

David K Cheng Solution

The fundamental mathematical tools needed to understand machine learning include linear algebra, analytic geometry, matrix decompositions, vector calculus, optimization, probability and statistics. These topics are traditionally taught in disparate courses, making it hard for data science or computer science students, or professionals, to efficiently learn the mathematics. This self-contained textbook bridges the gap between mathematical and machine learning texts, introducing the mathematical concepts with a minimum of prerequisites. It uses these concepts to derive four central machine learning methods: linear regression, principal component analysis, Gaussian mixture models and support vector machines. For students and others with a mathematical background, these derivations provide a starting point to machine learning texts. For those learning the mathematics for the first time, the methods help build intuition and practical experience with applying mathematical concepts. Every chapter includes worked examples and exercises to test understanding. Programming tutorials are offered on the book's web site.

This volume provides a comprehensive discussion and overview of urban resilience, including socio-ecological and economic hazard and disaster resilience. It provides a summary of state of the art thinking on resilience, the different approaches, tools and methodologies for understanding the subject in urban contexts, and brings together related reflections and initiatives. Throughout the different chapters, the handbook critically examines and reviews the resilience concept from various disciplinary and professional perspectives. It also discusses major urban crises, past and recent, and the generic lessons they provide for resilience. In this context, the authors provide case studies from different places and times, including historical material and contemporary examples, and studies that offer concrete guidance on how to approach urban resilience. Other chapters focus on how current understanding of urban systems – such as shrinking cities, green infrastructure, disaster volunteerism, and urban energy systems – are affecting the capacity of urban citizens, settlements and nation-states to respond to different forms and levels of stressors and shocks. The handbook concludes with a synthesis of the state of the art knowledge on resilience and points the way forward in refining the conceptualization and application of urban resilience. The book is intended for scholars and graduate students in urban studies, environmental and sustainability studies, geography, planning, architecture, urban design, political science and sociology, for whom it will provide an invaluable and up-to-date guide to current approaches across these disciplines that converge in the study of urban resilience. The book also provides important direction to practitioners and civic leaders who are engaged in supporting cities and regions to position themselves for resilience in the face of climate change, unpredictable socioenvironmental shocks and incremental risk accumulation.

The circular economy describes a world in which reuse through repair, reconditioning and refurbishment is the prevailing social and economic model. The business opportunities are huge but developing product and service offerings and achieving competitive advantage means rethinking your business model from early creativity and design processes, through marketing and communication to pricing and supply. *Designing for the Circular Economy* highlights and explores 'state of the art' research and industrial practice, highlighting CE as a source of: new business opportunities; radical business change; disruptive innovation; social change; and new consumer attitudes. The thirty-four chapters provide a comprehensive overview of issues related to product circularity from policy through to design and development. Chapters are designed to be easy to digest and include numerous examples. An important feature of the book is the case studies section that covers a diverse range of topics related to CE, business models and design and development in sectors ranging from construction to retail, clothing, technology and manufacturing. *Designing for the Circular Economy* will inform and educate any companies seeking to move their business models towards these emerging models of sustainability; organizations already working in the circular economy can benchmark their current activities and draw inspiration from new applications and an understanding of the changing social and political context. This book will appeal to both academia and business with an interest in CE issues related to products, innovation and new business models.

The internet is making our daily life as digital as possible and this new era is called the Internet of Everything (IoE). Edge computing is an emerging data analytics concept that addresses the challenges associated with IoE. More specifically, edge computing facilitates data analysis at the edge of the network instead of interacting with cloud-based servers. Therefore, more and more devices need to be added in remote locations without any substantial monitoring strategy. This increased connectivity and the devices used for edge computing will create more room for cyber criminals to exploit the system's vulnerabilities. Ensuring cyber security at the edge should not be an afterthought or a huge challenge. The devices used for edge computing are not designed with traditional IT hardware protocols. There are diverse-use cases in the context of edge computing and Internet of Things (IoT) in remote locations. However, the cyber security configuration and software updates are often overlooked when they are most needed to fight cyber crime and ensure data privacy. Therefore, the threat landscape in the context of edge computing becomes wider and far more challenging. There is a clear need for collaborative work throughout the entire value chain of the network. In this context, this book addresses the cyber security challenges associated with edge computing, which provides a bigger picture of the concepts, techniques, applications, and open research directions in this area. In addition, the book serves as a single source of reference for acquiring the knowledge on the technology, process and people involved in next generation

computing and security. It will be a valuable aid for researchers, higher level students and professionals working in the area.

