

Soft Computing Techniques And Its Applications In Electrical Engineering

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[Presentation 3: Application of Soft Computing Techniques over Hard Computing Techniques: A SurveyA 5-DAY Civil Dept. FDP \(Day-5\) on /Soft Computing Technique for Engineering Problems/.. Soft Computing Lec-1 |part-1| soft computing Techniques in civil engineering A THREE DAY WEBINAR ON SOFT COMPUTING TECHNIQUES Fuzzy Logic: An Introduction \[Delta learning rule of neural network\]\(#\) \[Artificial intelligence 36 Fuzzy Logic in ai |lecture|tutorial|sanjaypathak|ec\]\(#\) Fuzzy Logic and Neural Networks Membership function and normalized fuzzy set - Lecture 02 By Prof S Chakraverty \(NIT Rourkela\) UGC NET LECTURE 1 : Fuzzy Logic Questions and Solutions](#)

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INTRODUCTION – What is Soft Computing is an emerging approach to computing that gives the remarkable ability of the human mind to argue and learn in the atmosphere of uncertainty and distrust. Soft Computing is based on some biological induced methods such as genetics, development, and behavior, the warm of particles, the human nervous system, etc.

What is Soft Computing and Its Applications and Techniques?

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There are two types of computing techniques hard computing and soft computing. Here in our ...

Soft Computing : Characteristics and Its Techniques

Soft computing is an emerging approach to computing that gives the remarkable ability of the human mind to argue and learn in the atmosphere of uncertainty and distrust. Soft computing is based on...

What is Soft Computing and Its Applications and Techniques ...

The appearance of a book like this one helps spread awareness about the new techniques based on soft computing and is thus a welcome addition. In this book a cross-section of these techniques is introduced and their applications illustrated by examples from physical systems based on the author ' s own research.

Soft Computing: Techniques and its Applications in ...

Soft computing is a hybrid technique that uses a combination of NNs, GAs, and FL. Its goal is to match the human brain as near as possible. Soft computing is a process in which antecedent is given to a computing function and the output consequent is produced. Where f is the formal method / algorithms / mapping function.

Introduction to Soft Computing and Its Types

All hard computing approaches modelled with accurate solution which are achieved very quickly. Resultant solution having exactness and full truth. But when these problems comes with incomplete knowledge than its fails to achieve the goal. Thus, soft computing techniques are easily applied in this situation with its variety of components. The ...

APPLICATION_OF_SOFT_COMPUTING_TECHNIQUES.pdf ...

Intuitive consciousness/ wisdom is also one of the frontline areas in soft computing, which has to be always cultivated by meditation. This book is an introduction to some new fields in soft computing with its principal components of fuzzy logic, ANN and EA and it is hoped that it would be quite useful to study the fundamental concepts on these topics for the pursuit of allied research.

Soft Computing: Techniques and its Applications in ...

Soft computing is the use of approximate calculations to provide imprecise but usable solutions to complex computational problems. The approach enables solutions for problems that may be either unsolvable or just too time-consuming to solve with current hardware. Soft computing is sometimes referred to as computational intelligence.

What is soft computing? - Definition from WhatIs.com

Soft computing is based on techniques such as fuzzy logic, genetic algorithms, artificial neural networks, machine learning, and expert systems. Although soft computing theory and techniques were first introduced in 1980s, it has now become a major research and study

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area in automatic control engineering.

An Overview of Soft Computing - ScienceDirect

Soft computing uses an artificial neural network and fuzzy logic to determine when there is a sudden surge in demand and accordingly allocates resources for that particular node.

Top 5 Applications of Soft computing in Practice

Soft Computing is the role model for human mind as it is tolerant of uncertainty and partial truth. It is an emerging field and have found many wide applications. It employs NN, FL, SVM, etc. in a complementary way and helps in learning from experimental data. This techniques generalise to produce output from previously entered inputs.

SOFT COMPUTING: ITS PRINCIPLE, COMPONENTS, IMPORTANCE AND ...

Soft Computing consists of numerous techniques that study the biological processes such as reasoning, genetic evolution, survival of the creatures and human nervous system. SC is an umbrella term that thoroughly study the simulation of reasoning, human nervous system and evolution in different fields:

Soft Computing. In Rescue when Conventional Algorithms ...

Soft Computing Hard Computing; 1. Soft Computing is liberal of inexactness, uncertainty, partial truth and approximation. Hard computing needs a exactly state analytic model. 2. Soft Computing relies on formal logic and probabilistic reasoning. Hard computing relies on binary logic and crisp system. 3. Soft computing has the features of approximation and dispositionality.

Difference between Soft Computing and Hard Computing ...

Soft computing is an emerging collection of methodologies, which aim to exploit tolerance for imprecision, uncertainty, and partial truth to achieve robustness, tractability and total low cost....

(PDF) Soft Computing - Techniques and its Applications in ...

Soft computing and hard computing are computing methods where hard computing is the conventional methodology relies on the principles of accuracy, certainty, and inflexibility. Conversely, soft computing is a modern approach premised on the idea of the approximation, uncertainty, and flexibility.

Difference Between Soft computing and Hard computing (with ...

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The appearance of a book like this one helps spread awareness about the new techniques based on soft computing and is thus a welcome addition. In this book a cross-section of these techniques is introduced and their applications illustrated by examples from physical systems based on the author ' s own research.

Soft Computing | SpringerLink

Soft-Computing (SC) exemplifies the vague elucidation for almost all computational tasks, but still it is said to be the epitome of various schemas such as Fuzzy Logic (FL), Neural Networks (NN), and Genetic Algorithms (GA) for manipulating data. SC schemas can be combined, which we have termed as Combined Schema.

