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# Lion Optimization Algorithm Loa A Nature Inspired

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Natural Computing for Unsupervised Learning

Swarm Intelligence Algorithms (Two Volume Set)

Nature Inspired Optimization Techniques for Image Processing Applications

Proceedings of the 11th International Conference on Innovations in Bio-Inspired Computing and Applications (IBICA 2020) held during December 16-18, 2020

Theoretical Advances and Advanced Applications

Smart Innovations in Communication and Computational Sciences

Theory and Applications

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Intelligent Technologies for Internet of Vehicles

Applications of Soft Computing for the Web

Computational Collective Intelligence

Proceedings of ACN 2019

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Swarm Intelligence Optimization

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Cognitive and Soft Computing Techniques for the Analysis of Healthcare Data

Proceedings of ICSCN 2021

Swarm Intelligence for Cloud Computing

The Nature of Business Transformation

Constraint Handling in Metaheuristics and Applications

Nature-Inspired Optimization Algorithms

19th International Conference, ICAISC 2020, Zakopane, Poland, October 12-14, 2020, Proceedings, Part I

A Swarm Intelligent Approach to Reinventing Organisations  
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Cognitive Big Data Intelligence with a Metaheuristic Approach  
Nature-Inspired Computing and Optimization  
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## **RYKER CUEVAS**

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### **Natural Computing for Unsupervised Learning**

BoD – Books on Demand  
Swarm Intelligence in Cloud Computing is an invaluable treatise for researchers involved in delivering intelligent optimized solutions for reliable deployment, infrastructural stability, and security issues of cloud-based resources. Starting with a bird's eye view on the prevalent state-of-

the-art techniques, this book enriches the readers with the knowledge of evolving swarm intelligent optimized techniques for addressing different cloud computing issues including task scheduling, virtual machine allocation, load balancing and optimization, deadline handling, power-aware profiling, fault resilience, cost-effective design, and energy efficiency. The book offers comprehensive coverage of the most essential topics, including: Role of swarm intelligence on cloud computing services Cloud resource sharing strategies Cloud service provider selection

Dynamic task and resource scheduling  
Data center resource management.  
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*Swarm Intelligence Algorithms (Two Volume Set)* Academic Press

This book is a practical guide for business professionals to develop and improve business intelligence and collective decision-making within their organisation. It proposes a progressive reconfiguration of the traditional business operating system using a nature-inspired framework called swarm facilitation that enables and facilitates collective decision-making. Organisations have followed the same rigid formula of problem-solving and decision-making for over 100 years. It is dominated by centralised governance and

pyramid decision-making. Such an approach is no longer fit for purpose in an environment of employee disengagement, artificial intelligence (AI)/superintelligence, and Covid-19 fallout. By the end of this book, readers will be able to: • solve organisational problems and challenges collectively using swarm intelligence; • upgrade and future-proof business operating systems to reflect a more collective decision-making approach fit for the new connected economy and Industry 4.0; • embrace mindset quotients that support people working in a more networked, self-organising, and collective environment. The book is important reading for leaders and managers who are focused on building organisational capital and engagement and gaining value from the emerging technology by evolving their business operating system into a digital ecosystem as part of an ongoing digital transformation strategy. It will also appeal to experts working in the field of organisational change and development, both within the organisation and as consultants.

*Nature Inspired Optimization Techniques for Image Processing Applications* Springer

Nature

This book aims to discuss the core and underlying principles and analysis of the different constraint handling approaches. The main emphasis of the book is on providing an enriched literature on mathematical modelling of the test as well as real-world problems with constraints, and further development of generalized constraint handling techniques. These techniques may be incorporated in suitable metaheuristics providing a solid optimized solution to the problems and applications being addressed. The book comprises original contributions with an aim to develop and discuss generalized constraint handling approaches/techniques for the metaheuristics and/or the applications being addressed. A variety of novel as well as modified and hybridized techniques have been discussed in the book. The conceptual as well as the mathematical level in all the chapters is well within the grasp of the scientists as well as the undergraduate and graduate students from the engineering and computer science streams. The reader is encouraged to have basic knowledge of probability and

mathematical analysis and optimization. The book also provides critical review of the contemporary constraint handling approaches. The contributions of the book may further help to explore new avenues leading towards multidisciplinary research discussions. This book is a complete reference for engineers, scientists, and students studying/working in the optimization, artificial intelligence (AI), or computational intelligence arena.

