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Industrial Engineering and Production Management *The Art of Insight in Science and Engineering Computer Vision and Information Technology* **Directory - The Institution of Engineers (India).** *Postharvest Handling* **Machine Learning and Information Processing Elucidation of Abiotic Stress Signaling in Plants ICT and Critical Infrastructure: Proceedings of the 48th Annual Convention of Computer Society of India- Vol I Journal of the Audio Engineering Society** *Manufacturing Integrated Design Industrial Engineering And Management* **Friction-Induced Vibrations and Self-Organization Africa Rising Cumulated Index Medicus Road and Off-Road Vehicle System Dynamics Handbook** *Agricultural Engineering Directory* **Street-Fighting Mathematics Computing, Communication and Signal Processing** *Index of Patents Issued from the United States Patent and Trademark Office* **Computational Methodologies for Electrical and Electronics Engineers Adaptive Optics Progress Emerging Research in Computing, Information, Communication and Applications** *Electronic Packaging Materials and Their Properties* **Advances in Fungal Biotechnology Proceedings of the Indian Science Congress Antibody Glycosylation IEEE Membership Directory Fine-grained complexity analysis of some combinatorial data science problems Sustainable Degradation of Lignocellulosic Biomass** *Faster Than Light Technologies for Sustainable Development* **Computational Intelligence in Machine Learning Solution of Superlarge Problems in Computational Mechanics Handbook of Satisfiability Solar Engineering--1987 Lignocellulose Biotechnology Innovative Technologies for Dependable OTS-Based Critical Systems Thermal Sprayed Coatings and their Tribological Performances Intelligent Energy Management Technologies Physics of Semiconductor Devices**

Computational Intelligence in Machine Learning Feb 25 2020 The book includes select proceedings of the International Conference on Computational Intelligence in Machine Learning (ICCIML 2021). The book constitutes peer-reviewed papers on machine learning, computational intelligence, the internet of things, and smart city applications emphasizing multi-disciplinary research in artificial intelligence and cyber-physical systems. This book addresses the comprehensive nature of computational intelligence, artificial intelligence, machine learning, and deep learning to emphasize its character in modeling, identification, optimization, prediction, forecasting, and control of future intelligent systems. The book will be useful for researchers, research scholars, and students to formulate their research ideas and find future directions in these areas. It will help the readers to solve a diverse range of problems in industries and their real-world applications.

Road and Off-Road Vehicle System Dynamics Handbook Aug 13 2021 Featuring contributions from leading experts, the Road and Off-Road Vehicle System Dynamics Handbook provides comprehensive, authoritative coverage of all the major issues involved in road vehicle dynamic behavior. While the focus is on automobiles, this book also highlights motorcycles, heavy commercial vehicles, and off-road vehicles. The authors of the individual chapters, both from automotive industry and universities, address basic issues, but also include references to significant papers for further reading. Thus the handbook is devoted both to the beginner, wishing to acquire basic knowledge on a specific topic, and to the experienced engineer or scientist, wishing to have up-to-date information on a particular subject. It can also be used as a textbook for master courses at universities. The handbook begins with a short history of road and off-road vehicle dynamics followed by detailed, state-of-the-art chapters on modeling, analysis and optimization in vehicle system dynamics, vehicle concepts and aerodynamics, pneumatic tires and contact wheel-road/off-road, modeling vehicle subsystems, vehicle dynamics and active safety, man-vehicle interaction, intelligent vehicle systems, and road accident reconstruction and passive safety. Provides extensive coverage of modeling, simulation, and analysis techniques Surveys all vehicle subsystems from a vehicle dynamics point of view Focuses on pneumatic tires and contact wheel-road/off-road Discusses intelligent vehicle systems technologies and active safety Considers safety factors and accident reconstruction procedures Includes chapters written by leading experts from all over the world This text provides an applicable source of information for all people interested in a deeper understanding of road vehicle dynamics and related problems.

Africa Rising Oct 15 2021 With more than 900 million consumers, the continent of Africa is one of the world's fastest growing markets. In Africa Rising, renowned global business consultant Vijay Mahajan reveals this remarkable marketplace as a continent with massive needs and surprising buying power. Crossing thousands of miles across the continent, he shares the lessons that Africa's businesses have learned about succeeding on the continent...shows how global companies are succeeding despite Africa's unique political, economic, and resource challenges...introduces local entrepreneurs and foreign investors who are building a remarkable spectrum of profitable and sustainable business opportunities even in the most challenging locations...reveals how India and China are staking out huge positions throughout Africa...and shows the power of the diaspora in driving investment and development. Recognize that Africa is richer than you think Africa is richer than India on the basis of gross national income (GNI) per capita, and a dozen African countries have a higher GNI per capita than China. Aim for Africa Two Opportunities exist in all parts of the market, particularly the 400 million people in the middle of the market. Find opportunities to organize the market From retailing to cell phones to banking, companies are succeeding by building infrastructure. Develop strategies for the most youthful market in the world Companies are recognizing opportunities from diapers to music to medicine in a market growing younger every day. Understand that Africa is not a "media dark" continent From Nollywood to satellite to broadband, media is exploding on the continent. Recognize the hidden strength of the African diaspora The African diaspora brings resources and knowledge to African development and expands the African opportunity beyond the continent. Build Ubuntu markets Create profitable businesses, sustainable growth, and social organizations by meeting basic human needs.