If you're an executive, designer, product manager, marketer, or engineer, communication is part of your work. Using images and text in unique ways, comics can engage readers in ways traditional methods can't. In *See What I Mean*, you'll learn how to create comics about your products and processes without an illustrator—just like Google, eBay, and Adobe do.

Respected for its accuracy, its smooth and logical flow of ideas, and its clear presentation, 'Field and Wave Electromagnetics' has become an established textbook in the field of electromagnetics. This book builds the electromagnetic model using an axiomatic approach in steps: first for static electric fields, then for static magnetic fields, and finally for time-varying fields leading to Maxwell's equations.

Field and wave electromagnetics (World Student S.)

This book presents a carefully selected group of methods for unconstrained and bound constrained optimization problems and analyzes them in depth both theoretically and algorithmically. It focuses on clarity in algorithmic description and analysis rather than generality, and while it provides pointers to the literature for the most general theoretical results and robust software, the author thinks it is more important that readers have a complete understanding of special cases that convey essential ideas. A companion to Kelley's book, *Iterative Methods for Linear and Nonlinear Equations* (SIAM, 1995), this book contains many exercises and examples and can be used as a text, a tutorial for self-study, or a reference. *Iterative Methods for Optimization* does more than cover traditional gradient-based optimization: it is the first book to treat sampling methods, including the Hooke-Jeeves, implicit filtering, MDS, and Nelder-Mead schemes in a unified way, and also the first book to make connections between sampling methods and the traditional gradient-methods. Each of the main algorithms in the text is described in pseudocode, and a collection of MATLAB codes is available. Thus, readers can experiment with the algorithms in an easy way as well as implement them in other languages.

Drug overdose, driven largely by overdose related to the use of opioids, is now the leading cause of unintentional injury death in the United States. The ongoing opioid crisis lies at the intersection of two public health challenges: reducing the burden of suffering from pain and containing the rising toll of the harms that can arise from the use of opioid medications. Chronic pain and opioid use disorder both represent complex human conditions affecting millions of Americans and causing untold disability and loss of function. In the context of the growing opioid problem, the U.S. Food and Drug Administration (FDA) launched an Opioids Action Plan in early 2016. As part of this plan, the FDA asked the National Academies of Sciences, Engineering, and Medicine to convene a committee to update the state of the science on pain research, care, and education and to identify actions the FDA and others can take to respond to the opioid epidemic, with a particular focus on informing FDA's development of a formal method for incorporating individual and societal considerations into its risk-benefit framework for opioid approval and monitoring.

Appropriate for a first course on computer networking, this textbook describes the architecture and function of the application, transport, network, and link layers of the internet protocol stack, then examines audio and video networking applications, the underpinnings of encryption and network security, and the key issues of network management. Th

Fundamental of Engineering Electromagnetics not only presents the fundamentals of electromagnetism in a concise and logical manner, but also includes a variety of interesting

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and important applications. While adapted from his popular and more extensive work, *Field and Wave Electromagnetics*, this text incorporates a number of innovative pedagogical features. Each chapter begins with an overview which serves to offer qualitative guidance to the subject matter and motivate the student. Review questions and worked examples throughout each chapter reinforce the student's understanding of the material. Remarks boxes following the review questions and margin notes throughout the book serve as additional pedagogical aids.

Engineers do not have the time to wade through rigorously theoretical books when trying to solve a problem. Beginners lack the expertise required to understand highly specialized treatments of individual topics. This is especially problematic for a field as broad as electromagnetics, which propagates into many diverse engineering fields. The time h

THE MARKET-PROVEN PRINCIPLES OF SOLUTION SELLING FOR TODAY'S HIGH-SPEED, HIGHER-PRESSURE SALES ENVIRONMENT

The long-awaited sequel to *Solution Selling*, one of history's most popular selling guides Nearly 10 years ago, the influential bestseller *Solution Selling* literally rewrote the rules for selling big-ticket, long-cycle products. The *New Solution Selling* expands the classic text's cases, examples, and situations and sharpens its focus on streamlining the sales process to achieve greater success in fewer steps and a shorter time frame. Much in sales has changed in the past decade, and *The New Solution Selling* incorporates those changes into an integrated, tailored approach for improving both individual productivity and organizational return on investment. Written to enhance the results and careers of sales pros and managers in virtually any industry, this performance-focused book features:

