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GRETCHEN BERRY

Control Theory Tutorial Springer Nature

The first edition of *Search Methodologies: Introductory Tutorials in Optimization and Decision Support Techniques* was originally put together to offer a basic introduction to the various search and optimization techniques that students might need to use during their research, and this new edition continues this tradition. *Search Methodologies* has been expanded and brought completely up to date, including new chapters covering scatter search, GRASP, and very large neighborhood search. The chapter authors are drawn from across Computer Science and Operations Research and include some of the world's leading authorities in their field. The book provides useful guidelines for implementing the methods and frameworks described and offers valuable tutorials to students and researchers in the field. "As I embarked on the pleasant journey of reading through the chapters of this book, I became convinced that this is one of the best sources of introductory material on the search methodologies topic to be found. The book's subtitle, "Introductory Tutorials in Optimization and Decision Support Techniques", aptly describes its aim, and the editors and contributors to this volume have achieved this aim with remarkable success. The chapters in this book are exemplary in giving useful guidelines for implementing the methods and frameworks described." Fred Glover, Leeds School of Business, University of Colorado Boulder, USA "[The book] aims

to present a series of well written tutorials by the leading experts in their fields. Moreover, it does this by covering practically the whole possible range of topics in the discipline. It enables students and practitioners to study and appreciate the beauty and the power of some of the computational search techniques that are able to effectively navigate through search spaces that are sometimes inconceivably large. I am convinced that this second edition will build on the success of the first edition and that it will prove to be just as popular." Jacek Blazewicz, Institute of Computing Science, Poznan University of Technology and Institute of Bioorganic Chemistry, Polish Academy of Sciences
Cybersecurity in the Electricity Sector John Wiley & Sons

From Research to Manuscript, written in simple, straightforward language, explains how to understand and summarize a research project. It is a writing guide that goes beyond grammar and bibliographic formats, by demonstrating in detail how to compose the sections of a scientific paper. This book takes you from the data on your desk and leads you through the drafts and rewrites needed to build a thorough, clear science article. At each step, the book describes not only what to do but why and how. It discusses why each section of a science paper requires its particular form of information, and it shows how to put your data and your arguments into that form. Importantly, this writing manual recognizes that experiments in different disciplines need different presentations, and it is illustrated with examples from well-written papers on a wide variety of scientific subjects. As a textbook or as an individual tutorial, *From Research to Manuscript* belongs in the library of every serious science writer and editor.
[Introduction to Machine Learning with Applications in Information Security](#) Apress

This book offers a systematic explanation of cybersecurity protection of electricity supply facilities, including discussion of related costs, relevant standards, and recent solutions. The author explains the current state of cybersecurity in the electricity market, and cybersecurity standards that apply in that sector. He then offers a systematic approach to cybersecurity management, including new methods of cybersecurity assessment, cost evaluation and comprehensive defence. This monograph is suitable for practitioners, professionals, and researchers engaged in critical infrastructure protection.

HIV Psychiatry Apress

The Genus Citrus presents the enormous amount of new knowledge that has been generated in recent years on nearly all topics related to citrus. Beginning with an overview of the fundamental principles and understanding of citrus biology and behavior, the book provides a comprehensive view from Citrus evolution to current market importance. Reporting on new insights supported by the elucidation of the citrus genome sequence, it presents groundbreaking theories and fills in previous knowledge gaps. Because citrus is among the most difficult plants to improve through traditional breeding, citrus researchers, institutions and industries must quickly learn to adapt to new developments, knowledge and technologies to address the biological constraints of a unique fruit-tree such as citrus. Despite the challenges of working with citrus, tremendous progress has been made, mostly through advances in molecular biology and genomics. This book is valuable for all those involved with researching and advancing, producing, processing, and delivering citrus products. - Includes the most current research on citrus genomic information - Provides the first detailed description of citrus origin, a new proposal for citrus taxonomy, and a redefinition of the genus Citrus - Details citrus challenges including climate change, global disease impacts, and plant improvement strategies

