Curriculum Vitae Resume Siddharth Bhattacharya Email

As human activities moved to the digital domain, so did all the well-known malicious behaviors including fraud, theft, and other trickery. There is no silver bullet, and each security threat calls for a specific answer. One specific threat is that applications accept malformed inputs, and in many cases it is possible to craft inputs that let an intruder take full control over the target computer system. The nature of systems programming languages lies at the heart of the problem. Rather than rewriting decades of well-tested functionality, this book examines ways to live with the (programming) sins of the past while shoring up security in the most efficient manner possible. We explore a range of different options, each making significant progress towards securing legacy programs from malicious inputs. The solutions explored include enforcement-type defenses, which excludes certain program executions because they never arise during normal operation. Another strand explores the idea of presenting adversaries with a moving target that unpredictably changes its attack surface thanks to randomization. We also cover tandem execution ideas where the compromise of one executing clone causes it to diverge from another thus revealing adversarial activities. The main purpose of this book is to provide readers with some of the most influential works on run-time exploits and defenses. We hope that the material in this book will inspire readers and generate

new ideas and paradigms.

Throughout the twentieth century, biologists investigated the mechanisms that stabilize biological populations, populations which--if unchecked by such agencies as competition and predation--should grow geometrically. How is order in nature maintained in the face of the seemingly disorderly struggle for existence? In this book, Laurence Mueller and Amitabh Joshi examine current theories of population stability and show how recent laboratory research on model populations--particularly blowflies, Tribolium, and Drosophila--contributes to our understanding of population dynamics and the evolution of stability. The authors review the general theory of population stability and critically analyze techniques for inferring whether a given population is in balance or not. They then show how rigorous empirical research can reveal both the proximal causes of stability (how populations are regulated and maintained at an equilibrium, including the relative roles of biotic and abiotic factors) and its ultimate, mostly evolutionary causes. In the process, they describe experimental studies on model systems that address the effects of age-structure, inbreeding, resource levels, and population structure on the stability and persistence of populations. The discussion incorporates the authors' own findings on the evolution of population stability in Drosophila. They go on to relate laboratory work to studies of animals in the wild and to develop a general framework for relating the life history and ecology of a species to its population dynamics. This accessible, finely written illustration of how carefully

designed experiments can improve theory will have tremendous value for all ecologists and evolutionary biologists.

This book presents and discusses research in the field of computer science, with a particular focus on network systems and quantum computing. Topics discussed herein include Ad Hoc Networks; integrity and authenticity mechanisms for sensor networks; dimensions of complex networks and zeta functions; artificial neural networks for learning; quantum computation and quantum games; decomposition of general quantum gates; and quantum genetic algorithms.

An up-to-date account of the interplay between optimization and machine learning, accessible to students and researchers in both communities. The interplay between optimization and machine learning is one of the most important developments in modern computational science. Optimization formulations and methods are proving to be vital in designing algorithms to extract essential knowledge from huge volumes of data. Machine learning, however, is not simply a consumer of optimization technology but a rapidly evolving field that is itself generating new optimization ideas. This book captures the state of the art of the interaction between optimization and machine learning in a way that is accessible to researchers in both fields. Optimization approaches have enjoyed prominence in machine learning because of their wide applicability and attractive theoretical properties. The increasing complexity, size, and variety of today's machine learning models call for the reassessment of existing

assumptions. This book starts the process of reassessment. It describes the resurgence in novel contexts of established frameworks such as first-order methods, stochastic approximations, convex relaxations, interior-point methods, and proximal methods. It also devotes attention to newer themes such as regularized optimization, robust optimization, gradient and subgradient methods, splitting techniques, and second-order methods. Many of these techniques draw inspiration from other fields, including operations research, theoretical computer science, and subfields of optimization. The book will enrich the ongoing cross-fertilization between the machine learning community and these other fields, and within the broader optimization community.

