Advances in heat transfer, Volume 50, provides in-depth review articles from a broader scope than in traditional journals or texts, with this comprehensive release covering chapters on heat transfer in rotating channels, advances in liquid metal science and technology in chip cooling and thermal management, heat transfer in rotating cooling channel, anomalous heat transfer: examples, fundamentals, and fractional calculus models, and much more. Fills the information gap between regularly scheduled journals and university-level textbooks by providing in-depth review articles on a broader scope than in traditional journals or texts. Essential reading for all mechanical, chemical and industrial engineers working in the field of heat transfer, or in graduate schools or industry.

This unique volume is the first publication on software engineering and computational intelligence (CI) viewed as a synergistic interplay of neurocomputing, granular computation (including fuzzy sets and rough sets), and evolutionary methods. It presents a unified view of CI in the context of software engineering. The book addresses a number of crucial issues: what is CI, what role does it play in software development, how are CI elements built into successive phases of the software life cycle, and what is the role played by CI in quantifying fundamental features of software artifacts? With contributions from leading researchers and practitioners, the book provides the reader with a wealth of new concepts and approaches, complete algorithms, in-depth case studies, and thought-provoking exercises. The topics coverage include neurocomputing, granular as well as evolutionary computing, object-oriented analysis and design in software engineering. There is also an extensive bibliography.

De markt van mobiele communicatie is nog altijd het snelst groeiende segment van de wereldwijde computer- en communicatiemarkt. Jochen Schiller behandelt in zijn boek Mobiele communicatie uitgebreid de huidige stand van zaken in de technologie en het onderzoek van mobiele communicatie, en schetst daarnaast een gedetailleerde achtergrond van het vakgebied. In het boek worden alle belangrijke aspecten van mobiele en draadloze communicatie besproken, van signalen en toegangsprotocollen tot beveiliging en de eisen die applicaties stellen. De nadruk ligt hierbij op de overdracht van digitale data. Schiller illustreert de theorie met vele voorbeelden en maakt gebruik van diverse didactische hulpmiddelen, waardoor het boek zeer geschikt is voor zelfstudie en gebruik in het hoger onderwijs. In dit boek: nieuw materiaal van derde-generatiesystemen (3G) met uitgebreide behandeling van UMTS/W-CDMA.
We are observing a growing research interest in the foundations of rough sets, including the various logical, mathematical and philosophical aspects of rough sets. Some relationships have already been established between rough sets and other approaches, and also with a wide range of hybrid systems. As a result, rough sets are linked with decision system modeling and analysis of complex systems, fuzzy sets, neural networks, evolutionary computing, data mining and knowledge discovery, pattern recognition, machine learning, and approximate reasoning. In particular, rough sets are used in probabilistic reasoning, granular computing (including information granule calculi based on rough mereology), intelligent control, intelligent agent modeling, identification of autonomous systems, and process specification. Methods based on rough set theory alone or in combination with other approaches have been discovered with a wide range of hybrid systems involving rough sets.

The book reports on the latest advances and challenges of soft computing. It gathers original scientific contributions written by top scientists in the field and covering theories, methods and applications in a number of research areas related to soft computing, such as decision-making, probabilistic reasoning, image processing, control, neural networks and data analysis.

In recent years rough set theory has attracted the attention of many researchers and practitioners all over the world, who have contributed essentially to its development and applications. We are observing a growing research interest in the foundations of rough sets, including the various logical, mathematical and philosophical aspects of rough sets. Some relationships have already been established between rough sets and other approaches, and also with a wide range of hybrid systems. As a result, rough sets are linked with decision system modeling and analysis of complex systems, fuzzy sets, neural networks, evolutionary computing, data mining and knowledge discovery, pattern recognition, machine learning, and approximate reasoning. In particular, rough sets are used in probabilistic reasoning, granular computing (including information granule calculi based on rough mereology), intelligent control, intelligent agent modeling, identification of autonomous systems, and process specification. Methods based on rough set theory alone or in combination with other approaches have been discovered with a wide range of hybrid systems involving rough sets.