Cuteness Engineering Springer Nature

A Practical Guide to TPM 2.0: Using the Trusted Platform Module in the New Age of Security is a straight-forward primer for developers. It shows security and TPM concepts, demonstrating their use in real applications that the reader can try out. Simply put, this book is designed to empower and excite the programming community to go out and do cool things with the TPM. The approach is to ramp the reader up quickly and keep their interest. A Practical Guide to TPM 2.0: Using the Trusted Platform Module in the New Age of Security explains security concepts, describes the TPM 2.0 architecture, and provides code and pseudo-code examples in parallel, from very simple concepts and code to highly complex concepts and pseudo-code. The book includes instructions for the available execution environments and real code examples to get readers up and talking to the TPM quickly. The authors then help the users expand on that with pseudo-code descriptions of useful applications using the TPM.

Systems Biology Springer Nature

An Introduction to Audio Content Analysis Enables readers to understand the algorithmic analysis of musical audio signals with AI-driven approaches. An Introduction to Audio Content Analysis serves as a comprehensive guide on audio content analysis explaining how signal processing and machine learning approaches can be utilized for the extraction of musical content from audio. It gives readers the algorithmic understanding to teach a computer to interpret music signals and thus allows for the design of tools for interacting with music. The work ties together topics from audio signal processing and machine learning, showing how to use audio content analysis to pick up musical characteristics automatically. A multitude of audio content analysis tasks related to the extraction of tonal, temporal, timbral, and intensity-related characteristics of the music signal are presented. Each task is introduced from both a musical and a technical perspective, detailing the algorithmic approach as well as providing practical guidance on implementation details and evaluation. To aid in reader comprehension, each task description begins with a short introduction to the most important musical and perceptual characteristics of the covered topic, followed by a detailed algorithmic model and its evaluation, and concluded with questions and exercises. For the interested reader, updated supplemental materials are provided via an accompanying website. Written by a well-known expert in the music industry, sample topics covered in Introduction to Audio Content Analysis include: Digital audio signals and their representation, common time-frequency transforms, audio features Pitch and fundamental frequency detection, key and chord Representation of dynamics in music and intensity-related features Beat histograms, onset and tempo detection, beat histograms, and detection of structure in music, and sequence alignment Audio fingerprinting, musical genre, mood, and instrument classification An invaluable guide for newcomers to audio signal processing and industry experts alike, An Introduction to Audio Content Analysis covers a wide range of introductory topics pertaining to music information retrieval and machine listening, allowing students and researchers to quickly gain core holistic knowledge in audio analysis and dig deeper into specific aspects of the field with the help of a large amount of references.

Foundational Java Apress

Vapor-based growth of thin metal films with controlled morphology on weakly-interacting substrates (WIS), including oxides and van der Waals materials, is essential for the fabrication of multifunctional metal contacts in a wide array of optoelectronic devices. Achieving this entails a great challenge, since weak film/substrate interactions yield a pronounced and uncontrolled 3D morphology. Moreover, the far-from-equilibrium nature of vapor-based film growth often leads to generation of mechanical stress, which may further compromise device reliability and functionality. The objectives of this thesis are related to metal film growth on WIS and seek to: (i) contribute to the understanding of atomic-scale processes that control film morphological evolution; (ii) elucidate the dynamic competition between nanoscale processes that govern film stress generation and evolution; and (iii) develop methodologies for manipulating and controlling nanoscale film morphology between 2D and 3D. Investigations focus on magnetron sputter-deposited Ag and Cu films on SiO₂ and amorphous carbon (a-C) substrates. Research is conducted by strategically combining in situ and real-time film growth monitoring, ex situ chemical and (micro)-structural analysis, optical modelling, and deterministic growth simulations. In the first part, the scaling behavior of characteristic morphological transition thicknesses (i.e., percolation and continuous film formation thickness) during growth of Ag and Cu films on a-C are established as function of deposition rate and temperature. These data are interpreted using a theoretical framework based on the droplet growth theory and the kinetic freezing model for island coalescence, from which the diffusion rates of film forming species during Ag and Cu growth are estimated. By combining experimental data with ab initio molecular dynamics simulations, diffusion of multiatomic clusters, rather than monomers, is identified as the rate-limiting structure-forming process. In the second part, the effect of minority metallic or gaseous species (Cu, N₂, O₂) on Ag film morphological evolution on SiO₂ is studied. By employing in situ spectroscopic ellipsometry, it is