Physics of Semiconductor Devices Jun 18 2019 The purpose of this workshop is to spread the vast amount of information available on semiconductor physics to every possible field throughout the scientific community. As a result, the latest findings, research and discoveries can be quickly disseminated. This workshop provides all participating research groups with an excellent platform for interaction and collaboration with other members of their respective scientific community. This workshop's technical sessions include various current and significant topics for applications and scientific developments, including • Optoelectronics • VLSI & ULSI Technology • Photovoltaics • MEMS & Sensors • Device Modeling and Simulation • High Frequency/ Power Devices • Nanotechnology and Emerging Areas • Organic Electronics • Displays and Lighting Many eminent scientists from various national and international organizations are actively participating with their latest research works and also equally supporting this mega event by joining the various organizing committees.

Computing, Communication and Signal Processing May 10 2021 This book highlights cutting-edge research on various aspects of human–computer interaction (HCI). It includes selected research papers presented at the Third International Conference on Computing, Communication and Signal Processing (ICCASP 2018), organized by Dr. Babasaheb Ambedkar Technological University in Lonere-Raigad, India on January 26–27, 2018. It covers pioneering topics in the field of computer, electrical, and electronics engineering, e.g. signal and image processing, RF and microwave engineering, and emerging technologies such as IoT, cloud computing, HCI, and green computing. As such, the book offers a valuable guide for all scientists, engineers and research students in the areas of engineering and technology.

***The Art of Insight in Science and Engineering* Sep 26 2022 Tools to make hard problems easier to solve. In this book, Sanjoy Mahajan shows us that the way to master complexity is through insight rather than precision. Precision can overwhelm us with information, whereas insight connects seemingly disparate pieces of information into a simple picture. Unlike computers, humans depend on insight. Based on the author's fifteen years of teaching at MIT, Cambridge University, and Olin College, The Art of Insight in Science and Engineering shows us how to build insight and find understanding, giving readers tools to help them solve any problem in science and engineering. To master complexity, we can organize it or discard it. The Art of Insight in Science and Engineering first teaches the tools for organizing complexity, then distinguishes the two paths for discarding complexity: with and without loss of information. Questions and problems throughout the text help readers master and apply these groups of tools. Armed with this three-part toolchest, and without complicated mathematics, readers can estimate the flight range of birds and planes and the strength of chemical bonds, understand the physics of pianos and xylophones, and explain why skies are blue and sunsets are red. The Art of Insight in Science and Engineering will appear in print and online under a Creative Commons Noncommercial Share Alike license.**

Innovative Technologies for Dependable OTS-Based Critical Systems Sep 21 2019 The demand for large-scale dependable, systems, such as Air Traffic Management, industrial plants and space systems, is attracting efforts of many word-leading European companies and SMEs in the area, and is expected to increase in the near future. The adoption of Off-The-Shelf (OTS) items plays a key role in such a scenario. OTS items allow mastering complexity and reducing costs and time-to-market; however, achieving these goals by ensuring dependability requirements at the same time is challenging. CRITICAL STEP project establishes a strategic collaboration between academic and industrial partners, and proposes a framework to support the development of dependable, OTS-based, critical systems. The book introduces methods and tools adopted by the critical systems industry, and surveys key achievements of the CRITICAL STEP project along four directions: fault injection tools, V&V of critical systems, runtime monitoring and evaluation techniques, and security assessment.

IEEE Membership Directory Aug 01 2020

Machine Learning and Information Processing May 22 2022 This book includes selected papers from the International Conference on Machine Learning and Information Processing (ICMLIP 2019), held at ISB&M School of Technology, Pune, Maharashtra, India, from December 27 to 28, 2019. It presents the latest developments and technical solutions in the areas of advanced computing and data sciences, covering machine learning, artificial intelligence, human–computer interaction, IoT, deep learning, image processing and pattern recognition, and signal and speech processing.

