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Genetic and Evolutionary Computation for Image Processing and Analysis CRC Press This book constitutes the refereed proceedings of the 8th International Conference on Information and Communications Security, ICICS 2006, held in Raleigh, NC, USA,

December 2006. The 22 revised full papers and 17 revised short papers cover security protocols, applied cryptography, access control, privacy and malicious code, network security, systems security, cryptanalysis, applied cryptography and network security, and security implementations.

Introduction to Process Algebra Springer Science & Business Media

This book constitutes the refereed proceedings of the 9th International Conference on Business Process Management, BPM 2011, held in Clermont-Ferrand, France, in August/September 2011. The volume contains 22 revised full research papers carefully reviewed and selected from 157 submissions, as well as 5 industrial track papers and abstracts of three invited talks. The papers address innovative research of highest quality from computer science, management information science, service-oriented computing, and technology management.

Learning Technologies for Transforming Large-Scale Teaching, Learning, and Assessment Universal-Publishers

High-Entropy Alloys, Second Edition provides a complete

review of the current state of the field of high entropy alloys (HEA). Building upon the first edition, this fully updated release includes new theoretical understandings of these materials, highlighting recent developments on modeling and new classes of HEAs, such as Eutectic HEAs and Dual phase HEAs. Due to their unique properties, high entropy alloys have attracted considerable attention from both academics and technologists. This book presents the fundamental knowledge, the spectrum of various alloy systems and their characteristics, key focus areas, and the future scope of the field in terms of research and technological applications. Provides an up-to-date, comprehensive understanding on the current status of HEAs in terms of theoretical understanding and modeling efforts Gives a complete idea on alloy design criteria of various classes of HEAs developed so far Discusses the microstructure property correlations in HEAs in terms of structural and functional properties Presents a comparison of HEAs with other multicomponent systems, like intermetallics and bulk metallic glasses

EOLSS Publications

In financial and actuarial modeling and other areas of application, stochastic differential equations with jumps have been employed to describe the dynamics of various state variables. The numerical solution of such equations is more complex than that of those only driven by Wiener processes, described in Kloeden & Platen: Numerical Solution of Stochastic Differential Equations (1992). The present monograph builds on the above-mentioned work and provides an introduction to stochastic differential equations with jumps, in both theory and application, emphasizing the numerical methods needed to solve such equations. It presents many new results on higher-order methods for scenario and Monte Carlo simulation, including implicit, predictor corrector,

extrapolation, Markov chain and variance reduction methods, stressing the importance of their numerical stability. Furthermore, it includes chapters on exact simulation, estimation and filtering. Besides serving as a basic text on quantitative methods, it offers ready access to a large number of potential research problems in an area that is widely applicable and rapidly expanding. Finance is chosen as the area of application because much of the recent research on stochastic numerical methods has been driven by challenges in quantitative finance. Moreover, the volume introduces readers to the modern benchmark approach that provides a general framework for modeling in finance and insurance beyond the standard risk-neutral approach. It requires undergraduate background in mathematical or quantitative methods, is accessible to a broad readership, including those who are only seeking numerical recipes, and includes exercises that help the reader develop a deeper understanding of the underlying mathematics.

Mathematical Questions and Solutions, from the "Educational Times." Springer

This book presents, in an accessible and self-consistent way, the theory of diffusion in random velocity fields, together with robust numerical simulation approaches. The focus is on transport processes in natural porous media, with applications to contaminant transport in groundwater. Starting from basic information on stochastic processes, more challenging issues are subsequently addressed, such as the correlation structure of the diffusion process in random fields, the relation between memory effects and ergodic properties, derivation and parameterizations of evolution equations for probability densities, and the

relation between measurements and spatio-temporal upscaling. Written for readers with a background in applied mathematics, engineering, physics or geophysics, the book offers an essential basis for further research in the stochastic modeling of groundwater systems.

Engineering Design Process Elsevier

This book offers a blend of academic and industrial papers on topics including advances in controls and process simulation, ingot defect formation and characterization studies, and process parameter-material properties characterization. The collection includes papers on the following topics: Primary and Secondary Melt Processing including VIM, VAR, ESR, EBCHR, Plasma Melting Physical Property Measurements of Liquid Metals Casting and Solidification of Liquid Metals Modeling of Metallurgical Processes including Heat/Mass Flow Modeling of Liquid Metal and Solidification Ceramic, Slag and Refractory Reactions with Liquid Metals Refining, Evaporation and Gas/Metal Reactions Fundamentals of Reactions Involving Liquid Metals in Productions Processes

Proceedings of the 2013 International Symposium on Liquid Metal Processing and Casting (LMPC)

