Metric Spaces Iteration And Application

When people should go to the books stores, search start by shop, shelf by shelf, it is in point of fact problematic. This is why we give the ebook compilations in this website. It will very ease you to look guide **Metric Spaces Iteration And Application** as you such as.

By searching the title, publisher, or authors of guide you in point of fact want, you can discover them rapidly. In the house, workplace, or perhaps in your method can be every best area within net connections. If you plan to download and install the Metric Spaces Iteration And Application, it is utterly easy then, before currently we extend the partner to purchase and make bargains to download and install Metric Spaces Iteration And Application suitably simple!

Introductory Topology - Mohammed Hichem Mortad
The book offers a good introduction to topology through solved exercises. It is mainly intended for undergraduate students. Most exercises are given with detailed solutions. In the second edition, some significant changes have been made, other than the additional exercises. There are also additional proofs (as exercises) of many results in the old section "What You Need To Know", which has been improved and renamed in the new edition as "Essential Background". Indeed, it has been considerably beefed up as it now includes more remarks and results for readers' convenience. The interesting sections "True or False" and "Tests" have remained as they were, apart from a very few changes.
Dictionary of Distances - Michel-Marie Deza 2006-11-16
This book comes out of need and urgency (expressed especially in areas of Information Retrieval with respect to Image, Audio, Internet and Biology) to have a working tool to compare data. The book will provide powerful resource for all researchers using Mathematics as well as for mathematicians themselves. In the time when over-specialization and terminology fences isolate researchers, this Dictionary try to be "centripedal" and "oikoumeni", providing some access and altitude of vision but without taking the route of scientific vulgarisation. This attempted balance is the main philosophy of this Dictionary which defined its structure and style. Key features: - Unicity: it is the first book treating the basic notion of Distance in whole generality. - Interdisciplinarity: this Dictionary is larger in scope than majority of thematic dictionaries. - Encyclopedicity: while an Encyclopedia of Distances seems now too difficult to produce, this book (by its scope, short introductions and organization) provides the main material for it and for future tutorials on some parts of this material. - Applicability: the distances, as well as distance-related notions and paradigms, are provided in ready-to-use fashion. - Worthiness: the need and urgency for such dictionary was great in several huge areas, esp. Information Retrieval, Image Analysis, Speech Recognition and Biology. - Accessibility: the definitions are easy to locate by subject or, in Index, by alphabetic order; the introductions and definitions are reader-friendly and maximally independent one from another; still the text is structured, in the 3D HTML style, by hyperlink-like boldfaced references to similar definitions. * Covers a large range of subjects in pure and applied mathematics * Designed to be easily applied--the distances and distance-related notions and paradigms are ready to use * Helps users quickly locate definitions by subject or in alphabetical order; stand-alone

entries include references to other entries and sources for further investigation

Non-Connected Convexities and Applications - G. Cristescu 2013-12-01

Lectori salutem! The kind reader opens the book that its authors would have liked to read it themselves, but it was not written yet. Then, their only choice was to write this book, to fill a gap in the mathematicalliterature. The idea of convexity has appeared in the human mind since the antiquity and its fertility has led to a huge diversity of notions and of applications. A student intending a thoroughgoing study of convexity has the sensation of swimming into an ocean. It is due to two reasons: the first one is the great number of properties and applications of the classical convexity and second one is the great number of generalisations for various purposes. As a consequence, a tendency of writing huge books guiding the reader in convexity appeared during the last twenty years (for example, the books of P. M. Gruber and J. M. Willis (1993) and R. J. Webster (1994)). Another last years' tendency is to order, from some point of view, as many convexity notions as possible (for example, the book of I. Singer (1997)). These approaches to the domain of convexity follow the previous point of view of axiomatizing it (A. Ghika (1955), W. Prenowitz (1961), D. Voiculescu (1967), V. W. Bryant and R. J. Webster (1969)). Following this last tendency, our book proposes to the reader two classifications of convexity properties for sets, both of them starting from the internal mechanism of defining them.

