

Intelligent Systems And Technologies Methods And Applications Studies In Computational Intelligence

"This book contains a compendium of the latest academic material on the latest breakthroughs and recent progress in intelligent systems. Including innovative studies on information retrieval, artificial intelligence, and software engineering"--

Intelligent systems are systems that, given some data, are able to learn from that data. This makes it possible for complex systems to be modeled and/or for performance to be predicted. In turn, intelligent systems functionality can be controlled through learning/training, without the need for a priori knowledge of their structure. Intelligent Systems for Machine Olfaction: Tools and Methodologies introduces new, state-of-the-art applications of intelligent systems to researchers and developers in the area of machine olfaction. Readers will benefit from in-depth analyses of fundamental theories, potential trends, and key literature in the field, making this work both a source of application examples that can be readily implemented and a practical guide for the implementation of solutions in other scenarios.

This book is based on the 9th International Conference in Methodologies and Intelligent Systems for Technology Enhanced Learning, which was hosted by the University of Salamanca and held in Ávila (Spain) from 26th to 28th June 2019. Expanding on the topics of the evidence-based TEL workshops series, it provides an open forum for discussing intelligent technologies for learning. In particular, it discusses recommendation mechanisms that enable us to tailor learning to different contexts and people, e.g., by considering their personality; and learning analytics that help augment learning opportunities, e.g., by supporting the adaptation of the learning material. In addition to technologies, it covers methods from different fields, such as educational psychology or medicine, and from diverse communities co-working with people, such as making communities and participatory design communities to help create novel TEL opportunities. Further it describes the use of methods and technologies to investigate and enhance learning for "fragile users", like children, the elderly and those with special needs. We thank the sponsors: IEEE Systems Man and Cybernetics Society Spain Section Chapter and the IEEE Spain Section (Technical Co-Sponsor), IBM, Indra, Viewnext, Global exchange, AEPIA, APPIA and AIR institute.

This book features papers from workshops at the 10th International Conference on Methodologies and Intelligent Systems for Technology Enhanced Learning, which was hosted by the University of L'Aquila (Italy) from 17th to 19th June 2020. The workshops provided participants with the opportunity to present and discuss novel research ideas on emerging topics complementing the main conference. They particularly focused on multi-disciplinary and transversal aspects such as TEL in nursing education programs, social and personal computing for web-supported learning communities, interactive environments and emerging technologies for eLearning, and TEL for future citizens.

This book comprises high-quality refereed research papers presented at The Second International Symposium on Computer Science, Digital Economy and Intelligent Systems (CSDEIS2020), held in Moscow, Russia, on December 18-20, 2020, organized jointly by Moscow State Technical University and the International Research Association of Modern Education and Computer Science. The topics discussed in the book include state-of-the-art papers in computer science and their technological applications; intelligent systems and intellectual approaches; digital economics and methodological approaches. It is an excellent source of references for researchers, graduate students, engineers, management practitioners, and undergraduate students interested in computer science and their applications in engineering and management.

State-of-the-art and novel methodologies and technologies allow researchers, designers, and

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domain experts to pursue technology-enhanced learning (TEL) solutions targeting not only cognitive processes but also motivational, personality, or emotional factors. The International Conference in Methodologies and Intelligent Systems for Technology-Enhanced Learning (MIS4TEL'21) is hosted by the University of Salamanca and was held in Salamanca (Spain) from October 6-8, 2021. The annual appointment of MIS4TEL established itself as a consolidated fertile forum where scholars and professionals from the international community, with a broad range of expertise in the TEL field, share results and compare experiences. The calls for papers of the 11th edition of the conference welcomed novel research in TEL and expands on the topics of the previous editions: It solicited work from new research fields (ranging from artificial intelligence and agent-based systems to robotics, virtual reality, Internet of things and wearable solutions, among others) concerning methods and technological opportunities, and how they serve to create novel approaches to TEL, innovative TEL solutions, and valuable TEL experiences.

The book reports on new theories and applications in the field of intelligent systems and computing. It covers computational and artificial intelligence methods, as well as advances in computer vision, current issue in big data and cloud computing, computation linguistics, cyber-physical systems as well as topics in intelligent information management. Written by active researchers, the different chapters are based on contributions presented at the workshop in intelligent systems and computing (ISC), held during CSIT 2016, September 6-9, and jointly organized by the Lviv Polytechnic National University, Ukraine, the Kharkiv National University of Radio Electronics, Ukraine, and the Technical University of Lodz, Poland, under patronage of Ministry of Education and Science of Ukraine. All in all, the book provides academics and professionals with extensive information and a timely snapshot of the field of intelligent systems, and it is expected to foster new discussions and collaborations among different groups.