**Proceedings of the 11th International Conference on Innovations in Bio-Inspired Computing and Applications (IBICA 2020) held during December 16-18, 2020** John Wiley & Sons

Cognitive Big Data Intelligence with a Metaheuristic Approach presents an exact and compact organization of content relating to the latest metaheuristic methodologies based on new challenging big data application domains and cognitive computing. The combined model of cognitive big data intelligence with metaheuristic methods can be used to analyze emerging patterns, spot business opportunities, and take care of critical process-centric issues in real-time. Various real-time case studies and implemented

works are discussed in this book for better understanding and additional clarity. This book presents an essential platform for the use of cognitive technology in the field of Data Science. It covers metaheuristic methodologies that can be successful in a wide variety of problem settings in big data frameworks. Provides a unique opportunity to present the work on the state-of-the-art of metaheuristics approach in the area of big data processing developing automated and intelligent models Explains different, feasible applications and case studies where cognitive computing can be successfully implemented in big data analytics using metaheuristics algorithms Provides a snapshot of the latest advances in the contribution of metaheuristics frameworks in cognitive big data applications to solve optimization problems

Theoretical Advances and Advanced Applications Springer Nature

Nature-inspired algorithms have a great popularity in the current scientific community, being the focused scope of many research contributions in the literature year by year. The rationale

behind the acquired momentum by this broad family of methods lies on their outstanding performance evinced in hundreds of research fields and problem instances. This book gravitates on the development of nature-inspired methods and their application to stochastic, dynamic and robust optimization. Topics covered by this book include the design and development of evolutionary algorithms, bio-inspired metaheuristics, or memetic methods, with empirical, innovative findings when used in different subfields of mathematical optimization, such as stochastic, dynamic, multimodal and robust optimization, as well as noisy optimization and dynamic and constraint satisfaction problems.

*Smart Innovations in Communication and Computational Sciences* Springer  
Computational intelligence (CI) lies at the interface between engineering and computer science; control engineering, where problems are solved using computer-assisted methods. Thus, it can be regarded as an indispensable basis for all artificial intelligence (AI) activities. This book collects surveys of most recent theoretical approaches focusing on fuzzy

systems, neurocomputing, and nature inspired algorithms. It also presents surveys of up-to-date research and application with special focus on fuzzy systems as well as on applications in life sciences and neuronal computing. [Theory and Applications Elsevier](#)

This book will focus on the involvement of data mining and intelligent computing methods for recent advances in Biomedical applications and algorithms of nature-inspired computing for Biomedical systems. The proposed meta heuristic or nature-inspired techniques should be an enhanced, hybrid, adaptive or improved version of basic algorithms in terms of performance and convergence metrics. In this exciting and emerging interdisciplinary area a wide range of theory and methodologies are being investigated and developed to tackle complex and challenging problems. Today, analysis and processing of data is one of big focuses among researchers community and information society. Due to evolution and knowledge discovery of natural computing, related meta heuristic or bio-inspired algorithms have gained increasing popularity in the recent decade because of

their significant potential to tackle computationally intractable optimization dilemma in medical, engineering, military, space and industry fields. The main reason behind the success rate of nature inspired algorithms is their capability to solve problems. The nature inspired optimization techniques provide adaptive computational tools for the complex optimization problems and diversified engineering applications. Tentative Table of Contents/Topic Coverage: - Neural Computation - Evolutionary Computing Methods - Neuroscience driven AI Inspired Algorithms - Biological System based algorithms - Hybrid and Intelligent Computing Algorithms - Application of Natural Computing - Review and State of art analysis of Optimization algorithms - Molecular and Quantum computing applications - Swarm Intelligence - Population based algorithm and other optimizations *Ambient Communications and Computer Systems* CRC Press

This book provides a platform for exploring nature-inspired optimization techniques in the context of imaging applications. Optimization has become part and parcel

of all computational vision applications, and since the amount of data used in these applications is vast, the need for optimization techniques has increased exponentially. These accuracy and complexity are a major area of concern when it comes to practical applications. However, these optimization techniques have not yet been fully explored in the context of imaging applications. By presenting interdisciplinary concepts, ranging from optimization to image processing, the book appeals to a broad readership, while also encouraging budding engineers to pursue and employ innovative nature-inspired techniques for image processing applications. [Intelligent Technologies for Internet of Vehicles Springer](#)

Internet of Things (IoT) is a new platform of various physical objects or “things equipped with sensors, electronics, smart devices, software, and network connections. IoT represents a new revolution of the Internet network which is driven by the recent advances of technologies such as sensor networks (wearable and implantable), mobile devices, networking, and cloud computing

technologies. IoT permits these the smart devices to collect, store and analyze the collected data with limited storage and processing capacities. Swarm Intelligence for Resource Management in the Internet of Things presents a new approach in Artificial Intelligence that can be used for resources management in IoT, which is considered a critical issue for this network. The authors demonstrate these resource management applications using swarm intelligence techniques. Currently, IoT can be used in many important applications which include healthcare, smart cities, smart homes, smart hospitals, environment monitoring, and video surveillance. IoT devices cannot perform complex on-site data processing due to their limited battery and processing. However, the major processing unit of an application can be transmitted to other nodes, which are more powerful in terms of storage and processing. By applying swarm intelligence algorithms for IoT devices, we can provide major advantages for energy saving in IoT devices. Swarm Intelligence for Resource Management in the Internet of Things shows the reader how to overcome the problems and

challenges of creating and implementing swarm intelligence algorithms for each application Examines the development and application of swarm intelligence systems in artificial intelligence as applied to the Internet of Things Discusses intelligent techniques for the implementation of swarm intelligence in IoT Prepared for researchers and specialists who are interested in the use and integration of IoT and cloud computing technologies

