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Artificial Neural Networks for Engineering Applications presents current trends for the solution of complex engineering problems that cannot be solved through conventional methods. The proposed methodologies can be applied to modeling, pattern recognition, classification, forecasting, estimation, and more. Readers will find different methodologies to solve various problems, including complex nonlinear systems, cellular computational networks, waste water treatment, attack detection on cyber-physical systems, control of UAVs, biomechanical and biomedical systems, time series forecasting, biofuels, and more. Besides the real-time implementations, the book contains all the theory required to use the proposed methodologies for different applications. Presents the current trends for the solution of complex engineering problems that cannot be solved through conventional methods Includes real-life scenarios where a wide range of artificial neural network architectures can be used to solve the problems encountered in engineering Contains all the theory required to use the proposed methodologies for different applications

Lattice theory extends into virtually every branch of mathematics, ranging from measure theory and convex geometry to probability theory and topology. A more recent development has been the rapid escalation of employing lattice theory for various applications outside the domain of pure mathematics. These applications range from electronic communication theory and gate array devices that implement Boolean logic to artificial intelligence and computer science in general. Introduction to Lattice Algebra: With Applications in AI, Pattern Recognition, Image Analysis, and Biomimetic Neural Networks lays emphasis on two subjects, the first being lattice algebra and the second the practical applications of that algebra. This textbook is intended to be used for a special topics course in artificial intelligence with a focus on pattern recognition, multispectral image analysis, and biomimetic artificial neural networks. The book is self-contained and – depending on the student's major – can be used for a senior undergraduate level or first-year graduate level course. The book is also an ideal self-study guide for researchers and professionals in the above-mentioned disciplines. Features Filled with instructive examples and exercises to help build understanding Suitable for researchers, professionals and students, both in mathematics and computer science Every chapter consists of exercises with solution provided online at www.Routledge.com/9780367720292

A step-by-step introduction to modeling, training, and forecasting using wavelet networks Wavelet Neural Networks: With Applications in Financial Engineering, Chaos, and Classification presents the statistical model identification framework

that is needed to successfully apply wavelet networks as well as extensive comparisons of alternative methods. Providing a concise and rigorous treatment for constructing optimal wavelet networks, the book links mathematical aspects of wavelet network construction to statistical modeling and forecasting applications in areas such as finance, chaos, and classification. The authors ensure that readers obtain a complete understanding of model identification by providing in-depth coverage of both model selection and variable significance testing. Featuring an accessible approach with introductory coverage of the basic principles of wavelet analysis, *Wavelet Neural Networks: With Applications in Financial Engineering, Chaos, and Classification* also includes:

- Methods that can be easily implemented or adapted by researchers, academics, and professionals in identification and modeling for complex nonlinear systems and artificial intelligence
- Multiple examples and thoroughly explained procedures with numerous applications ranging from financial modeling and financial engineering, time series prediction and construction of confidence and prediction intervals, and classification and chaotic time series prediction
- An extensive introduction to neural networks that begins with regression models and builds to more complex frameworks
- Coverage of both the variable selection algorithm and the model selection algorithm for wavelet networks in addition to methods for constructing confidence and prediction intervals

Ideal as a textbook for MBA and graduate-level courses in applied neural network modeling, artificial intelligence, advanced data analysis, time series, and forecasting in financial engineering, the book is also useful as a supplement for courses in informatics, identification and modeling for complex nonlinear systems, and computational finance. In addition, the book serves as a valuable reference for researchers and practitioners in the fields of mathematical modeling, engineering, artificial intelligence, decision science, neural networks, and finance and economics.

Neural Network Parallel Computing is the first book available to the professional market on neural network computing for optimization problems. This introductory book is not only for the novice reader, but for experts in a variety of areas including parallel computing, neural network computing, computer science, communications, graph theory, computer aided design for VLSI circuits, molecular biology, management science, and operations research. The goal of the book is to facilitate an understanding as to the uses of neural network models in real-world applications. *Neural Network Parallel Computing* presents a major breakthrough in science and a variety of engineering fields. The computational power of neural network computing is demonstrated by solving numerous problems such as N-queen, crossbar switch scheduling, four-coloring and k-colorability, graph planarization and channel routing, RNA secondary structure prediction, knight's tour, spare allocation, sorting and searching, and tiling. *Neural Network Parallel Computing* is an excellent reference for researchers in all areas covered by the book. Furthermore, the text may be used in a senior or graduate level course on the topic.