This book provides comprehensive coverage of the new wide-bandgap semiconductor gallium oxide (Ga2O3). Ga2O3 has been attracting much attention due to its excellent materials properties. It features an extremely large bandgap of greater than 4.5 eV and availability of large-size, high-quality native substrates produced from melt-grown bulk single crystals. Ga2O3 is thus a rising star among ultra-wide-bandgap semiconductors and represents a key emerging research field for the worldwide semiconductor community. Expert chapters cover physical properties, synthesis, and state-of-the-art applications, including materials properties, growth techniques of melt-grown bulk single crystals and epitaxial thin films, and many types of devices. The book is an essential resource for academic and industry readers who have an interest in, or plan to

start, a new R&D project related to Ga2O3.

A New York Times–bestselling author looks at mathematics education in America—when it's worthwhile, and when it's not. Why do we inflict a full menu of mathematics—algebra, geometry, trigonometry, even calculus—on all young Americans, regardless of their interests or aptitudes? While Andrew Hacker has been a professor of mathematics himself, and extols the glories of the subject, he also questions some widely held assumptions in this thought-provoking and practical-minded book. Does advanced math really broaden our minds? Is mastery of azimuths and asymptotes needed for success in most jobs? Should the entire Common Core syllabus be required of every student? Hacker worries that our nation's current frenzied emphasis on STEM is diverting attention from other pursuits and even subverting the spirit of the country. Here, he shows how mandating math for everyone prevents other talents from being developed and acts as an irrational barrier to graduation and careers. He proposes alternatives, including teaching facility with figures, quantitative reasoning, and understanding statistics. Expanding upon the author's viral New York Times op-ed, The Math Myth is sure to spark a heated and needed national conversation—not just about mathematics but about the kind of people and society we want to be. "Hacker's accessible arguments offer plenty to think about and should serve as a clarion call to students, parents, and educators who decry the one-size-fits-all approach to schooling." —Publishers Weekly, starred review

This book constitutes the refereed proceedings of the 12th International Conference on Detection of Intrusions and Malware, and Vulnerability Assessment, DIMVA 2015, held in Milan, Italy, in July 2015. The 17 revised full papers presented were carefully reviewed and selected from 75 submissions. The papers are organized in topical sections on attacks, attack detection, binary analysis and mobile malware protection, social networks and large-scale attacks, Web and mobile security, and provenance and data sharing.

Hybrid Computational Intelligence: Challenges and Utilities is a comprehensive resource that begins with the basics and main components of computational intelligence. It brings together many different aspects of the current research on HCI technologies, such as neural networks, support vector machines, fuzzy logic and evolutionary computation, while also covering a wide range of applications and implementation issues, from pattern recognition and system modeling, to intelligent control problems and biomedical applications. The book also explores the most widely used applications of hybrid computation as well as the history of their development. Each individual methodology provides hybrid systems with complementary reasoning and searching methods which allow the use of domain knowledge and empirical data to solve complex problems. Provides insights into the latest research trends in hybrid intelligent algorithms and architectures Focuses on the application of hybrid intelligent techniques for pattern mining and recognition, in big data analytics, and in human-

computer interaction Features hybrid intelligent applications in biomedical engineering and healthcare informatics

This book presents 13 peer-reviewed papers as written results from the 2005 workshop "Topology-Based Methods in Visualization" that was initiated to enable additional stimulation in this field. It contains a survey of the state-of-the-art, as well original work by leading experts that has not been published before, spanning both theory and applications. It captures key concepts and novel ideas and serves as an overview of current trends in its subject.

Mathematical techniques are the strength of engineering sciences and form the common foundation of all novel discipline as engineering sciences. The book Advanced Mathematical Techniques in Engineering Sciences involved in an ample range of mathematical tools and techniques applied in various fields of engineering sciences. Through this book the engineers have to gain a greater knowledge and help them in the applications of mathematics in engineering sciences.

