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Algorithms for Random Generation and Counting: A Markov Chain Approach A Primer on Pseudorandom Generators Random Number Generators—Principles and Practices Two-Generator Discrete Subgroups of $\text{PSL}(2, \mathbb{R})$ Procedural Content Generation for Unity Game Development The Algorithm Design Manual: Text Random Generation of Trees Handbook of Chemoinformatics Algorithms Randomization, Approximation, and Combinatorial Optimization. Algorithms and Techniques Experimental and Efficient Algorithms Computer Aided Control Algorithm Generator Randomized Algorithms: Approximation, Generation, and Counting Design and Analysis of Algorithms: Delaunay Mesh Generation Algorithms and Complexity Practical Algorithms for 3D Computer Graphics, Second Edition Physical and Statistical Models for Steam Generator Clogging Diagnosis Official Gazette of the United States Patent and Trademark Office Algorithm Engineering and Experimentation Generator Control Algorithm Using Simulink Model Algorithms - ESA'99 A True Random Number Generator Algorithm Using Digital Camera Image Noises Under Varying Lighting Conditions Algorithms - ESA 2005 Power Swing Detection and Generator Out-of-Step Protection Under Renewable Power Source Integration Scientific Programming Metaheuristic and Evolutionary Computation: Algorithms and Applications Permutation Group Algorithms Algorithms and Architectures for Parallel Processing Inside Java 2 Platform Security Brain Storm Optimization Algorithms Approximation, Randomization, and Combinatorial Optimization. Algorithms and Techniques Proceedings of the Fourteenth Annual ACM-SIAM Symposium on Discrete Algorithms 11th International Conference on Cyber Warfare and Security Design of a New Digital Relaying Algorithm for a Generator Protection Against Loss of Field Statistical Mechanics: Algorithms and Computations Smart Card Handbook Wireless Algorithms, Systems, and Applications Tools and Algorithms for the Construction and Analysis of Systems Algorithms—Advances in Research and Application: 2013 Edition Approximation Algorithms

This book constitutes the refereed proceedings of the Third Italian Conference on Algorithms and Complexity, CIAC'97, held in Rome, Italy in March 1997. The 25 revised full papers included in the volume were carefully selected from a total of 74 submissions; also included is an invited paper and an invited abstract. All in all, the papers present an interesting snapshot of current research activities and recent results in theory and applications of sequential, distributed, and parallel algorithms, data structures, and computational complexity. Covering the basic techniques used in the latest research work, the author consolidates progress made so far, including some very recent and promising results, and conveys the beauty and excitement of work in the field. He gives clear, lucid explanations of key results and ideas,

with intuitive proofs, and provides critical examples and numerous illustrations to help elucidate the algorithms. Many of the results presented have been simplified and new insights provided. Of interest to theoretical computer scientists, operations researchers, and discrete mathematicians. From the January 2003 symposium come just over 100 papers addressing a range of topics related to discrete algorithms. Examples of topics covered include packing Steiner trees, counting inversions in lists, directed scale-free graphs, quantum property testing, and improved results for directed multicut. The papers were not formally refereed, but attempts were made to verify major results. Annotation (c)2003 Book News, Inc., Portland, OR (booknews.com) This monograph focuses on the modern power system and its reliable operation on a national scale. The contents focus on the analysis and root cause of different power system blackouts, the introduction of a phasor measurement unit incorporating a polygon-shaped graphical algorithm for out-of-step protection of the synchronous generator, predictive out-of-step protection, dual-slope relay setting, novel apparent stability concept, among others. This volume will be beneficial to academia and industry during the testing, development, and modeling of protective relays for generators, transformers, and transmission lines. This book constitutes the refereed proceedings of the 4th International Workshop on Experimental and Efficient Algorithms, WEA 2005, held in Santorini Island, Greece in May 2005. The 47 revised full papers and 7 revised short papers presented together with extended abstracts of 3 invited talks were carefully reviewed and selected from 176 submissions. The book is devoted to the design, analysis, implementation, experimental evaluation, and engineering of efficient algorithms. Among the application areas addressed are most fields applying advanced algorithmic techniques, such as combinatorial optimization, approximation, graph theory, discrete mathematics, scheduling, searching, sorting, string matching, coding, networking, data mining, data analysis, etc. This book addresses the principles and applications of metaheuristic approaches in engineering and related fields. The first part covers metaheuristics tools and techniques such as ant colony optimization and Tabu search, and their applications to several classes of optimization problems. In turn, the book's second part focuses on a wide variety of metaheuristics applications in engineering and/or the applied sciences, e.g. in smart grids and renewable energy. In addition, the simulation codes for the problems discussed are included in an appendix for ready reference. Intended for researchers aspiring to learn and apply metaheuristic techniques, and gathering contributions by prominent experts in the field, the book offers readers an essential introduction to metaheuristics, its theoretical aspects and applications. This book constitutes the proceedings of the 10th International Conference on Algorithms and Architectures for Parallel