"This book offers an outlook of the most recent works at the field of the Artificial Neural Networks (ANN), including theoretical developments and applications of systems using intelligent characteristics for adaptability"--Provided by publisher.

"Applications of Neural Networks in High Assurance Systems" is the first book directly addressing a key part of neural network technology: methods used to pass the tough verification and validation (V&V) standards required in many safety-critical applications. The book presents what kinds of evaluation methods have been developed across many sectors, and how to pass the tests. A new adaptive structure of V&V is developed in this book, different from the simple six sigma methods usually used for large-scale systems and different from the theorem-based approach used for simplified component subsystems.

Artificial neural networks (ANN) can provide new insight into the study of composite materials and can normally be combined with other artificial intelligence tools such as expert system, genetic algorithm, and fuzzy logic. Because research on this field is very new, there is only a limited amount of published literature on the subject. Compiling information from diverse sources, Composite Materials Technology: Neural Network Applications fills the void in knowledge of these important networks, covering composite mechanics, materials characterization, product design, and other important aspects of polymer matrix composites. Light weight, corrosion resistance, good stiffness and strength properties, and part consolidation are just some of the reasons that composites are useful in areas including civil engineering and structure, chemical processing, management, agriculture, space study, and manufacturing. ANN has already been used to carry out design prediction, mechanical property prediction, and selection processes in the evolution of composites, but although it has already been used with great success in various branches of scientific and technological research, it is still in the nascent stage of its development.

Featuring contributions from leading researchers throughout the world, this book is divided into four parts, starting with an introduction to neural networks and a review of existing literature on the subject. The text then covers structural health monitoring and damage detection in composites, addresses mechanical properties, and discusses design, analysis, and materials selection. Training, testing, and validation of experimental data were carried out to optimize the results presented in the book. This book will be an important aid to researchers as they work on the future implementation of ANN in industries such as aerospace, automotive, marine, sporting goods, furniture, and electronics and communication.

This book constitutes the refereed proceedings of the 19th International Conference on Engineering Applications of Neural Networks, EANN 2018, held in Bristol, UK, in September 2018. The 16 revised full papers and 5 revised short papers presented were carefully reviewed and selected from 39 submissions. The papers are organized in topical sections on activity recognition, deep learning, extreme learning machine, machine learning applications, predictive

models, fuzzy and recommender systems, recurrent neural networks, spiking neural networks.

This book shows how neural networks are applied to computational mechanics. Part I presents the fundamentals of neural networks and other machine learning methods in computational mechanics. Part II highlights the applications of neural networks to a variety of problems of computational mechanics. The final chapter gives perspectives to the applications of the deep learning to computational mechanics.

This book constitutes the refereed proceedings of the 19th International Conference on Engineering Applications of Neural Networks, EANN 2019, held in Xersonisos, Crete, Greece, in May 2019. The 35 revised full papers and 5 revised short papers presented were carefully reviewed and selected from 72 submissions. The papers are organized in topical sections on AI in energy management - industrial applications; biomedical - bioinformatics modeling; classification - learning; deep learning; deep learning - convolutional ANN; fuzzy - vulnerability - navigation modeling; machine learning modeling - optimization; ML - DL financial modeling; security - anomaly detection; 1st PEINT workshop. Neural networks have received a great deal of attention among scientists and engineers. In chemical engineering, neural computing has moved from pioneering projects toward mainstream industrial applications. This book introduces the fundamental principles of neural computing, and is the first to focus on its practical applications in bioprocessing and chemical engineering. Examples, problems, and 10 detailed case studies demonstrate how to develop, train, and apply neural networks. A disk containing input data files for all illustrative examples, case studies, and practice problems provides the opportunity for hands-on experience. An important goal of the book is to help the student or practitioner learn and implement neural networks quickly and inexpensively using commercially available, PC-based software tools. Detailed network specifications and training procedures are included for all neural network examples discussed in the book. Each chapter contains an introduction, chapter summary, references to further reading, practice problems, and a section on nomenclature Includes a PC-compatible disk containing input data files for examples, case studies, and practice problems Presents 10 detailed case studies Contains an extensive glossary, explaining terminology used in neural network applications in science and engineering Provides examples, problems, and ten detailed case studies of neural computing applications, including: Process fault-diagnosis of a chemical reactor Leonard Kramer fault-classification problem Process fault-diagnosis for an unsteady-state continuous stirred-tank reactor system Classification of protein secondary-structure categories Quantitative prediction and regression analysis of complex chemical kinetics Software-based sensors for quantitative predictions of product compositions from fluorescent spectra in bioprocessing Quality control and optimization of an autoclave curing process for manufacturing composite materials Predictive modeling of an

experimental batch fermentation process Supervisory control of the Tennessee Eastman plantwide control problem Predictive modeling and optimal design of extractive bioseparation in aqueous two-phase systems