Edited by three of the world's leading pharmaceutical scientists, this is the first book on this important and hot topic, containing much previously unpublished information. As such, it covers all aspects of green chemistry in the pharmaceutical industry, from simple molecules to complex proteins, and from

drug discovery to the fate of pharmaceuticals in the environment. Furthermore, this ready reference contains several convincing case studies from industry, such as Taxol, Pregabalin and Crestor, illustrating how this multidisciplinary approach has yielded efficient and environmentally-friendly processes. Finally, a section on technology and tools highlights the advantages of green chemistry.

This title argues that any exploration of the social uses to which cinema is put in a place like India can only make sense if it transforms our understanding of cinema itself.

Graph-structured data is ubiquitous throughout the natural and social sciences, from telecommunication networks to quantum chemistry. Building relational inductive biases into deep learning architectures is crucial for creating systems that can learn, reason, and generalize from this kind of data. Recent years have seen a surge in research on graph representation learning, including techniques for deep graph embeddings, generalizations of convolutional neural networks to graph-structured data, and neural message-passing approaches inspired by belief propagation. These advances in graph representation learning have led to new state-of-the-art results in numerous domains, including chemical synthesis, 3D vision, recommender systems, question answering, and social network analysis. This book provides a synthesis and overview of graph representation

learning. It begins with a discussion of the goals of graph representation learning as well as key methodological foundations in graph theory and network analysis. Following this, the book introduces and reviews methods for learning node embeddings, including random-walk-based methods and applications to knowledge graphs. It then provides a technical synthesis and introduction to the highly successful graph neural network (GNN) formalism, which has become a dominant and fast-growing paradigm for deep learning with graph data. The book concludes with a synthesis of recent advancements in deep generative models for graphs—a nascent but quickly growing subset of graph representation learning.

This book includes high-quality research papers presented at the Fourth International Conference on Innovative Computing and Communication (ICICC 2021), which is held at the Shaheed Sukhdev College of Business Studies, University of Delhi, Delhi, India, on February 20–21, 2021. Introducing the innovative works of scientists, professors, research scholars, students and industrial experts in the field of computing and communication, the book promotes the transformation of fundamental research into institutional and industrialized research and the conversion of applied exploration into real-time applications.

Egypt, and in particular the Cairo Regional Centre for International Commercial Arbitration (CRCICA), has clearly cemented its status as a preferred seat for arbitration cases in both the Middle East–North Africa (MENA) region and the African continent. To assist parties with a need or desire to arbitrate disputes arising in these regions – whether commercial or investment – this incomparable book, the first in-depth treatment in any language of arbitration practice under Egyptian law, provides a comprehensive overview of the arbitration process and all matters pertaining to it in Egypt, starting with the arbitration agreement and ending with the recognition and enforcement of the arbitral award. Citing more than 2,500 cases – both awards and arbitral-related court judgments – the book's various chapters examine in detail how Egypt's arbitration law, based on the UNCITRAL model law, encompasses such internationally accepted arbitral provisions and aspects as the following: application of the New York Convention; concept of arbitrability; choice of applicable law; formation of the arbitral tribunal; selection, rights, duties, liability, and challenge of arbitrators; arbitral procedures; evidence and experts and burden of proof; form and content of arbitral awards; annulment and enforcement procedures; interaction between Sharia law and arbitration; role of Egypt's Technical Office for Arbitration (TOA); and judicial fees. Special issues such as third-party funding and public policy as well as

particular areas of dispute such as construction, sports, real estate, labor and employment, tax, competition, intellectual property, and technology transfer are all covered. The author offers practical guidelines tailored to arbitration in these specific areas of law. An added feature is the many figures and other visuals that accompany the text. For whoever is planning to or is currently practicing arbitration in the Middle East, this matchless book gives arbitrators, in-house counsel and arbitration practitioners everything that is needed to answer any question likely to arise. This book should be on the shelf of every practitioner and academic wishing to comprehend arbitration in Egypt as construed by the Egyptian Courts.