Processing, ICA3PP. The 47 papers were carefully selected from 157 submissions and focus on topics for researchers and industry practitioners to exchange information regarding advancements in the state of art and practice of IT-driven services and applications, as well as to identify emerging research topics and define the future directions of parallel processing. This book constitutes the thoroughly refereed post-proceedings of the Third International Workshop on Algorithm Engineering and Experimentation, ALENEX 2001, held in Washington, DC, USA in January 2001. The 15 revised full papers presented together with the abstracts of three invited presentations have gone through two rounds of reviewing and revision and were selected from 31 submissions. Among the topics addressed are heuristics for approximation, network optimization, TSP, randomization, sorting, information retrieval, graph computations, tree clustering, scheduling, network algorithms, point set computations, searching, and data mining. The discreteness problem is the problem of determining whether or not a two-generator subgroup of $\text{PSL}(2, \mathbb{R})$ is discrete. Historically, papers on this old and subtle problem have been known for their errors and omissions. This book presents the first complete geometric solution to the discreteness problem by building upon cases previously presented by Gilman and Maskit and by developing a theory of triangle group shinglings/tilings of the hyperbolic plane and a theory explaining why the solution must take the form of an algorithm. This work is a thoroughly readable exposition that captures the beauty of the interplay between the algebra and the geometry of the solution. Table of contents A fresh look at the question of randomness was taken in the theory of computing: A distribution is pseudorandom if it cannot be distinguished from the uniform distribution by any efficient procedure. This paradigm, originally associating efficient procedures with polynomial-time algorithms, has been applied with respect to a variety of natural classes of distinguishing procedures. The resulting theory of pseudorandomness is relevant to science at large and is closely related to central areas of computer science, such as algorithmic design, complexity theory, and cryptography. This primer surveys the theory of pseudorandomness, starting with the general paradigm, and discussing various incarnations while emphasizing the case of general-purpose pseudorandom generators (withstanding any polynomial-time distinguisher). Additional topics include the "derandomization" of arbitrary probabilistic polynomial-time algorithms, pseudorandom generators withstanding space-bounded distinguishers, and several natural notions of special-purpose pseudorandom generators. The primer assumes basic familiarity with the notion of efficient algorithms and with elementary probability theory, but provides a basic introduction to all notions that are actually used. as a result, the primer is essentially self-contained, although the interested reader is

at times referred to other sources for more detail. The 11th International Conference on Cyber Warfare and Security (ICCWS 2016) is being held at Boston University, Boston, USA on the 17-18th March 2016. The Conference Chair is Dr Tanya Zlateva and the Programme Chair is Professor Virginia Greiman, both from Boston University. ICCWS is a recognised Cyber Security event on the International research conferences calendar and provides a valuable platform for individuals to present their research findings, display their work in progress and discuss conceptual and empirical advances in the area of Cyber Warfare and Cyber Security. It provides an important opportunity for researchers and managers to come together with peers to share their experiences of using the varied and expanding range of Cyberwar and Cyber Security research available to them. The keynote speakers for the conference are Daryl Haegley from the Department of Defense (DoD), who will address the topic Control Systems Networks...What's in Your Building? and Neal Ziring from the National Security Agency who will be providing some insight to the issue of Is Security Achievable? A Practical Perspective. ICCWS received 125 abstract submissions this year. After the double blind, peer review process there are 43 Academic Research Papers 8 PhD papers Research papers, 7 Masters and 1 work-in-progress papers published in these Conference Proceedings. These papers represent work from around the world, including: Australia, Canada, China, Czech Republic, District of Columbia, Finland, France, Israel, Japan, Lebanon, Netherlands, Pakistan, Russian Federation, Saudi Arabia, South Africa, Turkey, United Arab Emirates, UK, USA. This book constitutes the refereed proceedings of the 9th International Conference on Wireless Algorithms, Systems and Applications, WASA 2014, held in Harbin, China, in June 2014. The 41 revised full papers presented together with 30 invited papers were carefully reviewed and selected from 134 submissions. The papers cover a wide range of topics including cognitive radio networks, wireless sensor networks, cyber-physical systems, distributed and localized algorithm design and analysis, information and coding theory for wireless networks, localization, mobile cloud computing, topology control and coverage, security and privacy, underwater and underground networks, vehicular networks, information processing and data management, programmable service interfaces, energy-efficient algorithms, system and protocol design, operating system and middle-ware support and experimental test-beds and models. This volume helps take some of the "mystery" out of identifying and dealing with key algorithms. Drawing heavily on the author's own real-world experiences, the book stresses design and analysis. Coverage is divided into two parts, the first being a general guide to techniques for the design and analysis of computer algorithms. The second is a reference section, which includes a catalog of the 75 most important algorithmic problems. By browsing this catalog, readers can quickly identify what the problem they have encountered is called, what is known about it, and how they should proceed if they need to solve it. This book is ideal for the working professional who uses algorithms on a daily basis and has need for a handy reference. This work can also readily be used in an

upper-division course or as a student reference guide. THE ALGORITHM DESIGN MANUAL comes with a CD-ROM that contains: * a complete hypertext version of the full printed book. * the source code and URLs for all cited implementations. * over 30 hours of audio lectures on the design and analysis of algorithms are provided, all keyed to on-line lecture notes. Brain Storm Optimization (BSO) algorithms are a new kind of swarm intelligence method, which is based on the collective behavior of human beings, i.e., on the brainstorming process. Since the introduction of BSO algorithms in 2011, many studies on them have been conducted. They not only offer an optimization method, but could also be viewed as a framework of optimization techniques. The process employed in the algorithms could be simplified as a framework with two basic operations: the converging operation and the diverging operation. A "good enough" optimum could be obtained through recursive solution divergence and convergence. The resulting optimization algorithm would naturally have the capability of both convergence and divergence. This book is primarily intended for researchers, engineers, and graduate students with an interest in BSO algorithms and their applications. The chapters cover various aspects of BSO algorithms, and collectively provide broad insights into what these algorithms have to offer. The book is ideally suited as a graduate-level textbook, whereby students may be tasked with the study of the rich variants of BSO algorithms that involves a hands-on implementation to demonstrate the utility and applicability of BSO algorithms in solving optimization problems. Practical Algorithms for 3D Computer Graphics, Second Edition covers the fundamental algorithms that are the core of all 3D computer graphics software packages. Using Core OpenGL and OpenGL ES, the book enables you to create a complete suite of programs for 3D computer animation, modeling, and image synthesis. Since the publication of the first edition, implementation aspects have changed significantly, including advances in graphics technology that are enhancing immersive experiences with virtual reality. Reflecting these considerable developments, this second edition presents up-to-date algorithms for each stage in the creative process. It takes you from the construction of polygonal models of real and imaginary objects to rigid body animation and hierarchical character animation to the rendering pipeline for the synthesis of realistic images. New to the Second Edition New chapter on the modern approach to real-time 3D programming using OpenGL New chapter that introduces 3D graphics for mobile devices New chapter on OpenFX, a comprehensive open source 3D tools suite for modeling and animation Discussions of new topics, such as particle modeling, marching cubes, and techniques for rendering hair and fur More web-only content, including source code for the algorithms, video transformations, comprehensive examples, and documentation for OpenFX The book is suitable for newcomers to graphics research and 3D computer games as well as more experienced software developers who wish to write plug-in modules for any 3D application program or shader code for a commercial games engine. Written by authors at the forefront of modern algorithms research, Delaunay Mesh Generation demonstrates the