This book constitutes the refereed proceedings of the 18th International Conference on Engineering Applications of Neural Networks, EANN 2017, held in Athens, Greece, in August 2017. The 40 revised full papers and 5 revised short papers presented were carefully reviewed and selected from 83 submissions. The papers cover the topics of deep learning, convolutional neural networks, image processing, pattern recognition, recommendation systems, machine learning, and applications of Artificial Neural Networks (ANN) applications in engineering, 5G telecommunication networks, and audio signal processing. The volume also includes papers presented at the 6th Mining Humanistic Data Workshop (MHDW 2017) and the 2nd Workshop on 5G-Putting Intelligence to the Network Edge (5G-PINE).

State of the Art in Neural Networks and Their Applications presents the latest advances in artificial neural networks and their applications across a wide range of clinical diagnoses. Advances in the role of machine learning, artificial intelligence, deep learning, cognitive image processing and suitable data analytics useful for clinical diagnosis and research applications are covered, including relevant case studies. The application of Neural Network, Artificial Intelligence, and Machine Learning methods in biomedical image analysis have resulted in the development of computer-aided diagnostic (CAD) systems that aim towards the automatic early detection of several severe diseases. State of the Art in Neural Networks and Their Applications is presented in two volumes. Volume 1 covers the state-of-the-art deep learning approaches for the detection of renal, retinal, breast, skin, and dental abnormalities and more. Includes applications of neural networks, AI, machine learning, and deep learning techniques to a variety of imaging technologies Provides in-depth technical coverage of computer-aided diagnosis (CAD), with coverage of computer-aided classification, Unified Deep Learning Frameworks, mammography, fundus imaging, optical coherence tomography, cryo-electron tomography, 3D MRI, CT, and more. Covers deep learning for several medical conditions including renal, retinal, breast, skin, and dental abnormalities, Medical Image Analysis, as well as detection, segmentation, and classification via AI.

"This book introduces and explains Higher Order Neural Networks (HONNs) to people working in the fields of computer science and computer engineering, and how to use HONNS in these areas"--Provided by publisher.

In today's modernized market, various disciplines continue to search for universally functional technologies that improve upon traditional processes. Artificial neural networks are a set of statistical modeling tools that are capable of processing nonlinear data with strong accuracy. Due to their complexity, utilizing their potential was previously seen as a challenge. However, with the development of artificial intelligence, this technology has proven to be an effective and efficient problem-solving method.

Artificial Neural Network Applications in Business and Engineering is an essential reference source that illustrates recent advancements of artificial neural networks in various professional fields, accompanied by specific case studies and practical examples. Featuring research on topics such as training algorithms, transportation, and computer security, this book is ideally designed for researchers, students, developers, managers, engineers, academicians, industrialists, policymakers, and educators seeking coverage on modern trends in artificial neural networks and their real-world implementations.

The two volumes set, CCIS 383 and 384, constitutes the refereed proceedings of the 14th International Conference on Engineering Applications of Neural Networks, EANN 2013, held on Halkidiki, Greece, in September 2013. The 91 revised full papers presented were carefully reviewed and selected from numerous submissions. The papers describe the applications of artificial neural networks and other soft computing approaches to various fields such as pattern recognition-predictors, soft computing applications, medical applications of AI, fuzzy inference, evolutionary algorithms, classification, learning and data mining, control techniques-aspects of AI evolution, image and video analysis, classification, pattern recognition, social media and community based governance, medical applications of AI-bioinformatics and learning. This book constitutes the refereed proceedings of the 13th International Conference on Engineering Applications of Neural Networks, EANN 2012, held in London, UK, in September 2012. The 49 revised full papers presented were carefully reviewed and selected from numerous submissions. The papers describe the applications of neural networks and other computational intelligence approaches to intelligent transport, environmental engineering, computer security, civil engineering, financial forecasting, virtual learning environments, language interpretation, bioinformatics and general engineering.