Over the last few centuries, the world as we know it has seen remarkable change and the arts – including theatre – have faced new challenges. Theatre is now no longer a simple point of entertainment laced with instruction or dissent, but is perceived as a more collaborative idea that looks at ever-changing paradigms. All over the world, theatre now is a dynamic process that simultaneously retains tradition and delves into extreme experimentations. This book represents a starting point for a much-needed critical interrogation. It looks at the constant features of European theatre and brings in some Indian elements, positing both in their respective locations, as well as looking at the symbiosis that has been

functioning for some time.

Addresses a Growing Need for High-Power and High-Frequency Transistors Gallium Nitride (GaN): Physics, Devices, and Technology offers a balanced perspective on the state of the art in gallium nitride technology. A semiconductor commonly used in bright light-emitting diodes, GaN can serve as a great alternative to existing devices used in microelectronics. It has a wide band gap and high electron mobility that gives it special properties for applications in optoelectronic, high-power, and high-frequency devices, and because of its high off-state breakdown strength combined with excellent on-state channel conductivity, GaN is an ideal candidate for switching power transistors. Explores Recent Progress in High-Frequency GaN Technology Written by a panel of academic and industry experts from around the globe, this book reviews the advantages of GaN-based material systems suitable for high-frequency, high-power applications. It provides an overview of the semiconductor environment, outlines the fundamental device physics of GaN, and describes GaN materials and device structures that are needed for the next stage of microelectronics and optoelectronics. The book details the development of radio frequency (RF) semiconductor devices and circuits, considers the current challenges that the industry now faces, and examines future trends. In addition, the authors: Propose

a design in which multiple LED stacks can be connected in a series using interband tunnel junction (TJ) interconnects Examine GaN technology while in its early stages of high-volume deployment in commercial and military products Consider the potential use of both sunlight and hydrogen as promising and prominent energy sources for this technology Introduce two unique methods, PEC oxidation and vapor cooling condensation methods, for the deposition of high-quality oxide layers A single-source reference for students and professionals, Gallium Nitride (GaN): Physics, Devices, and Technology provides an overall assessment of the semiconductor environment, discusses the potential use of GaN-based technology for RF semiconductor devices, and highlights the current and emerging applications of GaN.

Packed with real-world examples, this book illustrates the 12 principles of green chemistry. These diverse case studies demonstrate to scientists and students that beyond the theory, the challenges of green chemistry in pharmaceutical discovery and development remain an ongoing endeavor. By informing and welcoming additional practitioners to this mission, the negative environmental impact of pharmaceutical products will continue to be minimized. Green chemistry is the methodology by which chemical production in this industry can become more efficient, adding environmental stewardship to the noble mission of

treating human disease.

This symposium was born as a research forum to present and discuss original, rigorous and significant contributions on Artificial Intelligence-based (AI) solutions—with a strong, practical logic and, preferably, with empirical applications—developed to aid the management of organizations in multiple areas, activities, processes and problem-solving; what we call Management Intelligent Systems (MiS). This volume presents the proceedings of these activities in a collection of contributions with many original approaches. They address diverse Management and Business areas of application such as decision support, segmentation of markets, CRM, product design, service personalization, organizational design, e-commerce, credit scoring, workplace integration, innovation management, business database analysis, workflow management, location of stores, etc. A wide variety of AI techniques have been applied to these areas such as multi-objective optimization and evolutionary algorithms, classification algorithms, ant algorithms, fuzzy rule-based systems, intelligent agents, Web mining, neural networks, Bayesian models, data warehousing, rough sets, etc. This volume also includes a track focused on the latest research on Intelligent Systems and Technology Enhanced Learning (iTEL), as well as its impacts for learners and institutions. It aims at bringing

together researchers and developers from both the professional and the academic realms to present, discuss and debate the latest advances on intelligent systems and technology-enhanced learning The symposium was organized by the Soft Computing and Intelligent Information Systems Research Group (http://sci2s.ugr.es) of the University of Granada (Spain) and the Bioinformatics, Intelligent System and Educational Technology Research Group (http:// bisite.usal.es/) of the University of Salamanca (Spain). The present edition was held in Salamanca (Spain) on May 22–24, 2013.

