

Travelling Salesman Problem With Matlab Programming

Cooperative Design, Visualization, and Engineering
Artificial Ants
Robot Path Planning and Cooperation
The Nature of Code
Introduction to Genetic Algorithms
Algorithms for Scheduling Problems
Advances in Computing and Intelligent Systems
Combinatorial Algorithms
Cohort Intelligence: A Socio-inspired Optimization Method
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Optimization for Robot Modelling with MATLAB
Applied Integer Programming
Optimization Algorithms for Networks and Graphs
Introduction to Neural Networks Using Matlab 6.0
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The Traveling Salesman Cuckoo Search and Firefly Algorithm
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International Conference on Intelligent Computing: Intelligent computing
Advances in Genetic

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Programming Intelligent Computational Optimization in Engineering Particle Swarm Optimization Fundamental Research in Electrical Engineering Genetic Algorithms + Data Structures = Evolution Programs Learning MATLAB Genetic Algorithms and Engineering Design Production Planning by Mixed Integer Programming Practical Genetic Algorithms Advances in Computing and Data Sciences

Cooperative Design, Visualization, and Engineering

This book offers a basic introduction to genetic algorithms. It provides a detailed explanation of genetic algorithm concepts and examines numerous genetic algorithm optimization problems. In addition, the book presents implementation of optimization problems using C and C++ as well as simulated solutions for genetic algorithm problems using MATLAB 7.0. It also includes application case studies on genetic algorithms in emerging fields.

Artificial Ants

Modern metaheuristic algorithms such as bee algorithms and harmony search start to demonstrate their power in dealing with tough optimization problems and even NP-hard problems. This book reviews and introduces the state-of-the-art nature-inspired metaheuristic algorithms in optimization, including genetic algorithms, bee algorithms, particle

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swarm optimization, simulated annealing, ant colony optimization, harmony search, and firefly algorithms. We also briefly introduce the photosynthetic algorithm, the enzyme algorithm, and Tabu search. Worked examples with implementation have been used to show how each algorithm works. This book is thus an ideal textbook for an undergraduate and/or graduate course. As some of the algorithms such as the harmony search and firefly algorithms are at the forefront of current research, this book can also serve as a reference book for researchers.

Robot Path Planning and Cooperation

Still today I am receiving requests for reprints of the book, but unfortunately it is out of print. Therefore, since the book still seems to receive some attention, I proposed to Springer Verlag to provide a free online edition. I am very happy that Springer agreed. Except for the correction of some typographical errors, the online edition is just a copy of the printed version, no updates have been made. In particular, Table 13.1 gives the status of TSPLIB at the time of publishing the book. For accessing TSPLIB the link <http://www.iwr.uni-heidelberg.de/iwr/comopt/software/TSPLIB95/> should be used instead of following the procedure described in Chapter 13. Heidelberg, January 2001
Gerhard Reinelt Preface More than fifteen years ago, I was faced with the following problem in an assignment for a class in computer science. A brewery had to deliver beer to n stores, and the task was to write a computer program for determining the shortest route for the truck driver to visit all

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stores and return to the brewery. All my attempts to find a reasonable algorithm failed, I could not help enumerating all possible routes and then select the best one.

The Nature of Code

This book presents the proceedings from the International Symposium for Production Research 2020. The cross-disciplinary papers presented draw on research from academics and practitioners from industrial engineering, management engineering, operational research, and production/operational management. It explores topics including: · computer-aided manufacturing; Industry 4.0 applications; simulation and modeling big data and analytics; flexible manufacturing systems; decision analysis quality management industrial robotics in production systems information technologies in production management; and optimization techniques. Presenting real-life applications, case studies, and mathematical models, this book is of interest to researchers, academics, and practitioners in the field of production and operation engineering.