The aim of this book is to handle different application problems of science and engineering using expert Artificial Neural Network (ANN). As such, the book starts with basics of ANN along with different mathematical preliminaries with respect to algebraic equations. Then it addresses ANN based methods for solving different algebraic equations viz. polynomial equations, diophantine equations, transcendental equations, system of linear and nonlinear equations, eigenvalue problems etc. which are the basic equations to handle the application problems mentioned in the content of the book. Although there exist various methods to handle these problems, but sometimes those may be problem dependent and may fail to give a converge solution with particular discretization. Accordingly, ANN based methods have been addressed here to solve these problems. Detail ANN architecture with step by step procedure and algorithm have been included. Different example problems are solved with respect to various application and mathematical problems. Convergence plots and/or convergence tables of the solutions are depicted to show the efficacy of these methods. It is worth mentioning that various application problems viz. Bakery problem, Power electronics applications, Pole placement, Electrical Network Analysis, Structural engineering problem etc. have been solved using the ANN based methods.

Provides an up-to-date integration of expert systems with fuzzy logic and neural networks. Includes coverage of simulation models not present in other books. Presents cases and examples taken from the authors' experience in research and applying the

technology to real-world situations.

This book contains the proceedings of the 22nd EANN "Engineering Applications of Neural Networks" 2021 that comprise of research papers on both theoretical foundations and cutting-edge applications of artificial intelligence. Based on the discussed research areas, emphasis is given in advances of machine learning (ML) focusing on the following algorithms-approaches: Augmented ML, autoencoders, adversarial neural networks, blockchain-adaptive methods, convolutional neural networks, deep learning, ensemble methods, learning-federated learning, neural networks, recurrent -- long short-term memory. The application domains are related to: Anomaly detection, bio-medical AI, cyber-security, data fusion, e-learning, emotion recognition, environment, hyperspectral imaging, fraud detection, image analysis, inverse kinematics, machine vision, natural language, recommendation systems, robotics, sentiment analysis, simulation, stock market prediction.

In this book, highly qualified multidisciplinary scientists grasp their recent researches motivated by the importance of artificial neural networks. It addresses advanced applications and innovative case studies for the next-generation optical networks based on modulation recognition using artificial neural networks, hardware ANN for gait generation of multi-legged robots, production of high-resolution soil property ANN maps, ANN and dynamic factor models to combine forecasts, ANN parameter recognition of engineering constants in Civil Engineering, ANN electricity consumption and generation forecasting, ANN for advanced process control, ANN breast cancer detection, ANN applications in biofuels, ANN modeling for manufacturing process optimization, spectral interference correction using a large-size spectrometer and ANN-based deep learning, solar radiation ANN prediction using NARX model, and ANN data assimilation for an atmospheric general circulation model.

Introducing a wide variety of network types, including Kohonen nets, n-tuple nets and radial basis function networks as well as the more useful multilayer perception back-propagation networks, this book aims to give a detailed appreciation of the use of neural nets in these applications.

Accurate, fast, and reliable fault classification techniques are an important operational requirement in modern-day power transmission systems. Application of Signal Processing Tools and Neural Network in Diagnosis of Power System Faults examines power system faults and conventional techniques of fault analysis. The authors provide insight into artificial neural networks and their applications, with illustrations, for identifying power system faults. Wavelet transform and its application are discussed as well as an elaborate method of Stockwell transform. The authors also employ probabilistic neural networks (PNN) and back propagation neural networks (BPNN) to identify the different types of faults and determine their corresponding locations, respectively. Both PNN and BPNN are presented in detail, and their applications are illustrated through simple programming in MATLAB®. Furthermore, their applications in fault diagnosis are discussed through multiple case studies. FEATURES Explores methods of fault identification through programming and simulation in MATLAB® Examines signal processing tools and their applications with examples Provides knowledge of artificial neural networks and their application with illustrations Uses PNN and BPNN to identify the different types of faults and obtain their corresponding locations Discusses the programming of signal processing using wavelet transform and

Stockwell transform This book is designed for engineering students and for practitioners. Readers will find methods of programming and simulation of any network in MATLAB® as well as ways to extract features from a signal waveform by using a suitable signal processing toolbox and by application of artificial neural networks. The idea of simulating the brain was the goal of many pioneering works in Artificial Intelligence. The brain has been seen as a neural network, or a set of nodes, or neurons, connected by communication lines. Currently, there has been increasing interest in the use of neural network models. This book contains chapters on basic concepts of artificial neural networks, recent connectionist architectures and several successful applications in various fields of knowledge, from assisted speech therapy to remote sensing of hydrological parameters, from fabric defect classification to application in civil engineering. This is a current book on Artificial Neural Networks and Applications, bringing recent advances in the area to the reader interested in this always-evolving machine learning technique.