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The proposed hybrid algorithm for voice recognition is named as a MFRASTA algorithm by combining features of MFCC (Mel Frequency Cepstral Coefficient) and RASTA-PLP (RelAtive SpecTrA-Principal Component Analysis) and ICA (Independent Component Analysis) algorithms. This hybrid approach gives better performance recognition than either system alone. The second parameters of a vulnerable person living alone at home and aid them in calling for help in an emergency. The authors have analyzed a number of existing biometric techniques to provide

These three modules are taken together to provide a percentage likelihood that the individual is in the "known" or "unknown" category. The system can also continuously monitor the health with harmful intentions. It defines a system whereby recognition of a person/stranger at the door is done using three modules: Face Recognition, Voice Recognition and Similarity Index.

This book provides an integrated solution for security and safety in the home, covering both assistance in health monitoring and safety from strangers/intruders who want to enter the home.
Perceptual Linear Prediction) algorithm. After performing experiments, results are collected on the basis of recognition rate. The authors have also proposed a third technique named as a Similarity Index to provide trust-based security for an individual. This technique is text independent in which a person is recognized by pronunciation, frequency, tone, pitch, etc., irrespective of the content spoken by the person. By combining these three techniques, a high recognition rate is provided to the person at the door and high security to the individual living independently at home. In the final contribution, the authors have proposed a fingerprint-based application for health monitoring by using the concept of sensors. This application is developed using iPhone 6’s camera. When a person puts their fingerprint on a camera lens, with the help of brightness of the skin, the person’s heartbeat will be monitored. This is possible even with a low-quality camera. In case of any emergency, text messages will be sent to the family members of the individual living alone by using 3G Dongle and MATLAB tool. Results show that the proposed work outperforms all the existing techniques used in face recognition, voice recognition, and health monitoring alone.

Providing detailed examples of simple applications, this new book introduces the use of neural networks. It covers simple neural nets for pattern classification; pattern association; neural networks based on competition; adaptive-resonance theory; and more. For professionals working with neural networks.

Artificial Intelligence Illuminated presents an overview of the background and history of artificial intelligence, emphasizing its importance in today's society and potential for the future. The book covers a range of AI techniques, algorithms, and methodologies, including game playing, intelligent agents, machine learning, genetic algorithms, and Artificial Life. Material is presented in a lively and accessible manner and the author focuses on explaining how AI techniques relate to and are derived from natural systems, such as the human brain and evolution, and explaining how the artificial equivalents are used in the real world. Each chapter includes student exercises and review questions, and a detailed glossary at the end of the book defines important terms and concepts highlighted throughout the text.

This book provides comprehensive introduction to a consortium of technologies underlying soft computing, an evolving branch of computational intelligence. The constituent technologies discussed comprise neural networks, fuzzy logic, genetic algorithms, and a number of hybrid systems which include classes such as neuro-fuzzy, fuzzy-genetic, and neuro-genetic systems. The hybridization of the technologies is demonstrated on architectures such as Fuzzy-Back-propagation Networks (NN-FL), Simplified Fuzzy ARTMAP (NN-FL), and Fuzzy Associative Memories. The book also gives an exhaustive discussion of FL-GA hybridization. Every architecture has been discussed in detail through illustrative examples and applications. The algorithms have been presented in pseudo-code with a step-by-step illustration of the same in problems. The applications, demonstrative of the potential of the architectures, have been chosen from diverse disciplines of science and engineering. This book with a wealth of information that is clearly presented and illustrated by many examples and applications is designed for use as a text for courses in soft computing at both the senior undergraduate and first-year post-graduate engineering levels. It should also be of interest to researchers and technologists desirous of applying soft computing technologies to their respective fields of work.