found that addition of minority species at the film growth front promotes 2D morphology, but also yields an increased continuous-layer resistivity. Ex situ analyses show that 2D morphology is favored because minority species hinder the rate of coalescence completion. Hence, a novel growth manipulation strategy is compiled in which minority species are deployed with high temporal precision to selectively target specific film growth stages and achieve 2D morphology, while retaining opto-electronic properties of pure Ag films. In the third part, the evolution of stress during Ag and Cu film growth on a-C and its dependence on growth kinetics (as determined by deposition rate, substrate temperature) is systematically investigated. A general trend toward smaller compressive stress magnitudes with increasing temperature/deposition rate is found, related to increasing grain size/decreasing adatom diffusion length. Exception to this trend is found for Cu films, in which oxygen incorporation from the residual growth atmosphere at low deposition rates inhibits adatom diffusivity and decreases the magnitude of compressive stress. The effect of N₂ on stress type and magnitude in Ag films is also studied. While Ag grown in N₂-free atmosphere exhibits a typical compressive-tensile-compressive stress evolution as function of thickness, addition of a few percent of N₂ yields to a stress turnaround from compressive to tensile stress after film continuity which is attributed to giant grain growth and film roughening. The overall results of the thesis provide the foundation to: (i) determine diffusion rates over a wide range of WIS film/substrates systems; (ii) design non-invasive strategies for multifunctional contacts in optoelectronic devices; (iii) complete important missing pieces in the fundamental understanding of stress, which can be used to expand theoretical descriptions for predicting and tuning stress magnitude. La morphologie de films minces métalliques polycristallins élaborés par condensation d'une phase vapeur sur des substrats à faible interaction (SFI) possède un caractère 3D intrinsèque. De plus, la nature hors équilibre de la croissance du film depuis une phase vapeur conduit souvent à la génération de contraintes mécaniques, ce qui peut compromettre davantage la fiabilité et la fonctionnalité des dispositifs optoélectroniques. Les objectifs de cette thèse sont liés à la croissance de films métalliques sur SFI et visent à: (i) contribuer à une meilleure compréhension des processus à l'échelle atomique qui contrôlent l'évolution morphologique des films; (ii) élucider les processus dynamiques qui régissent la génération et l'évolution des contraintes en cours de croissance; et (iii) développer des méthodologies pour manipuler et contrôler la morphologie des films à l'échelle nanométrique. L'originalité de l'approche mise en œuvre consiste à suivre la croissance des films in situ et en temps réel par couplage de plusieurs diagnostics, complété par des analyses microstructurales ex situ. Les grandeurs mesurées sont confrontées à des modèles optiques et des simulations atomistiques. La première partie est consacrée à une étude de comportement d'échelonnement des épaisseurs de transition morphologiques caractéristiques, à savoir la percolation et la continuité du film, lors de la croissance de films polycristallins d'Ag et de Cu sur carbone amorphe (a-C). Ces grandeurs sont examinées de façon systématique en fonction de la vitesse de dépôt et de la température du substrat, et interprétées dans le cadre de la théorie de la croissance de gouttelettes suivant un modèle cinétique décrivant la coalescence d'îlots, à partir duquel les coefficients de diffusion des espèces métalliques sont estimés. En confrontant les données expérimentales à des simulations par dynamique moléculaire ab initio, la diffusion de clusters multiatomiques est identifiée comme l'étape limitante le processus de croissance. Dans la seconde partie, l'incorporation, et l'impact sur la morphologie, d'espèces métalliques ou gazeuses minoritaires (Cu, N₂, O₂) lors de la croissance de film Ag sur SiO₂ est étudié. A partir de mesures ellipsométriques in situ, on constate que l'addition d'espèces minoritaires favorise une morphologie 2D, entravant le taux d'achèvement de la coalescence, mais donne également une résistivité accrue de la couche continue. Par conséquent, une stratégie de manipulation de la croissance est proposée dans laquelle des espèces minoritaires sont déployées avec une grande précision temporelle pour cibler sélectivement des stades de croissance de film spécifiques et obtenir une morphologie 2D, tout en conservant les propriétés optoélectroniques des films d'Ag pur. Dans la troisième partie, l'évolution des contraintes résiduelles lors de la croissance des films d'Ag et de Cu sur a-C et leur dépendance à la cinétique de croissance est systématiquement étudiée. On observe une tendance générale vers des amplitudes de contrainte de compression plus faibles avec une augmentation de la température/vitesse de dépôt, liée à l'augmentation de la taille des grains/à la diminution de la longueur de diffusion des adatoms. Également, l'ajout dans le plasma de N₂ sur le type et l'amplitude des contraintes dans les films d'Ag est étudié. L'ajout de quelques pourcents de N₂ en phase gaz donne lieu à un renversement de la contrainte de compression et une évolution en tension au-delà de la continuité du film. Cet effet est attribué à une croissance anormale des grains géants et le développement de rugosité de surface. L'ensemble des résultats obtenus dans cette thèse fournissent les bases pour: (i) déterminer les coefficients de diffusion sur une large gamme de systèmes films/SFI; (ii) concevoir des stratégies non invasives pour les contacts multifonctionnels dans les dispositifs optoélectroniques; (iii) apporter des éléments de compréhension à l'origine du développement de contrainte, qui permettent de prédire et contrôler le niveau de contrainte intrinsèque à la croissance de films minces polycristallins.