***Technologies for Sustainable Development* Mar 28 2020 This volume contains a selection of papers presented at the 7th Nirma University International Conference on Engineering 'NUiCONE 2019'. This conference followed the successful organization of four national conferences and six international conferences in previous years. The main theme of the conference was "Technologies for Sustainable Development", which is in line with the "SUSTAINABLE DEVELOPMENT GOAL" established by the United Nations. The conference was organized with many inter-disciplinary technical themes encompassing a broad range of disciplines and enabling researchers, academicians and practitioners to choose between ideas and themes. Besides, NUiCONE-2019 has also presented an exciting new set of events to engage practicing engineers, technologists and technopreneurs from industry through special knowledge sharing sessions involving applied technical papers based on case-study applications, white-papers, panel discussions, innovations and technology products. This proceedings will definitely provide a platform to proliferate new findings among researchers. Advances in Transportation Engineering Emerging Trends in Water Resources and Environmental Engineering Construction Technology and Management Concrete and Structural Engineering Futuristic Power System Control of Power Electronics Converters, Drives and E-mobility Advanced Electrical Machines and Smart Apparatus Chemical Process Development and Design Technologies and Green Environment Sustainable Manufacturing Processes Design and Analysis of Machine and Mechanism Energy Conservation and Management Advances in Networking Technologies Machine Intelligence / Computational Intelligence Autonomic Computing Control and Automation Electronic Communications Electronics Circuits and System Design Signal Processing**

Antibody Glycosylation Sep 02 2020 This book summarizes recent advances in antibody glycosylation research. Covering major topics relevant for immunoglobulin glycosylation - analytical methods, biosynthesis and regulation, modulation of effector functions - it provides new perspectives for research and development in the field of therapeutic antibodies, biomarkers, vaccinations, and immunotherapy. Glycans attached to both variable and constant regions of antibodies are known to affect the antibody conformation, stability, and effector functions. Although it focuses on immunoglobulin G (IgG), the most explored antibody in this context, and unravels the natural phenomena resulting from the mixture of IgG glycovariants present in the human body, the book also discusses other classes of human immunoglobulins, as well as immunoglobulins produced in other species and production systems. Further, it reviews the glycoanalytical methods applied to antibodies and addresses a range of less commonly explored topics, such as automatization and bioinformatics aspects of high-throughput antibody glycosylation analysis. Lastly, the book highlights application areas ranging from the ones already benefitting from antibody glycoengineering (such as monoclonal antibody production), to those still in the research stages (such as exploration of antibody glycosylation as a clinical or biological age biomarker), and the potential use of antibody glycosylation in the optimization of vaccine production and immunization protocols. Summarizing the current knowledge on the broad topic of antibody glycosylation and its therapeutic and biomarker potential, this book will appeal to a wide biomedical readership in academia and industry alike. Chapter 4 is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

***Manufacturing Integrated Design* Jan 18 2022 The book gives a systematic and detailed description of a new integrated product and process development approach for sheet metal manufacturing. Special attention is given to manufacturing that unites multidisciplinary competences of product design, material science, and production engineering, as well as mathematical optimization and computer based information technology. The case study of integral sheet metal structures is used by the authors to introduce the results related to the recent manufacturing technologies of linear flow splitting, bend splitting, and corresponding integrated process chains for sheet metal structures.**

Emerging Research in Computing, Information, Communication and Applications Jan 06 2021 This book presents the proceedings of International Conference on Emerging Research in Computing, Information, Communication and Applications, ERCICA 2020. The conference provides an interdisciplinary forum for researchers, professional engineers and scientists, educators and technologists to discuss, debate and promote research and technology in the upcoming areas of computing, information, communication and their applications. The book discusses these emerging research areas, providing a valuable resource for researchers and practicing engineers alike.

***Industrial Engineering And Management* Dec 17 2021**

Street-Fighting Mathematics Jun 11 2021 An antidote to mathematical rigor mortis, teaching how to guess answers without needing a proof or an exact calculation. In problem solving, as in street fighting, rules are for fools: do whatever works—don't just stand there! Yet we often fear an unjustified leap even though it may land us on a correct result. Traditional mathematics teaching is largely about solving exactly stated problems exactly, yet life often hands us partly defined problems needing only moderately accurate solutions. This engaging book is an antidote to the rigor mortis brought on by too much mathematical rigor, teaching us how to guess answers without needing a proof or an exact calculation. In Street-Fighting Mathematics, Sanjoy Mahajan builds, sharpens, and demonstrates tools for educated guessing and down-and-dirty, opportunistic problem solving across diverse fields of knowledge—from mathematics to management. Mahajan describes six tools: dimensional analysis, easy cases, lumping, picture proofs, successive approximation, and reasoning by analogy. Illustrating each tool with numerous examples, he carefully separates the tool—the general principle—from the particular application so that the reader can most easily grasp the tool itself to use on problems of particular interest. Street-Fighting Mathematics grew out of a short course taught by the author at MIT for students ranging from first-year undergraduates to graduate students ready for careers in physics, mathematics, management, electrical engineering, computer science, and biology. They benefited from an approach that avoided rigor and taught them how to use mathematics to solve real problems. Street-Fighting Mathematics will appear in print and online under a Creative Commons Noncommercial Share Alike license.