Springer Science & Business Media

Comprehensive Materials Processing provides students and professionals with a one-stop resource consolidating and enhancing the literature of the materials processing and manufacturing universe. It provides authoritative analysis of all processes, technologies, and

techniques for converting industrial materials from a raw state into finished parts or products. Assisting scientists and engineers in the selection, design, and use of materials, whether in the lab or in industry, it matches the adaptive complexity of emergent materials and processing technologies. Extensive traditional article-level academic discussion of core theories and applications is supplemented by applied case studies and advanced multimedia features. Coverage encompasses the general categories of solidification, powder, deposition, and deformation processing, and includes discussion on plant and tool design, analysis and characterization of processing techniques, high-temperatures studies, and the influence of process scale on component characteristics and behavior. Authored and reviewed by world-class academic and industrial specialists in each subject field Practical tools such as integrated case studies, user-defined process schemata, and multimedia modeling and functionality Maximizes research efficiency by collating the most important and established information in one place with integrated applets linking to relevant outside sources

High-Entropy Alloys Cengage Learning

To date, reconfigurable manufacturing systems (RMSs) are among the most effective

manufacturing styles that can offer manufacturers an alternative way of facing up to the challenges of continual changes in production requirements within the global, competitive and dynamic manufacturing environments. However, availability of optimal process plans that are suitable for reconfigurable manufacturing is one of the key enablers - yet to be fully unlocked - for realizing the full benefits of true RMSs. To unlock the process planning key and advance the state of art of reconfigurable manufacturing in the manufacturing industry, a number of questions need to be answered: (i) what decision making models and (ii) what computational techniques, can be applied to provide optimal manufacturing process planning solutions that are suitable for logical reconfiguration in manufacturing systems? To answer these questions, you must understand how to model reconfigurable manufacturing activities in an optimization perspective. You must also understand how to develop and select appropriate optimization techniques for solving process planning problems in manufacturing systems. To this end, Process Planning Optimization in Reconfigurable Manufacturing Systems covers: the design and operation of RMSs, optimal process planning modelling for reconfigurable manufacturing and the design and implementation of heuristic algorithm design techniques. The author explores how to: model optimization problems, select suitable optimization techniques, develop optimization algorithms, comparatively analyze the performance of candidate metaheuristics and how to investigate the effects of optimal process planning solutions on operating levels in manufacturing systems. This book delineates five alternative heuristic

algorithm design techniques based on simulated annealing, genetic algorithms and the boltzmann machine that are tasked to solve manufacturing process planning optimization problems in RMSs. After reading this book, you will understand: how a reconfigurable manufacturing system works, the different types of manufacturing optimization problems associated with reconfigurable manufacturing, as well as the conventional and intelligent techniques that are suitable for solving process planning optimization problems. You will also be able to develop and implement effective optimization procedures and algorithms for a wide spectrum of optimization problems in design and reconfigurable manufacturing."

Hydroprocessing Catalysts And Processes: The Challenges For Biofuels Production

Springer Science & Business Media

A review of current commercially available, industrial-grade, low friction coatings will show that interfacial contact pressures nearing 1GPa (H"50ksi) inherently limit surface engineering solutions like WC, TiN, TiAlN, and so forth. Extremely hard coatings, then, are often pursued as the principle path, although they too are not without significant limitations. A majority of these compounds are inherently brittle in nature or may not pair well with their mating substrate. In either case, their durability in high contact stress environments is compromised. In parallel to thin film coatings, many conventional surface treatments do not yield an interface hard enough to withstand extreme stresses under load. New research into advanced, nanocomposite materials like (Ti, Zr)B2 shows great promise. Bulk compacts of this

compound have demonstrated an order of magnitude better wear resistance than current offerings, notably materials like tungsten carbide. At a laboratory level, the (Ti, Zr)B2 nanocomposite material exhibited abrasive and erosive wear resistance nearly ten times better than existing mixed-phase boride systems. In ASTM abrasion and erosion testing, these new compositions exhibit wear resistance superior to other known advanced materials such as RocTec 500 and 'Borazon' cubic boron nitride. Many significant challenges exist for mass production of (Ti, Zr)B2, one of which is the necessary processing technology that is capable of minimizing deleterious impurity phases. Secondly, this material's performance is derived from a synergistic effect of the two materials existing as a single phase structure. While the individual constituents of TiB2 and ZrB2 do yield improvements to wear resistance, their singular effects are not as significant. Lastly, deposition of this material on a commercial level requires thorough knowledge of nanocomposite boride solids; the benefits associated with these innovative new materials are just being realized. Advancing this technology, called Ultracoatings, through initial development, scale up, and commercialization to a variety of markets would represent a transformative leap to surface engineering. Several application spaces were considered for immediate implementation of the Ultracoatings technology, including, but not limited to, a drive shaft for an