An Introduction to Statistical Learning Springer

A concise and practical introduction to the foundations and engineering principles of self-adaptation Though it has recently gained significant momentum, the topic of self-adaptation remains largely under-addressed in academic and technical literature. This book changes that. Using a systematic and holistic approach, An Introduction to Self-adaptive Systems: A Contemporary Software Engineering Perspective provides readers with an accessible set of basic principles, engineering foundations, and applications of self-adaptation in software-intensive systems. It places self-adaptation in the context of techniques like uncertainty management, feedback control, online reasoning, and machine learning while acknowledging the growing consensus in the software engineering community that self-adaptation will be a crucial enabling feature in tackling the challenges of new, emerging, and future systems. The author combines cutting-edge technical research with basic principles and real-world insights to create a practical and strategically effective guide to self-adaptation. He includes features such as: An analysis of the foundational engineering principles and applications of self-adaptation in different domains, including the Internet-of-Things, cloud computing, and cyber-physical systems End-of-chapter exercises at four different levels of complexity and difficulty An accompanying author-hosted website with slides, selected exercises and solutions, models, and code Perfect for researchers, students, teachers, industry leaders, and practitioners in fields that directly or peripherally involve software engineering, as well as those in academia involved in a class on self-adaptivity, this book belongs on the shelves of anyone with an interest in the future of software and its engineering.

Data Mining IGI Global

This book offers a concise and gentle introduction to finite element programming in Python based on the popular FEniCS software library. Using a

series of examples, including the Poisson equation, the equations of linear elasticity, the incompressible Navier–Stokes equations, and systems of nonlinear advection–diffusion–reaction equations, it guides readers through the essential steps to quickly solving a PDE in FEniCS, such as how to define a finite variational problem, how to set boundary conditions, how to solve linear and nonlinear systems, and how to visualize solutions and structure finite element Python programs. This book is open access under a CC BY license.

Research Handbook on Innovations in Assessment and Feedback in Higher Education John Wiley & Sons