***Postharvest Handling* Jun 23 2022 The world population has been increasing day by day, and demand for food is rising. Despite that, the natural resources are decreasing, and production of food is getting difficult. At the same time, about one-quarter of what is produced never reaches the consumers due to the postharvest losses. Therefore, it is of utmost importance to efficiently handle, store, and utilize produce to be able to feed the world, reduce the use of natural resources, and help to ensure sustainability. At this point, postharvest handling is becoming more important, which is the main determinant of the postharvest losses. Hence, the present book is intended to provide useful and scientific information about postharvest handling of different produce.**

Computational Methodologies for Electrical and Electronics Engineers Mar 08 2021 Artificial intelligence has been applied to many areas of science and technology, including the power and energy sector. Renewable energy in particular has experienced the tremendous positive impact of these developments. With the recent evolution of smart energy technologies, engineers and scientists working in this sector need an exhaustive source of current knowledge to effectively cater to the energy needs of citizens of developing countries. Computational Methodologies for Electrical and Electronics Engineers is a collection of innovative research that provides a complete insight and overview of the application of intelligent computational techniques in power and energy. Featuring research on a wide range of topics such as artificial neural networks, smart grids, and soft computing, this book is ideally designed for programmers, engineers, technicians, ecologists, entrepreneurs, researchers, academicians, and students.

***Agricultural Engineering Directory* Jul 12 2021**

Thermal Sprayed Coatings and their Tribological Performances Aug 21 2019 Thermal spraying is a dynamic process and a rapidly changing field which is used in a variety of industries to solve a number of challenging problems including performance enhancement and extending the life of industrial components which are subjected to wear corrosion. Thermal Sprayed Coatings and their Tribological Performances showcases the latest research surrounding the development and use of thermal spraying techniques as well as the benefits of using thermal sprayed coatings in the industrial sector. Focusing on practical solutions that can be applied to real-world settings, this publication is ideally designed for academicians, upper-level students, as well as engineers and operations managers across industries.

Faster Than Light **Apr 28 2020 An amazing book on faster than light flight! H. David Froning, a 30-year veteran engineer who worked on several designs for future space travel propulsion, gives us this exceptional compilation of his discoveries, struggles and experiences in the realm of faster than light space travel. Central to the concept of faster than light travel is that the vacuum of space itself (the spacetime metric) can be utilized in propulsion systems. "Engineering the vacuum," as this is called, involves discovering how space can be altered to provide energy/thrust for future spacecraft. Packed with diagrams, some of which show how, as a starship accelerates away from Earth, it disappears and reappears in only seconds. But during these seconds of disappearance, the ship, in effect, leaps high above space-time and over stupendous distances to reach speeds that are billions of times greater than light-speed. Lots of great material on quantum vacuum power, anti-gravity propulsion effects, the velocity of light in spacetime altered regions, effective mass in spacetime-altered regions, warp drives, and tons more!**

Industrial Engineering and Production Management Oct 27 2022 For close to 20 years, "Industrial Engineering and Production Management" has been a successful text for students of Mechanical, Production and Industrial Engineering while also being equally helpful for students of other courses including Management. Divided in 5 parts and 52 chapters, the text combines theory with examples to provide in-depth coverage of the subject.

Intelligent Energy Management Technologies Jul 20 2019 This book is a collection of best selected high-quality research papers presented at the International Conference on Advances in Energy Management (ICAEM 2019) organized by the Department of Electrical Engineering, Jodhpur Institute of Engineering & Technology (JIET), Jodhpur, India, during 20–21 December 2019. The book discusses intelligent energy management technologies which are cost effective compared to the high cost of fossil fuels. This book also explains why these systems have beneficial impact on environmental, economic and political issues of the world. The book is immensely useful for research scholars, academicians, R&D institutions, practicing engineers and managers from industry.

ICT and Critical Infrastructure: Proceedings of the 48th Annual Convention of Computer Society of India- Vol I Mar 20 2022 This volume contains 88 papers presented at CSI 2013: 48th Annual Convention of Computer Society of India with the theme "ICT and Critical Infrastructure". The convention was held during 13th –15th December 2013 at Hotel Novotel Varun Beach, Visakhapatnam and hosted by Computer Society of India, Vishakhapatnam Chapter in association with Vishakhapatnam Steel Plant, the flagship company of RINL, India. This volume contains papers mainly focused on Computational Intelligence and its applications, Mobile Communications and social Networking, Grid Computing, Cloud Computing, Virtual and Scalable Applications, Project Management and Quality Systems and Emerging Technologies in hardware and Software.