Introduction to Genetic Algorithms

Stochastic global optimization is a very important subject, that has applications in virtually all areas of science and technology. Therefore there is nothing more opportune than writing a book about a successful and mature algorithm that turned out to be a good tool in solving difficult problems. Here we

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present some techniques for solving several problems by means of Fuzzy Adaptive Simulated Annealing (Fuzzy ASA), a fuzzy-controlled version of ASA, and by ASA itself. ASA is a sophisticated global optimization algorithm that is based upon ideas of the simulated annealing paradigm, coded in the C programming language and developed to statistically find the best global fit of a nonlinear constrained, non-convex cost function over a multi-dimensional space. By presenting detailed examples of its application we want to stimulate the reader's intuition and make the use of Fuzzy ASA (or regular ASA) easier for everyone wishing to use these tools to solve problems. We kept formal mathematical requirements to a minimum and focused on continuous problems, although ASA is able to handle discrete optimization tasks as well. This book can be used by researchers and practitioners in engineering and industry, in courses on optimization for advanced undergraduate and graduate levels, and also for self-study.

Algorithms for Scheduling Problems

This is the first book devoted entirely to Particle Swarm Optimization (PSO), which is a non-specific algorithm, similar to evolutionary algorithms, such as taboo search and ant colonies. Since its original development in 1995, PSO has mainly been applied to continuous-discrete heterogeneous strongly non-linear numerical optimization and it is thus used almost everywhere in the world. Its convergence rate also makes it a preferred tool in dynamic optimization.

Advances in Computing and Intelligent Systems

We often come across computational optimization virtually in all branches of engineering and industry. Many engineering problems involve heuristic search and optimization, and, once discretized, may become combinatorial in nature, which gives rise to certain difficulties in terms of solution procedure. Some of these problems have enormous search spaces, are NP-hard and hence require heuristic solution techniques. Another difficulty is the lack of ability of classical solution techniques to determine appropriate optima of non-convex problems. Under these conditions, recent advances in computational optimization techniques have been shown to be advantageous and successful compared to classical approaches. This Volume presents some of the latest developments with a focus on the design of algorithms for computational optimization and their applications in practice. Through the chapters of this book, researchers and practitioners share their experience and newest methodologies with regard to intelligent optimization and provide various case studies of the application of intelligent optimization techniques in real-world applications. This book can serve as an excellent reference for researchers and graduate students in computer science, various engineering disciplines and the industry.

Combinatorial Algorithms

This book presents extensive research on two main

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problems in robotics: the path planning problem and the multi-robot task allocation problem. It is the first book to provide a comprehensive solution for using these techniques in large-scale environments containing randomly scattered obstacles. The research conducted resulted in tangible results both in theory and in practice. For path planning, new algorithms for large-scale problems are devised and implemented and integrated into the Robot Operating System (ROS). The book also discusses the parallelism advantage of cloud computing techniques to solve the path planning problem, and, for multi-robot task allocation, it addresses the task assignment problem and the multiple traveling salesman problem for mobile robots applications. In addition, four new algorithms have been devised to investigate the cooperation issues with extensive simulations and comparative performance evaluation. The algorithms are implemented and simulated in MATLAB and Webots.

Cohort Intelligence: A Socio-inspired Optimization Method

The Traveling Salesman Problem and Its Variations

This book constitutes the refereed proceedings of the International Conference on Intelligent Computing, ICIC 2006, held in Kunming, China, August 2006. The book collects 161 carefully chosen and revised full papers. Topical sections include neural networks,

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evolutionary computing and genetic algorithms, kernel methods, combinatorial and numerical optimization, multiobjective evolutionary algorithms, neural optimization and dynamic programming, as well as case-based reasoning and probabilistic reasoning.

Optimization for Robot Modelling with MATLAB

This book constitutes the refereed proceedings of the International Conference on Intelligent Information Systems, IIS 2013, held in Warsaw, Poland in June 2013. The 28 full papers included in this volume were carefully reviewed and selected from 53 submissions. The contributions are organized in topical sections named: Natural language processing, text and Web mining, and machine learning and search.