Introduction to Machine Learning with Applications in Information Security provides a class-tested introduction to a wide variety of machine learning algorithms, reinforced through realistic applications. The book is accessible and doesn't prove theorems, or otherwise dwell on mathematical theory. The goal is to present topics at an intuitive level, with just enough detail to clarify the underlying concepts. The book covers core machine learning topics in-depth, including Hidden Markov Models, Principal Component Analysis, Support Vector Machines, and Clustering. It also includes coverage of Nearest Neighbors, Neural Networks, Boosting and AdaBoost, Random Forests, Linear Discriminant Analysis, Vector Quantization, Naive Bayes, Regression Analysis, Conditional Random Fields, and Data Analysis. Most of the examples in the book are drawn from the field of information security, with many of the machine learning applications specifically focused on malware. The applications presented are designed to demystify machine learning techniques by providing straightforward scenarios. Many of the exercises in this book require some programming, and basic computing concepts are assumed in a few of the application sections. However, anyone with a modest amount of programming experience should have no trouble with this aspect of the book. Instructor resources, including PowerPoint slides, lecture videos, and other relevant material are provided on an accompanying website: <http://www.cs.sjsu.edu/~stamp/ML/>. For the reader's benefit, the figures in the book are also available in electronic form, and in color. About the Author Mark Stamp has been a Professor of Computer Science at San Jose State University since 2002. Prior to that, he worked at the National Security Agency (NSA) for seven years, and a Silicon Valley startup company for two years. He received his Ph.D. from Texas Tech University in 1992. His love affair with machine learning began in the early 1990s, when he was working at the NSA, and continues today at SJSU, where he has supervised vast numbers of master's student projects, most of which involve a combination of information security and machine learning.

Search Methodologies Springer Science & Business Media

This state of the art monograph presents a unique introduction to thinking about cuteness and its incorporation into modern, especially computer-based, products and services. Cuteness is defined and explored in relation to user-centered design concepts and methods, in addition to considering the history of cuteness and cuteness in other cultures, especially in relation to eastern Asia. The authors provide detailed analyses and histories of cuteness in Japan and in China, the rise of Kawaii and Moe cultural artifacts, and their relation to social, psychological, and design issues. They also attempt an initial taxonomy of cuteness. Finally, detailed interviews with leading designers of cute products and services, such as Hello Kitty, provide an understanding of the philosophy and decision-making process of designers of cuteness. Cuteness Engineering: Designing Adorable Products and Services will be of interest and use to a wide range of professionals, researchers, academics, and students who are interested in exploring the world of cuteness in fresh new ways and gaining insights useful for their work and studies.

Methods for Analysing and Reporting EQ-5D Data Springer Nature

An Introduction to Statistical Learning provides an accessible overview of the field of statistical learning, an essential toolset for making sense of the vast and complex data sets that have emerged in fields ranging from biology to finance, marketing, and astrophysics in the past twenty years. This book presents some of the most important modeling and prediction techniques, along with relevant applications. Topics include linear regression, classification, resampling methods, shrinkage approaches, tree-based methods, support vector machines, clustering, deep learning, survival analysis, multiple testing, and more. Color graphics and real-world examples are used to illustrate the methods presented. This book is targeted at statisticians and non-statisticians alike, who wish to use cutting-edge statistical learning techniques to analyze their data. Four of the authors co-wrote An Introduction to Statistical Learning, With Applications in R (ISLR), which has become a mainstay of undergraduate and graduate classrooms worldwide, as well as an important reference book for data scientists. One of the keys to its success was that each chapter contains a tutorial on implementing the analyses and methods presented in the R scientific computing environment. However, in recent years Python has become a popular language for data science, and there has been increasing demand for a Python-based alternative to ISLR. Hence, this book (ISLP) covers the same materials as ISLR but with labs implemented in Python. These labs will be useful both for Python novices, as well as experienced users.

From Research to Manuscript Taylor & Francis

Spatial and Spatio-Temporal Bayesian Models with R-INLA provides a much needed, practically oriented & innovative presentation of the combination of Bayesian methodology and spatial statistics. The authors combine an introduction to Bayesian theory and methodology with a focus on the spatial and spatio-temporal models used within the Bayesian framework and a series of practical examples which allow the reader to link the statistical theory presented to real data problems. The numerous examples from the fields of epidemiology, biostatistics and social science all are coded in the R package R-INLA, which has proven to be a valid alternative to the commonly used Markov Chain Monte Carlo simulations

Mathematics and Computer Science, Volume 1 SEG Books

This volume is a tutorial for the study of dynamical systems on networks. It discusses both methodology and models, including spreading models for social and biological contagions. The authors focus especially on "simple" situations that are analytically tractable, because they are insightful and provide useful springboards for the study of more complicated scenarios. This tutorial, which also includes key pointers to the literature, should be helpful for junior and senior undergraduate students, graduate students, and researchers from mathematics, physics, and engineering who seek to study dynamical systems on networks but who may not have prior experience with graph theory or networks. Mason A. Porter is Professor of Nonlinear and Complex Systems at the Oxford Centre for Industrial and Applied Mathematics, Mathematical Institute, University of Oxford, UK. He is also a member of the CABDYN Complexity Centre and a Tutorial Fellow of Somerville College. James P. Gleeson is Professor of Industrial and Applied Mathematics, and co-Director of MACSI, at the University of Limerick, Ireland.