Hybrid Computational IntelligenceChallenges and ApplicationsAcademic Press The U.S. Department of State charged the Academies with the task of producing a protocol for development of standard operating procedures (SOPs) that would serve as a complement to the Chemical Laboratory Safety and Security: A Guide to Prudent Chemical Management and be included with the other materials in the 2010 toolkit. To accomplish this task, a committee with experience and knowledge in good chemical safety and security practices in academic and industrial laboratories with awareness of international standards and regulations was formed. The hope is that this toolkit expansion product will enhance the use of the previous reference book and the accompanying toolkit, especially in developing countries where safety resources are scarce and experience of

operators and end-users may be limited.

This book provides a cutting-edge research overview on the latest developments in the field of Optics and Photonics. All chapters are authored by the pioneers in their field and will cover the developments in Quantum Photonics, Optical properties of 2D Materials, Optical Sensors, Organic Opto-electronics, Nanophotonics, Metamaterials, Plasmonics, Quantum Cascade lasers, LEDs, Biophotonics and biomedical photonics and spectroscopy.

This volume showcases the presentations and discussions delivered at the 2018 POMS International Conference in Rio. Through a collection of selected papers, it is possible to review the impact and application of operations management for social good, with contributions across a wide range of topics, including: humanitarian operations and crisis management, healthcare operations management, sustainable operations, artificial intelligence and data analytics in operations, product innovation and technology in operations management, marketing and operations management, service operations and servitization, logistics and supply chain management, resilience and risk in operations, defense, and tourism among other emerging Operations Management issues. The Production and Operations Management Society (POMS) is one of the most important and influential societies in the subject of Production Engineering and,

as an international professional and academic organization, represents the interests of professionals and academics in production management and operations around the world.

This book gathers high-quality research papers presented at the Second International Conference on Innovative Computing and Communication (ICICC 2019), which was held at the VSB - Technical University of Ostrava, Czech Republic, on 21–22 March 2019. Highlighting innovative papers by scientists, scholars, students, and industry experts in the fields of computing and communication, the book promotes the transformation of fundamental research into institutional and industrialized research, and the translation of applied research into real-world applications.

An overview of semi-classical gravity theory and stochastic gravity as theories of quantum gravity in curved space-time.

The material presented in the book is divided into two main parts: Keynotes, and Case Studies. Five keynotes written by W. Pedrycz, D. Dubois and H. Prade, M.M. Gupta, P.M. Frank, and T. Kaczorek deal with: introduction into the concept and basic technologies of computational intelligence (CI), role of fuzzy logic in information engineering, paradigms of fuzzy neural computing, intelligent methods in fault diagnosis of technical plants, and with models of two-dimensional (2D) systems which are useful in analysis of methods manifesting the learning ability, respectively. The second part provides the reader with a sampling of various

applications of the methods (neural networks, genetic algorithms, fuzzy, and evolutionary systems) being the building blocks of the CI. However, a few contributions exceed this rather stiff frame of CI-definition.

Asymmetric synthesis is one of the most critical strategic subjects in organic chemistry, and this book describes advanced techniques and their applications to the industrial and laboratory synthesis of important chiral molecules. The international team of highly respected authors provide rigorous and concise reviews of their areas of expertise.