**Applications of Soft Computing for the Web** Springer Nature

This book gathers selected research papers presented at the International Conference on Communication and Intelligent Systems (ICCIS 2020), organized jointly by Birla Institute of Applied Sciences, Uttarakhand, and Soft Computing Research Society during 26–27 December 2020. This book presents a collection of state-of-the-art research work involving cutting-edge technologies for communication and intelligent systems. Over the past few years, advances in artificial intelligence and machine learning have sparked new research efforts around the globe, which explore novel ways of

developing intelligent systems and smart communication technologies. The book presents single- and multi-disciplinary research on these themes in order to make the latest results available in a single, readily accessible source.

*Computational Collective Intelligence* Routledge

This book constitutes best selected research papers presented at the International Applied Soft Computing and Communication Networks (ACN 2019) held in Trivandrum, Kerala, India during December 18 – 21, 2019. The papers are organized in topical sections on real time and multimedia communications, security and privacy, network management and software-defined networks, Internet of Things (IoT) and cyber-physical systems, intelligent distributed systems, mobile computing and vehicle communications, surveillance networks and visual intelligence, and emerging topics. The book is a reference for researchers and scientists engaged in various fields of intelligent systems.

*Proceedings of ACN 2019* Springer Nature This book features a collection of high-quality research papers presented at the

International Conference on Intelligent and Cloud Computing (ICICC 2019), held at Siksha 'O' Anusandhan (Deemed to be University), Bhubaneswar, India, on December 20, 2019. Including contributions on system and network design that can support existing and future applications and services, it covers topics such as cloud computing system and network design, optimization for cloud computing, networking, and applications, green cloud system design, cloud storage design and networking, storage security, cloud system models, big data storage, intra-cloud computing, mobile cloud system design, real-time resource reporting and monitoring for cloud management, machine learning, data mining for cloud computing, data-driven methodology and architecture, and networking for machine learning systems. Hybrid Intelligence for Social Networks Springer Nature

This book includes high-quality research papers presented at 3rd International Conference on Sustainable Communication Networks and Applications (ICSCN 2021), which is held at Surya Engineering College (SEC), Erode, India, during 29-30 July

2021. This book includes novel and state-of-the-art research discussions that articulate and report all research aspects, including theoretical and experimental prototypes and applications that incorporate sustainability into emerging applications. The book discusses and articulates emerging challenges in significantly reducing the energy consumption of communication systems and also explains development of a sustainable and energy-efficient mobile and wireless communication network. It includes best selected high-quality conference papers in different fields such as Internet of Things, cloud computing, data mining, artificial intelligence, machine learning, autonomous systems, deep learning, neural networks, renewable energy sources, sustainable wireless communication networks, QoS, network sustainability, and many other related areas.

*Frontier Applications of Nature Inspired Computation* Springer Nature

This book contains research contributions from leading global scholars in nature-inspired computing. It includes comprehensive coverage of each

respective topic, while also highlighting recent and future trends. The contributions provides readers with a snapshot of the state of the art in the field of nature-inspired computing and its application. This book has focus on the current researches while highlighting the empirical results along with theoretical concepts to provide a comprehensive reference for students, researchers, scholars, professionals and practitioners in the field of Advanced Artificial Intelligence, Nature-Inspired Algorithms and Soft Computing.

**Advances in Nature-Inspired Computing and Applications** Springer Nature

This book gathers recent research works in emerging Artificial Intelligence (AI) methods for the convergence of communication, caching, control, and computing resources in cloud-based Internet of Vehicles (IoV) infrastructures. In this context, the book's major subjects cover the analysis and the development of AI-powered mechanisms in future IoV applications and architectures. It addresses the major new technological developments in the field and reflects



current research trends and industry needs. It comprises a good balance between theoretical and practical issues, covering case studies, experience and evaluation reports, and best practices in utilizing AI applications in IoV networks. It also provides technical/scientific information about various aspects of AI technologies, ranging from basic concepts to research-grade material, including future directions. This book is intended for researchers, practitioners, engineers, and scientists involved in designing and developing protocols and AI applications and services for IoV-related devices.