Pivotal Certified Professional Spring Developer Exam John Wiley & Sons

In the advancing fields of artificial intelligence (AI) and data science, a pressing ethical dilemma arises. As technology continues its relentless march forward, ethical considerations within these domains become increasingly complex and critical. Bias in algorithms, lack of transparency, data privacy breaches, and the broader societal repercussions of AI applications are demanding urgent attention. This ethical quandary poses a formidable challenge for researchers, academics, and industry professionals alike, threatening the very foundation of responsible technological innovation. Navigating this ethical minefield requires a comprehensive understanding of the multifaceted issues at hand. The Ethical Frontier of AI and Data Analysis is an indispensable resource crafted to address the ethical challenges that define the future of AI and data science. Researchers and academics who find themselves at the forefront of this challenge are grappling with the evolving landscape of AI and data science ethics. Underscoring the need for this book is the current lack of clarity on ethical frameworks, bias mitigation strategies, and the broader societal implications, which hinder progress and leave a void in the discourse. As the demand for responsible AI solutions intensifies, the imperative for this reliable guide that consolidates, explores, and advances the dialogue on ethical considerations grows exponentially.

A Practical Guide to TPM 2.0 John Wiley & Sons

Comprehensive coverage of the many different aspects of systems biology, resulting in an excellent overview of the experimental and computational approaches currently in use to study biological systems. Each chapter represents a valuable introduction to one specific branch of systems biology, while also including the current state of the art and pointers to future directions. Following different methods for the integrative analysis of omics data, the book goes on to describe techniques that allow for the direct quantification of carbon fluxes in large metabolic networks, including the use of ¹³C labelled substrates and genome-scale metabolic models. The latter is explained on the basis of the model organism *Escherichia coli* as well as the human metabolism. Subsequently, the authors deal with the application of such techniques to human health and cell factory engineering, with a focus on recent progress in building genome-scale models and regulatory networks. They highlight the importance of such information for specific biological processes, including the ageing of cells, the immune system and organogenesis. The book concludes with a summary of recent advances in genome editing, which have allowed for precise genetic modifications, even with the dynamic control of gene expression. This is part of the Advances Biotechnology series, covering all pertinent aspects of the field with each volume prepared by eminent scientists who are experts on the topic in question.

Design and Technology in your School John Wiley & Sons

Learning is a critical worldwide problem for humans, essential to create a peaceful and happy world. We have serious problems in learning in both wealthy and poor areas. New approaches to learning are needed, as the current system may not rise to the new challenges. This book proposes a new strategy for learning, worldwide and for all ages of students. Computer-based distance learning would be the major delivery mechanism, with very large numbers of students. The very frequent interactions between the student and the computer would be like that with a skilled human teacher. These interactions would take place in the student's native language, in both directions. A typical interaction would be a question to a student, and a free-form student response. Both voice and keyboard student input would be possible. The learning programs would work with each student until mastery is achieved, adapting to the needs of each. Students would be active learners. The book begins with the problems and goals of learning. It considers possible forms of distance learning, looking at the variables involved, current examples of distance learning, and possible future forms including examples from science fiction. It then investigates student interactions, considering both frequency of interactions and the quality of each interaction. Programs developed in the Educational Technology Center at the University of California, Irvine, illustrate the critical idea of tutorial learning with computers. Production of tutorial learning material and costs for a student hour of learning is discussed. The book ends with suggestions for future progress. Current hardware and software is fully adequate for the tasks described. Development of all required learning units is a major activity. After this development, both better quality of learning and lower costs are very likely. Further experimental work is essential to understand the possibilities.