Global banking and finance is a complex and specialized field with sector-specific investment forms, subject to distinctive legal and regulatory frameworks and unique types of political risk. This comprehensive guide to international investment protection in the finance and banking sector, written by acknowledged experts in the field of investor-State arbitration, provides the first in-depth discussion of how international investment law applies to investors and investments in the sector. Featuring expert guidance on the key legal protections for cross-border banking and finance investments, with complete and up-to-date coverage of investor-State cases, the analysis crystallizes a set of field-specific legal principles for the sector. In particular, the authors address the following practical aspects of investment protection in the banking and finance sector: how sector-specific forms of investment, such as loans and derivatives, impact the dispute resolution process; types of political risk that cross-border investments in the sector are likely to encounter; distinctive adverse sovereign measures that underlie disputes in the sector, including those from sovereign debt defaults and banking sector bailouts; specific treaty provisions, such as jurisdictional carve-outs and targeted exclusions; remedies available for violations of international investment protections; how

monetary damages may be assessed for injury to banking and finance sector investments; the scope of financial services chapters included in certain free trade agreements; the protections available under domestic foreign investment laws; and alternative sources of protection such as political risk insurance and investment contracts. International disputes practitioners and academics, in-house counsel in the finance and banking industries, and arbitrators addressing banking and finance disputes will welcome this book for its practical guidance. With strategies for investors as well as for sovereign States to navigate the intricacies of the investment protection system, the authors' comprehensive analysis will help ensure appropriate international protection for banking and finance sector investments, both when establishing investments and when resolving disputes. The book lays the groundwork for the future consolidation of international investment protection as a critical tool to manage the political risk confronting global banking and finance.

Texture analysis is one of the fundamental aspects of human vision by which we discriminate between surfaces and objects. In a similar manner, computer vision can take advantage of the cues provided by surface texture to distinguish and recognize objects. In computer vision, texture analysis may be used alone or in combination with other sensed features (e.g. color, shape, or motion) to perform the task of recognition. Either way, it is a feature of paramount importance and boasts a tremendous body of work in terms of both research and applications.Currently, the main approaches to texture analysis must be sought out through a variety of research papers. This collection of chapters brings together in one handy volume the major topics of importance, and categorizes the various techniques into comprehensible concepts. The methods covered will not only be relevant to those working in computer vision,

but will also be of benefit to the computer graphics, psychophysics, and pattern recognition communities, academic or industrial.

Analysis and dissociation have proved to be useful tools to understand the basic functions of the brain and the mind, which therefore have been decomposed to a multitude of ever smaller subsystems and pieces by most scientific approaches. However, the understanding of complex functions such as consciousness will not succeed without a more global consideration of the ways the mind-brain works. This implies that synthesis rather than analysis should be applied to the brain. The present book offers a collection of contributions ranging from sensory and motor cognitive neuroscience to mood management and thought, which all focus on the dissociation between conscious (explicit) and nonconscious (implicit) processing in different cognitive situations. The contributions in this book clearly demonstrate that conscious and nonconscious processes typically interact in complex ways. The central message of this collection of papers is: In order to understand how the brain operates as one integrated whole that generates cognition and behaviour, we need to reassemble the brain and mind and put all the conscious and nonconscious pieces back together again. (Series B)

Software-based Fault Isolation (SFI) is a software-instrumentation technique at the machine-code level for establishing logical protection domains within a process. This monograph discusses the SFI policy, its main implementation and optimization techniques, as well as an SFI formalization on an idealized assembly language.

Composite and multiple-text manuscripts are traditionally studied for their individual texts, but recent trends in codicology have paved the way for a more comprehensive approach: Manuscripts are unique artefacts which reveal how they were produced and used as physical

objects. This collective volume assembles contributions from nine different fields, thus allowing for cross-cultural comparison for the first time.