This book is a part of the Proceedings of the Seventh International Symposium on Neural Networks (ISNN 2010), held on June 6-9, 2010 in Shanghai, China. Over the past few years, ISNN has matured into a well-established premier international symposium on neural networks and related fields, with a successful sequence of ISNN series in Dalian (2004), Chongqing (2005), Chengdu (2006), Nanjing (2007), Beijing (2008), and Wuhan (2009). Following the tradition of ISNN series, ISNN 2010 provided a high-level international forum for scientists, engineers, and educators to present the state-of-the-art research in neural networks and related fields, and also discuss the major opportunities and challenges of future neural network research. Over the past decades, the neural network community has witnessed significant breakthroughs and developments from all aspects of neural network research, including theoretical foundations, architectures, and network organizations, modeling and simulation, empirical studies, as well as a wide range of applications across different domains. The recent developments of science and technology, including neuroscience, computer science, cognitive science, nano-technologies and engineering design, among others, has provided significant new understandings and technological solutions to move the neural network research toward the development of complex, large scale, and networked brain-like intelligent systems. This long-term goals can only be achieved with the continuous efforts from the community to seriously investigate various issues on neural networks and related topics.

This book is a follow-up to the IChemE symposium on OC Neural Networks and Other Learning TechnologiesOCO, held at Imperial College, UK, in May 1999. The interest shown by the participants, especially those from the industry, has been instrumental in producing the book. The papers have been written by contributors of the symposium and experts in this field from around the world. They present all the important aspects of neural network utilisation as well as show the versatility of neural networks in various aspects of process engineering problems OCo modelling, estimation, control, optimisation and industrial applications. Contents: Modelling and Identification; Hybrid Schemes; Estimations and Control; New Learning Technologies; Experimental and Industrial Applications. Readership: Academic and industrial researchers, chemical engineers and control engineers."

1.1 Overview We are living in a decade recently declared as the "Decade of the Brain".

Neuroscientists may soon manage to work out a functional map of the brain, thanks to technologies that open windows on the mind. With the average human brain consisting of 15 billion neurons, roughly equal to the number of stars in our milky way, each receiving signals through as many as 10,000 synapses, it is quite a view. "The brain is the last and greatest biological frontier", says James Watson codiscoverer of DNA, considered to be the most complex piece of biological machinery on earth. After many years of research by neuroanatomists and neurophysiologists, the overall organization of the brain is well understood, but many of its detailed neural mechanisms remain to be decoded. In order to understand the functioning of the brain, neurobiologists have taken a bottom-up approach of studying the stimulus-response characteristics of single neurons and networks of neurons, while psychologists have taken a top-down approach of studying brain functions from the cognitive and behavioral level. While these two approaches are gradually converging, it is generally accepted that it may take another fifty years before we achieve a solid microscopic, intermediate, and macroscopic understanding of brain.

This book constitutes the refereed proceedings of the 17th International Conference on Engineering Applications of Neural Networks, EANN 2016, held in Aberdeen, UK, in September 2016. The 22 revised full papers and three short papers presented together with two tutorials were carefully reviewed and selected from 41 submissions. The papers are organized in topical sections on active learning and dynamic environments; semi-supervised modeling; classification applications; clustering applications; cyber-physical systems and cloud applications; time-series prediction; learning-algorithms. Neural networks and fuzzy systems are different approaches to introducing human-like reasoning into expert systems. This text is the first to combine the study of these two subjects, their basics and their use, along with symbolic AI methods to build comprehensive artificial intelligence systems. In a clear and accessible style, Kasabov describes rule-based and connectionist techniques and then their combinations, with fuzzy logic included, showing the application of the different techniques to a set of simple prototype problems, which makes comparisons possible. A particularly strong feature of the text is that it is filled with applications in engineering, business, and finance. AI problems that cover most of the application-oriented research in the field (pattern recognition, speech and image processing, classification, planning, optimization, prediction, control, decision making, and game simulations) are discussed and illustrated with concrete examples. Intended both as a text for advanced undergraduate and postgraduate students as well as a reference for researchers in the field of knowledge engineering, Foundations of Neural Networks, Fuzzy Systems, and Knowledge Engineering has chapters structured for various levels of teaching and includes original work by the author along with the classic material. Data sets for the examples in the book as well as an integrated software environment that can be used to solve the problems and do the exercises at the end of each chapter are available free through anonymous ftp.