Advances in Fungal Biotechnology Nov 04 2020 In the past two decades, fungal biotechnology has progressed at a fast pace. Advances in Fungal Biotechnology provides coverage of these advances, and of the multiple roles played by fungi. This includes the industrial applications of fungi for the production of pigments, citric acid and vitamins, the beneficial effects of mycorrhizal fungi, mycoviruses, and biotransformation. Key features: Focuses on Biocontrol strategies of fungi. Deals with the role of fungal enzymesxylanases and laccases. Discusses mycoviruses as an emerging tool for controlling pathogenic fungi. Incorporates industrial applications, such as the production of pigments, citric acid and vitamins. Addresses biotransformation by fungi. Illustrates the role of mycorrhizal fungi in revegetation programmes. Covers health implications (allergy, mycotoxins, tinea infections). Examines the role of the internet in Mycology.

Sustainable Degradation of Lignocellulosic Biomass May 30 2020 This book provides important aspects of sustainable degradation of lignocellulosic biomass which has a pivotal role for the economic production of several value-added products and biofuels with safe environment. Different pretreatment techniques and enzymatic hydrolysis process along with the characterization of cell wall components have been discussed broadly. The following features of this book attribute its distinctiveness: This book comprehensively covers the improvement in methodologies for the biomass pretreatment, hemicellulose and cellulose breakdown into fermentable sugars, the analytical methods for biomass characterization, and bioconversion of cellulosics into biofuels. In addition, mechanistic analysis of biomass pretreatment and enzymatic hydrolysis have been discussed in details, highlighting key factors influencing these processes at industrial scale.

Friction-Induced Vibrations and Self-Organization Nov 16 2021 Many scientists and engineers do not realize that, under certain conditions, friction can lead to the formation of new structures at the interface, including in situ tribofilms and various patterns. In turn, these structures—usually formed by destabilization of the stationary sliding regime—can lead to the reduction of friction and wear. Friction-Induced Vibrations and Self-Organization: Mechanics and Non-Equilibrium Thermodynamics of Sliding Contact combines the mechanical and thermodynamic methods in tribology, thus extending the field of mechanical friction-induced vibrations to non-mechanical instabilities and self-organization processes at the frictional interface. The book also relates friction-induced self-organization to novel biomimetic materials, such as self-lubricating, self-cleaning, and self-healing materials. Explore Friction from a Different Angle—as a Fundamental Force of Nature The book begins with an exploration of friction as a fundamental force of nature throughout the history of science. It then introduces general concepts related to vibrations, instabilities, and self-organization in the bulk of materials and at the interface. After presenting the principles of non-equilibrium thermodynamics as they apply to the interface, the book formulates the laws of friction and highlights important implications. The authors also analyze wear and lubrication. They then turn their attention to various types of friction-induced vibration, and practical situations and applications where these vibrations are important. The final chapters consider various types of friction-induced self-organization and how these effects can be used for novel self-lubricating, self-cleaning, and self-healing materials. From Frictional Instabilities to Friction-Induced Self-Organization Drawing on the authors' original research, this book presents a new, twenty-first century perspective on friction and tribology. It shows how friction-induced instabilities and vibrations can lead to self-organized structures, and how understanding the structure–property relationships that lead to self-organization is key to designing "smart" biomimetic materials.

Solar Engineering--1987 Nov 23 2019

Electronic Packaging Materials and Their Properties **Dec 05 2020 Packaging materials strongly affect the effectiveness of an electronic packaging system regarding reliability, design, and cost. In electronic systems, packaging materials may serve as electrical conductors or insulators, create structure and form, provide thermal paths, and protect the circuits from environmental factors, such as moisture, contamination, hostile chemicals, and radiation. Electronic Packaging Materials and Their Properties examines the array of packaging architecture, outlining the classification of materials and their use for various tasks requiring performance over time. Applications discussed include: interconnections printed circuit boards substrates encapsulants dielectrics die attach materials electrical contacts thermal materials solders Electronic Packaging Materials and Their Properties also reviews key electrical, thermal, thermomechanical, mechanical, chemical, and miscellaneous properties as well as their significance in electronic packaging.**

