recommend this book for anyone who wants a quick introduction (a first step) to the mathematics behind CT reconstruction.

The Mathematics of Medical Imaging: A Beginner's Guide (Springer Undergraduate Texts in Mathematics and Technology) Introduction to the Mathematics of Finance: From Risk Management to Options Pricing (Undergraduate Texts in Mathematics) An Introduction to Mathematical Cryptography (Undergraduate Texts in Mathematics) The Patient's Medical Journal: Record Your Personal Medical History, Your Family Medical History, Your Medical Visits & Treatment Plans The Filmmaker's Guide to Digital Imaging: for Cinematographers, Digital Imaging Technicians, and Camera Assistants Ethical and Legal Issues for Imaging Professionals, 2e (Towsley-Cook, Ethical and Legal Issues for Imaging Professionals) Principles of Radiographic Imaging: An Art and A Science (Carlton,Principles of Radiographic Imaging) Radiographic Imaging and Exposure, 4e (Fauber, Radiographic Imaging & Exposure) Diagnostic Imaging: Head and Neck: Published by Amirsys (Diagnostic Imaging (Lippincott)) Statistics and Data Analysis for Financial Engineering: with R examples (Springer Texts in Statistics) Time Series Analysis: With Applications in R (Springer Texts in Statistics) Time Series Analysis (Springer Texts in Statistics) Essentials of Stochastic Processes (Springer Texts in Statistics) A First Course in Bayesian Statistical Methods (Springer Texts in Statistics) A Modern Approach to Regression with R (Springer Texts in Statistics) An Introduction to Statistical Learning: with Applications in R (Springer Texts in Statistics) Blockchain: The Comprehensive Guide to Mastering the Hidden Economy: (Blockchain Technology, Fintech, Financial Technology, Smart Contracts, Internet Technology) Before The College Audition: A guide for creating your list of acting and musical theatre undergraduate programs The Scholarship Book, 13th Edition: The Complete Guide to Private-Sector Scholarships, Fellowships, Grants, and Loan s for the Undergraduate (Scholarship Books) Guide to Scientific Computing in C++ (Undergraduate Topics in Computer Science)