
Artificial Intelligent Techniques In Real Time Diagnosis

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Catalogue of Artificial Intelligence Techniques
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SIGMA 2018, Volume 2
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Handbook of Research on Artificial Intelligence Techniques and Algorithms
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Neural, Evolutionary, Fuzzy and More
New Perspectives on Enterprise Decision-Making Applying Artificial Intelligence Techniques

JEFFERSON KOCH

Emerging Artificial Intelligence Applications in Computer Engineering

Institution of Engineering & Technology
The book covers the most essential and widely employed material in each area, particularly the material important for real-world applications. Our goal is not to cover every latest progress in the fields, nor to discuss every detail of various techniques that have been developed. New sections/subsections added in this edition are: Simulated Annealing (Section 3.7), Boltzmann Machines (Section 3.8) and Extended Fuzzy if-then Rules Tables (Sub-section 5.5.3). Also, numerous changes and typographical corrections have been made throughout the manuscript. The Preface to the first edition follows. General scope of the book Artificial intelligence (AI) as a field has undergone rapid growth in diversification and practicality. For the past few decades, the repertoire of AI techniques has evolved and expanded. Scores of newer fields have been added to the traditional symbolic AI. Symbolic AI covers areas such as knowledge-based systems, logical reasoning, symbolic machine learning, search techniques, and natural language processing. The newer fields include neural networks, genetic algorithms or evolutionary computing, fuzzy systems, rough set theory, and chaotic systems. *Catalogue of Artificial Intelligence Techniques* Springer Science & Business Media

Electric vehicles/hybrid electric vehicles (EV/HEV) commercialization is still a challenge in industries in terms of performance and cost. The performance along with cost reduction are two tradeoffs which need to be researched to arrive at an optimal solution. This book focuses on the convergence of various technologies involved in EV/HEV. The book brings together the research that is being carried out in the field of EV/HEV whose leading role is by optimization techniques with artificial intelligence (AI). Other featured research includes green drive schemes which involve the possible renewable energy sources integration to develop eco-friendly green vehicles, as well as Internet of Things (IoT)-based techniques for EV/HEVs. Electric

vehicle research involves multi-disciplinary expertise from electrical, electronics, mechanical engineering and computer science. Consequently, this book serves as a point of convergence wherein all these domains are addressed and merged and will serve as a potential resource for industrialists and researchers working in the domain of electric vehicles.

Artificial Intelligence in Data Mining Springer

ARTIFICIAL INTELLIGENT TECHNIQUES FOR WIRELESS

COMMUNICATION AND NETWORKING The 20 chapters address AI principles and techniques used in wireless communication and networking and outline their benefit, function, and future role in the field. Wireless communication and networking based on AI concepts and techniques are explored in this book, specifically focusing on the current research in the field by highlighting empirical results along with theoretical concepts. The possibility of applying AI mechanisms towards security aspects in the communication domain is elaborated; also explored is the application side of integrated technologies that enhance AI-based innovations, insights, intelligent predictions, cost optimization, inventory management, identification processes, classification mechanisms, cooperative spectrum sensing techniques, ad-hoc network architecture, and protocol and simulation-based environments. Audience Researchers, industry IT engineers, and graduate students working on and implementing AI-based wireless sensor networks, 5G, IoT, deep learning, reinforcement learning, and robotics in WSN, and related technologies.

SIGMA 2018, Volume 2 John Wiley & Sons

For decades, optimization methods such as Fuzzy Logic, Artificial Neural Networks, Firefly, Simulated annealing, and Tabu search, have been capable of handling and tackling a wide range of real-world application problems in society and nature. Analysts have turned to these problem-solving techniques in the event during natural disasters and chaotic systems research. The Handbook of Research on Artificial Intelligence Techniques and Algorithms highlights the cutting edge developments in this promising research area. This premier reference work applies Meta-heuristics Optimization (MO) Techniques to real world problems in a variety of fields including business, logistics, computer science, engineering, and government. This work is particularly relevant to

researchers, scientists, decision-makers, managers, and practitioners.