- A completely revamped, updated sales philosophy, management system, and architecture
- Tools to increase the quality and velocity of sales pipeline opportunities
- Techniques that "Best of the Best" use to prospect for success

Solution Selling created new rules for one-to-one selling of hard-to-sell items. The *New Solution Selling* focuses on streamlining the proven *Solution Selling* process and quickly differentiating both oneself and one's products from the competition while decreasing the time spent between initial qualifying and a successful, profitable close.

A Turing Award-winning computer scientist and statistician shows how understanding causality has revolutionized science and will revolutionize artificial intelligence "Correlation is not causation." This mantra, chanted by scientists for more than a century, has led to a virtual prohibition on causal talk. Today, that taboo is dead. The causal revolution, instigated by Judea Pearl and his colleagues, has cut through a century of confusion and established causality -- the study of cause and effect -- on a firm scientific basis. His work explains how we can know easy things, like whether it was rain or a sprinkler that made a sidewalk wet; and how to answer hard questions, like whether a drug cured an illness. Pearl's work enables us to know not just whether one thing causes another: it lets us explore the world that is and the worlds that could have been. It shows us the essence of human thought and key to artificial intelligence. Anyone who wants to understand either needs *The Book of Why*.

Cheng, a former McKinsey management consultant, reveals his proven, insider's method for acing the case interview.

A full color recipe book with an easy to follow Type 2 Diabetes reversal and Prediabetes reversal eating plan developed by Dr. Cheng Ruan, MD and Mimi Chan, RD LD CNSC CDE. This program is not designed to be a temporary diet. It is designed for someone with Type 2 Diabetes (or prediabetes) to learn a system of eating where you can have permanent success. Learning what foods can work for you by understanding how it affects your body is the foundation to establish permanency in behavioral changes. Rather than telling you a detailed system of what to eat and the quantity, we have devised a way where it's easier. Three of the six layers of foods are unlimited. In fact, there are minimum quantities to eat daily. For those who have poorly controlled diabetes, we created a sliding scale eating system. Depending on

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what their blood sugars are that morning, they utilize different portions or different partitions of each of the categories of food. That will likely impact the next morning's blood sugar which hopefully will become lower by the way you eat the day before. And the lower your blood sugar becomes, the more you're allowed to have cheat meals. It becomes a reward system that's designed for success. They are rewarded by lower blood sugars and more cheat meals if they keep the blood sugars low. But if the blood sugars become higher the next morning, some elements of the program are restricted. Surprisingly, what we've noticed is that people do not opt for the cheat meals anymore because their reward, instead of being food, becomes the lowered blood sugar results. Therefore, since they don't want their blood sugars to go up again, they naturally avoid cheat meals. Following this plan, most have succeeded in fat loss (even without exercise), lowered triglycerides, lowered Hemoglobin A1C, and improved energy and vitality! This book was created with the focus of humans in mind. Humans, from the time we wake to the time we go to sleep, seek reward every second we are awake. Whenever we seek reward, we tend to take it from wherever we can get it. Throughout modern times, a reward became food. As food became readily available, we transitioned to seek food that are rich in sugar and processed sugar. When processed sugars became cheaply made and easily available worldwide, the epidemic of Diabetes began. As humans, we cognitively understand what we need but we still feed into our instincts and desires. We understand there are things that are healthy and unhealthy for us. Yet, more often than not, we continue to make choices that are deemed bad. Why is that? Why do we keep making these choices if we understand that whatever we're doing can be damaging to our body? Why do smokers continue to smoke, knowing that it is a major contributor of heart disease and strokes? Why do diabetics continue to eat sugary and high carb foods when they understand that it will raise their blood sugars, ultimately leading to organ damage and cardiovascular disease? Why is it that we behave in such ways that may be detrimental to our health? The short answer is that it's just something humans do. Humans seek reward and this reward system can be so strong that, cognitively, we may not be able to bypass it. The reward system is so strong it can become habitual behavior. Habits by definition are automatic, emotionless things that we do not think about when we act. Through certain formed habits, we feed into our body's deterioration. It's through these habits that we continue to suppress our own lifelong goals because of this one defining attribute. We, humans, are addicted to instant reward and gratification. The eating plan detailed in this book is to work WITH human nature rather than against it. That is why there is no carb counting, calorie counting, or any math involved. Eat the categories of foods that will keep your blood sugars down, your fat down, and your spirits up. Enjoy the delicious recipes that we have created in our own kitchens!