Applied Integer Programming

* This book deals with the fundamentals of genetic algorithms and their applications in a variety of different areas of engineering and science * Most significant update to the second edition is the MATLAB codes that accompany the text * Provides a thorough discussion of hybrid genetic algorithms * Features more examples than first edition

Optimization Algorithms for Networks and Graphs

A revised and expanded advanced-

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undergraduate/graduate text (first ed., 1978) about optimization algorithms for problems that can be formulated on graphs and networks. This edition provides many new applications and algorithms while maintaining the classic foundations on which contemporary algorithm

Introduction to Neural Networks Using Matlab 6.0

This comprehensive and stimulating introduction to Matlab, a computer language now widely used for technical computing, is based on an introductory course held at Qian Weichang College, Shanghai University, in the fall of 2014. Teaching and learning a substantial programming language aren't always straightforward tasks. Accordingly, this textbook is not meant to cover the whole range of this high-performance technical programming environment, but to motivate first- and second-year undergraduate students in mathematics and computer science to learn Matlab by studying representative problems, developing algorithms and programming them in Matlab. While several topics are taken from the field of scientific computing, the main emphasis is on programming. A wealth of examples are completely discussed and solved, allowing students to learn Matlab by doing: by solving problems, comparing approaches and assessing the proposed solutions.

Nature-Inspired Metaheuristic Algorithms

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The workshop RED UAS aims at bringing together representatives from academia, industry, and government agencies working in the rapidly expanding research area of unmanned aerial systems. Focused interests of diverse groups involved in UAS research, education and development will be discussed. Special emphasis will be given to current and future research opportunities.

The Traveling Salesman

This book presents the latest findings on one of the most intensely investigated subjects in computational mathematics--the traveling salesman problem. It sounds simple enough: given a set of cities and the cost of travel between each pair of them, the problem challenges you to find the cheapest route by which to visit all the cities and return home to where you began. Though seemingly modest, this exercise has inspired studies by mathematicians, chemists, and physicists. Teachers use it in the classroom. It has practical applications in genetics, telecommunications, and neuroscience. The authors of this book are the same pioneers who for nearly two decades have led the investigation into the traveling salesman problem. They have derived solutions to almost eighty-six thousand cities, yet a general solution to the problem has yet to be discovered. Here they describe the method and computer code they used to solve a broad range of large-scale problems, and along the way they demonstrate the interplay of applied mathematics with increasingly powerful computing platforms. They also give the

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fascinating history of the problem--how it developed, and why it continues to intrigue us.

Cuckoo Search and Firefly Algorithm

The last few years have seen important advances in the use of genetic algorithms to address challenging optimization problems in industrial engineering. Genetic Algorithms and Engineering Design is the only book to cover the most recent technologies and their application to manufacturing, presenting a comprehensive and fully up-to-date treatment of genetic algorithms in industrial engineering and operations research. Beginning with a tutorial on genetic algorithm fundamentals and their use in solving constrained and combinatorial optimization problems, the book applies these techniques to problems in specific areas--sequencing, scheduling and production plans, transportation and vehicle routing, facility layout, location-allocation, and more. Each topic features a clearly written problem description, mathematical model, and summary of conventional heuristic algorithms. All algorithms are explained in intuitive, rather than highly-technical, language and are reinforced with illustrative figures and numerical examples. Written by two internationally acknowledged experts in the field, Genetic Algorithms and Engineering Design features original material on the foundation and application of genetic algorithms, and also standardizes the terms and symbols used in other sources--making this complex subject truly accessible to the beginner as well as to the more

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advanced reader. Ideal for both self-study and classroom use, this self-contained reference provides indispensable state-of-the-art guidance to professionals and students working in industrial engineering, management science, operations research, computer science, and artificial intelligence. The only comprehensive, state-of-the-art treatment available on the use of genetic algorithms in industrial engineering and operations research . . . Written by internationally recognized experts in the field of genetic algorithms and artificial intelligence, Genetic Algorithms and Engineering Design provides total coverage of current technologies and their application to manufacturing systems. Incorporating original material on the foundation and application of genetic algorithms, this unique resource also standardizes the terms and symbols used in other sources--making this complex subject truly accessible to students as well as experienced professionals. Designed for clarity and ease of use, this self-contained reference:

- * Provides a comprehensive survey of selection strategies, penalty techniques, and genetic operators used for constrained and combinatorial optimization problems
- * Shows how to use genetic algorithms to make production schedules, solve facility/location problems, make transportation/vehicle routing plans, enhance system reliability, and much more
- * Contains detailed numerical examples, plus more than 160 auxiliary figures to make solution procedures transparent and understandable

The Traveling Salesman Problem

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This book constitutes the refereed proceedings of the Third International Conference on Cooperative Design, Visualization, and Engineering, CDVE 2006, held in Mallorca, Spain in September 2006. The book presents 40 revised full papers, carefully reviewed and selected from numerous submissions. The papers cover all current issues in cooperative design, visualization, and engineering, ranging from theoretical and methodological topics to various systems and frameworks to applications in a variety of fields.

Genetic Programming and Data Structures

This book is for students following an introductory course in numerical methods, numerical techniques or numerical analysis. It introduces MATLAB as a computing environment for experimenting with numerical methods. It approaches the subject from a pragmatic viewpoint; theory is kept at a minimum commensurate with comprehensive coverage of the subject and it contains abundant worked examples which provide easy understanding through a clear and concise theoretical treatment. This edition places even greater emphasis on 'learning by doing' than the previous edition. Fully documented MATLAB code for the numerical methods described in the book will be available as supplementary material to the book on <http://extras.springer.com>

Language Processing and Intelligent Information Systems

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This textbook provides a comprehensive modeling, reformulation and optimization approach for solving production planning and supply chain planning problems, covering topics from a basic introduction to planning systems, mixed integer programming (MIP) models and algorithms through the advanced description of mathematical results in polyhedral combinatorics required to solve these problems. Based on twenty years worth of research in which the authors have played a significant role, the book addresses real life industrial production planning problems (involving complex production structures with multiple production stages) using MIP modeling and reformulation approach. The book provides an introduction to MIP modeling and to planning systems, a unique collection of reformulation results, and an easy to use problem-solving library. This approach is demonstrated through a series of real life case studies, exercises and detailed illustrations. Review by Jakub Marecek (Computer Journal) The emphasis put on mixed integer rounding and mixing sets, heuristics in-built in general purpose integer programming solvers, as well as on decompositions and heuristics using integer programming should be praised There is no doubt that this volume offers the present best introduction to integer programming formulations of lotsizing problems, encountered in production planning. (2007)

Numerical Methods with Worked Examples: Matlab Edition

This textbook thoroughly outlines combinatorial

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algorithms for generation, enumeration, and search. Topics include backtracking and heuristic search methods applied to various combinatorial structures, such as: Combinations Permutations Graphs Designs Many classical areas are covered as well as new research topics not included in most existing texts, such as: Group algorithms Graph isomorphism Hill-climbing Heuristic search algorithms This work serves as an exceptional textbook for a modern course in combinatorial algorithms, providing a unified and focused collection of recent topics of interest in the area. The authors, synthesizing material that can only be found scattered through many different sources, introduce the most important combinatorial algorithmic techniques - thus creating an accessible, comprehensive text that students of mathematics, electrical engineering, and computer science can understand without needing a prior course on combinatorics.

2019 Workshop on Research, Education and Development of Unmanned Aerial Systems (RED UAS)

This volume presents the selected papers of the First International Conference on Fundamental Research in Electrical Engineering, held at Khwarazmi University, Tehran, Iran in July, 2017. The selected papers cover the whole spectrum of the main four fields of Electrical Engineering (Electronic, Telecommunications, Control, and Power Engineering).