Artificial Intelligence with Python Packt Publishing Ltd

Grasp the fundamentals of Artificial Intelligence and build your own intelligent systems with ease Key Features Enter the world of AI with the help of solid concepts and real-world use cases Explore AI components to build real-world automated intelligence Become well versed with machine learning and deep learning concepts Book Description Virtual Assistants, such as Alexa and Siri, process our requests, Google's cars have started to read addresses, and Amazon's prices and Netflix's recommended videos are decided by AI. Artificial Intelligence is one of the most exciting technologies and is becoming increasingly significant in the modern world. Hands-On Artificial Intelligence for Beginners will teach you what Artificial Intelligence is and how to design and build intelligent applications. This book will teach you to harness packages such as TensorFlow in order to create powerful AI systems. You will begin with reviewing the recent changes in AI and learning how artificial neural networks (ANNs) have enabled more intelligent AI. You'll explore feedforward, recurrent, convolutional, and generative neural networks (FFNNs, RNNs, CNNs, and GNNs), as well as reinforcement learning methods. In the concluding chapters, you'll learn how to implement these methods for a variety of tasks, such as generating text for chatbots, and playing board and video games. By the end of this book, you will be able to understand exactly what you need to consider when optimizing ANNs and how to deploy and maintain AI applications. What you will learn Use TensorFlow packages to create AI systems Build feedforward, convolutional, and recurrent neural networks Implement generative models for text generation Build reinforcement learning algorithms to play games Assemble RNNs, CNNs, and decoders to create an intelligent assistant Utilize RNNs to predict stock market behavior Create and scale training pipelines and deployment architectures for AI systems Who this book is for This book is designed for beginners in AI, aspiring AI developers, as well as machine learning enthusiasts with an interest in leveraging various algorithms to build powerful AI applications.

Artificial Intelligence Techniques for Networked Manufacturing

Enterprises Management Academic Press

The purpose of the Catalogue of Artificial Intelligence Techniques is to promote interaction between members of the AI community. It does this by announcing the existence of AI techniques, and acting as a pointer into the literature. Thus the AI community will have access to a common, extensional definition of the field, which will promote a common terminology, discourage the reinvention of wheels, and act as a clearing house for ideas and algorithms. The catalogue is a reference work providing a quick guide to the AI techniques available for different jobs. It is not intended to be a textbook like the Artificial Intelligence Handbook. Intentionally, it only provides a brief description of each technique, with no extended discussion of its historical origin or how it has been used in particular AI programs. The original version of the catalogue was hastily built in 1983 as part of the UK SERC-DoI, IKBS Architecture Study. It was adopted by the UK Alvey Programme and, during the life of the programme, was both circulated to Alvey grant holders in hard copy form and maintained as an on-line document. A version designed for the international community was published as a paperback by Springer-Verlag. All these versions have undergone constant revision and refinement. Springer-Verlag has agreed to reprint the catalogue at frequent intervals in order to keep it up to date and this is the third edition of their paperback version.

Artificial Intelligence Techniques IOS Press

The intention of this book is to give an introduction to, and an overview of, the field of artificial intelligence techniques in power systems, with a look at various application studies.

Artificial Intelligence in Industrial Decision Making, Control and Automation Springer Nature

Transforming Management Using Artificial Intelligence Techniques redefines management practices using artificial intelligence (AI) by providing a new approach. It offers a detailed, well-illustrated treatment of each topic with examples and case studies, and brings the exciting field to life by presenting a substantial and robust introduction to AI in a clear and concise manner. It provides a deeper understanding of how the relevant aspects of AI impact each other's efficacy for better output. It's a reliable and accessible one-step resource that introduces AI; presents a full examination of applications; provides an understanding of the foundations; examines education powered by AI, entertainment,

home and service robots, healthcare re-imagined, predictive policing, space exploration; and so much more, all within the realm of AI. This book will feature: Uncovering new and innovative features of AI and how it can help in raising economic efficiency at both micro- and macro levels Both the literature and practical aspects of AI and its uses This book summarizing key concepts at the end of each chapter to assist reader comprehension Case studies of tried and tested approaches to resolutions of typical problems Ideal for both teaching and general-knowledge purposes. This book will also simply provide the topic of AI for the readers, aspiring researchers and practitioners involved in management and computer science, so they can obtain a high-level of understanding of AI and managerial applications.

Transforming Management Using Artificial Intelligence Techniques Springer Science & Business Media

Applications of Artificial Intelligence Techniques in the Petroleum Industry gives engineers a critical resource to help them understand the machine learning that will solve specific engineering challenges. The reference begins with fundamentals, covering preprocessing of data, types of intelligent models, and training and optimization algorithms. The book moves on to methodically address artificial intelligence technology and applications by the upstream sector, covering exploration, drilling, reservoir and production engineering. Final sections cover current gaps and future challenges. Teaches how to apply machine learning algorithms that work best in exploration, drilling, reservoir or production engineering Helps readers increase their existing knowledge on intelligent data modeling, machine learning and artificial intelligence, with foundational chapters covering the preprocessing of data and training on algorithms Provides tactics on how to cover complex projects such as shale gas, tight oils, and other types of unconventional reservoirs with more advanced model input

Illustrated Computational Intelligence Packt Publishing Ltd

This volume constitutes the proceedings of the 9th International Conference on Hybrid Artificial Intelligent Systems, HAIS 2014, held in Salamanca, Spain, in June 2014. The 61 papers published in this volume were carefully reviewed and selected from 199 submissions. They are organized in topical sessions on HAIS applications; data mining and knowledge discovery; video and image analysis; bio-inspired models and evolutionary

computation; learning algorithms; hybrid intelligent systems for data mining and applications and classification and cluster analysis.