Metric Spaces - Satish Shirali 2006

One of the first books to be dedicated specifically to metric spaces Full of worked examples, to get complex ideas across more easily

Generalizations Of Finite Metrics And Cuts - Michel-marie Deza 2016-05-06

This book introduces oriented version of metrics and cuts and their multidimensional analogues, as well as partial metrics and weighted metrics. It is a follow-up of Geometry of Cuts and Metrics by Deza and Laurent which presents rich theory of classical binary and symmetric objects — metrics and cuts.Many research publications on this subject are devoted to different special aspects of the theory of generalized metrics. However, they are disconnected one from other, often written in different mathematical language, consider the same objects from different points of view without analysis of possible connections, etc. In this book we will construct full theory of main classes of finite generalized metrics and their polyhedral aspects.

Metric Spaces - Victor Bryant 1985-05-02

An introduction to metric spaces for those interested in the applications as well as theory.

Resource Description and Selection for Similarity Search in Metric Spaces - Daniel Blank 2015-05-07

Ill-Posed Problems: Theory and Applications - A. Bakushinsky 2012-12-06

Recent years have been characterized by the increasing amountofpublications in the field ofso-called ill-posed problems. This is easilyunderstandable because we observe the rapid progress of a relatively young branch ofmathematics, ofwhich the first results date back to about 30 years ago. By now, impressive results have been achieved both in the theory ofsolving ill-posed problems and in the applicationsofalgorithms using modem computers. To mention just one field, one can name the computer tomography which could not possibly have been developed without modem tools for solving ill-posed problems. When writing this book, the authors tried to define the place and role of ill posed problems in modem mathematics. In a few words, we define the theory of ill-posed problems as the theory of approximating functions with approximately given arguments in functional spaces. The difference between well-posed and ill posed problems is concerned with the fact that the latter are associated with

discontinuous functions. This approach is followed by the authors throughout the whole book. We hope that the theoretical results will be of interest to researchers working in approximation theory and functional analysis. As for particular algorithms for solving ill-posed problems, the authors paid general attention to the principles ofconstructing such algorithms as the methods for approximating discontinuous functions with approximately specified arguments. In this way it proved possible to define the limits of applicability of regularization techniques.

Theories of Interval Arithmetic - Hend Dawood 2011-10-07

Scientists are, all the time, in a struggle with uncertainty which is always a threat to a trustworthy scientific knowledge. A very simple and natural idea, to defeat uncertainty, is that of enclosing uncertain measured values in real closed intervals. On the basis of this idea, interval arithmetic is constructed. The idea of calculating with intervals is not completely new in mathematics: the concept has been known since Archimedes, who used guaranteed lower and upper bounds to compute his constant Pi. Interval arithmetic is now a broad field in which rigorous mathematics is associated with scientific computing. This connection makes it possible to solve uncertainty problems that cannot be efficiently solved by floating-point arithmetic. Today, application areas of interval methods include electrical engineering, control theory, remote sensing, experimental and computational physics, chaotic systems, celestial mechanics, signal processing, computer graphics, robotics, and computer-assisted proofs. The purpose of this book is to be a concise but informative introduction to the theories of interval arithmetic as well as to some of their computational and scientific applications. Editorial Reviews "This new book by Hend Dawood is a fresh introduction to some of the basics of interval computation. It stops short of discussing the more complicated subdivision methods for converging to ranges of values, however it provides a bit of perspective about complex interval arithmetic, constraint intervals, and modal intervals, and it does go into the design of hardware operations for interval arithmetic, which is something still to be done by computer manufacturers." - Ramon E. Moore, (The Founder of Interval Computations) Professor Emeritus of Computer and Information Science, Department of Mathematics, The Ohio State University, Columbus, U.S.A. "A popular math-oriented introduction to interval computations and its applications. This short book contains an explanation of the need for interval computations, a brief history of interval computations, and main interval computation techniques. It also provides an impressive list of main practical applications of interval techniques." - Vladik Kreinovich, (International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems) Professor of Computer Science, University of Texas at El Paso, El Paso, Texas, U.S.A. "I am delighted to see one more Egyptian citizen re-entering the field of interval mathematics invented in this very country thousands years ago." - Marek W. Gutowski, Institute of Physics, Polish Academy of Sciences, Warszawa, Poland