This book contains interesting findings of some state-of-the-art research in the field of signal and image processing. It contains twenty one chapters covering a wide range of signal processing applications involving filtering, encoding, classification, segmentation, clustering, feature extraction, denoising, watermarking, object recognition, reconstruction and fractal analysis. Various types of signals including image, video, speech, non-speech audio, handwritten text, geometric diagram, ECG and EMG signals, MRI, PET and CT scan images, THz signals, solar wind speed signals (SWS) and photoplethysmogram (PPG) signals have been dealt with. It demonstrates how new paradigms of intelligent computing like quantum computing can be applied to process and analyze signals in a most precise and effective manner. Processing of high precision signals for real time target recognition by radar and processing of brain images, ECG and EMG signals that feature in this book have significant implications in defense mechanism and medical diagnosis. There are also applications of hybrid methods, algorithms and image filters which are proving to be better than the individual techniques or algorithms. Thus the present volume, enriched in depth and variety of techniques and algorithms concerning processing of various types of signals, is likely to be used as a compact yet handy reference for the young researchers, academicians and scientists working in the domain of signal and image processing and also to the

post graduate students of computer science and information technology.

This book discusses the elementary ideas and tools needed for open quantum systems in a comprehensive manner. The emphasis is given to both the traditional master equation as well as the functional (path) integral approaches. It discusses the basic paradigm of open systems, the harmonic oscillator and the two-level system in detail. The traditional topics of dissipation and tunneling, as well as the modern field of quantum information, find a prominent place in the book. Assuming a basic background of quantum and statistical mechanics, this book will help readers familiarize with the basic tools of open quantum systems. Open quantum systems is the study of quantum dynamics of the system of interest, taking into account the effects of the ambient environment. It is ubiquitous in the sense that any system could be envisaged to be surrounded by its environment which could naturally exert its influence on it. Open quantum systems allows for a systematic understanding of irreversible processes such as decoherence and dissipation, of the essence in order to have a correct understanding of realistic quantum dynamics and also for possible implementations. This would be essential for a possible development of quantum technologies. The Most Authentic Source Of Information On Higher Education In India The Handbook Of Universities, Deemed Universities, Colleges, Private Universities And Prominent Educational & Research Institutions Provides Much Needed Information On Degree And Diploma Awarding Universities And Institutions Of National Importance That Impart

General, Technical And Professional Education In India. Although Another Directory Of Similar Nature Is Available In The Market, The Distinct Feature Of The Present Handbook, That Makes It One Of Its Kind, Is That It Also Includes Entries And Details Of The Private Universities Functioning Across The Country.In This Handbook, The Universities Have Been Listed In An Alphabetical Order. This Facilitates Easy Location Of Their Names. In Addition To The Brief History Of These Universities, The Present Handbook Provides The Names Of Their Vice-Chancellor, Professors And Readers As Well As Their Faculties And Departments. It Also Acquaints The Readers With The Various Courses Of Studies Offered By Each University.It Is Hoped That The Handbook In Its Present Form, Will Prove Immensely Helpful To The Aspiring Students In Choosing The Best Educational Institution For Their Career Enhancement. In Addition, It Will Also Prove Very Useful For The Publishers In Mailing Their Publicity Materials. Even The Suppliers Of Equipment And Services Required By These Educational Institutions Will Find It Highly Valuable.

This volume aims to highlight trends and important directions of research in orthogonal polynomials, q-series, and related topics in number theory, combinatorics, approximation theory, mathematical physics, and computational and applied harmonic analysis. This collection is based on the invited lectures by well-known contributors from the International Conference on Orthogonal Polynomials and q-Series, that was held at the University of Central Florida in Orlando, on May 10–12, 2015. The