power and versatility of Delaunay meshers in tackling complex geometric domains ranging from polyhedra with internal boundaries to piecewise smooth surfaces. Covering both volume and surface meshes, the authors fully explain how and why these meshing algorithms work. The book is one of the first to integrate a vast amount of cutting-edge material on Delaunay triangulations. It begins with introducing the problem of mesh generation and describing algorithms for constructing Delaunay triangulations. The authors then present algorithms for generating high-quality meshes in polygonal and polyhedral domains. They also illustrate how to use restricted Delaunay triangulations to extend the algorithms to surfaces with ridges and patches and volumes with smooth surfaces. For researchers and graduate students, the book offers a rigorous theoretical analysis of mesh generation methods. It provides the necessary mathematical foundations and core theoretical results upon which researchers can build even better algorithms in the future. For engineers, the book shows how the algorithms work well in practice. It explains how to effectively implement them in the design and programming of mesh generation software. Algorithms—Advances in Research and Application: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Coloring Algorithm. The editors have built Algorithms—Advances in Research and Application: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Coloring Algorithm in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Algorithms—Advances in Research and Application: 2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>. Randomized Algorithms discusses two problems of fine pedigree: counting and generation, both of which are of fundamental importance to discrete mathematics and probability. When asking questions like "How many are there?" and "What does it look like on average?" of families of combinatorial structures, answers are often difficult to find -- we can be blocked by seemingly intractable algorithms. Randomized Algorithms shows how to get around the problem of intractability with the Markov chain Monte Carlo method, as well as highlighting the method's natural limits. It uses the technique of coupling before introducing "path coupling" a new technique which radically simplifies and improves upon previous methods in the area. This book constitutes the refereed proceedings of the 7th Annual European Symposium on Algorithms, ESA '99, held in Prague, Czech Republic, in July 1999. The 44 revised papers presented were carefully reviewed and selected from a total of 122 submissions. All areas of algorithmic research are covered, in particular approximation algorithms, combinatorial optimization, computational mathematics,

computational science, databases and information retrieval, graph computations, network algorithms, online algorithms, pattern matching, data compression, parallel algorithms, distributed algorithms, and sequential algorithms. This monograph is a slightly revised version of my PhD thesis [86], completed in the Department of Computer Science at the University of Edinburgh in June 1988, with an additional chapter summarising more recent developments. Some of the material has appeared in the form of papers [50,88]. The underlying theme of the monograph is the study of two classical problems: counting the elements of a finite set of combinatorial structures, and generating them uniformly at random. In their exact form, these problems appear to be intractable for many important structures, so interest has focused on finding efficient randomised algorithms that solve them approximately, with a small probability of error. For most natural structures the two problems are intimately connected at this level of approximation, so it is natural to study them together. At the heart of the monograph is a single algorithmic paradigm: simulate a Markov chain whose states are combinatorial structures and which converges to a known probability distribution over them. This technique has applications not only in combinatorial counting and generation, but also in several other areas such as statistical physics and combinatorial optimisation. The efficiency of the technique in any application depends crucially on the rate of convergence of the Markov chain. RANDOM is concerned with applications of randomness to computational and combinatorial problems, and was the 13th workshop in the series following Bologna (1997), Barcelona (1998), Berkeley (1999), Geneva (2000), Berkeley (2001), Harvard (2002), Princeton (2003), Cambridge (2004), Berkeley (2005), Barcelona (2006), Princeton (2007), and Boston (2008). Random Generation of Trees is about a field on the crossroads between computer science, combinatorics and probability theory. Computer scientists need random generators for performance analysis, simulation, image synthesis, etc. In this context random generation of trees is of particular interest. The algorithms presented here are efficient and easy to code. Some aspects of Horton-Strahler numbers, programs written in C and pictures are presented in the appendices. The complexity analysis is done rigorously both in the worst and average cases. Random Generation of Trees is intended for students in computer science and applied mathematics as well as researchers interested in random generation. Design and Analysis of Algorithms is the outcome of teaching, research and consultancy done by the authors over more than two decades. All aspects pertaining to algorithm design and algorithm analysis have been discussed over the chapters. Unlike in the related area of bioinformatics, few books currently exist that document the techniques, tools, and algorithms of cheminformatics. Bringing together worldwide experts in the field, the Handbook of Cheminformatics Algorithms provides an overview of the most common cheminformatics algorithms in a single source. After a historical perspective This book constitutes the refereed proceedings of the Third International Workshop on Randomization