Metric Spaces of Fuzzy Sets - Phil Diamond 1994

The primary aim of the book is to provide a systematic development of the theory of metric spaces of normal, upper semicontinuous fuzzy convex fuzzy sets with compact support sets, mainly on the base space ?n. An additional aim is to sketch selected applications in which these metric space results and methods are essential for a thorough mathematical analysis.This book is distinctly mathematical in its orientation and style, in contrast with many of the other books now available on fuzzy sets, which, although all making use of mathematical formalism to some extent, are essentially motivated by and oriented towards more immediate applications and related practical

issues. The reader is assumed to have some previous undergraduate level acquaintance with metric spaces and elementary functional analysis.

Advances in Metric Fixed Point Theory and Applications - Yeol Je Cho 2021-06-05

This book collects papers on major topics in fixed point theory and its applications. Each chapter is accompanied by basic notions, mathematical preliminaries and proofs of the main results. The book discusses common fixed point theory, convergence theorems, split variational inclusion problems and fixed point problems for asymptotically nonexpansive semigroups; fixed point property and almost fixed point property in digital spaces, nonexpansive semigroups over CAT(κ) spaces, measures of noncompactness, integral equations, the study of fixed points that are zeros of a given function, best proximity point theory, monotone mappings in modular function spaces, fuzzy contractive mappings, ordered hyperbolic metric spaces, generalized contractions in b-metric spaces, multi-tupled fixed points, functional equations in dynamic programming and Picard operators. This book addresses the mathematical community working with methods and tools of nonlinear analysis. It also serves as a reference, source for examples and new approaches associated with fixed point theory and its applications for a wide audience including graduate students and researchers.

Iterative Approximation of Fixed Points - Vasile Berinde 2007-04-20

This monograph gives an introductory treatment of the most important iterative methods for constructing fixed points of nonlinear contractive type mappings. For each iterative method considered, it summarizes the most significant contributions in the area by presenting some of the most relevant convergence theorems. It also presents applications to the solution of nonlinear operator equations as well as the appropriate error analysis of the main iterative methods.

UNIFIED THEORY FOR ESTIMATION AND ITERATION IN METRIC SPACES AND PARTIALLY ORDERED SPACES. - UNITED STATES. DEPARTMENT OF THE ARMY. MATHEMATICS RESEARCH CENTER.

Introduction to the Analysis of Metric Spaces - John R. Giles 1987-09-03

Assuming a basic knowledge of real analysis and linear algebra, the student is given some familiarity with the axiomatic method in analysis and is shown the power of this method in exploiting the fundamental analysis structures underlying a variety of applications. Although the text is titled metric spaces, normed linear spaces are introduced immediately because this added structure is present in many examples and its recognition brings an interesting link with linear algebra; finite dimensional spaces are discussed earlier. It is intended that metric spaces be studied in some detail before general topology is begun. This follows the teaching principle of proceeding from the concrete to the more abstract. Graded exercises are provided at the end of each section and in each set the earlier exercises are designed to assist in the detection of the abstract structural properties in concrete examples while the latter are more conceptually sophisticated.

Advances in Real and Complex Analysis with Applications - Michael Ruzhansky 2017-10-03

This book discusses a variety of topics in mathematics and engineering as well as their applications, clearly explaining the mathematical concepts in the simplest possible way and illustrating them with a number of solved examples. The topics include real and complex analysis, special functions and analytic number theory, q-series, Ramanujan's mathematics, fractional calculus, Clifford and harmonic analysis, graph theory, complex analysis, complex dynamical systems, complex function spaces and operator theory, geometric analysis of complex manifolds, geometric function theory, Riemannian surfaces, Teichmüller spaces and Kleinian groups, engineering applications of complex analytic methods, nonlinear analysis,

inequality theory, potential theory, partial differential equations, numerical analysis , fixed-point theory, variational inequality, equilibrium problems, optimization problems, stability of functional equations, and mathematical physics. It includes papers presented at the 24th International Conference on Finite or Infinite Dimensional Complex Analysis and Applications (24ICFIDCAA), held at the Anand International College of Engineering, Jaipur, 22-26 August 2016. The book is a valuable resource for researchers in real and complex analysis.