Directory - The Institution of Engineers (India). Jul 24 2022

Handbook of Satisfiability Dec 25 2019 Propositional logic has been recognized throughout the centuries as one of the cornerstones of reasoning in philosophy and mathematics. Over time, its formalization into Boolean algebra was accompanied by the recognition that a wide range of combinatorial problems can be expressed as propositional satisfiability (SAT) problems. Because of this dual role, SAT developed into a mature, multi-faceted scientific discipline, and from the earliest days of computing a search was underway to discover how to solve SAT problems in an automated fashion. This book, the Handbook of Satisfiability, is the second, updated and revised edition of the book first published in 2009 under the same name. The handbook aims to capture the full breadth and depth of SAT and to bring together significant progress and advances in automated solving. Topics covered span practical and theoretical research on SAT and its applications and include search algorithms, heuristics, analysis of algorithms, hard instances, randomized formulae, problem encodings, industrial applications, solvers, simplifiers, tools, case studies and empirical results. SAT is interpreted in a broad sense, so as well as propositional satisfiability, there are chapters covering the domain of quantified Boolean formulae (QBF), constraints programming techniques (CSP) for word-level problems and their propositional encoding, and satisfiability modulo theories (SMT). An extensive bibliography completes each chapter. This second edition of the handbook will be of interest to researchers, graduate students, final-year undergraduates, and practitioners using or contributing to SAT, and will provide both an inspiration and a rich resource for their work. Edmund Clarke, 2007 ACM Turing Award Recipient: "SAT solving is a key technology for 21st century computer science." Donald Knuth, 1974 ACM Turing Award Recipient: "SAT is evidently a killer app, because it is key to the solution of so many other problems." Stephen Cook, 1982 ACM Turing Award Recipient: "The SAT problem is at the core of arguably the most fundamental question in computer science: What makes a problem hard?"