A cursory glance at the table of contents of EANN 2009 reveals the amazing range of neural network and related applications. A random but revealing sample

includes: reducing urban concentration, entropy topography in epileptic electroencephalography, phytoplanktonic species recognition, revealing the structure of childhood abdominal pain data, robot control, discriminating angry and happy facial expressions, food forecasting, and assessing credit worthiness. The diverse nature of applications demonstrates the vitality of neural computing and related soft computing approaches, and their relevance to many key contemporary technological challenges. It also illustrates the value of EANN in bringing together a broad spectrum of delegates from across the world to learn from each other's related methods. Variations and extensions of many methods are well represented in the proceedings, ranging from support vector machines, fuzzy reasoning, and Bayesian methods to snap-drift and spiking neurons. This year EANN accepted approximately 40% of submitted papers for full-length presentation at the conference. All members of the Program Committee were asked to participate in the reviewing process. The standard of submissions was high, according to the reviewers, who did an excellent job. The Program and Organizing Committees thank them. Approximately 20% of submitted papers will be chosen, the best according to the reviews, to be extended and reviewed again for inclusion in a special issue of the journal *Neural Computing and Applications*. We hope that these proceedings will help to stimulate further research and development of new applications and modes of neural computing.

Differential equations play a vital role in the fields of engineering and science. Problems in engineering and science can be modeled using ordinary or partial differential equations. Analytical solutions of differential equations may not be obtained easily, so numerical methods have been developed to handle them. Machine intelligence methods, such as Artificial Neural Networks (ANN), are being used to solve differential equations, and these methods are presented in *Artificial Neural Networks for Engineers and Scientists: Solving Ordinary Differential Equations*. This book shows how computation of differential equations becomes faster once the ANN model is properly developed and applied.

In response to the exponentially increasing need to analyze vast amounts of data, *Neural Networks for Applied Sciences and Engineering: From Fundamentals to Complex Pattern Recognition* provides scientists with a simple but systematic introduction to neural networks. Beginning with an introductory discussion on the role of neural networks in

Industrial Applications of Neural Networks explores the success of neural networks in different areas of engineering endeavors. Each chapter shows how the power of neural networks can be exploited in modern engineering applications. The first seven chapters focus on image processing as well as industrial or manufacturing perspectives. Topics discussed include: shape recognition shape from shading aircraft detection in SAR images visualization of high-dimensional data bases of industrial systems 3-D object learning and recognition from multiple 2-D views fingerprint classification performance optimization in flexible manufacturing systems The remaining chapters address

issues and applications in the expansive area of multimedia communications as well as mobile and cellular communications.

This book gathers the proceedings of the 21st Engineering Applications of Neural Networks Conference, which is supported by the International Neural Networks Society (INNS). Artificial Intelligence (AI) has been following a unique course, characterized by alternating growth spurts and “AI winters.” Today, AI is an essential component of the fourth industrial revolution and enjoying its heyday. Further, in specific areas, AI is catching up with or even outperforming human beings. This book offers a comprehensive guide to AI in a variety of areas, concentrating on new or hybrid AI algorithmic approaches with robust applications in diverse sectors. One of the advantages of this book is that it includes robust algorithmic approaches and applications in a broad spectrum of scientific fields, namely the use of convolutional neural networks (CNNs), deep learning and LSTM in robotics/machine vision/engineering/image processing/medical systems/the environment; machine learning and meta learning applied to neurobiological modeling/optimization; state-of-the-art hybrid systems; and the algorithmic foundations of artificial neural networks.

This book constitutes the refereed proceedings of the 16th International Conference on Engineering Applications of Neural Networks, EANN 2015, held in Rhodes, Greece, in September 2015. The 36 revised full papers presented together with the abstracts of three invited talks and two tutorials were carefully reviewed and selected from 84 submissions. The papers are organized in topical sections on industrial-engineering applications of ANN; bioinformatics; intelligent medical modeling; life-earth sciences intelligent modeling; learning-algorithms; intelligent telecommunications modeling; fuzzy modeling; robotics and control; smart cameras; pattern recognition-facial mapping; classification; financial intelligent modeling; echo state networks.

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