Safety and Reliability. Theory and Applications - Marko Cepin 2017-06-14
Safety and Reliability - Theory and Applications contains the contributions presented at the 27th European Safety and Reliability Conference (ESREL 2017, Portorož, Slovenia, June 18-22, 2017). The book covers a wide range of topics, including: • Accident and Incident modelling • Economic Analysis in Risk Management • Foundational Issues in Risk Assessment and Management • Human Factors and Human Reliability • Maintenance Modeling and Applications • Mathematical Methods in Reliability and Safety • Prognostics and System Health Management • Resilience Engineering • Risk Assessment • Risk Management • Simulation for Safety and Reliability Analysis • Structural Reliability • System Reliability, and • Uncertainty Analysis. Selected special sessions include contributions on: the Marie Skłodowska-Curie innovative training network in structural safety; risk approaches in insurance and fi nance sectors; dynamic reliability and probabilistic safety assessment; Bayesian and statistical methods, reliability data and testing; oganizational factors and safety culture; software reliability and safety; probabilistic methods applied to power systems; socio-technical-economic systems; advanced safety assessment methodologies: extended Probabilistic Safety Assessment; reliability; availability; maintainability and safety in railways: theory & practice; big data risk analysis and management, and model-based reliability and safety engineering. Safety and Reliability - Theory and Applications will be of interest to professionals and academics working in a wide range of industrial and governmental sectors including: Aeronautics and Aerospace, Automotive Engineering, Civil Engineering, Electrical and Electronic Engineering, Energy Production and Distribution, Environmental Engineering, Information Technology and Telecommunications, Critical Infrastructures, Insurance and Finance, Manufacturing, Marine Industry, Mechanical Engineering, Natural Hazards, Nuclear Engineering, Offshore Oil and Gas, Security and Protection, Transportation, and Policy Making.

Random Iteration of Isometries in Unbounded Metric Spaces - Amiran Ambroladze 2001

Moser Iteration for (quasi)minimizers on Metric Spaces - Anders Björn 2005

Mathematical Methods for Engineering Applications - Fatih Yilmaz 2022-04-15
This proceedings volume gathers selected, peer-reviewed papers presented at the 2nd International Conference on Mathematics and its Applications in Science and Engineering - ICMASE 2021, which was virtually held on July 1-2, 2021 by the University of Salamanca, Spain. Works included in this book cover applications of mathematics both in engineering research and in real-world problems, touching topics such as difference equations, number theory, optimization, and more. The list of applications includes the modeling of mechanical structures, the shape of machines, and the growth of a population, expanding to fields like information security and cryptography. Advances in teaching and learning mathematics in the context of engineering courses are also covered.This volume can be of special interest to researchers in applied mathematics and engineering fields, as well as practitioners seeking studies that address real-

life problems in engineering.

Constructive Real Analysis - Allen A. Goldstein 2013-05-20

This text introduces students of mathematics, science, and technology to the methods of applied functional analysis and applied convexity. Topics include iterations and fixed points, metric spaces, nonlinear programming, applications to integral equations, and more. 1967 edition.

Combinatorial Algorithms - W. F. Symth 2012-12-22

This book constitutes the thoroughly referred post-workshop proceedings of the 23rd International Workshop on Combinatorial Algorithms, IWOCA 2012, held in Krishnankoil, Tamil Nadu, India, in July 2012. The 32 revised full papers presented were carefully reviewed and selected from a total of 88 submissions. The papers are organized in topical sections in algorithms and data Structures, applications (including Bioinformatics, Networking, etc.), combinatorics of words and strings, combinatorial optimization, combinatorial enumeration, decompositions and combinatorial designs, complexity theory (structural and computational), computational biology and graph theory and combinatorics submissions.