This book demonstrates the success of Ambient Intelligence in providing possible solutions for the daily needs of humans. The book addresses implications of ambient intelligence in areas of domestic living, elderly care, robotics, communication, philosophy and others. The objective of this edited volume is to show that Ambient Intelligence is a boon to humanity with conceptual, philosophical, methodical and applicative understanding. The book also aims to schematically demonstrate developments in the direction of augmented sensors, embedded systems and behavioral intelligence towards Ambient Intelligent Networks or Smart Living Technology. It contains chapters in the field of Ambient Intelligent Networks, which received highly positive feedback during the review process. The book contains research work, with in-depth state of the art from augmented sensors, embedded technology and artificial intelligence along with cutting-edge research and development of technologies and applications of Ambient Intelligent Networks. This book is intended to introduce ideas, methods, technologies of the future development of humanity, Science and Technology.

This book contains the latest computational intelligence methodologies and applications. This book is a collection of selected papers presented at International Conference on Sustainable Computing and Intelligent Systems (SCIS 2021), held in Jaipur, India, during February 5-6, 2021. It includes novel and innovative work from experts, practitioners, scientists, and decision-makers from academia and industry. It covers selected papers in the area of artificial intelligence and intelligent systems, intelligent business systems, machine intelligence, computer vision, Web intelligence, big data analytics, swarm intelligence, and related topics. Providing a thorough introduction to the field of soft computing techniques, Intelligent Systems: Modeling, Optimization, and Control covers every major technique in artificial intelligence in a clear and practical style. This book highlights current research and applications, addresses issues encountered in the development of applied systems, and describes a wide range of intelligent systems techniques, including neural networks, fuzzy logic, evolutionary strategy,

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and genetic algorithms. The book demonstrates concepts through simulation examples and practical experimental results. Case studies are also presented from each field to facilitate understanding.

Intelligent systems, or artificial intelligence technologies, are playing an increasing role in areas ranging from medicine to the major manufacturing industries to financial markets. The consequences of flawed artificial intelligence systems are equally wide ranging and can be seen, for example, in the programmed trading-driven stock market crash of October 19, 1987. Intelligent Systems: Technology and Applications, Six Volume Set connects theory with proven practical applications to provide broad, multidisciplinary coverage in a single resource. In these volumes, international experts present case-study examples of successful practical techniques and solutions for diverse applications ranging from robotic systems to speech and signal processing, database management, and manufacturing.

In today's digital world, the words "smart" and intelligent" are now used to label devices, machinery, systems, and even environments. What is a "smart" system? Is "smart" synonymous to "intelligent"? If not, what does an "intelligent system" mean? Are all the smart systems intelligent? This book tries to answer these questions through summarizing existing research in various areas and providing new research findings. This book presents new areas of smart and intelligent system design. It defines smart and intelligent systems, offers a human factors approach, discusses networking applications, and combines the human element with smart and intelligent systems. This book is perfect for engineering students in data sciences, artificial intelligence, practitioners at all levels in the field of human factors and ergonomics, systems engineering, computer science, software engineering and robotics.

This book briefly covers internationally contributed chapters with artificial intelligence and applied mathematics-oriented background-details. Nowadays, the world is under attack of intelligent systems covering all fields to make them practical and meaningful for humans. In this sense, this edited book provides the most recent research on use of engineering capabilities for developing intelligent systems. The chapters are a collection from the works presented at the 2nd International Conference on Artificial Intelligence and Applied Mathematics in Engineering held within 09-10-11 October 2020 at the Antalya, Manavgat (Turkey). The target audience of the book covers scientists, experts, M.Sc. and Ph.D. students, post-docs, and anyone interested in intelligent systems and their usage in different problem domains. The book is suitable to be used as a reference work in the courses associated with artificial intelligence and applied mathematics.