Fine-grained complexity analysis of some combinatorial data science problems Jun 30 2020 This thesis is concerned with analyzing the computational complexity of NP-hard problems related to data science. For most of the problems considered in this thesis, the computational complexity has not been intensively studied before. We focus on the complexity of computing exact problem solutions and conduct a detailed analysis identifying tractable special cases. To this end, we adopt a parameterized viewpoint in which we spot several parameters which describe properties of a specific problem instance that allow to solve the instance efficiently. We develop specialized algorithms whose running times are polynomial if the corresponding parameter value is constant. We also investigate in which cases the problems remain intractable even for small parameter values. We thereby chart the border between tractability and intractability for some practically motivated problems which yields a better understanding of their computational complexity. In particular, we consider the following problems. General Position Subset Selection is the problem to select a maximum number of points in general position from a given set of points in the plane. Point sets in general position are well-studied in geometry and play a role in data visualization. We prove several computational hardness results and show how polynomial-time data reduction can be applied to solve the problem if the sought number of points in general position is very small or very large. The Distinct Vectors problem asks to select a minimum number of columns in a given matrix such that all rows in the selected submatrix are pairwise distinct. This problem is motivated by combinatorial feature selection. We prove a complexity dichotomy with respect to combinations of the minimum and the maximum pairwise Hamming distance of the rows for binary input matrices, thus separating polynomial-time solvable from NP-hard cases. Co-Clustering is a well-known matrix clustering problem in data mining where the goal is to partition a matrix into homogenous submatrices. We conduct an extensive multivariate complexity analysis revealing several NP-hard and some polynomial-time solvable and fixed-parameter tractable cases. The generic F-free Editing problem is a graph modification problem in which a given graph has to be modified by a minimum number of edge modifications such that it does not contain any induced subgraph isomorphic to the graph F. We consider three special cases of this problem: The graph clustering problem Cluster Editing with applications in machine learning, the Triangle Deletion problem which is motivated by network cluster analysis, and Feedback Arc Set in Tournaments with applications in rank aggregation. We introduce a new parameterization by the number of edge modifications above a lower bound derived from a packing of induced forbidden subgraphs and show fixed-parameter tractability for all of the three above problems with respect to this parameter. Moreover, we prove several NP-hardness results for other variants of F-free Editing for a constant parameter value. The problem DTW-Mean is to compute a mean time series of a given sample of time series with respect to the dynamic time warping distance. This is a fundamental problem in time series analysis the complexity of which is unknown. We give an exact exponential-time algorithm for DTW-Mean and prove polynomial-time solvability for the special case of binary time series. Diese Dissertation befasst sich mit der Analyse der Berechnungskomplexität von NP-schweren Problemen aus dem Bereich Data Science. Für die meisten der hier betrachteten Probleme wurde die Berechnungskomplexität bisher nicht sehr detailliert untersucht. Wir führen daher eine genaue Komplexitätsanalyse dieser Probleme durch, mit dem Ziel, effizient lösbare Spezialfälle zu identifizieren. Zu diesem Zweck nehmen wir eine parametrisierte Perspektive ein, bei der wir bestimmte Parameter definieren, welche Eigenschaften einer konkreten Probleminstanz beschreiben, die es ermöglichen, diese Instanz effizient zu lösen. Wir entwickeln dabei spezielle Algorithmen, deren Laufzeit für konstante Parameterwerte polynomiell ist. Darüber hinaus untersuchen wir, in welchen Fällen die Probleme selbst bei kleinen Parameterwerten berechnungsschwer bleiben. Somit skizzieren wir die Grenze zwischen schweren und handhabbaren Probleminstanzen, um ein besseres Verständnis der Berechnungskomplexität für die folgenden praktisch motivierten Probleme zu erlangen. Beim General Position Subset Selection Problem ist eine Menge von Punkten in der Ebene gegeben und das Ziel ist es, möglichst viele Punkte in allgemeiner Lage davon auszuwählen. Punktmengen in allgemeiner Lage sind in der Geometrie gut untersucht und spielen unter anderem im Bereich der Datenvisualisierung eine Rolle. Wir beweisen etliche Härteergebnisse und zeigen, wie das Problem mittels Polynomzeitdatenreduktion gelöst werden kann, falls die Anzahl gesuchter Punkte in allgemeiner Lage sehr klein oder sehr groß ist. Distinct Vectors ist das Problem, möglichst wenige Spalten einer gegebenen Matrix so auszuwählen, dass in der verbleibenden Submatrix alle Zeilen paarweise verschieden sind. Dieses Problem hat Anwendungen im Bereich der kombinatorischen Merkmalsselektion. Wir betrachten Kombinationen aus maximalem und minimalem paarweisen Hamming-Abstand der Zeilenvektoren und beweisen eine Komplexitätsdichotomie für Binärmatrizen, welche die NP-schweren von den polynomzeitlösbaren Kombinationen unterscheidet. Co-Clustering ist ein bekanntes Matrix-Clustering-Problem aus dem Gebiet Data-Mining. Ziel ist es, eine Matrix in möglichst homogene Submatrizen zu partitionieren. Wir führen eine umfangreiche multivariate Komplexitätsanalyse durch, in der wir zahlreiche NP-schwere, sowie polynomzeitlösbare und festparameterhandhabbare Spezialfälle identifizieren. Bei F-free Editing handelt es sich um ein generisches Graphmodifikationsproblem, bei dem ein Graph durch möglichst wenige Kantenmodifikationen so abgeändert werden soll, dass er keinen induzierten Teilgraphen mehr enthält, der isomorph zum Graphen F ist. Wir betrachten die drei folgenden Spezialfälle dieses Problems: Das Graph-Clustering-Problem Cluster Editing aus dem Bereich des Maschinellen Lernens, das Triangle Deletion Problem aus der Netzwerk-Cluster-Analyse und das Problem Feedback Arc Set in Tournaments mit Anwendungen bei der Aggregation von Rankings. Wir betrachten eine neue Parametrisierung mittels der Differenz zwischen der maximalen Anzahl Kantenmodifikationen und einer unteren Schranke, welche durch eine Menge von induzierten Teilgraphen bestimmt ist. Wir zeigen Festparameterhandhabbarkeit der drei obigen Probleme bezüglich dieses Parameters. Darüber hinaus beweisen wir etliche NP-Schwereergebnisse für andere Problemvarianten von F-free Editing bei konstantem Parameterwert. DTW-Mean ist das Problem, eine Durchschnittszeitreihe bezüglich der Dynamic-Time-Warping-Distanz für eine Menge gegebener Zeitreihen zu berechnen. Hierbei handelt es sich um ein grundlegendes Problem der Zeitreihenanalyse, dessen Komplexität bisher unbekannt ist. Wir entwickeln einen exakten Exponentialzeitalgorithmus für DTW-Mean und zeigen, dass der Spezialfall binärer Zeitreihen in polynomieller Zeit lösbar ist.

Lignocellulose Biotechnology Oct 23 2019 The agricultural and forestry processing wastes (lignocellulosics) are an important material resource and energy source. However, if untreated they can pose a danger to the environment and potentially valuable resources. Microorganisms contribute significantly to solving the problem of biomass degradation, its recycling and conservation. In the recent years, an increasing interest shown by the textile, food, feed & pulp, and paper industries in the microbial and enzymatic processes has triggered in-depth studies of lignocellulolytic microorganisms and their enzymes. Moreover, the advent of recombinant DNA technology in the late 1970s further paved the way for developing technologies based on lignocellulolytic microbes and enzymes. Lignocellulose Biotechnology presents a comprehensive review of the research directed towards environmentally friendly agricultural and forest by-products. The book comprises 22 chapters, divided in four sections. It deals with a wide range of topics including biodiversity of lignocellulose degrading microorganisms and their enzymes, molecular biology of biodegradation of lignin, characterization of lignocellulolytic enzymes, bioconversion of plant biomass to produce enzymes, animal feed, bioethanol and industrial applications of lignocellulolytic enzymes. The chapters dealing with industrial applications also address current biotechnological approaches in lignocellulose bioconversion to value added products. This book is essential for students, researchers, scientists, and engineers working in the fields of environmental microbiology, environmental biotechnology, life sciences, waste management, and biomaterials.