Encyclopedia of Distances - Michel Marie Deza 2014-10-08

This updated and revised third edition of the leading reference volume on distance metrics includes new items from very active research areas in the use of distances and metrics such as geometry, graph theory, probability theory and analysis. Among the new topics included are, for example, polyhedral metric space, nearness matrix problems, distances between belief assignments, distance-related animal settings, diamond-cutting distances, natural units of length, Heidegger's de-severance distance, and brain distances. The publication of this volume coincides with intensifying research efforts into metric spaces and especially distance design for applications. Accurate metrics have become a crucial goal in computational biology, image analysis, speech recognition and information retrieval. Leaving aside the practical questions that arise during the selection of a 'good' distance function, this work focuses on providing the research community with an invaluable comprehensive listing of the main available distances. As well as providing standalone introductions and definitions, the encyclopedia facilitates swift cross-referencing with easily navigable bold-faced textual links to core entries. In addition to distances themselves, the authors have collated numerous fascinating curiosities in their Who's Who of metrics, including distance-related notions and paradigms that enable applied mathematicians in other sectors to deploy research tools that non-specialists justly view as arcane. In expanding access to these techniques, and in many cases enriching the context of distances themselves, this peerless volume is certain to stimulate fresh research.

Deep Learning: Concepts and Architectures - Witold Pedrycz 2019-10-29

This book introduces readers to the fundamental concepts of deep learning and offers practical insights into how this learning paradigm supports automatic mechanisms of structural knowledge representation. It discusses a number of multilayer architectures giving rise to tangible and functionally meaningful pieces of knowledge, and shows how the structural developments have become essential to the successful delivery of competitive practical solutions to real-world problems. The book also demonstrates how the architectural developments, which arise in the setting of deep learning, support detailed learning and refinements to the system design. Featuring detailed descriptions of the current trends in the design and analysis of deep learning topologies, the book offers practical guidelines and presents competitive solutions to various areas of language modeling, graph representation, and forecasting.

Fixed Point Theory - V.I. Istratescu 2001-11-30

1. Topological Spaces and Topological

Linear Spaces.- 1.1. Metric Spaces.- 1.2. Compactness in Metric Spaces. Measures of Noncompactness.- 1.3. Baire Category Theorem.- 1.4. Topological Spaces.- 1.5. Linear Topological Spaces. Locally Convex Spaces.- 2. Hilbert spaces and Banach spaces.- 2.1. Normed Spaces. Banach Spaces.- 2.2. Hilbert Spaces.- 2.3. Convergence in X, X* and L(X).- 2.4. The Adjoint of an Operator.- 2.5. Classes of Banach Spaces.- 2.6. Measures of Noncompactness in Banach Spaces.- 2.7. Classes of Special Operators on Banach Spaces.- 3. The Contraction Principle.- 3.0. Introduction.- 3.1. The Principle of Contraction Mapping in Complete Metric Spaces.