Software requirements for engineering and scientific applications are almost always computational and possess an advanced mathematical component. However, an application that calls for calculating a statistical function, or performs basic differentiation of integration, cannot be easily developed in C++ or most programming languages. In such a case, the engineer or scientist must assume the role of software developer. And even though scientists who take on the role as programmer can sometimes be the originators of major software products, they often waste valuable time developing algorithms that lead to untested and unreliable routines. Software Solutions for Engineers and Scientists addresses the ever present demand for professionals to develop their own software by supplying them with a toolkit and problem-solving resource for developing computational applications. The authors provide shortcuts to avoid complications, bearing in mind the technical and mathematical ability of their audience. The first section introduces the basic concepts of number systems, storage of numerical data, and machine arithmetic. Chapters on the Intel math unit architecture, data conversions, and the details of math unit programming establish a framework for developing routines in engineering and scientific code. The second part, entitled Application Development, covers the implementation of a C++ program and flowcharting. A tutorial on Windows programming supplies skills that allow readers to create professional quality programs. The section on project engineering examines the software engineering field, describing its common qualities, principles, and paradigms. This is followed by a discussion on the description and specification of software projects, including object-oriented approaches to software development. With the introduction of this volume, professionals can now design effective applications that meet their own field-specific requirements using modern tools and technology.

This book discusses soft computing, which provides an efficient platform to deal with imprecision, uncertainty, vagueness and approximation in order to attain robustness and reliable computing. It explores two major concepts of soft computing: fuzzy set theory and neural networks, which relate to uncertainty handling and machine learning techniques respectively. Generally, fuzzy sets are considered as vague or uncertain sets having membership function lying between 0 and 1, and ANN is a type of artificial intelligence that attempts to imitate the way a human brain works by configuring specific applications, for instance pattern recognition or data classification, through learning processes. The book also presents C/MATLAB programming codes related to the basics of fuzzy set, interval arithmetic and ANN in a concise, practical and adaptable manner along with simple examples and self-validation unsolved practice questions.
The Asia-Paciﬁc region has emerged in recent years as one of the fastest growing regions in the world in the use of Web technologies as well as in making signiﬁcant contributions to Web research and development. Since the ﬁrst Asia-Paciﬁc Web conference in 1998, the APWeb has continued to provide a forum for researchers, professionals, and industrial practitioners from around the world to share their rapidly evolving knowledge and to report new advances in Web technologies and applications. APWeb 2004 received an overwhelming 386 full-paper submissions, including 375 research papers and 11 industrial papers from 20 countries and regions: A- traia, Canada, China, France, Germany, Greece, Hong Kong, India, Iran, Japan, Korea, Norway, Singapore, Spain, Switzerland, Taiwan, Turkey, UK, USA, and Vietnam. Each submission was carefully reviewed by three members of the program committee. Among the 386 submitted papers, 60 regular papers, 24 short papers, 15 poster papers, and 3 industrial papers were selected to be included in the proceedings. The selected papers cover a wide range of topics including Web services, Web personalization, Web query processing, Web - ching, Web mining, text mining, data mining and knowledge discovery, XML, database and query processing, work - ow management, E-commerce, data - rehousing, P2P systems and applications, Grid computing, and networking. The paper entitled “Towards Adaptive Probabilistic Search in Unstructured P2P - stems”, co-authored by Linhao Xu, Chenyun Dai, Wenyuan Cai, Shuigeng Zhou, and Aoying Zhou, was awarded the best APWeb 2004 student paper.

This book constitutes the refereed proceedings of the 18th International Conference on Engineering Applications of Neural Networks, EANN 2014, held in Sofia, Bulgaria, in September 2014. The 18 revised full papers presented together with 5 short papers were carefully reviewed and selected from 37 submissions. The papers demonstrate a variety of applications of neural networks and other computational intelligence approaches to challenging problems relevant to society and the economy. These include areas such as: environmental engineering, facial expression recognition, classiﬁcation with parallelization algorithms, control of autonomous unmanned aerial vehicles, intelligent transport, ﬂood forecasting, classiﬁcation of medical images, renewable energy systems, intrusion detection, fault classiﬁcation and general engineering.

This book constitutes the refereed proceedings of the 10th Paciﬁc Rim International Conference on Artiﬁcial Intelligence, PRICAI 2008, held in Hanoi, Vietnam, in December 2008. The 49 revised long papers, 33 revised regular papers, and 32 poster papers presented together with 1 keynote talk and 3 invited lectures were carefully reviewed and selected from 234 submissions. The papers address all current issues of modern AI research with topics such as AI foundations, knowledge representation, know ledge acquisition and ontologies, evolutionary computation, etc. as well as various exciting and innovative applications of AI to many different areas. Particular importance is attached to the areas of machine learning and data mining, intelligent agents, language and speech processing, information retrieval and extraction.