Best Waiter Ever

During the last decade, artificial ants have experienced rapid development in the research community, mainly for solving optimization problems. This book provides an overview of the situation ant colony algorithms reached. Artificial Ants encompasses solution methods of hard optimization problems and new trends for collective intelligence. Part 1 helps to understand the basis of ant colony algorithms, and to discover a panorama of applications in the field of optimization, particularly in the industrial world. Part 2 deals with broader issues and provides an overview of current research in the field of artificial ants.

Practical Optimization with MATLAB

Advances in Genetic Programming reports significant results in improving the power of genetic programming, presenting techniques that can be employed immediately in the solution of complex problems in many areas, including machine learning and the simulation of autonomous behavior. Popular languages such as C and C++ are used in many of the applications and experiments, illustrating how genetic programming is not restricted to symbolic computing languages such as LISP. Researchers interested in getting started in genetic programming will find information on how to begin, on what public-domain code is available, and on how to become part of the active genetic programming community via electronic mail.

GPU-based Parallel Implementation of Swarm Intelligence Algorithms

A MATLAB Exercise Book

This book is a printed edition of the Special Issue "Algorithms for Scheduling Problems" that was published in Algorithms

Digital Conversion on the Way to Industry 4.0

Genetic algorithms are founded upon the principle of evolution, i.e., survival of the fittest. Hence evolution programming techniques, based on genetic algorithms, are applicable to many hard optimization problems, such as optimization of functions with linear and nonlinear constraints, the traveling salesman problem, and problems of scheduling, partitioning, and control. The importance of these techniques is still growing, since evolution programs are parallel in nature, and parallelism is one of the most promising directions in computer science. The book is self-contained and the only prerequisite is basic undergraduate mathematics. This third edition has been substantially revised and extended by three new chapters and by additional appendices containing working material to cover recent developments and a change in the perception of evolutionary computation.

Stochastic Global Optimization and Its

Applications with Fuzzy Adaptive Simulated Annealing

Computers that 'program themselves' has long been an aim of computer scientists. Recently genetic programming (GP) has started to show its promise by automatically evolving programs. Indeed in a small number of problems GP has evolved programs whose performance is similar to or even slightly better than that of programs written by people. The main thrust of GP has been to automatically create functions. While these can be of great use they contain no memory and relatively little work has addressed automatic creation of program code including stored data. This issue is the main focus of Genetic Programming, and Data Structures: Genetic Programming + Data Structures = Automatic Programming!. This book is motivated by the observation from software engineering that data abstraction (e.g., via abstract data types) is essential in programs created by human programmers. This book shows that abstract data types can be similarly beneficial to the automatic production of programs using GP. Genetic Programming and Data Structures: Genetic Programming + Data Structures = Automatic Programming! shows how abstract data types (stacks, queues and lists) can be evolved using genetic programming, demonstrates how GP can evolve general programs which solve the nested brackets problem, recognises a Dyck context free language, and implements a simple four function calculator. In these cases, an appropriate data structure is beneficial compared to simple indexed memory. This

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book also includes a survey of GP, with a critical review of experiments with evolving memory, and reports investigations of real world electrical network maintenance scheduling problems that demonstrate that Genetic Algorithms can find low cost viable solutions to such problems. Genetic Programming and Data Structures: Genetic Programming + Data Structures = Automatic Programming! should be of direct interest to computer scientists doing research on genetic programming, genetic algorithms, data structures, and artificial intelligence. In addition, this book will be of interest to practitioners working in all of these areas and to those interested in automatic programming.

Index to Theses with Abstracts Accepted for Higher Degrees by the Universities of Great Britain and Ireland and the Council for National Academic Awards

This book gathers selected papers presented at the International Conference on Advancements in Computing and Management (ICACM 2019). Discussing current research in the field of artificial intelligence and machine learning, cloud computing, recent trends in security, natural language processing and machine translation, parallel and distributed algorithms, as well as pattern recognition and analysis, it is a valuable resource for academics, practitioners in industry and decision-makers.