- 3.2. Linear Operators and Contraction Mappings.- 3.3. Some Generalizations of the Contraction Mappings.- 3.4. Hilbert's Projective Metric and Mappings of Contractive Type.- 3.5. Approximate Iteration.- 3.6. A Converse of the Contraction Principle.- 3.7. Some Applications of the Contraction Principle.- 4. Brouwer's Fixed Point Theorem.- 4.0. Introduction.- 4.1. The Fixed Point Property.- 4.2. Brouwer's Fixed Point theorem. Equivalent Formulations.- 4.3. Robbins' Complements of Brouwer's Theorem.- 4.4. The Borsuk-Ulam Theorem.- 4.5. An Elementary Proof of Brouwer's Theorem.- 4.6. Some Examples.- 4.7. Some Applications of Brouwer's Fixed Point Theorem.- 4.8. The Computation of Fixed Points. Scarf's Theorem.- 5. Schauder's Fixed Point Theorem and Some Generalizations.- 5.0. Introduction.- 5.1. The Schauder Fixed Point Theorem.- 5.2. Darbo's Generalization of Schauder's Fixed Point Theorem.- 5.3. Krasnoselskii's, Rothe's and Altman's Theorems.- 5.4. Browder's and Fan's Generalizations of Schauder's and Tychonoff's Fixed Point Theorem.- 5.5. Some Applications.- 6. Fixed Point Theorems for Nonexpansive Mappings and Related Classes of Mappings.- 6.0. Introduction.- 6.1. Nonexpansive Mappings.- 6.2. The Extension of Nonexpansive Mappings.- 6.3. Some General Properties of Nonexpansive Mappings.- 6.4. Nonexpansive Mappings on Some Classes of Banach Spaces.- 6.5. Convergence of Iterations of Nonexpansive Mappings.- 6.6. Classes of Mappings Related to Nonexpansive Mappings.- 6.7. Computation of Fixed Points for Classes of Nonexpansive Mappings.- 6.8. A Simple Example of a Nonexpansive Mapping on a Rotund Space Without Fixed Points.- 7. Sequences of Mappings and Fixed Points.- 7.0. Introduction.- 7.1. Convergence of Fixed Points for Contractions or Related Mappings.- 7.2. Sequences of Mappings and Measures of Noncompactness.- 8. Duality Mappings and Monotone Operators.- 8.0. Introduction.- 8.1. Duality Mappings.- 8.2. Monotone Mappings and Classes of Nonexpansive Mappings.- 8.3. Some Surjectivity Theorems on Real Banach Spaces.- 8.4. Some Surjectivity Theorems in Complex Banach Spaces.- 8.5. Some Surjectivity Theorems in Locally Convex Spaces.- 8.6. Duality Mappings and Monotonicity for Set-Valued Mappings.- 8.7. Some Applications.- 9. Families of Mappings and Fixed Points.- 9.0. Introduction.- 9.1. Markov's and Kakutani's Results.- 9.2. The Ryll-Nardzewski Fixed Point Theorem.- 9.3. Fixed Points for Families of Nonexpansive Mappings.- 9.4. Invariant Means on Semigroups and Fixed Point for Families of Mappings.- 10. Fixed Points and Set-Valued Mappings.- 10.0 Introduction.- 10.1 The Pompeiu-Hausdorff Metric.- 10.2. Continuity for Set-Valued Mappings.- 10.3. Fixed Point Theorems for Some Classes of Set-valued Mappings.- 10.4. Set-Valued Contraction Mappings.- 10.5. Sequences of Set-Valued Mappings and Fixed Points.- 11. Fixed Point Theorems for Mappings on PM-Spaces.- 11.0. Introduction.- 11.1. PM-Spaces.- 11.2. Contraction Mappings in PM-Spaces.- 11.3. Probabilistic Measures of Noncompactness.- 11.4. Sequences of Mappings and Fixed Points.- 12. The Topological Degree.- 12.0. Introduction.- 12.1. The Topological Degree in Finite-Dimensional Spaces.- 12.2. The Leray-Schauder Topological Degree.- 12.3. Leray's Example.- 12.4. The Topological Degree for k-Set Contractions.- 12.5. The Uniqueness Problem for the Topological Degree.- 12.6. The Computation of the