aerospace fuel pump, engine timing components, and dry solids pump hardware for an innovative coal gasifier. The primary focus of the program was to evaluate and screen the performance of the selected (Ti, Zr)B2 Ultracoatings composition for future development. This process included synthesis of the material for physical vapor deposition, sputtering trials and coating characterization, friction and wear testing on sample coupons, and functional hardware testing. The main project deliverables used to gage the project's adherence to its original objective were: Development of a coating/substrate pairing that exhibits wear rate of 0.1 mg/hour or lower at a 1GPa contact pressure, while achieving a maximum coating cost of $0.10/cm2. Demonstrate the aforementioned wear rate in both lubricated and starved lubrication conditions. Although the (Ti, Zr) B2 coating was not tailored for low friction performance, friction and wear evaluations of the material demonstrated a coefficient of sliding friction as low as 0.09. This suggests that varying the percentage of TiB2 present in the composite could enhance the materials performance in water-based lubricants. In the aerospace drive shaft application, functional hardware coated with (Ti, Zr)B2 survived a variety of abuse and long-range durability tests, with contact pressures exceeding 2 GPa. For engine timing components, further work is planned to evaluate the Ultracoatings technology in direct injection and diesel engine conditions. In the final identified

application space the dry solids pump hardware, discussions continue on the application of the Ultracoatings technology for those specific components ...

Ambivalent Joint Production and the Natural Environment Springer

This book deals with colloidal systems in technical processes and the influence of colloidal systems by technical processes. It explores how new measurement capabilities can offer the potential for a dynamic development of scientific and engineering, and examines the origin of colloidal systems and its use for new products. The future challenges to colloidal process engineering are the development of appropriate equipment and processes for the production and obtainment of multi-phase structures and energetic interactions in market-relevant quantities. The book explores the relevant processes and for controlled production and how they can be used across all scales.

Handbook of Superconducting Materials Gulf Professional Publishing

9th International Conference on Robotic, Vision, Signal Processing and Power ApplicationsSpringer

Colloid Process Engineering Springer

This book constitutes the thoroughly refereed post-proceedings of the 5th International Conference on Parallel Processing and Applied Mathematics, PPAM 2003, held in Czestochowa, Poland, in September 2003. The 149 papers presented were carefully selected and improved during two rounds of reviewing and revision. The papers are organized in topical sections on parallel and distributed architectures, scheduling and load balancing, performance

analysis and prediction, parallel and distributed non-numerical algorithms, parallel and distributed programming, tools and environments, applications, evolutionary computing, soft computing data and knowledge management, numerical methods and their applications, multi-dimensional systems, grid computing, heterogeneous platforms, high performance numerical computation, large-scale scientific computation, and bioinformatics applications.

Ultracoatings Hindawi Publishing Corporation

The proceeding is a collection of research papers presented, at the 9th International Conference on Robotics, Vision, Signal Processing & Power Applications (ROVISP 2016), by researchers, scientists, engineers, academicians as well as industrial professionals from all around the globe to present their research results and development activities for oral or poster presentations. The topics of interest are as follows but are not limited to: • Robotics, Control, Mechatronics and Automation • Vision, Image, and Signal Processing • Artificial Intelligence and Computer Applications • Electronic Design and Applications • Telecommunication Systems and Applications • Power System and Industrial Applications • Engineering Education

Probability and Statistics Applications for Environmental Science Springer

Developed from celebrated Harvard statistics lectures, Introduction to Probability provides essential language and tools for understanding statistics, randomness, and uncertainty. The book explores a

wide variety of applications and examples, ranging from coincidences and paradoxes to Google PageRank and Markov chain Monte Carlo (MCMC). Additional

Business Process Management

American Mathematical Soc.

Many environmental damages are caused by substances which come into existence as undesired joint outputs in the production of desired goods. Whether an output is desired or not, however, is not an inherent property of the substance itself but depends on the context of production. This book studies the role of a potential ambivalence of joint outputs for the description and analysis of dynamic economy-environment interactions and for the design of efficient environmental policy. This is done in an interisciplinary way: methods and insights from thermodynamics, engineering sciences, economics and the methodology of economics are combined in order to develop an encompassing view on the complex and multivarious phenomenon of ambivalent joint production. By using the concept of joint production as a unifying framework for describing and analyzing the relations between human economic activity and the surrounding natural environment this book contributes to a critical and constructive assessment of the traditional environmental economic approach.