The total body of papers presented in this volume captures research across a variety of languages and language groups, to show how particular elements of linguistic description draw on otherwise separate aspects (or ﬁelds) of linguistic investigation. As such, this volume captures a diversity of research interest from the ﬁeld of cognitive linguistics. These areas include: lexical semantics, cognitive grammar, metaphor, prototypes, pragmatics, narrative and discourse, computational and translation models; and are considered within the contexts of: language change, child language acquisition, language and culture, grammatical features and word order and gesture. Despite possible differences in philosophical approach to the role of language in cognitive tasks, these papers are similar in a fundamental way: they all share a commitment to the view that human categorization involves mental concepts that have fuzzy boundaries and are culturally and situation-based.

The four-volume set LNCS 3480-3483 constitutes the refereed proceedings of the International Conference on Computational Science and Its Applications, ICCSA 2005, held in Singapore in May 2005. The four volumes present a total of 540 papers selected from around 2700 submissions. The papers span the whole range of computational science, comprising advanced applications in virtually all sciences making use of computational techniques as well as foundations, techniques, and methodologies from computer science and mathematics, such as high performance computing and communication, networking, optimization, information systems and technologies, scientiﬁc visualization, graphics, image processing, data analysis, simulation and modelling, software systems, algorithms, security, multimedia etc.

Applying powerful Data Mining methods and M odels to leverage your Data for Actionable Results Data Mining Methods and Models provides: * The latest techniques for uncovering hidden nuggets of information * The insight into how the data mining algorithms actually work * The hands-on experience of performing data mining on large data sets Data Mining Methods and M odels: * Applies a "white box" methodology, emphasizing an understanding of the model structures underlying the software * Walks the reader through the various algorithms and provides examples of the operation of the algorithms on actual large data sets, including a detailed case study, "Marketing Response to Direct-Mail Marketing" * Tests the reader's level of understanding of the concepts and methodologies, with over 110 chapter exercises * Demonstrates the Clementine data mining software suite, WEKA open source data mining software, SPSS statistical software, and Minitab statistical software * Includes a companion Web site, www.dataminingconsultant.com, where the data sets used in the book may be downloaded, along
with a comprehensive set of data mining resources. Faculty adopters of the book have access to an array of helpful resources, including solutions to all exercises, a PowerPoint(r) presentation of each chapter, sample data mining course projects and accompanying data sets, and multiple-choice chapter quizzes. With its emphasis on learning by doing, this is an excellent textbook for students in business, computer science, and statistics, as well as a problem-solving reference for data analysts and professionals in the field. An Instructor's Manual presenting detailed solutions to all the problems in the book is available online.

IFIP/SC2000, being part of the 16th IFIP World Computer Congress (WCC2000), is being held in Beijing, China from August 21 to 25, 2000. SEC2000 is the annual conference of TCII (Information Security) of the International Federation of Information Processing. The conference focuses on the seamless integration of information security services as an integral part of the Global Information Infrastructure in the new millennium. SEC2000 is sponsored by the China Computer Federation (CCF), IFIP/TCII, and Engineering Research Centre for Information Security Technology, Chinese Academy of Sciences (ERCIST, CAS). There were 180 papers submitted for inclusion, 50 papers among them have been accepted as long papers and included in this proceeding, 81 papers have been accepted as short papers and published in another proceeding. All papers presented in this conference were reviewed blindly by a minimum of two international reviewers. The authors' affiliations of the 180 submissions and the accepted 131 papers range over 26 and 25 countries or regions, respectively. We would like to appreciate all who have submitted papers to IFIP/SEC2000, and the authors of accepted papers for their on-time preparation of camera-ready full versions. Without their contribution there would be no conference. We wish to express our gratitude to all program committee members and other reviewers for their hard work in reviewing the papers in a short time and for contributing to the conference in different ways. We would like to thank Rein Venter for his time and expertise in compiling the final version of the proceedings.