Bio-Inspired Artificial Intelligence IET

This book presents a summary of artificial intelligence and machine learning techniques in its first two chapters. The remaining chapters of the book provide everything one must know about the basic artificial intelligence to modern machine intelligence techniques including the hybrid computational intelligence technique, using the concepts of several real-life solved examples, design of projects and research ideas. The solved examples with more than 200 illustrations presented in the book are a great help to instructors, students, non-AI professionals, and researchers. Each example is discussed in detail with encoding, normalization, architecture, detailed design, process flow, and sample input/output. Summary of the fundamental concepts with solved examples is a unique combination and highlight of this book.

Innovation, Tools and Springer Science & Business Media

This textbook provides readers with the tools, techniques and cases required to excel with modern artificial intelligence methods. These embrace the family of neural networks, fuzzy systems and evolutionary computing in addition to other fields within machine learning, and will help in identifying, visualizing, classifying and analyzing data to support business decisions. The authors, discuss advantages and drawbacks of different approaches, and present a sound foundation for the reader to design and implement data analytic solutions for real-world applications in an intelligent manner. Intelligent Techniques for Data Science also provides real-world cases of extracting value from data in various domains such as retail, health, aviation, telecommunication and tourism.

Artificial Intelligence to Solve Pervasive Internet of Things Issues Springer

This book seeks to build a shared understanding of Artificial Intelligence (AI) within the global business scenario today and in the near future. Drawing on academic theory and real-world case studies, it examines AI's development and application across a number of business contexts. Taking current scholarship forward in its engagement with AI theory and practice for enterprises and applied research and innovation, it outlines international practices

for the promotion of reliable AI systems, trends, research and development, fostering a digital ecosystem for AI and preparing companies for job transformation and building skills. This book will be of great interest to academics studying Digital Business, Digital Strategy, Innovation Management, and Information Technology. Ana Landeta Echeberria is Professor at Universidad a Distancia de Madrid, Spain and an expert in corporate strategy and digital transformation. She has a PhD in Management and Business Administration and serves as the Director of Institutional Relations and Director of "Technological Social Sciences" Research Group at the Universidad a Distancia de Madrid. She is also currently the Vice President of TodoStartups, S.L. .

[Handbook of Research on Artificial Intelligence Techniques and Algorithms](#) Springer Science & Business Media

A comprehensive introduction to new approaches in artificial intelligence and robotics that are inspired by self-organizing biological processes and structures. New approaches to artificial intelligence spring from the idea that intelligence emerges as much from cells, bodies, and societies as it does from evolution, development, and learning. Traditionally, artificial intelligence has been concerned with reproducing the abilities of human brains; newer approaches take inspiration from a wider range of biological structures that are capable of autonomous self-organization. Examples of these new approaches include evolutionary computation and evolutionary electronics, artificial neural networks, immune systems, biorobotics, and swarm intelligence—to mention only a few. This book offers a comprehensive introduction to the emerging field of biologically inspired artificial intelligence that can be used as an upper-level text or as a reference for researchers. Each chapter presents computational approaches inspired by a different biological system; each begins with background information about the biological system and then proceeds to develop computational models that make use of biological concepts. The chapters cover evolutionary computation and electronics; cellular systems; neural systems, including neuromorphic engineering; developmental systems; immune systems; behavioral systems—including several approaches to robotics, including behavior-based, bio-mimetic, epigenetic, and evolutionary robots; and collective systems, including swarm robotics as well as cooperative and competitive co-evolving systems. Chapters end

with a concluding overview and suggested reading.

Transforming Management Using Artificial Intelligence Techniques Gulf Professional Publishing

Artificial Intelligence Techniques in Prolog introduces the reader to the use of well-established algorithmic techniques in the field of artificial intelligence (AI), with Prolog as the implementation language. The techniques considered cover general areas such as search, rule-based systems, and truth maintenance, as well as constraint satisfaction and uncertainty management. Specific application domains such as temporal reasoning, machine learning, and natural language are also discussed. Comprised of 10 chapters, this book begins with an overview of Prolog, paying particular attention to Prolog terms and rules (and Prolog facts as special cases); unification; the and-or computation tree induced by a Prolog program and a query; the depth-first, left-to-right traversal of that tree by the standard Prolog interpreter; and built-in predicates such as unification and equality. Subsequent chapters deal with search and representation of graphs in Prolog; backward-chaining methods; truth maintenance systems; and constraint satisfaction. Reasoning with uncertainty, planning and temporal reasoning, and machine learning are also tackled. The book concludes with an assessment of natural language processing and some of the linguistic notions that are easily encoded in Prolog. This monograph will be of interest to both students and practitioners in the fields of AI and computer science.