Future Impact and Well-Being for Society  
5.0 CRC Press

New Materials in Civil Engineering provides engineers and scientists with the tools and methods needed to meet the challenge of designing and constructing more resilient and sustainable infrastructures. This book is a valuable guide to the properties, selection criteria, products, applications, lifecycle and recyclability of advanced materials. It presents an A-to-Z approach to all types of materials, highlighting their key performance properties, principal

characteristics and applications. Traditional materials covered include concrete, soil, steel, timber, fly ash, geosynthetic, fiber-reinforced concrete, smart materials, carbon fiber and reinforced polymers. In addition, the book covers nanotechnology and biotechnology in the development of new materials. Covers a variety of materials, including fly ash, geosynthetic, fiber-reinforced concrete, smart materials, carbon fiber reinforced polymer and waste materials Provides a “one-stop resource of information for the latest materials and practical applications Includes a variety of different use case studies

Swarm Intelligence Optimization Springer  
Cognitive and Soft Computing Techniques for the Analysis of Healthcare Data discusses the insight of data processing applications in various domains through soft computing techniques and enormous advancements in the field. The book focuses on the cross-disciplinary mechanisms and ground-breaking research ideas on novel techniques and data processing approaches in handling structured and unstructured healthcare data. It also gives insight into various

information-processing models and many memories associated with it while processing the information for forecasting future trends and decision making. This book is an excellent resource for researchers and professionals who work in the Healthcare Industry, Data Science, and Machine learning. Focuses on data-centric operations in the Healthcare industry Provides the latest trends in healthcare data analytics and practical implementation outcomes of the proposed models Addresses real-time challenges and case studies in the Healthcare industry

Proceedings of Second MRCN 2021  
Springer Nature

Swarm intelligence algorithms are a form of nature-based optimization algorithms. Their main inspiration is the cooperative behavior of animals within specific communities. This can be described as simple behaviors of individuals along with the mechanisms for sharing knowledge between them, resulting in the complex behavior of the entire community. Examples of such behavior can be found in ant colonies, bee swarms, schools of fish or bird flocks. Swarm intelligence



algorithms are used to solve difficult optimization problems for which there are no exact solving methods or the use of such methods is impossible, e.g. due to unacceptable computational time. This set comprises two volumes: *Swarm Intelligence Algorithms: A Tutorial and Swarm Intelligence Algorithms: Modifications and Applications*. The first volume thoroughly presents the basics of 24 algorithms selected from the entire family of swarm intelligence algorithms. It contains a detailed explanation of how each algorithm works, along with relevant program codes in Matlab and the C++ programming language, as well as numerical examples illustrating step-by-step how individual algorithms work. The second volume describes selected modifications of these algorithms and presents their practical applications. This book presents 24 swarm algorithms together with their modifications and practical applications. Each chapter is devoted to one algorithm. It contains a short description along with a pseudo-code showing the various stages of its operation. In addition, each chapter contains a description of selected

modifications of the algorithm and shows how it can be used to solve a selected practical problem.

[Cognitive and Soft Computing Techniques for the Analysis of Healthcare Data](#)  
Innovations in Bio-Inspired Computing and Applications Proceedings of the 11th International Conference on Innovations in Bio-Inspired Computing and Applications (IBICA 2020) held during December 16-18, 2020

This volume discusses recent advances in Artificial Intelligence (AI) applications in smart, internet-connected societies, highlighting three key focus areas. The first focus is on intelligent sensing applications. This section details the integration of Wireless Sensing Networks (WSN) and the use of intelligent platforms for WSN applications in urban infrastructures, and discusses AI techniques on hardware and software systems such as machine learning, pattern recognition, expert systems, neural networks, genetic algorithms, and intelligent control in transportation and communications systems. The second focus is on AI-based Internet of Things (IoT) systems, which addresses

applications in traffic management, medical health, smart homes and energy. Readers will also learn about how AI can extract useful information from Big Data in IoT systems. The third focus is on crowdsourcing (CS) and computing for smart cities. This section discusses how CS via GPS devices, GIS tools, traffic cameras, smart cards, smart phones and road deceleration devices enables citizens to collect and share data to make cities smart, and how these data can be applied to address urban issues including pollution, traffic congestion, public safety and increased energy consumption. This book will be of interest to academics, researchers and students studying AI, cloud computing, IoT and crowdsourcing in urban applications.

**Proceedings of ICSCN 2021** Springer  
This book highlights recent research on bio-inspired computing and its various innovative applications in information and communication technologies. It presents 51 high-quality papers from the 11th International Conference on Innovations in Bio-Inspired Computing and Applications (IBICA 2020) and 10th World Congress on Information and Communication

Technologies (WICT 2020), which was held online during December 16–18, 2019. As a premier conference, IBICA-WICT brings together researchers, engineers and practitioners whose work involves bio-

inspired computing, computational intelligence and their applications in information security, real-world contexts, etc. Including contributions by authors

from 25 countries, the book offers a valuable reference guide for all researchers, students and practitioners in the fields of Computer Science and Engineering.

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