and Approximation Techniques in Computer Science, RANDOM'99, held jointly with the Second International Workshop on Approximation Algorithms for Combinatorial Optimization Problems, APPROX'99, in Berkeley, California in August 1999. The volume presents 24 revised full papers selected from 44 submissions and four invited contributions. The papers present a wealth of new results and document the state-of-the-art in the areas covered by the workshop. This open access book constitutes the proceedings of the 29th International Conference on Tools and Algorithms for the Construction and Analysis of Systems, TACAS 2023, which was held as part of the European Joint Conferences on Theory and Practice of Software, ETAPS 2023, during April 22-27, 2023, in Paris, France. The 56 full papers and 6 short tool demonstration papers presented in this volume were carefully reviewed and selected from 169 submissions. The proceedings also contain 1 invited talk in full paper length, 13 tool papers of the affiliated competition SV-Comp and 1 paper consisting of the competition report. TACAS is a forum for researchers, developers, and users interested in rigorously based tools and algorithms for the construction and analysis of systems. The conference aims to bridge the gaps between different communities with this common interest and to support them in their quest to improve the utility, reliability, flexibility, and efficiency of tools and algorithms for building computer-controlled systems. This book discusses the computational approach in modern statistical physics in a clear yet accessible way, and works out its intimate relations with other approaches in theoretical physics. Individual chapters focus on subjects as diverse as the hard sphere liquid, classical spin models, single quantum particles and Bose-Einstein condensation. They contain in-depth discussions of algorithms ranging from basic enumeration methods to modern Monte Carlo techniques. The emphasis is on orientation. Discussions of implementation details are kept to a minimum. The book heavily relies on illustrations, tables and concise printed algorithms to convey key information: all the material remains easily accessible. The book is fully self-contained: graphs and tables can be readily reproduced by programming at most a few dozen lines of computer code. Most sections lead from an elementary discussion to the rich and difficult problems of contemporary computational and statistical physics, and will be of interest to a wide range of students, teachers and researchers in physics and the neighboring sciences. An accompanying CD allows to incorporate the layout material (illustrations, tables, schematic programs) into the reader's own presentations. Harness the power of procedural content generation to design unique games with Unity About This Book Learn the basics of PCG development Develop a 2D game from start to finish Explore all the different ways PCG can be applied in games Who This Book Is For This book is for Unity game developers, especially those who work on indie games. You should be familiar with Unity and C# scripting but you'll be able to jump in and start learning PCG straightaway. What You Will Learn Understand the theory of Procedural Content Generation Learn the uses of Pseudo Random Numbers Create reusable algorithm designs for PCG Evaluate the data structures for PCG Develop smaller games with larger

amounts of content Generate content instead of spending time designing every minute detail Learn when and how to add PCG to your game Learn the fundamental techniques of PCG In Detail Procedural Content Generation is a process by which game content is developed using computer algorithms, rather than through the manual efforts of game developers. This book teaches readers how to develop algorithms for procedural generation that they can use in their own games. These concepts are put into practice using C# and Unity is used as the game development engine. This book provides the fundamentals of learning and continued learning using PCG. You'll discover the theory of PCG and the mighty Pseudo Random Number Generator. Random numbers such as die rolls and card drafting provide the chance factor that makes games fun and supplies spontaneity. This book also takes you through the full development of a 2D game. Starting with level generation, you'll learn how PCG can make the game environment for you. You'll move into item generation and learn the different techniques to procedurally create game items. Thereafter, you'll