Numerical Analysis 009 Richard L Burden J Douglas

A world list of books in the English language.

This well-respected text gives an introduction to the theory and application of modern numerical approximation techniques for students taking a one- or two-semester course in numerical analysis. With an accessible treatment that only requires a calculus prerequisite, Burden and Faires explain how, why, and when approximation techniques can be expected to work, and why, in some situations, they fail. A wealth of examples and exercises develop students' intuition, and demonstrate the subject's practical applications to important everyday problems in math, computing, engineering, and physical science disciplines. The first book of its kind built from the ground up to serve a diverse undergraduate audience, three decades later Burden and Faires remains the definitive introduction to a vital and practical subject. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

"This book provides the reader with basic concepts for soft computing and other methods for various means of uncertainty in handling solutions, analysis, and applications"--Provided by publisher.

Revised and updated, this second edition of Walter Gautschi's successful Numerical Analysis explores computational methods for problems arising in the areas of classical analysis, approximation theory, and ordinary differential equations, among others. Topics included in the book are presented with a view toward stressing basic principles and maintaining simplicity and teachability as far as possible, while subjects requiring a higher level of technicality are referenced in detailed bibliographic notes at the end of each chapter. Readers are thus given the guidance and opportunity to pursue advanced modern topics in more depth. Along with updated references, new biographical notes, and enhanced notational clarity, this second edition includes the expansion of an already large collection of exercises and assignments, both the kind that deal with theoretical and practical aspects of the subject and those requiring machine computation and the use of mathematical software. Perhaps most notably, the edition also comes with a complete solutions manual, carefully developed and polished by the author, which will serve as an exceptionally valuable resource for instructors.

Dentistry is a branch of medicine with its own particularities and very different fields of action, and is generally regarded as an interdisciplinary field. The use of new technologies is currently the main driving force for the series of international conferences on Biodental Engineering (BIODENTAL). BIODENTAL ENGINEERING V contains the full papers presented at the 5th International Conference on Biodental Engineering (BIODENTAL 2018, Porto, Portugal, 22-23 June 2018). The conference had two workshops, one of them dealing with computational imaging combined with finite element method, the other dealing with bone tissue remodelling models. Additionally, the conference had three special sessions and sixty contributed presentations. The topics discussed in BIODENTAL ENGINEERING V include: Aesthetics Bioengineering Biomaterials Biomechanical disorders Biomedical devices Computational bio- imaging and visualization Computational methods Dental medicine Experimental mechanics Signal processing and analysis Implantology Minimally invasive devices and techniques Orthodontics Prosthesis and orthosis Simulation Software development Telemedicine Tissue engineering Virtual reality The purpose of the series of BIODENTAL Conferences on Biodental Engineering, initiated in 2009, is to perpetuate knowledge on bioengineering applied to dentistry, by promoting a comprehensive forum for discussion on recent advances in related fields in order to identify potential collaboration between researchers and end-users from different sciences.

Over the past 15 years, there has been a growing need in the medical image computing community for principled methods to process nonlinear geometric data. Riemannian geometry has emerged as one of the most powerful mathematical and computational frameworks for analyzing such data. Riemannian Geometric Statistics in Medical Image Analysis is a complete reference on statistics on Riemannian manifolds and more general nonlinear spaces with applications in medical image analysis. It provides an introduction to the core methodology followed by a presentation of state-of-the-art methods. Beyond medical image computing, the methods described in this book may also apply to other domains such as signal processing, computer vision, geometric deep learning, and other domains where statistics on geometric features appear. As such, the presented core methodology takes its place in the field of geometric statistics, the statistical analysis of data being elements of nonlinear geometric spaces. The foundational material and the advanced techniques presented in the later parts of the book can be useful in domains outside medical imaging and present important applications of geometric statistics methodology Content includes: The foundations of Riemannian geometric methods for statistics on manifolds with emphasis on concepts rather than on proofs Applications of statistics on manifolds and shape spaces in medical image computing Diffeomorphic deformations and their applications As the methods described apply to domains such as signal processing (radar signal processing and brain computer interaction), computer vision (object and face recognition), and other domains where statistics of geometric features appear, this book is suitable for researchers and graduate students in medical imaging, engineering and computer science. A complete reference covering both the foundations and state-of-the-art methods Edited and authored by leading researchers in the field Contains theory, examples, applications, and algorithms Gives an overview of current research challenges and future applications