Handbook of Natural Gas Transmission and Processing Newnes
This book contains a selection of articles from The 2013 World Conference on Information Systems and Technologies (WorldCIST'13), a global forum for researchers and practitioners to present and discuss the most recent innovations, trends, results, experiences and concerns in the several perspectives of Information Systems and Technologies. The main topics covered are: Information and Knowledge Management; Organizational Models and Information Systems; Intelligent and Decision Support Systems; Software Systems, Architectures, Applications and Tools; Computer Networks, Mobility and Pervasive Systems; Radar Technologies; and Human-Computer Interaction.

Neural Information Processing John Wiley & Sons
This book deals with decision making in environments of significant data un certainty, with particular emphasis on operations and production management applications. For such environments, we suggest the use of the robustness ap proach to decision making, which assumes inadequate knowledge of the decision maker about the random state of nature and develops a decision that hedges against the worst contingency that may arise. The main motivating factors for a decision maker to use the robustness approach are: • It does not ignore uncertainty and takes a proactive step in response to

the fact that forecasted values of uncertain parameters will not occur in most environments; • It applies to decisions of unique, non-repetitive nature, which are common in many fast and dynamically changing environments; • It accounts for the risk averse nature of decision makers; and • It recognizes that even though decision environments are fraught with data uncertainties, decisions are evaluated ex post with the realized data. For all of the above reasons, robust decisions are dear to the heart of opera tional decision makers. This book takes a giant first step in presenting decision support tools and solution methods for generating robust decisions in a variety of interesting application environments. Robust Discrete Optimization is a comprehensive mathematical programming framework for robust decision making.

Official Gazette of the United States Patent and Trademark Office Springer Science & Business Media This volume provides a contemporary glance at the drastically expanding field of delivering large-scale education to unprecedented numbers of learners. It compiles papers presented at the CELDA (Cognition and Exploratory Learning in the Digital Age) conference, which has a goal of continuing to address these challenges and promote the

effective use of new tools and technologies to support teaching, learning and assessment. Given the emerging global trend to exploit the potential of existing digital technologies to improve the teaching, learning and assessment experiences for all learners in real-life contexts, this topic is a unifying theme for this volume. The book showcases how emerging educational technologies and innovative practices have been used to address core global educational challenges. It provides state-of-the-art insights and case studies of exploiting innovative learning technologies, including Massive Open Online Courses and educational data analytics, to address key global challenges spanning from online Teacher Education to large-scale coding competence development. This volume will be of interest to academics and professional practitioners working in the area of digital technology integration in teaching, learning and assessment, as well as those interested in specific conference themes (e.g., designing and assessing learning in online environments, assessing learning in complex domains) and presenters, invited speakers, and participants of the CELDA conference.

Comprehensive Materials Processing

Springer

The modern financial industry has been required

to deal with large and diverse portfolios in a variety of asset classes often with limited market data available. Financial Signal Processing and Machine Learning unifies a number of recent advances made in signal processing and machine learning for the design and management of investment portfolios and financial engineering. This book bridges the gap between these disciplines, offering the latest information on key topics including characterizing statistical dependence and correlation in high dimensions, constructing effective and robust risk measures, and their use in portfolio optimization and rebalancing. The book focuses on signal processing approaches to model return, momentum, and mean reversion, addressing theoretical and implementation aspects. It highlights the connections between portfolio theory, sparse learning and compressed sensing, sparse eigen-portfolios, robust optimization, non-Gaussian data-driven risk measures, graphical models, causal analysis through temporal-causal modeling, and large-scale copula-based approaches. Key features: Highlights signal processing and machine learning as key approaches to quantitative finance. Offers advanced mathematical tools for high-dimensional portfolio construction, monitoring, and post-trade analysis

problems. Presents portfolio theory, sparse learning and compressed sensing, sparsity methods for investment portfolios. including eigen-portfolios, model return, momentum, mean reversion and non-Gaussian data-driven risk measures with real-world applications of these techniques. Includes contributions from leading researchers and practitioners in both the signal and information processing communities, and the quantitative finance community.

Enterprise, Business-Process and Information Systems Modeling Springer Science & Business Media

Optimization and Operations Research is a component of Encyclopedia of Mathematical Sciences in the global Encyclopedia of Life Support Systems (EOLSS), which is an integrated compendium of twenty one Encyclopedias. The Theme on Optimization and Operations Research is organized into six different topics which represent the main scientific areas of the theme: 1. Fundamentals of Operations Research; 2. Advanced Deterministic Operations Research; 3. Optimization in Infinite Dimensions; 4. Game Theory; 5. Stochastic Operations Research; 6. Decision Analysis, which are then expanded into multiple subtopics, each as a chapter. These four volumes are aimed at the following five major target audiences: University and College students Educators, Professional Practitioners, Research Personnel and Policy Analysts, Managers, and Decision Makers and NGOs.