International Conference on Intelligent Computing: Intelligent computing

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This Volume discusses the underlying principles and analysis of the different concepts associated with an emerging socio-inspired optimization tool referred to as Cohort Intelligence (CI). CI algorithms have been coded in Matlab and are freely available from the link provided inside the book. The book demonstrates the ability of CI methodology for solving combinatorial problems such as Traveling Salesman Problem and Knapsack Problem in addition to real world applications from the healthcare, inventory, supply chain optimization and Cross-Border transportation. The inherent ability of handling constraints based on probability distribution is also revealed and proved using these problems.

Advances in Genetic Programming

An accessible treatment of the modeling and solution of integer programming problems, featuring modern applications and software. In order to fully comprehend the algorithms associated with integer programming, it is important to understand not only how algorithms work, but also why they work. Applied Integer Programming features a unique emphasis on this point, focusing on problem modeling and solution using commercial software. Taking an application-oriented approach, this book addresses the art and science of mathematical modeling related to the mixed integer programming (MIP) framework and discusses the algorithms and associated practices that enable those models to be solved most efficiently. The book begins with coverage of successful applications, systematic modeling

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procedures, typical model types, transformation of non-MIP models, combinatorial optimization problem models, and automatic preprocessing to obtain a better formulation. Subsequent chapters present algebraic and geometric basic concepts of linear programming theory and network flows needed for understanding integer programming. Finally, the book concludes with classical and modern solution approaches as well as the key components for building an integrated software system capable of solving large-scale integer programming and combinatorial optimization problems. Throughout the book, the authors demonstrate essential concepts through numerous examples and figures. Each new concept or algorithm is accompanied by a numerical example, and, where applicable, graphics are used to draw together diverse problems or approaches into a unified whole. In addition, features of solution approaches found in today's commercial software are identified throughout the book. Thoroughly classroom-tested, *Applied Integer Programming* is an excellent book for integer programming courses at the upper-undergraduate and graduate levels. It also serves as a well-organized reference for professionals, software developers, and analysts who work in the fields of applied mathematics, computer science, operations research, management science, and engineering and use integer-programming techniques to model and solve real-world optimization problems.

Intelligent Computational Optimization in Engineering

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How can we capture the unpredictable evolutionary and emergent properties of nature in software? How can understanding the mathematical principles behind our physical world help us to create digital worlds? This book focuses on a range of programming strategies and techniques behind computer simulations of natural systems, from elementary concepts in mathematics and physics to more advanced algorithms that enable sophisticated visual results. Readers will progress from building a basic physics engine to creating intelligent moving objects and complex systems, setting the foundation for further experiments in generative design. Subjects covered include forces, trigonometry, fractals, cellular automata, self-organization, and genetic algorithms. The book's examples are written in Processing, an open-source language and development environment built on top of the Java programming language. On the book's website (<http://www.natureofcode.com>), the examples run in the browser via Processing's JavaScript mode.

Particle Swarm Optimization

This book addresses optimization in robotics, in terms of both the configuration space and the metal structure of the robot arm itself; and discusses, describes and builds different types of heuristics and algorithms in MATLAB. In addition, the book includes a wealth of examples and exercises. In particular, it enables the reader to write a MATLAB code for all the related problems in robotics. The book also offers detailed descriptions of and builds from scratch

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several types of optimization algorithms using MATLAB and simplified methods, especially for inverse problems and avoiding singularities. Each chapter features examples and exercises to enhance the reader's comprehension. Accordingly, the book offers the reader a better understanding of robot analysis from an optimization standpoint.

Fundamental Research in Electrical Engineering

Nature-inspired algorithms such as cuckoo search and firefly algorithm have become popular and widely used in recent years in many applications. These algorithms are flexible, efficient and easy to implement. New progress has been made in the last few years, and it is timely to summarize the latest developments of cuckoo search and firefly algorithm and their diverse applications. This book will review both theoretical studies and applications with detailed algorithm analysis, implementation and case studies so that readers can benefit most from this book. Application topics are contributed by many leading experts in the field. Topics include cuckoo search, firefly algorithm, algorithm analysis, feature selection, image processing, travelling salesman problem, neural network, GPU optimization, scheduling, queuing, multi-objective manufacturing optimization, semantic web service, shape optimization, and others. This book can serve as an ideal reference for both graduates and researchers in computer science, evolutionary computing, machine learning, computational intelligence, and optimization, as well

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as engineers in business intelligence, knowledge management and information technology.