Nature-Based Solutions for More Sustainable Cities makes a clear case of performances, impacts, and benefits generated by NBS in cities providing a comprehensive framework approach to understand the real and full potential of NBS at the urban level.

Handbook of Blockchain, Digital Finance, and Inclusion, Volume 1: Cryptocurrency, FinTech, InsurTech, and Regulation explores recent advances in digital banking and cryptocurrency, emphasizing mobile technology and evolving uses of cryptocurrencies as financial assets. Contributors go beyond summaries of standard models to describe new banking business models that will be sustainable and will likely dictate the future of finance. The volume not only emphasizes the financial opportunities made possible by digital banking, such as financial inclusion and impact investing, but it also looks at engineering theories and developments that encourage innovation. Its ability to illuminate present potential and future possibilities make it a unique contribution to the literature. Explores recent advances in digital banking and cryptocurrency, emphasizing mobile technology and evolving uses of cryptocurrencies as financial assets Explains the practical consequences of both technologies and economics to readers who want to learn about subjects related to their specialties Encompasses alternative

finance, financial inclusion, impact investing, decentralized consensus ledger and applied cryptography Provides the only advanced methodical summary of these subjects available today

From pre-operative assessment to post-operative care, *Principles and Practice of Lymphedema Surgery* presents authoritative guidance on surgical techniques in the treatment and management of Lymphedema. Concise and easily accessible, this highly visual reference helps deepen your understanding of each procedure and how to perform them. Step-by-step instructions and procedural videos from a team of leading authorities in the field of lymphedema and microsurgery equip you to implement the most innovative and latest surgical and non-surgical approaches and achieve optimal outcomes for all of your patients. Consult this title on your favorite e-reader. Gain thorough and in-depth step-by-step guidance to incorporate the treatment of lymphedema in your practice. Locate key content easily and identify clinical conditions quickly thanks to concise, strictly templated chapters packed with full-color illustrations and clinical photographs. Avoid pitfalls and achieve the best outcomes thanks to a step-by-step approach to each procedure, complete with tips and tricks of the trade from leading experts in plastic surgery and lymphedema microsurgery. Hone and expand your surgical skills by watching videos of leading international experts performing advanced techniques including: End-end lymphovenous bypass, End-side lymphovenous bypass, Submental vascularized lymph node flap, Supraclavicular vascularized lymph node flap, and Lymphatic vessel mapping with ICG. Assess treatment outcomes using well-described and highly regarded scientific methodology.

Provides guidance on the anesthetic diagnosis and management of the full range of cardiac lesions, helping minimize adverse outcomes and reduce complications for patients with common, complex, or uncommon cardiac conditions. Includes complete coverage of echocardiography and current monitoring techniques needed for thorough perioperative assessment – all from the anesthesiologist's perspective. Discusses safe and effective perioperative anesthetic management of patients presenting with advanced levels of cardiac care such as drug-eluting stents, multiple antiplatelet drugs, ventricular assist devices, multiple drugs for end-stage heart failure, and implanted electrical devices that produce cardiac resynchronization therapy, as well as patients with complicated obstetric problems or other significant cardiovascular issues. Features a concise, easy-to-navigate format and Key Points boxes in each chapter that help you find answers quickly. Provides guidance on the anesthetic diagnosis and management of the full range of cardiac lesions, helping minimize adverse outcomes and reduce complications for patients with common, complex, or uncommon cardiac conditions. Includes complete coverage of echocardiography and current monitoring techniques needed for thorough perioperative assessment – all from the anesthesiologist's perspective. Discusses safe and effective perioperative anesthetic management of patients presenting with advanced levels of cardiac care such as drug-eluting stents, multiple antiplatelet drugs, ventricular assist devices, multiple drugs for end-stage heart failure, and implanted electrical devices that produce cardiac resynchronization therapy, as well as patients with complicated obstetric problems or other significant cardiovascular issues. Features a concise, easy-to-navigate format and Key Points boxes in each chapter that help you find answers quickly.