Complete guide to automating Big Data solutions using Artificial Intelligence techniques Springer Science & Business Media

This book gathers selected papers from Artificial Intelligence and Industrial Applications (A2IA'2020), the first installment of an annual international conference organized by ENSAM-Meknes at Moulay Ismail University, Morocco. The 29 papers presented here were carefully reviewed and selected from 141 submissions by an international scientific committee. They address various aspects of artificial intelligence such as digital twin, multiagent systems, deep learning, image processing and analysis, control, prediction, modeling, optimization and design, as well as AI applications in industry, health, energy, agriculture, and education. The book is intended for AI experts, offering them a valuable overview and global outlook for the future, and highlights a wealth of innovative

ideas and recent, important advances in AI applications, both of a foundational and practical nature. It will also appeal to non-experts who are curious about this timely and important subject.

Artificial Intelligence with Python Springer Nature

Build real-world AI applications with Python to intelligently interact with your surroundings About This Book* Step into the amazing world of intelligent apps using this comprehensive guide* Enter the world of AI, explore it, and become independent to create your own AI apps* Work through simple yet insightful examples that will get you up and running with artificial intelligence in no time Who This Book Is For This book is for Python developers who want to build real-world AI applications. This book is friendly to Python beginners, but being familiar with Python would be useful to play around with the code. It will also be useful for experienced Python programmers who are looking to implement AI techniques in their existing technology stacks. What You Will Learn* Find out how to use different classification and regression techniques* Understand the concept of clustering and how to use it to automatically segment data* See how to build an intelligent recommender system* Understand logic programming and how to use it* Develop automatic speech recognition systems* Understand the basics of heuristic search and genetic programming* Develop an understanding of reinforcement learning* Discover how to build AI applications centered on images, text, and time series data* Understand how to use deep learning algorithms and build applications based on it In Detail AI is becoming increasingly relevant in the modern world where the ecosystem is driven by technology and data. AI is used extensively across many fields such as robotics, computer vision, finance, and so on. We will explore various real-world scenarios in this book and you'll learn about various AI algorithms that can be used to build various applications. During the course of this book, you will find out how to make informed decisions about what algorithms to use in a given context. Starting from the basics of the AI concepts, you will learn how to develop the various building blocks of AI using different data mining techniques. You will see how to implement different algorithms to get the best possible results, and will understand how to apply them to real-world scenarios. If you want to add an intelligence layer to any application based on images, text, stock market, or some other form of data, this exciting book on AI will definitely guide you all

the way!

[Applications of Artificial Intelligence Techniques in Engineering](#)
MIT Press

Electric vehicles/hybrid electric vehicles (EV/HEV) commercialization is still a challenge in industries in terms of performance and cost. The performance along with cost reduction are two tradeoffs which need to be researched to arrive at an optimal solution. This book focuses on the convergence of various technologies involved in EV/HEV. The book brings together the research that is being carried out in the field of EV/HEV whose leading role is by optimization techniques with artificial intelligence (AI). Other featured research includes green drive schemes which involve the possible renewable energy sources integration to develop eco-friendly green vehicles, as well as Internet of Things (IoT)-based techniques for EV/HEVs. Electric

vehicle research involves multi-disciplinary expertise from electrical, electronics, mechanical engineering and computer science. Consequently, this book serves as a point of convergence wherein all these domains are addressed and merged and will serve as a potential resource for industrialists and researchers working in the domain of electric vehicles.

Artificial Intelligence Methods in the Environmental Sciences Springer

The intention of this book is to give an introduction to, and an overview of, the field of artificial intelligence techniques in power systems, with a look at various application studies.

Nature-Inspired Intelligent Techniques for Solving Biomedical Engineering Problems Springer Nature

How can environmental scientists and engineers use the

increasing amount of available data to enhance our understanding of planet Earth, its systems and processes? This book describes various potential approaches based on artificial intelligence (AI) techniques, including neural networks, decision trees, genetic algorithms and fuzzy logic. Part I contains a series of tutorials describing the methods and the important considerations in applying them. In Part II, many practical examples illustrate the power of these techniques on actual environmental problems. International experts bring to life ways to apply AI to problems in the environmental sciences. While one culture entwines ideas with a thread, another links them with a red line. Thus, a “red thread” ties the book together, weaving a tapestry that pictures the ‘natural’ data-driven AI methods in the light of the more traditional modeling techniques, and demonstrating the power of these data-based methods.

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