be guided through the more abstract PCG areas such as scaling difficulty to the player and even generating music! The book helps you set up systems within your games where algorithms create computationally generated levels, art assets, quests, stories, characters, and weapons; these can substantially reduce the burden of manually creating every aspect of the game. Finally, you'll get to try out your new PCG skills on 3D terrain generation. Style and approach An easy-to-follow, project-based guide that will let you build a complete game by the end of the book using PCG. This book constitutes the refereed proceedings of the 13th Annual European Symposium on Algorithms, ESA 2005, held in Palma de Mallorca, Spain, in September 2005 in the context of the combined conference ALGO 2005. The 75 revised full papers presented together with abstracts of 3 invited lectures were carefully reviewed and selected from 244 submissions. The papers address all current issues in algorithmics reaching from design and mathematical issues over real-world applications in various fields up to engineering and analysis of algorithms. Clogging of steam generators in nuclear power plants is a highly sensitive issue in terms of performance and safety and this book proposes a completely novel methodology for diagnosing this phenomenon. It demonstrates real-life industrial applications of this approach to French steam generators and applies the approach to operational data gathered from French nuclear power plants. The book presents a detailed review of in situ diagnosis techniques and assesses existing methodologies for clogging diagnosis, whilst examining their limitations. It also addresses numerical modelling of the dynamic behaviour of steam generators and provides a thorough analysis of statistical methods for sensitivity analysis and dimension reduction. Steam generators are heat exchangers found in nuclear power plants and over time they become increasingly clogged by iron oxides. This clogging then hampers the flow inside steam generators and compromises their mechanical integrity, which hinders performance and safety. This book is intended for nuclear safety specialists, nuclear performance engineers and researchers and postgraduate students

working on heat exchanger modeling and computational engineering. Random Number Generators, Principles and Practices has been written for programmers, hardware engineers, and sophisticated hobbyists interested in understanding random numbers generators and gaining the tools necessary to work with random number generators with confidence and knowledge. Using an approach that employs clear diagrams and running code examples rather than excessive mathematics, random number related topics such as entropy estimation, entropy extraction, entropy sources, PRNGs, randomness testing, distribution generation, and many others are exposed and demystified. If you have ever Wondered how to test if data is really random Needed to measure the randomness of data in real time as it is generated Wondered how to get randomness into your programs Wondered whether or not a random number generator is trustworthy Wanted to be able to choose between random number generator solutions Needed to turn uniform random data into a different distribution Needed to ensure the random numbers from your computer will work for your cryptographic application Wanted to combine more than one random number generator to increase reliability or security Wanted to get random numbers in a floating point format Needed to verify that a random number generator meets the requirements of a published standard like SP800-90 or AIS 31 Needed to choose between an LCG, PCG or XorShift algorithm Then this might be the book for you. Generator Control Algorithm using simulink model The most comprehensive book on state-of-the-art smart card technology available Updated with new international standards and specifications, this essential fourth edition now covers all aspects of smart card in a completely revised structure. Its enlarged coverage now includes smart cards for passports and ID cards, health care cards, smart cards for public transport, and Java Card 3.0. New sub-chapters cover near field communication (NFC), single wire protocol (SWP), and multi megabyte smart cards (microcontroller with NAND-Flash). There are also extensive revisions to chapters on smart card production, the security of smart cards (including coverage of new attacks and protection methods), and contactless card data transmission (ISO/IEC 10536, ISO/IEC 14443, ISO/IEC 15693). This edition also features: additional views to the future development of smart cards, such as USB, MMU, SWP, HCI, Flash memory and their usage; new internet technologies for smart cards; smart card web server, HTTP-Protocol, TCP/IP, SSL/TSL; integration of the new flash-based microcontrollers for smart cards (until now the usual ROM-based microcontrollers), and; a completely revised glossary with