Topological Degree.- 12.7. Some Applications of the Topological Degree.

Improving Classifier Generalization - Rahul Kumar Sevakula 2022-09-29

This book elaborately discusses techniques commonly used to improve generalization performance in classification approaches. The contents highlight methods to improve classification performance in numerous case studies: ranging from datasets of UCI repository to predictive maintenance problems and cancer classification problems. The book specifically provides a detailed tutorial on how to approach time-series classification problems and discusses two real time case studies on condition monitoring. In addition to describing the various aspects a data scientist must consider before finalizing their approach to a classification problem and reviewing the state of the art for improving classification generalization performance, it also discusses in detail the authors own contributions to the field, including MVPC - a classifier with very low VC dimension, a graphical indices based framework for reliable predictive maintenance and a novel general-purpose membership functions for Fuzzy Support Vector Machine which provides state of the art performance with noisy datasets, and a novel scheme to introduce deep learning in Fuzzy Rule based classifiers (FRCs). This volume will serve as a useful reference for researchers and students working on machine learning, health monitoring, predictive maintenance, time-series analysis, gene-expression data classification.

A Unified Theory for Estimation and Iteration in Metric Spaces and Partially Ordered Spaces - WISCONSIN UNIV MADISON MATHEMATICS RESEARCH CENTER. 1961

Fixed Point Theory in Metric Spaces - Praveen Agarwal 2018-10-13

This book provides a detailed study of recent results in metric fixed point theory and presents several applications in nonlinear analysis, including matrix equations, integral equations and polynomial approximations. Each chapter is accompanied by basic definitions, mathematical preliminaries and proof of the main results. Divided into ten chapters, it discusses topics such as the Banach contraction principle and its converse; Ran-Reurings fixed point theorem with applications; the existence of fixed points for the class of α-ψ contractive mappings with applications to quadratic integral equations; recent results on fixed point theory for cyclic mappings with applications to the study of functional equations; the generalization of the Banach fixed point theorem on Branciari metric spaces; the existence of fixed points for a certain class of mappings satisfying an implicit contraction; fixed point results for a class of mappings satisfying a certain contraction involving extended simulation functions; the solvability of a coupled fixed point problem under a finite number of equality constraints; the concept of generalized metric spaces, for which the authors extend some well-known fixed point results; and a new fixed point theorem that helps in establishing a Kelisky-Rivlin type result for q-Bernstein polynomials and modified q-Bernstein polynomials. The book is a valuable resource for a wide audience, including graduate students and researchers.

Fixed Point Theory and Applications, Volume 6 - Yeol Je Cho 2007

Fixed Point Theory & Applications

Fixed Point Theory and Graph Theory - Monther Alfuraidan 2016-06-20

Fixed Point Theory and Graph Theory provides an intersection between the theories of fixed point theorems that give the conditions under which maps (single or multivalued) have solutions and graph theory which uses mathematical structures to illustrate the relationship between ordered pairs of objects in terms of their vertices and directed edges. This edited reference work is perhaps the first to provide a link between the two theories, describing not only their foundational aspects, but also the most recent advances and the fascinating intersection of the domains. The authors provide solution

methods for fixed points in different settings, with two chapters devoted to the solutions method for critically important non-linear problems in engineering, namely, variational inequalities, fixed point, split feasibility, and hierarchical variational inequality problems. The last two chapters are devoted to integrating fixed point theory in spaces with the graph and the use of retractions in the fixed point theory for ordered sets. Introduces both metric fixed point and graph theory in terms of their disparate foundations and common application environments Provides a unique integration of otherwise disparate domains that aids both students seeking to understand either area and researchers interested in establishing an integrated research approach Emphasizes solution methods for fixed points in non-linear problems such as variational inequalities, split feasibility, and hierarchical variational inequality problems that is particularly appropriate for engineering and core science applications

Fault-Tolerant Design - Elena Dubrova 2013-03-15

This textbook serves as an introduction to fault-tolerance, intended for upper-division undergraduate students, graduate-level students and practicing engineers in need of an overview of the field. Readers will develop skills in modeling and evaluating fault-tolerant architectures in terms of reliability, availability and safety. They will gain a thorough understanding of fault tolerant computers, including both the theory of how to design and evaluate them and the practical knowledge of achieving fault-tolerance in electronic, communication and software systems. Coverage includes fault-tolerance techniques through hardware, software, information and time redundancy. The content is designed to be highly accessible, including numerous examples and exercises. Solutions and powerpoint slides are available for instructors.

An Introduction to Metric Spaces and Fixed Point Theory - Mohamed A. Khamsi 2011-10-14

Presents up-to-date Banach space results. * Features an extensive bibliography for outside reading. * Provides detailed exercises that elucidate more introductorymaterial.

Fixed Point Theory and Related Topics - Hsien-ChungWu 2020-03-13

Fixed point theory arose from the Banach contraction principle and has been studied for a long time. Its application mostly relies on the existence of solutions to mathematical problems that are formulated from economics and engineering. After the existence of the solutions is guaranteed, the numerical methodology will be established to obtain the approximated solution. Fixed points of function depend heavily on the considered spaces that are defined using the intuitive axioms. In particular, variant metrics spaces are proposed, like a partial metric space, b-metric space, fuzzy metric space and probabilistic metric space, etc. Different spaces will result in different types of fixed point theorems. In other words, there are a lot of different types of fixed point theorems in the literature. Therefore, this Special Issue welcomes survey articles. Articles that unify the different types of fixed point theorems are also very welcome. The topics of this Special Issue include the following: Fixed point theorems in metric space Fixed point theorems in fuzzy metric space Fixed point theorems in probabilistic metric space Fixed point theorems of set-valued functions in various spaces The existence of solutions in game theory The existence of solutions for equilibrium problems The existence of solutions of differential equations The existence of solutions of integral equations Numerical methods for obtaining the approximated fixed points