The third edition of this bestseller examines the principles of artificial intelligence and their application to engineering and science, as well as techniques for developing intelligent systems to solve practical problems. Covering the full spectrum of intelligent systems techniques, it incorporates knowledge-based systems, computational intelligence, and their hybrids. Using clear and concise language, Intelligent Systems for Engineers and Scientists, Third Edition features updates and improvements throughout all chapters. It includes expanded and separated chapters on genetic algorithms and single-candidate optimization techniques, while the chapter on neural networks now covers spiking networks and a range of recurrent networks. The book also provides extended coverage of fuzzy logic, including type-2 and fuzzy control systems. Example programs using rules and uncertainty are presented in an industry-standard format, so that you can run them yourself. The first part of the book describes key techniques of artificial intelligence—including rule-based systems, Bayesian updating, certainty theory, fuzzy logic (types 1 and 2), frames, objects, agents, symbolic learning, case-based reasoning, genetic algorithms, optimization algorithms, neural networks, hybrids, and the Lisp and Prolog languages. The second part describes a wide range of practical applications in interpretation and diagnosis, design and selection, planning, and control. The author provides sufficient detail to help you develop your own intelligent systems for real applications. Whether

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you are building intelligent systems or you simply want to know more about them, this book provides you with detailed and up-to-date guidance. Check out the significantly expanded set of free web-based resources that support the book at: <http://www.adrianhopgood.com/aitoolkit/> The Industrial Electronics Handbook, Second Edition combines traditional and newer, more specialized knowledge that will help industrial electronics engineers develop practical solutions for the design and implementation of high-power applications. Embracing the broad technological scope of the field, this collection explores fundamental areas, including analog and digital circuits, electronics, electromagnetic machines, signal processing, and industrial control and communications systems. It also facilitates the use of intelligent systems—such as neural networks, fuzzy systems, and evolutionary methods—in terms of a hierarchical structure that makes factory control and supervision more efficient by addressing the needs of all production components. Enhancing its value, this fully updated collection presents research and global trends as published in the IEEE Transactions on Industrial Electronics Journal, one of the largest and most respected publications in the field. As intelligent systems continue to replace and sometimes outperform human intelligence in decision-making processes, they have made substantial contributions to the solution of very complex problems. As a result, the field of computational intelligence has branched out in several directions. For instance, artificial neural networks can learn how to classify patterns, such as images or sequences of events, and effectively model complex nonlinear systems. Simple and easy to implement, fuzzy systems can be applied to successful modeling and system control. Illustrating how these and other tools help engineers model nonlinear system behavior, determine and evaluate system parameters, and ensure overall system control, Intelligent Systems: Addresses various aspects of neural networks and fuzzy systems Focuses on system optimization, covering new techniques such as evolutionary methods, swarm, and ant colony optimizations Discusses several applications that deal with methods of computational intelligence Other volumes in the set: Fundamentals of Industrial Electronics Power Electronics and Motor Drives Control and Mechatronics Industrial Communication Systems

This book constitutes the thoroughly refereed post-conference proceedings of the third International Symposium on Intelligent Systems Technologies and Applications (ISTA'17), September 13-16, 2017, Manipal, Karnataka, India. All submissions were evaluated on the basis of their significance, novelty, and technical quality. This proceedings contains 34 papers selected for presentation at the Symposium.

This book discusses intelligent systems and methods to prevent further spread of COVID-19, including artificial intelligence, machine learning, computer vision, signal processing, pattern recognition, and robotics. It not only explores detection/screening of COVID-19 positive cases using one type of data, such as radiological imaging data, but also examines how data analytics-based tools can help predict/project future pandemics. In addition, it highlights various challenges and opportunities, like social distancing, and addresses issues such as data collection, privacy, and security, which affect the robustness of AI-driven tools. Also investigating data-analytics-based tools for projections using time series data, pattern analysis tools for unusual pattern discovery (anomaly detection) in image data, as well as AI-enabled robotics and its possible uses, the book will appeal to a broad readership, including academics, researchers and industry professionals.

This book reports on new theories and applications in the field of intelligent systems and computing. It covers computational and artificial intelligence methods, as well as advances in computer vision, current issues in big data and cloud computing, computation linguistics, and cyber-physical systems. It also reports on data mining and knowledge extraction technologies, as well as central issues in intelligent information management. Written by active researchers, the respective chapters are based on papers presented at the International Conference on Computer Science and Information Technologies (CSIT 2018), held on September 11–14,

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2018, in Lviv, Ukraine, and jointly organized by the Lviv Polytechnic National University, Ukraine, the Kharkiv National University of Radio Electronics, Ukraine, and the Technical University of Lodz, Poland, under patronage of Ministry of Education and Science of Ukraine. Given its breadth of coverage, the book provides academics and professionals with extensive information and a timely snapshot of the field of intelligent systems, and is sure to foster new discussions and collaborations among different groups.