explanations of all important smart card subjects (600 glossary terms). Smart Card Handbook is firmly established as the definitive reference to every aspect of smart card technology, proving an invaluable resource for security systems development engineers. Professionals and microchip designers working in the smart card industry will continue to benefit from this essential guide. This book is also ideal for newcomers to the field. The Fraunhofer Smart Card Award was presented to the authors for the Smart Card Handbook, Third Edition in 2008. The book teaches a student to model a scientific problem and write a computer program in C language to solve that problem. To do that, the book first introduces the student to the basics of C language, dealing with all syntactical aspects, but without the pedantic content of a typical programming language manual. Then the book describes and discusses many algorithms commonly used in scientific applications (e.g. searching, graphs, statistics, equation solving, Monte Carlo methods etc.). This important book fills a gap in current available bibliography. There are many manuals for programming in C, but they never explain programming technicalities to solve a given problem. This book illustrates many relevant algorithms and shows how to translate them in a working computer program. Contents:Basic Programming in C Language:Numbers and Non-NumbersProgramming LanguagesBasics of C ProgramsLogic ManagementFundamental Data StructuresPointersFunctionsNumerical Interpolation and IntegrationAdvanced Programming and Simple Algorithms:Integrating Differential EquationsIn-Depth Examination of Differential Equations(Pseudo)random NumbersRandom WalksLists, Dictionaries and PercolationBits and Boolean VariablesProgramming Advanced Algorithms:Recursion and Data SortingDynamic Data StructuresGraphs and Graph AlgorithmsOptimization MethodsThe Monte Carlo MethodHow to Use Stochastic Algorithms Readership: Professionals, academics, researchers and graduate students in software engineering, computational physics and numerical analysis. Keywords:Programming;Algorithms;C-LanguageReviews: "This book is intended primarily for students of scientific disciplines that use programming as a tool for solving their problems. Due to the practice-oriented consideration of C programming a better learning success is achieved than with a conventional C programming guide." Zentralblatt MATH We present a True Random Number Generator (TRNG) using the images taken by web or mobile phone cameras. We use all three RGB color channels to obtain the random numbers whereas previous studies used only one. We investigated the physical and statistical properties of the random noise in a digital photograph obtained by a

camera system, and we made several approximations to efficiently collect the best random signals from the pixels in the images to map them to random sequences. In short, the algorithm excludes each pixel's saturated values to get its unbiased bits. An additional transposing operation shuffles the raw sequence to achieve better randomness. The final sequence passes all of the NIST randomness tests. The algorithm involves very few calculations and is especially suitable for smart phones. With modern mobile cameras, it can work on the go and achieve a fast bit rate. With readily available commodity hardware with no hardware changes, we observe a random number generate rate of 60 Mbps. A minor hardware optimization can result in a rate of about 1 Gbps. This authoritative Java security book is written by the architect of the Java security model. It chronicles J2EE v1.4 security model enhancements that will allow developers to build safer, more reliable, and more impenetrable programs. The object of this thesis is to develop a new digital-relaying algorithm for the protection of the generator in case of loss of its field current. In order to establish this goal the following steps are followed:-Firstly a study of the main protection requirements of an electric generator was done in order to form a common understanding about the most essential protection devices used for this purpose. Loss of field protection of asynchronous generator was given more attention, with special concentration on the disadvantages of the conventional relaying method based on the application of a mho distance relay.-Secondly a study of the operational characteristics of the generator during steady and transient states were done. These studies focus on the reactive power output from the generator, and its characteristics during loss of field.-Thirdly attention is directed to the study of the traditional method used to protect generators in case of loss of field with concentration on its disadvantages in order to overcome them in the planned new relaying algorithm. The traditional method uses an offset mho distance relay, which measures the impedance of the generator seen at its terminals and compares it to the setting values of the relay.-Then the new algorithm based on the direction of the reactive power flow through the generator was introduced. This algorithm measures the moving average of the total reactive power output of the generator over a complete cycle of the system frequency and compares it to its setting values.-In the last section a computer simulation study was performed on a representative power system to test the response of this new algorithm for actual loss of field, and for other abnormal operating conditions.-, Finally a collection of conclusions and suggested recommendations were given at the end of this thesis.