Recent Trends in Combinatorics - Andrew Beveridge 2016-04-12

This volume presents some of the research topics discussed at the 2014-2015 Annual Thematic Program Discrete Structures: Analysis and Applications at the Institute for Mathematics and its Applications

during Fall 2014, when combinatorics was the focus. Leading experts have written surveys of research problems, making state of the art results more conveniently and widely available. The three-part structure of the volume reflects the three workshops held during Fall 2014. In the first part, topics on extremal and probabilistic combinatorics are presented; part two focuses on additive and analytic combinatorics; and part three presents topics in geometric and enumerative combinatorics. This book will be of use to those who research combinatorics directly or apply combinatorial methods to other fields.

Stochastic Systems - Mircea Grigoriu 2012-05-15

Uncertainty is an inherent feature of both properties of physical systems and the inputs to these systems that needs to be quantified for cost effective and reliable designs. The states of these systems satisfy equations with random entries, referred to as stochastic equations, so that they are random functions of time and/or space. The solution of stochastic equations poses notable technical difficulties that are frequently circumvented by heuristic assumptions at the expense of accuracy and rigor. The main objective of Stochastic Systems is to promoting the development of accurate and efficient methods for solving stochastic equations and to foster interactions between engineers, scientists, and mathematicians. To achieve these objectives Stochastic Systems presents: A clear and brief review of essential concepts on probability theory, random functions, stochastic calculus, Monte Carlo simulation, and functional analysis Probabilistic models for random variables and functions needed to formulate stochastic equations describing realistic problems in engineering and applied sciences Practical methods for quantifying the uncertain parameters in the definition of stochastic equations, solving approximately these equations, and assessing the accuracy of approximate solutions Stochastic Systems provides key information for researchers, graduate students, and engineers who are interested in the formulation and solution of stochastic problems encountered in a broad range of disciplines. Numerous examples are used to clarify and illustrate theoretical concepts and methods for solving stochastic equations. The extensive bibliography and index at the end of the book constitute an ideal resource for both theoreticians and practitioners.

Mathematics of Uncertainty Modeling in the Analysis of Engineering and Science Problems - Chakraverty, S. 2014-01-31

"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.

Metric Fixed Point Theory - Pradip Debnath 2022-01-04

This book collects chapters on contemporary topics on metric fixed point theory and its applications in science, engineering, fractals, and behavioral sciences. Chapters contributed by renowned researchers from across the world, this book includes several useful tools and techniques for the development of skills and expertise in the area. The book presents the study of common fixed points in a generalized metric space and fixed point results with applications in various modular metric spaces. New insight into parametric metric spaces as well as study of variational inequalities and variational control problems have been included.

Similarity Search - Pavel Zezula 2006-06-07

The area of similarity searching is a very hot topic for both research and c- mercial applications. Current data processing applications use data with c- siderably less structure and much less precise queries than traditional database systems. Examples are multimedia data like images or videos that offer query by example search, product catalogs that provide users with preference based search, scientific data records from observations or experimental analyses

such as biochemical and medical data, or XML documents that come from hetero- neous data sources on the Web or in intranets and thus does not exhibit a global schema. Such data can neither be ordered in a canonical manner nor meani- fully searched by precise database queries that would return exact matches. This novel situation is what has given rise to similarity searching, also - ferred to as content based or similarity retrieval. The most general approach to similarity search, still allowing construction of index structures, is modeled in metric space. In this book. Prof. Zezula and his co authors provide the first monograph on this topic, describing its theoretical background as well as the practical search tools of this innovative technology.

Elements of Metric Spaces -

Fixed Point Theory and Variational Principles in Metric Spaces - Qamrul Hasan Ansari 2023-08-31

The book is designed for undergraduates, graduates, and researchers of mathematics studying fixed point theory or nonlinear analysis. Basic techniques and results of topics such as fixed point theory, set-valued analysis, variational principles, and equilibrium problems are presented in an understandable and thorough manner.

Fixed Point Theory and Applications - Yeol Je Cho 2002

Fixed Point Theory & Applications Volume II