This volume contains the proceedings of the 1st International Conference on Affective Computing and Intelligent Interaction (ACII 2005) held in Beijing, China, on 22–24 October 2005. Traditionally, the machine end of human–machine interaction has been very passive, and certainly has had no means of recognizing or expressing a affective information. But without the ability to process such information, computers cannot be expected to communicate with humans in a natural way. The ability to recognize and express affect is one of the most important features of human beings. We therefore expect that computers will eventually have to have the ability to process affect and to interact with human users in ways that are similar to those in which humans interact with each other. Affective computing and intelligent interaction is a key emerging technology that focuses on the affective and emotional states by computers. Affective computing and intelligent interaction is a key emerging technology that focuses on the affective and emotional states by computers. The topic is currently a highly active research area and is receiving increasing attention. This strong interest is driven by a wide spectrum of promising applications such as virtual reality, network games, smart surveillance, perceptual interfaces, etc. Affective computing and intelligent interaction is a multidisciplinary topic, involving psychology, cognitive science, physiology and computer science. ACII 2005 provided a forum for scientists and engineers to exchange their technical results and experiences in this fast-moving and exciting field. A total of 45 oral papers and 82 poster papers included in this volume were selected from 205 contributions submitted by researchers worldwide.

The second edition of this book provides a comprehensive introduction to a consortium of technologies underlying soft computing, an evolving branch of computational intelligence, which in recent years, has turned synonymous to it. The constituent technologies discussed comprise neural network (NN), fuzzy system (FS), evolutionary algorithm (EA), and a number of hybrid systems, which include classes such as neuro-fuzzy, evolutionary-fuzzy, and neuro-evolutionary systems. The hybridization of the technologies is demonstrated on architectures such as fuzzy backpropagation network (NN-FS hybrid), genetic algorithm-based backpropagation network (NN-EA hybrid), simplified fuzzy ARTMAP (NN-FS hybrid), fuzzy associative memory (NN-FS hybrid), fuzzy logic controlled genetic algorithm (EA-FS hybrid) and evolutionary extreme learning machine (NN-EA hybrid). Every architecture has been discussed in detail through illustrative examples and applications. The algorithms have been presented in pseudo-code with a step-by-step illustration of the same in problems. The applications, demonstrative of the potential of the architectures, have been chosen from diverse disciplines of science and engineering. This book, with a wealth of information that is clearly presented and illustrated by many examples and applications, is designed for use as a text for the courses in soft computing at both the senior undergraduate and first-year postgraduate levels of computer science and engineering. It should also be of interest to researchers and technologists desirous of applying soft computing technologies to their respective fields of work.

FLINS -- an acronym for fuzzy logic and intelligent acronym technologies in nuclear science -- is a well-established international research forum for advancing the theory and applications of computational intelligence for applied research in general and nuclear science and engineering in particular. The proceedings of FLINS 2002 covers state-of-the-art research and development in computational intelligence for applied research.

Artificial intelligence (AI) is taking an increasingly important role in our society. From cars, smartphones, airplanes, consumer applications, and even medical equipment, the impact of AI is changing the world around us. The ability of machines to demonstrate advanced cognitive skills in taking decisions, learn and perceive the environment, predict certain behavior, and process written or spoken languages, among other skills, makes this discipline of paramount importance in today's world. Although AI is changing the world for the better in many applications, it also comes with its challenges. This book encompasses many applications as well as new techniques, challenges, and opportunities in this fascinating area.
Advances in Data Mining Knowledge Discovery and Applications aims to help data miners, researchers, scholars, and PhD students who wish to apply data mining techniques. The primary contribution of this book is highlighting frontier fields and implementations of the knowledge discovery and data mining. It seems to be same things are repeated again. But in general, same approach and techniques may help us in different fields and expertise areas. This book presents knowledge discovery and data mining applications in two different sections. As known that, data mining covers areas of statistics, machine learning, data management and databases, pattern recognition, artificial intelligence, and other areas. In this book, most of the areas are covered with different data mining applications. The eighteen chapters have been classified in two parts: Knowledge Discovery and Data Mining Applications.