Prostheses, assistive systems, and rehabilitation systems are essential to increasing the quality of life for people with disabilities. Research and development over the last decade has resulted in enormous advances toward that goal—none more so than the development of intelligent systems and technologies. In the first truly comprehensive book addressing intelligent technologies for the disabled, top experts from around the world provide an overview of this dynamic, rapidly evolving field. They present state-of-the-art information on the latest, innovative technologies and their applications in various systems designed to better the lives of the disabled. From the underlying principles to the design, practical applications, and assessment of results, *Intelligent Systems and Technologies in Rehabilitation Engineering* offers broad, pragmatic coverage of the field. It incorporates the most recent advances in sensory and limb prostheses, myoelectric control systems, circulatory systems, assistive technologies, and applications of virtual reality. Rapid progress demands a concerted effort to keep up with the latest developments so they can begin to serve their purpose and improve the lives of the disabled. By incorporating details of the latest and most important advances into one volume, *Intelligent Systems and Technologies in Rehabilitation Engineering* makes that undertaking essentially effortless.

Intelligent system is an advanced machine that can perceive, learn, and solve the problems with a great accuracy. Technologies with intelligent system are currently available in the market and used in real-world applications, i.e., self-driving cars, Siri, Alexa, Facebook, and so on. To exceed human cognitive capabilities, the important keys rely on the development of sensors and algorithms. Therefore, the insight into artificial intelligence (AI) methods becomes a fundamental building block for design and construction of intelligent system with particular applications. This book aims to describe the AI systems ranging from the basic knowledge, i.e., algorithm and mathematical models of AI techniques, fundamentals of machine learning, genetic algorithm, and fuzzy logic, to the current state-of-the-art applications, such as smart road and biomedical applications.

Two significant areas of study that are continually impacting various dimensions in computer science are computer vision and imaging. These technologies are rapidly enhancing how information and data is being exchanged and opening numerous avenues of advancement within areas such as multimedia and intelligent systems. The high level of applicability in computer vision and image processing requires significant research on the specific utilizations of these technologies. *Advancements in Computer Vision Applications in Intelligent Systems and Multimedia Technologies* is an essential reference source that discusses innovative developments in computational imaging for solving real-life issues and problems and addresses their execution in various disciplines. Featuring research on topics such as image modeling, remote sensing, and support vector machines, this book is ideally designed for IT specialists, scientists, researchers, engineers, developers, practitioners, industry professionals, academicians, and students seeking coverage on the latest developments and innovations in computer vision applications within the realm of multimedia systems.

"This book provides knowledge and insights on present and future AI applications in Operations Management presenting tools and decisions in terms of theoretical and empirical models, methods and proposed applications"--Provided by publisher.

This book offers to readers a selection of refereed papers that were presented at the Sixth International Symposium on Intelligent Systems Technologies and Applications (ISTA'20). All

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submissions were evaluated on the basis of their significance, novelty, and technical quality. This book consists of 28 papers (19 regular and 9 short papers) that were virtually presented at the Symposium. The papers cover different areas such as big data analytics, security and privacy, Internet of things, machine and deep learning, health informatics, visual computing, signal processing, and natural language processing. The book is directed to the researchers and scientists engaged in various fields of intelligent systems.

Data science is an emerging field and innovations in it need to be explored for the success of society 5.0. This book not only focuses on the practical applications of data science to achieve computational excellence, but also digs deep into the issues and implications of intelligent systems. This book highlights innovations in data science to achieve computational excellence that can optimize performance of smart applications. The book focuses on methodologies, framework, design issues, tools, architectures, and technologies necessary to develop and understand data science and its emerging applications in the present era. This book will be useful for the research community, start-up entrepreneurs, academicians, and data centered industries and professors that are interested in exploring innovations in varied applications and areas of data science.

