Introduction To Shape Optimization Theory Approximation And Computation

Selected Topics in Approximation and ComputationApproximation and ComputationSelected Topics in Approximation and ComputationComputation and ApproximationApproximate Computation of ExpectationsFast and approximate computation of Laplace and Fourier transformsImprecise and Approximate ComputationKWIC Index for Numerical AlgebraComplexity and ApproximationVLSI and Hardware Implementations using Modern Machine Learning MethodsMathematical and Computational Methods for Modelling, Approximation and SimulationBrain and Mathematical CognitionPrinciples of Approximate ComputationsComputer Aided VerificationACM Transactions on Programming Languages and SystemsProceedings of the American Academy of Arts and SciencesA Manual of Applied MechanicsApproximate Computation of ExpectationsThe London, Edinburgh and Dublin Philosophical Magazine and Journal of ScienceProceedings of the American Academy of Arts and Sciences Marek Kowalski Walter Gautschi Marek A. Kowalski Vijay Gupta Charles Stein Ines Melzer Swaminathan Natarajan Alston Scott Householder Ding-Zhu Du Sandeep Saini Domingo Barrera Xinlin Zhou Joseph John Skinner Arie Gurfinkel Association for Computing Machinery American Academy of Arts and Sciences William John Macquorn Rankine Charles Stein

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selected topics in approximation and computation addresses the relationship between modern approximation theory and computational methods the text is a combination of expositions of basic classical methods of approximation leading to popular splines and new explicit tools of computation including sinc methods elliptic function methods and positive operator approximation methods it also provides an excellent summary of worst case analysis in information based complexity it relates optimal computational methods with the theory of s numbers and n widths it can serve as a text for senior graduate courses in computer science and applied mathematics and also as a reference for professionals

approximation theory and numerical analysis are central to the creation of accurate computer simulations and mathematical models research in these areas can influence the computational techniques used in a variety of mathematical and computational sciences this collection of contributed chapters dedicated to renowned mathematician gradimir v milovanović represent the recent work of experts in the fields of approximation theory and numerical analysis these invited contributions describe new trends in these important areas of research including theoretic developments new computational algorithms and multidisciplinary applications special features of this volume presents results and approximation methods in various computational settings including polynomial and orthogonal systems analytic functions and differential equations provides a historical overview of approximation theory and many of its subdisciplines contains new results from diverse areas of research spanning mathematics engineering and the computational sciences approximation and computation is intended for mathematicians and researchers focusing on approximation theory and numerical analysis but can also be a valuable resource to students and researchers in the computational and applied sciences

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this brief studies recent work conducted on certain exponential type operators and other integral type operators it consists of three chapters the first on exponential type operators the second a study of some modifications of linear positive operators and the third on difference estimates between two operators it will be of interest to students both graduate and undergraduate studying linear positive operators and the area of approximation theory

in this thesis we treat the computation of transforms with asymptotically smooth and oscillatory kernels we introduce the discrete laplace transform in a modern form including a generalization to more general kernel functions these more general kernels lead to specific function transforms moreover we treat the butterfly fast fourier transform based on a local error analysis we develop a rigorous error analysis for the whole butterfly scheme in the final part of the thesis the laplace and fourier transform are combined to a fast fourier transform for nonequispaced complex evaluation nodes all theoretical results on accuracy and computational complexity are illustrated by numerical experiments

real time systems are now used in a wide variety of applications conventionally they were configured at design to perform a given set of tasks and could not readily adapt to dynamic situations the concept of imprecise and approximate computation has emerged as a promising approach to providing scheduling flexibility and enhanced dependability in dynamic real time systems the concept can be utilized in a wide variety of applications including signal processing machine vision databases networking etc for those who wish to build dynamic real time systems which must deal safely with resource unavailability while continuing to operate leading to situations where computations may not be carried through to completion the techniques of imprecise and approximate computation facilitate the generation of partial results that may enable the system to operate safely and avert catastrophe audience of special interest to researchers may be used as a supplementary text in courses on real time systems

this festschrift is in honor of ker i ko professor in the stony brook university usa ker i ko was one of the founding fathers of computational complexity over real numbers and analysis he and harvey friedman devised a theoretical model for real number computations by extending the computation of turing machines he contributed significantly to advancing the theory of structural complexity especially on polynomial time isomorphism instance complexity and relativization of polynomial time hierarchy ker i also made many contributions to approximation algorithm theory of combinatorial optimization problems this volume contains 17 contributions in the area of complexity and approximation

those articles are authored by researchers over the world including north america europe and asia most of them are co authors colleagues friends and students of ker i ko

machine learning is a potential solution to resolve bottleneck issues in vlsi via optimizing tasks in the design process this book aims to provide the latest machine learning based methods algorithms architectures and frameworks designed for vlsi design the focus is on digital analog and mixed signal design techniques device modeling physical design hardware implementation testability reconfigurable design synthesis and verification and related areas chapters include case studies as well as novel research ideas in the given field overall the book provides practical implementations of vlsi design ic design and hardware realization using machine learning techniques features provides the details of state of the art machine learning methods used in vlsi design discusses hardware implementation and device modeling pertaining to machine learning algorithms explores machine learning for various vlsi architectures and reconfigurable computing illustrates the latest techniques for device size and feature optimization highlights the latest case studies and reviews of the methods used for hardware implementation this book is aimed at researchers professionals and graduate students in vlsi machine learning electrical and electronic engineering computer engineering and hardware systems

this book contains plenary lectures given at the international conference on mathematical and computational modeling approximation and simulation dealing with three very different problems reduction of runge and gibbs phenomena difficulties arising when studying models that depend on the highly nonlinear behaviour of a system of pdes and data fitting with truncated hierarchical b splines for the adaptive reconstruction of industrial models the book includes nine contributions mostly related to quasi interpolation this is a topic that continues to register a high level of interest both for those working in the field of approximation theory and for those interested in its use in a practical context two chapters address the construction of quasi interpolants and three others focus on the use of quasi interpolation in solving integral equations the remaining four concern a problem related to the heat diffusion equation new results on the notion of convexity in probabilistic metric spaces which are applied to the study of the existence and uniqueness of the solution of a volterra equation the use of smoothing splines to address an economic problem and finally the analysis of poverty measures which is a topic of increased interest to society the book is addressed to researchers interested in applied mathematics with particular reference to the aforementioned topics

this book intends to present a series of insights coming from in depth investigation of brain and mathematical cognition in chinese

population specifically the book introduces research on the associations among number sense visual form perception and mathematical fluency symbolic and non symbolic mental number line and the role of spatial modeling and logical inference in mathematical problem solving the book summarizes author s previous studies on the involvement of semantic network other than visuospatial network in mathematical cognition the three component mathematical model that comes out of more than 10 years of research on mathematical cognition is introduced the book presents the effect of learning experience on arithmetic related brain system chinese abacus that can be used to eradicate developmental dyscalculia in classroom is briefly discussed special attention in this book is paid to mathematical anxiety and mathematical learning disorders in chinese schoolchildren finally gender differences in mathematical cognition are also reviewed

this open access book constitutes the proceedings of the 36th international conference on computer aided verification cav 2024 which took place in montreal canada during july 24 27 2024 the primary focus of cav is to extend the frontiers of verification techniques by expanding to new domains such as security quantum computing and machine learning

vol 12 from may 1876 to may 1877 includes researches in telephony by a graham bell

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