Field and Wave Electromagnetics

Planning algorithms are impacting technical disciplines and industries around the world, including robotics, computer-aided design, manufacturing, computer graphics, aerospace applications, drug design, and protein folding. This coherent and comprehensive book unifies material from several sources, including robotics, control theory, artificial intelligence, and algorithms. The treatment is centered on robot motion planning, but integrates material on planning in discrete spaces. A major part of the book is devoted to planning under uncertainty,

including decision theory, Markov decision processes, and information spaces, which are the 'configuration spaces' of all sensor-based planning problems. The last part of the book delves into planning under differential constraints that arise when automating the motions of virtually any mechanical system. This text and reference is intended for students, engineers, and researchers in robotics, artificial intelligence, and control theory as well as computer graphics, algorithms, and computational biology.

How do strangers become friends? Ofelia Castillo is searching for a story. While her friends leave their boring Florida town for summer camps and family vacations, she braces for zero excitement. Lane Disanti would like her whole family to kick rocks. Especially her parents, who sent her to live with her grandmother for the summer while they finalize their divorce. Aster Douglas has one summer to figure out how to be a kid. She's been homeschooled by her grandfather her whole life, and it's easier for her to make a soufflé than a friend. CCat Garcia is hiding a big secret. She's in need of a new troop after she quits the Floras, her local Scouts, without her mother knowing. When fate and longing bring the girls together, it isn't love at first sight. But they soon bond over a shared mission to get the Floras to ditch an outdated tradition. In their quest for justice, independence, and an unforgettable summer, the girls form their own troop and find something they didn't know they needed: sisterhood.

Now in its third edition, *Fundamentals of Microfabrication and Nanotechnology* continues to provide the most complete MEMS coverage available. Thoroughly revised and updated the new edition of this perennial bestseller has been expanded to three volumes, reflecting the substantial growth of this field. It includes a wealth of theoretical and practical information on nanotechnology and NEMS and offers background and comprehensive information on materials, processes, and manufacturing options. The first volume offers a rigorous theoretical treatment of micro- and nanosciences, and includes sections on solid-state physics, quantum mechanics, crystallography, and fluidics. The second volume presents a very large set of manufacturing techniques for micro- and nanofabrication and covers different forms of lithography, material removal processes, and additive technologies. The third volume focuses on manufacturing techniques and applications of Bio-MEMS and Bio-NEMS. Illustrated in color throughout, this seminal work is a cogent instructional text, providing classroom and self-learners with worked-out examples and end-of-chapter problems. The author characterizes and defines major research areas and illustrates them with examples pulled from the most recent literature and from his own work.

"When six students are chosen to participate in a weekly talk with no adults allowed, they discover that when they're together, it's safe to share the hopes and fears they have to hide from the rest of the world"--

In the United States, some populations suffer from far greater disparities in health than others. Those disparities are caused not only by fundamental differences in health status across segments of the population, but also because of inequities in factors that impact health status, so-called determinants of health. Only part of an individual's health status depends on his or her behavior and choice; community-wide problems like poverty, unemployment, poor education, inadequate housing, poor public transportation, interpersonal violence, and decaying neighborhoods also contribute to health inequities, as well as the historic and ongoing interplay of structures, policies, and norms that shape lives. When these factors are not optimal in a community, it does not mean they are intractable: such inequities can be mitigated by social policies that can shape health in powerful ways. *Communities in Action: Pathways to Health Equity* seeks to delineate the causes of and the solutions to health inequities in the United States. This report focuses on what communities can do to promote health equity, what actions are needed by the many and varied stakeholders that are part of communities or support them, as well as the root causes and structural barriers that need to be overcome.