This book is an introduction to some new fields in soft computing with its principal components of fuzzy logic, ANN and EA. The approach in this book is to provide an understanding of the soft computing field and to work through soft computing using examples. It also aims to integrate pseudo-code operational summaries and Matlab codes, to present computer simulation, to include real world applications and to highlight the distinctive work of human consciousness in machine.

Soft computing techniques are emerging as an important tool in solving design, performance and optimisation problems in electromagnetics. Soft Computing in Electromagnetics offers detailed discussion on the application of soft computing concepts in the field of metamaterial antennas, radar absorbers, transmission line characterisation and optimised radar absorbing material (RAM) and introduces implementation of soft computing tools in a relatively new area of metamaterials. The soft computing methods are used to optimise fault detection, electromagnetic propagation and path loss detection. The development of two CAD packages for design of metamaterial split ring resonators (SRR) and path-loss prediction is discussed. The concepts are explained with the help of algorithms and the corresponding software codes. Numerical examples and MATLAB codes are provided throughout the text to facilitate understanding.

Soft computing is used where a complex problem is not adequately specified for the use of conventional math and computer techniques. Soft computing has numerous real-world applications in domestic, commercial and industrial situations. This book elaborates on the most recent applications in various fields of engineering.

Focusing on soft computing techniques and application in various engineering research domains, this book presents the state-of-the-art outcomes from ongoing research works being conducted in various research laboratories and educational institutions. The included research works deal with estimated models and give resolutions to complex real-life issues. In the field of evolutionary computing and other domains of applications, such as, data mining and fuzzy logic, soft computing techniques play an incomparable role, where it

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successfully handles contemporary computationally intensive and complex problems that have usually appeared to be inflexible to traditional mathematical methods. Comprising the concepts and applications of soft computing with other emerging research domains, this book cherishes varieties of modern applications in the fields of natural language processing, image processing, biomedical engineering, communication, control systems, circuit design etc.

The Soft Computing techniques, which are based on the information processing of biological systems are now massively used in the area of pattern recognition, making prediction & planning, as well as acting on the environment. Ideally speaking, soft computing is not a subject of homogeneous concepts and techniques; rather, it is an amalgamation of distinct methods that confirms to its guiding principle. At present, the main aim of soft computing is to exploit the tolerance for imprecision and uncertainty to achieve tractability, robustness and low solutions cost. The principal constituents of soft computing techniques are probabilistic reasoning, fuzzy logic, neuro-computing, genetic algorithms, belief networks, chaotic systems, as well as learning theory. This book covers contributions from various authors to demonstrate the use of soft computing techniques in various applications of engineering.

The papers collected in this book are concerned with the application of the so-called "soft-computing" techniques to the aim of defining flexible systems. The topics covered witness the actual research trend towards an integration of distinct formal techniques for defining flexible systems. The contributions in this volume mainly concern the definition of systems in several application fields, such as image processing, control, asset allocation, medicine, time series forecasting, qualitative modeling, support to design, reliability analysis, diagnosis, filtering, data analysis, land mines detection and so forth. The papers presented in this volume are organized into three main thematic sections: Fuzzy Systems, Neural Networks and Genetic and Evolutionary Algorithms, although, as outlined before, some works employ more than one technique from these fields.

The evolution of soft computing applications has offered a multitude of methodologies and techniques that are useful in facilitating new ways to address practical and real scenarios in a variety of fields. In particular, these concepts have created significant developments in the engineering field. Soft Computing Techniques and Applications in Mechanical Engineering is a pivotal reference source for the latest research findings on a comprehensive range of soft computing techniques applied in various fields of mechanical engineering. Featuring extensive coverage on relevant areas such as thermodynamics, fuzzy computing, and computational intelligence, this publication is an ideal resource for students, engineers, research scientists, and academicians involved in soft computing techniques and applications in mechanical engineering areas.

Soft computing techniques have reached a significant level of recognition and acceptance from both the academic and industrial communities. The papers collected in this volume illustrate the depth of the current theoretical research trends and the breadth of the application areas in which soft computing methods are making contributions. This volume consists of forty six selected papers presented at the Fourth International Conference on Recent Advances in Soft Computing, which was held in Nottingham, United Kingdom on 12 and 13 December 2002 at Nottingham Trent University. This volume is organized in five parts. The first four parts address mainly the f-

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damental and theoretical advances in soft computing, namely Artificial Neural Networks, Evolutionary Computing, Fuzzy Systems and Hybrid Systems. The fifth part of this volume presents papers that deal with practical issues and industrial applications of soft computing techniques. We would like to express our sincere gratitude to all the authors who submitted contributions for inclusion. We are also indebted to Janusz Kacprzyk for his services related to this volume. We hope you find the volume an interesting reflection of current theoretical and application based soft computing research.

This book covers the issues related to optimization of engineering and management problems using soft computing techniques with an industrial outlook. It covers a broad area related to real life complex decision making problems using a heuristics approach. It also explores a wide perspective and future directions in industrial engineering research on a global platform/scenario. The book highlights the concept of optimization, presents various soft computing techniques, offers sample problems, and discusses related software programs complete with illustrations. Features Explains the concept of optimization and relevance to soft computing techniques towards optimal solution in engineering and management Presents various soft computing techniques Offers problems and their optimization using various soft computing techniques Discusses related software programs, with illustrations Provides a step-by-step tutorial on how to handle relevant software for obtaining the optimal solution to various engineering problems

"This publication presents a series of practical applications of different Soft Computing techniques to real-world problems, showing the enormous potential of these techniques in solving problems"--Provided by publisher.

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