From theory to techniques, the first all-in-one resource for EIS There is a clear demand in advanced process industries, defense, and Internet and communication (VoIP) applications for intelligent yet adaptive/evolving systems. Evolving Intelligent Systems is the first self-contained volume that covers this newly established concept in its entirety, from a systematic methodology to case studies to industrial applications. Featuring chapters written by leading world experts, it addresses the progress, trends, and major achievements in this emerging research field, with a strong emphasis on the balance between novel theoretical results and solutions and practical real-life applications. Explains the following fundamental approaches for developing evolving intelligent systems (EIS): the Hierarchical Prioritized Structure the Participatory Learning Paradigm the Evolving Takagi-Sugeno fuzzy systems (eTS+) the evolving clustering algorithm that stems from the well-known Gustafson-Kessel offline clustering algorithm Emphasizes the importance and increased interest in online processing of data streams Outlines the general strategy of using the fuzzy dynamic clustering as a foundation for evolvable information granulation Presents a methodology for developing robust and interpretable evolving fuzzy rule-based systems Introduces an integrated approach to incremental (real-time) feature extraction and classification Proposes a study on the stability of evolving neuro-fuzzy recurrent networks Details methodologies for evolving clustering and classification Reveals different applications of EIS to address real problems in areas of: evolving inferential sensors in chemical and petrochemical industry learning and recognition in robotics Features downloadable software resources Evolving Intelligent Systems is the one-stop reference guide for both theoretical and practical issues for computer scientists, engineers, researchers, applied mathematicians, machine learning and data mining experts, graduate students, and professionals.

The Intelligent Systems Series comprises titles that present state of the art knowledge and the latest advances in intelligent systems. Its scope includes

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theoretical studies, design methods, and real-world implementations and applications. Traditionally, Intelligence and Security Informatics (ISI) research and applications have focused on information sharing and data mining, social network analysis, infrastructure protection and emergency responses for security informatics. With the continuous advance of IT technologies and the increasing sophistication of national and international security, in recent years, new directions in ISI research and applications have emerged to address complicated problems with advanced technologies. This book provides a comprehensive and interdisciplinary account of the new advances in ISI area along three fundamental dimensions: methodological issues in security informatics; new technological developments to support security-related modeling, detection, analysis and prediction; and applications and integration in interdisciplinary socio-cultural fields. Identifies emerging directions in ISI research and applications that address the research challenges with advanced technologies Provides an integrated account of the new advances in ISI field in three core aspects: methodology, technological developments and applications Benefits researchers as well as security professionals who are involved in cutting-edge research and applications in security informatics and related fields

Combining different perspectives from materials science, engineering, and computer science, this reference provides a unified view of the various aspects necessary for the successful realization of intelligent systems. The editors and authors are from academia and research institutions with close ties to industry, and are thus able to offer first-hand information here. They adopt a unique, three-tiered approach such that readers can gain basic, intermediate, and advanced topical knowledge. The technology section of the book is divided into chapters covering the basics of sensor integration in materials, the challenges associated with this approach, data processing, evaluation, and validation, as well as methods for achieving an autonomous energy supply. The applications part then goes on to showcase typical scenarios where material-integrated intelligent systems are already in use, such as for structural health monitoring and smart textiles.

Technology has vastly advanced over the years and created new developments and uses across various industries. By applying these new approaches in the business world, process management and organization can be significantly improved. Maximizing Business Performance and Efficiency Through Intelligent Systems is an essential reference publication for the latest research on methods to use artificial intelligence in organizational settings. Featuring coverage on a broad range of topics such as information retrieval, fuzzy systems, and neural networks, this book is ideally designed for students, professionals, and researchers seeking research on emerging advances in business technology applications.

The fields of computer vision and image processing are constantly evolving as new research and applications in these areas emerge. Staying abreast of the

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most up-to-date developments in this field is necessary in order to promote further research and apply these developments in real-world settings. Computer Vision and Image Processing in Intelligent Systems and Multimedia Technologies features timely and informative research on the design and development of computer vision and image processing applications in intelligent agents as well as in multimedia technologies. Covering a diverse set of research in these areas, this publication is ideally designed for use by academicians, technology professionals, students, and researchers interested in uncovering the latest innovations in the field.