[New Opportunities and Challenges in Occupational Safety and Health Management](#) Springer Science & Business Media

This open access Brief introduces the basic principles of control theory in a concise self-study guide. It complements the classic texts by emphasizing the simple conceptual unity of the subject. A novice can quickly see how and why the different parts fit together. The concepts build slowly and naturally one after another, until the reader soon has a view of the whole. Each concept is illustrated by detailed examples and graphics. The full software code for each example is available, providing the basis for experimenting with various assumptions, learning how to write programs for control analysis, and setting the stage for future research projects. The topics focus on robustness, design trade-offs, and optimality. Most of the book develops classical linear theory. The last part of the book considers robustness with respect to nonlinearity and explicitly nonlinear extensions, as well as advanced topics such as adaptive control and model predictive control. New students, as well as scientists from other backgrounds who want a concise and easy-to-grasp coverage of control theory, will benefit from the emphasis on concepts and broad understanding of the various approaches. Electronic codes for this title can be downloaded from <https://extras.springer.com/?query=978-3-319-91707-8>

The Genus Citrus IGI Global

Java is now well-established as one of the world's major programming languages, used in everything from desktop applications to web-hosted applications, enterprise systems and mobile devices. Java applications cover cloud-based services, the Internet of Things, self-driving cars, animation, game development, big data analysis and many more domains. The second edition of Foundational Java: Key Elements and Practical Programming presents a detailed guide to the core features of Java – and some more recent innovations – enabling the reader to build their skills and confidence through tried-and-trusted stages, supported by exercises that reinforce the key learning points. All the most useful and commonly applied Java syntax and libraries are introduced, along with many example programs that can provide the basis for more substantial applications. Use of the Eclipse Integrated Development Environment (IDE) and the JUnit testing framework is integral to the book, ensuring maximum productivity and code quality when learning Java, although to ensure that skills are not confined to one environment the fundamentals of the Java compiler and run time are also explained. Additionally, coverage of the Ant tool will equip the reader with the skills to automatically build, test and deploy applications independent of an IDE. Topics and features: • Presents the most up-to-date information on Java, including Java 14 • Examines the key theme of unit testing,

introducing the JUnit 5 testing framework to emphasize the importance of unit testing in modern software development • Describes the Eclipse IDE, the most popular open source Java IDE and explains how Java can be run from the command line • Includes coverage of the Ant build tool • Contains numerous code examples and exercises throughout • Provides downloadable source code, self-test questions, PowerPoint slides and other supplementary material at the website <http://www.foundjava.com> This hands-on, classroom-tested textbook/reference is ideal for undergraduate students on introductory and intermediate courses on programming with Java. Professional software developers will also find this an excellent self-study guide/refresher on the topic. Dr. David Parsons is National Postgraduate Director at The Mind Lab, Auckland, New Zealand. He has been teaching programming in both academia and industry since the 1980s and writing about it since the 1990s.

Thin metal films on weakly-interacting substrates CRC Press

This book serves three basic purposes: (1) a tutorial-type reference for complex systems engineering (CSE) concepts and associated terminology, (2) a recommendation of a proposed methodology showing how the evolving practice of CSE can lead to a more unified theory, and (3) a complex

systems (CSs) initiative for organizations to invest some of their resources toward helping to make the world a better place. A wide variety of technical practitioners—e.g., developers of new or improved systems (particularly systems engineers), program and project managers, associated staff/workers, funders and overseers, government executives, military officers, systems acquisition personnel, contract specialists, owners of large and small businesses, professional society members, and CS researchers—may be interested in further exploring these topics. Readers will learn more about CS characteristics and behaviors and CSE principles and will therefore be able to focus on techniques that will better serve them in their everyday work environments in dealing with complexity. The fundamental observation is that many systems inherently involve a deeper complexity because stakeholders are engaged in the enterprise. This means that such CSs are more difficult to invent, create, or improve upon because no one can be in total control since people cannot be completely controlled. Therefore, one needs to concentrate on trying to influence progress, then wait a suitable amount of time to see what happens, iterating as necessary. With just three chapters in this book, it seems to make sense to provide a tutorial introduction that readers can peruse only as necessary, considering their background and understanding, then a chapter laying out the suggested artifacts and methodology, followed by a chapter emphasizing worthwhile areas of application.

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