Proceedings of the Indian Science Congress Oct 03 2020

Cumulated Index Medicus Sep 14 2021

Adaptive Optics Progress Feb 07 2021 For over four decades there has been continuous progress in adaptive optics technology, theory, and systems development. Recently there also has been an explosion of applications of adaptive optics throughout the fields of communications and medicine in addition to its original uses in astronomy and beam propagation. This volume is a compilation of research and tutorials from a variety of international authors with expertise in theory, engineering, and technology. Eight chapters include discussion of retinal imaging, solar astronomy, wavefront-sensorless adaptive optics systems, liquid crystal wavefront correctors, membrane deformable mirrors, digital adaptive optics, optical vortices, and coupled anisoplanatism.

Journal of the Audio Engineering Society Feb 19 2022 Some issues include "Directory of members".

Index of Patents Issued from the United States Patent and Trademark Office **Apr 09 2021**

Computer Vision and Information Technology **Aug 25 2022 Spread in 133 articles divided in 20 sections the present treatises broadly discusses: Part 1: Image Processing Part 2: Radar and Satellite Image Processing Part 3: Image Filtering Part 4: Content Based Image Retrieval Part 5: Color Image Processing and Video Processing Part 6: Medical Image Processing Part 7: Biometric Part 8: Network Part 9: Mobile Computing Part 10: Pattern Recognition Part 11: Pattern Classification Part 12: Genetic Algorithm Part 13: Data Warehousing and Mining Part 14: Embedded System Part 15: Wavelet Part 16: Signal Processing Part 17: Neural Network Part 18: Nanotechnology and Quantum Computing Part 19: Image Analysis Part 20: Human Computer Interaction**

Solution of Superlarge Problems in Computational Mechanics Jan 26 2020 There is a need to solve problems in solid and fluid mechanics that currently exceed the resources of current and foreseeable supercomputers. The issue revolves around the number of degrees of freedom of simultaneous equations that one needs to accurately describe the problem, and the computer storage and speed limitations which prohibit such solutions. The goals of tHis symposium were to explore some of the latest work being done in both industry and academia to solve such extremely large problems, and to provide a forum for the discussion and prognostication of necessary future direc tions of both man and machine. As evidenced in this proceedings we believe these goals were met. Contained in this volume are discussions of: iterative solvers, and their application to a variety of problems, e.g. structures, fluid dynamics, and structural acoustics; iterative dynamic substructuring and its use in structural acoustics; the use of the boundary element method both alone and in conjunction with the finite element method; the application of finite difference methods to problems of incompressible, turbulent flow; and algorithms amenable to concurrent computations and their applications. Furthermore, discussions of existing computational shortcomings from the big picture point of view are presented that include

recommendations for future work.

Elucidation of Abiotic Stress Signaling in Plants Apr 21 2022 Abiotic stresses such as high temperature, low-temperature, drought, and salinity limit crop productivity worldwide. Understanding plant responses to these stresses is essential for rational engineering of crop plants. In Arabidopsis, the signal transduction pathways for abiotic stresses, light, several phytohormones and pathogenesis have been elucidated. A significant portion of plant genomes (most studies are Arabidopsis and rice genome) encodes for proteins involves in signaling such as receptor, sensors, kinases, phosphatases, transcription factors and transporters/channels. Despite decades of physiological and molecular effort, knowledge pertaining to how plants sense and transduce low and high temperature, low-water availability (drought), water-submergence and salinity signals is still a major question before plant biologists. One major constraint hampering our understanding of these signal transduction processes in plants has been the lack or slow pace of application of molecular genomic and genetics knowledge in the form of gene function. In the post-genomic era, one of the major challenges is investigation and understanding of multiple genes and gene families regulating a particular physiological and developmental aspect of plant life cycle. One of the important physiological processes is regulation of stress response, which leads to adaptation or adjustment in response to adverse stimuli. With the holistic understanding of the signaling pathways involving not only one gene family but multiple genes or gene families, plant biologists can lay a foundation for designing and generating future crops that can withstand the higher degree of environmental stresses (especially abiotic stresses, which are the major cause of crop loss throughout the world) without losing crop yield and productivity. Therefore, in this proposed book, we intend to incorporate the contribution from leading plant biologists to elucidate several aspects of stress signaling by functional genomic approaches.