This book presents real-world problems and pioneering research in computational statistics, mathematical modeling, artificial intelligence and software engineering in the context of intelligent systems. It gathers the peer-reviewed proceedings of the 2nd Computational Methods in Systems and Software 2018 (CoMeSySo 2018), a conference that broke down traditional barriers by being held online. The goal of the event was to provide an international forum for discussing the latest high-quality research results. Intelligent systems and technologies are increasing finding their ways in our daily lives. This book presents a sample of recent research results from key researchers. The contributions include: Introduction to intelligent systems; A Fuzzy Density Analysis of Subgroups by means of DNA Oligonucleotides; Evolution of Cooperating Classification Rules with an Archiving Strategy to Underpin Collaboration; Designing Agents with Dynamic Capability; Localized versus Locality Preserving Representation Methods in Face Recognition Tasks; Invariance Properties of Recurrent Neural Networks; Solving Bioinformatics Problems by Soft Computing Techniques; Transforming an Interactive Expert Code into a Statefull Service and a Multicoreenabled System; Ro-WordNet with Paradigmatic Morphology and Subjectivity Mark-up; Special Cases of Relative Object Qualification using the AMONG Operator; Effective Speaker Tracking Strategies for Multi-party Human-Computer Dialogue; The Fuzzy Interpolative Control for Passive Greenhouses; GPS safety system for airplanes; 3D Collaborative Interfaces for E-learning; Open Projects in Contemporary E-Learning; Software Platform for Archaeological Patrimony Inventory and Management. The book is directed to the graduate students, researchers, professors and the practitioner of intelligent systems.

This volume helps to fill the gap between data analytics, image processing, and soft computing practices. Soft computing methods are used to focus on data analytics and image processing to develop good intelligent systems. To this end, readers of this volume will find quality research that presents the current trends, advanced methods, and hybridized techniques relating to data analytics and intelligent systems. The book also features case studies related to medical diagnosis with the use of image processing and soft computing algorithms in particular models. Providing extensive coverage of biometric systems, soft computing, image processing, artificial intelligence, and data analytics, the

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chapter authors discuss the latest research issues, present solutions to research problems, and look at comparative analysis with earlier results. Topics include some of the most important challenges and discoveries in intelligent systems today, such as computer vision concepts and image identification, data analysis and computational paradigms, deep learning techniques, face and speaker recognition systems, and more.

This book, which gathers the outcomes of the 9th International Conference on Methodologies and Intelligent Systems for Technology Enhanced Learning and its related workshops, expands on the topics of the evidence-based TEL workshop series in order to provide an open forum for discussing intelligent systems for TEL, their roots in novel learning theories, empirical methodologies for their design and evaluation, stand-alone solutions, and web-based ones. The Conference was hosted by the University of Salamanca and was held in Ávila (Spain) from the 26th to the 28th of June 2019. Its goal was to bring together researchers and developers from industry, education, and the academic world to report on the latest scientific research, technical advances, and methodologies. We wish to thank the sponsors: IEEE Systems Man and Cybernetics Society, Spain Section Chapter and the IEEE Spain Section (Technical Co-Sponsor), IBM, Indra, Viewnext, Global Exchange, AEPIA, APPIA and AIR institute. The field of agent and multi-agent systems is concerned with the development and evaluation of sophisticated, AI-based, problem solving and control architectures for both single and multi-agent systems. This book presents the proceedings of the 7th KES Conference on Agent and Multi-agent Systems – Technologies and Applications (KES-AMSTA 2013), held in Hue City, Vietnam, in May 2013. The KES-AMSTA 2013 conference provides an internationally respected forum for scientific research in the technologies and applications of agent and multi-agent systems. In all, 44 papers were selected for oral presentation and publication in this volume. Special attention is paid to the feature topics of intelligent technologies and applications in the area of e-health, social networking, self-organizing systems, economics and trust management. Other topics covered include: agent oriented software engineering; beliefs engineering; desires and intentions representation; agent cooperation, coordination, negotiation, organization and communication; distributed problem-solving; specification of agent communication languages; formalization of ontologies; and conversational agents. The book highlights new trends and challenges in agent and multi-agent research, and will be of interest to the research community working in the fields of artificial intelligence, collective computational intelligence, robotics, dialogue systems and, in particular, agent and multi-agent systems, technologies and applications.