conference was dedicated to Professor Mourad Ismail on his 70th birthday. The editors strived for a volume that would inspire young researchers and provide a wealth of information in an engaging format. Theoretical, combinatorial and computational/algorithmic aspects are considered, and each chapter contains many references on its topic, when appropriate. Contents: Mourad Ismail (Richard Askey)Binomial Andrews–Gordon–Bressoud Identities (Dennis Stanton)Symmetric Expansions of Very Well-Poised Basic Hypergeometric Series (George E Andrews)A Sturm–Liouville Theory for Hahn Difference Operator (M H Annaby, A E Hamza and S D Makharesh)Solvability of the Hankel Determinant Problem for Real Sequences (Andrew Bakan and Christian Berg)Convolution and Product Theorems for the Special Affine Fourier Transform (Ayush Bhandari and Ahmed I Zayed)A Further Look at Time-and-Band Limiting for Matrix Orthogonal Polynomials (M Castro, F A Grünbaum, I Pacharoni and I Zurrián)The Orthogonality of Al–Salam–Carlitz Polynomials for Complex Parameters (Howard S Cohl, Roberto S Costas-Santos and Wenqing Xu)Crouching AGM, Hidden Modularity (Shaun Cooper, Jesús Guillera, Armin Straub and Wadim Zudilin)Asymptotics of Orthogonal Polynomials and the Painlevé Transcendents (Dan Dai)From the Gaussian Circle Problem to Multivariate Shannon Sampling (Willi Freeden and M Zuhair Nashed)Weighted Partition Identities and Divisor Sums (F G Garvan)On the Ismail–Letessier–Askey Monotonicity Conjecture for Zeros of Ultraspherical Polynomials (Walter Gautschi)A Discrete Top-Down Markov Problem

in Approximation Theory (Walter Gautschi)Supersymmetry of the Quantum Rotor (Vincent X Genest, Luc Vinet, Guo-Fu Yu and Alexei Zhedanov)The Method of Brackets in Experimental Mathematics (Ivan Gonzalez, Karen Kohl, Lin Jiu and Victor H Moll)Balanced Modular Parameterizations (Tim Huber, Danny Lara and Esteban Melendez)Some Smallest Parts Functions from Variations of Bailey's Lemma (Chris Jennings-Shaffer)Dual Addition Formulas Associated with Dual Product Formulas (Tom H Koornwinder)Holonomic Tools for Basic Hypergeometric Functions (Christoph Koutschan and Peter Paule)A Direct Evaluation of an Integral of Ismail and Valent (Alexey Kuznetsov)Algebraic Generating Functions for Gegenbauer Polynomials (Robert S Maier)q-Analogues of Two Product Formulas of Hypergeometric Functions by Bailey (Michael J Schlosser)Summation Formulae for Noncommutative Hypergeometric Series (Michael J Schlosser)Asymptotics of Generalized Hypergeometric Functions (Y Lin and R Wong)Mock Theta-Functions of the Third Order of Ramanujan in Terms of Appell–Lerch Series (Changgui Zhang)On Certain Positive Semidefinite Matrices of Special Functions (Ruiming Zhang) Readership: Graduate students and researchers interested in orthogonal polynomials and

The inspection and evaluation of bridges in Indiana is critical to ensure their safety to better serve the citizens of the state. Part of this evaluation includes bridge load rating. Bridge load rating, which is a measure of the safe load capacity of the bridge, is a logical process that is typically conducted by utilizing critical information that is available

on the bridge plans. For existing, poorly-documented bridges, however, the load rating process becomes challenging to adequately complete because of the missing bridge information. Currently, the Indiana Department of Transportation (INDOT) does not have a prescribed methodology for such bridges. In an effort to improve Indiana load rating practices INDOT commissioned this study to develop a general procedure for load rating bridges without plans. The general procedure was developed and it was concluded that it requires four critical parts. These parts are bridge characterization, bridge database, field survey and inspection, and bridge load rating. The proposed procedure was then evaluated on two bridges in Indiana that do not have plans as a proof of concept. As a result, it was concluded that load rating of bridges without plans can be successfully completed using the general procedure. A flowchart describing the general procedure was created to make the load rating process more user-friendly. Additional flowcharts that summarize the general procedure for different type of bridges were also provided.

This comprehensive book covers all major aspects of the design and maintenance of port facilities, including port planning, design loads for today's larger vessel size, seismic design guidelines, and breakwater design. New material addresses environmental concerns, the latest developments on inter-modal hubs and transfer points, and the latest information on port security and procedures being implemented around the world.

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