Genetic Algorithms + Data Structures = Evolution Programs

A practical guide to problem solving using MATLAB. Designed to complement a taught course introducing MATLAB but ideally suited for any beginner. This book provides a brief tour of some of the tasks that MATLAB is perfectly suited to instead of focusing on any particular topic. Providing instruction, guidance and a large supply of exercises, this book is meant to stimulate problem-solving skills rather than provide an in-depth knowledge of the MATLAB language.

Learning MATLAB

This easy-to-follow guide provides academics and industrial engineers with a state-of-the-art numerical approach to the most frequent technical and economical optimization methods. In an engaging manner, it provides the reader with not only a systematic and comprehensive study, but also with necessary and directly implementable code written in the versatile and readily available platform Matlab. The book offers optimization methods for univariate and multivariate constrained or unconstrained functions, general optimization methods and multicriteria optimization methods; provides intuitively, step-by-step explained sample Matlab code, that can be easily adjusted to meet individual requirements; and uses a clear, concise presentation

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style, which will be suited to readers even without a programming background, as well as to students preparing for examinations in optimization methods.

Genetic Algorithms and Engineering Design

GPU-based Parallel Implementation of Swarm Intelligence Algorithms combines and covers two emerging areas attracting increased attention and applications: graphics processing units (GPUs) for general-purpose computing (GPGPU) and swarm intelligence. This book not only presents GPGPU in adequate detail, but also includes guidance on the appropriate implementation of swarm intelligence algorithms on the GPU platform. GPU-based implementations of several typical swarm intelligence algorithms such as PSO, FWA, GA, DE, and ACO are presented and having described the implementation details including parallel models, implementation considerations as well as performance metrics are discussed. Finally, several typical applications of GPU-based swarm intelligence algorithms are presented. This valuable reference book provides a unique perspective not possible by studying either GPGPU or swarm intelligence alone. This book gives a complete and whole picture for interested readers and new comers who will find many implementation algorithms in the book suitable for immediate use in their projects. Additionally, some algorithms can also be used as a starting point for further research. Presents a concise but sufficient introduction to general-purpose GPU computing which can help the layman

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become familiar with this emerging computing technique Describes implementation details, such as parallel models and performance metrics, so readers can easily utilize the techniques to accelerate their algorithmic programs Appeals to readers from the domain of high performance computing (HPC) who will find the relatively young research domain of swarm intelligence very interesting Includes many real-world applications, which can be of great help in deciding whether or not swarm intelligence algorithms or GPGPU is appropriate for the task at hand

Production Planning by Mixed Integer Programming

Ideal gift for the professional in your life - 6x9 119 page custom notebook - perfect for secret santa or a co-worker colleague - unique specialist personalised gift!

Practical Genetic Algorithms

A brilliant treatment of a knotty problem in computing. This volume contains chapters written by reputable researchers and provides the state of the art in theory and algorithms for the traveling salesman problem (TSP). The book covers all important areas of study on TSP, including polyhedral theory for symmetric and asymmetric TSP, branch and bound, and branch and cut algorithms, probabilistic aspects of TSP, and includes a thorough computational analysis of heuristic and metaheuristic

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algorithms.

Advances in Computing and Data Sciences

This two-volume set (CCIS 905 and CCIS 906) constitutes the refereed proceedings of the Second International Conference on Advances in Computing and Data Sciences, ICACDS 2018, held in Dehradun, India, in April 2018. The 110 full papers were carefully reviewed and selected from 598 submissions. The papers are centered around topics like advanced computing, data sciences, distributed systems organizing principles, development frameworks and environments, software verification and validation, computational complexity and cryptography, machine learning theory, database theory, probabilistic representations.

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