Recent developments in soft-computation techniques have paved the way for handling huge volumes of data, thereby bringing about significant changes and technological advancements. This book presents the proceedings of the 3rd International Conference on Emerging Current Trends in Computing & Expert Technology (COMET 2020), held at Panimalar Engineering College, Chennai, India on 6 and 7 March 2020. The aim of the book is to disseminate cutting-edge developments taking place in the technological fields of intelligent systems and computer technology, thereby assisting researchers and practitioners from both institutions and industry to upgrade their knowledge of the latest developments and emerging areas of study. It focuses on technological innovations and trendsetting initiatives to improve business values, optimize business

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processes and enable inclusive growth for corporates, industries and education alike. The book is divided into two sections; 'Next Generation Soft Computing' is a platform for scientists, researchers, practitioners and academics to present and discuss their most recent innovations, trends and concerns, as well as the practical challenges encountered in the field. The second section, 'Evolutionary Networking and Communications' focuses on various aspects of 5G communications systems and networking, including cloud and virtualization solutions, management technologies, and vertical application areas. It brings together the latest technologies from all over the world, and also provides an excellent international forum for the sharing of knowledge and results from theory, methodology and applications in networking and communications. The book will be of interest to all those working in the fields of intelligent systems and computer technology.

Dedicated to the consideration of advanced I.T. technologies and their financial applications, this volume contains contributions from an international group of system developers and managers from academia, the financial industry and their suppliers: all actively involved in the development and practical introduction of these technologies into banking and financial organisations. Concentrating on real experience and present needs, rather than theoretical possibilities or limited prototype applications, it is hoped the publication will give a better insight into advanced I.T. practice and potential as it currently exists and motivate today's developers and researchers. In addition to the discussion of a wide range of technologies and approaches to ensure adaptivity, three other major topics are explored in the book: neural networks, classical software engineering techniques and rule-based systems.

From artificial neural net / game theory / semantic applications, to modeling tools, smart manufacturing systems, and data science research – this book offers a broad overview of modern intelligent methods and applications of machine learning, evolutionary computation, Industry 4.0 technologies, and autonomous agents leading to the Internet of Things and potentially a new technological revolution. Though chiefly intended for IT professionals, it will also help a broad range of users of future emerging technologies adapt to the new smart / intelligent wave. In separate chapters, the book highlights fourteen successful examples of recent advances in the rapidly evolving area of intelligent systems. Covering major European projects paving the way to a serious smart / intelligent collaboration, the chapters explore e.g. cyber-security issues, 3D digitization, aerial robots, and SMEs that have introduced cyber-physical production systems. Taken together, they offer unique insights into contemporary artificial intelligence and its potential for innovation.

"This volume offers intriguing applications, reviews and additions to the methodology of intelligent computing, presenting the emerging trends of state-of-the-art intelligent systems and their practical applications"--Provided by publisher.

This book reports on new theories and applications in the field of intelligent systems and computing. It covers computational and artificial intelligence methods, as well as advances in computer vision, current issues in big data and cloud computing, computation linguistics, and cyber-physical systems. It also reports on data mining and knowledge extraction technologies, as well as central issues in intelligent information management. Written by active researchers, the respective chapters are based on papers presented at the International Conference on Computer Science and

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Information Technologies (CSIT 2017), held on September 5–8, 2017, in Lviv, Ukraine; and at two workshops accompanying the conference: one on inductive modeling, jointly organized by the Lviv Polytechnic National University and the National Academy of Science of Ukraine; and another on project management, which was jointly organized by the Lviv Polytechnic National University, the International Project Management Association, the Ukrainian Project Management Association, the Kazakhstan Project Management Association, and Nazarbayev University. Given its breadth of coverage, the book provides academics and professionals with extensive information and a timely snapshot of the field of intelligent systems, and is sure to foster new discussions and collaborations among different groups.

The deployment of intelligent systems to tackle complex processes is now commonplace in many fields from medicine and agriculture to industry and tourism. This book presents scientific contributions from the 1st International Conference on Applications of Intelligent Systems (APPIS 2018) held at the Museo Elder in Las Palmas de Gran Canaria, Spain, from 10 to 12 January 2018. The aim of APPIS 2018 was to bring together scientists working on the development of intelligent computer systems and methods for machine learning, artificial intelligence, pattern recognition, and related techniques with an emphasis on their application to various problems. The 34 peer-reviewed papers included here cover an extraordinarily wide variety of topics – everything from semi-supervised learning to matching electro-chemical sensor information with human odor perception – but what they all have in common is the design and application of intelligent systems and their role in tackling diverse and complex challenges. The book will be of particular interest to all those involved in the development and application of intelligent systems.

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