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AAP Textbook of pediatric Care: Tools for Practice is a comprehensive resource of tools to use in general pediatric practice. A stand-alone volume or as a companion to AAP Textbook of Pediatric Care, a comprehensive and innovative pediatric textbook based on Hoekelman's Primary Pediatric Care, this all-new book focuses on the core components of pediatric care including: *Engaging patients and family (educational tools, behavior modification support) * Decision support for clinicians in the form of 1) assessment/screening tools and 2) guideline tools (such as decision charts, automated entry sets, etc) * Enhancing coordination of care in the practice and in the community * Public health advocacy

Unlike traditional introductory math/stat textbooks, Probability and Statistics: The Science of Uncertainty brings a modern flavor based on incorporating the computer to the course and an integrated approach to inference. From the start the book integrates simulations into its theoretical coverage, and emphasizes the use of computer-powered computation throughout.* Math and science majors with just one year of calculus can use this text and experience a refreshing blend of applications and theory that goes beyond merely mastering the technicalities. They'll get a thorough grounding in probability theory, and go beyond that to the theory of statistical inference and its applications. An integrated approach to inference is presented that includes the frequency approach as well as Bayesian methodology. Bayesian inference is developed as a logical extension of likelihood methods. A separate chapter is devoted to the important topic of model checking and this is applied in the context of the standard applied statistical techniques. Examples of data analyses using real-world data are presented throughout the text. A final chapter introduces a number of the most important stochastic process models using elementary methods. *Note: An appendix in the book contains Minitab code for more involved computations. The code can be used by students as templates for their own calculations. If a software package like Minitab is used with the course then no programming is required by the students.

An interdisciplinary guide to enabling technologies for 3D ICs and 5G mobility, covering packaging, design to product life and reliability assessments Features an interdisciplinary approach to the enabling technologies and hardware for 3D ICs and 5G mobility Presents statistical treatments and examples with tools that are easily accessible, such as Microsoft's Excel and Minitab Fundamental design topics such as electromagnetic design for logic and RF/passives centric circuits are explained in detail Provides chapter-wise review questions and powerpoint slides as teaching tools With cutting-edge sleep science and time-tested techniques, The Sleep Solution will help anyone achieve healthy sleep and eliminate pills, pain, and fatigue. If you want to fix your sleep problems, Internet tips and tricks aren't going to do it for you. You need to really understand what's going on with your sleep—both what your problems are and how to solve them. The Sleep Solution is an exciting journey of sleep self-discovery and understanding that will help you custom design specific interventions to fit your lifestyle. Drawing on his twenty-four years of experience within the field, neurologist and sleep expert W. Chris Winter will help you... • Understand how sleep works and the ways in which food, light, and other activities act to help or hurt the process • Learn why sleeping pills are so often misunderstood and used incorrectly—and how you can achieve your best sleep without them • Incorporate sleep and napping into your life—whether you are a shift worker, student, or overcommitted parent • Think outside the box to better understand ways to treat a multitude of conditions—from insomnia to sleep apnea to restless leg syndrome and circadian sleep disorders • Wade through the ever-changing sea of sleep technology and understand its value as it relates to your own sleep struggles Dubbed the “Sleep Whisperer” by Arianna Huffington, Dr. Winter

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is an international expert on sleep and has helped more than 10,000 patients rest better at night, including countless professional athletes. Now, he's bringing his experiences out from under the covers—redefining what it means to have optimal sleep and get the ZZZs you really need... INCLUDES TIPS, TRICKS, EXERCISES, AND ILLUSTRATIONS

Judith Gersting's *Mathematical Structures for Computer Science* has long been acclaimed for its clear presentation of essential concepts and its exceptional range of applications relevant to computer science majors. Now with this new edition, it is the first discrete mathematics textbook revised to meet the proposed new ACM/IEEE standards for the course.

Electrostatics - Magnetostatic field and quasi-stationary electromagnetic fields - Circuit analysis - Electromagnetic waves - Relativity, particle-field interactions.

Organized nanoassemblies of inorganic nanoparticles and organic molecules are building blocks of nanodevices, whether they are designed to perform molecular level computing, sense the environment or improve the catalytic properties of a material. The key to creation of these hybrid nanostructures lies in understanding the chemistry at a fundamental level. This book serves as a reference book for researchers by providing fundamental understanding of many nanoscopic materials.

Providing a clear theoretical understanding of MEMS and NEMS, *Solid-State Physics, Fluidics, and Analytical Techniques in Micro- and Nanotechnology* focuses on nanotechnology and the science behind it, including solid-state physics. It provides a clear understanding of the electronic, mechanical, and optical properties of solids relied on in integra

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