

Green Building Nptel

Are all film stars linked to Kevin Bacon? Why do the stock markets rise and fall sharply on the strength of a vague rumour? How does gossip spread so quickly? Are we all related through six degrees of separation? There is a growing awareness of the complex networks that pervade modern society. We see them in the rapid growth of the Internet, the ease of global communication, the swift spread of news and information, and in the way epidemics and financial crises develop with startling speed and intensity. This introductory

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book on the new science of networks takes an interdisciplinary approach, using economics, sociology, computing, information science and applied mathematics to address fundamental questions about the links that connect us, and the ways that our decisions can have consequences for others. Building Construction covers the entire process of building construction in detail, from the stage of planning and foundation building to the finishing stages like plastering, painting, electricity supply and woodwork. Each of the basic components of a

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building are covered separately, including doors, windows, floors, roof, walls, partitions, as are the basic finishing works like plumbing, damp-proofing, ventilation, air conditioning and so on. Essential features of construction like acoustics, fire-resistance and earthquake-resistant design are also covered. In keeping with contemporary needs, the book also includes a chapter on the environmental impact of a building and how to make it green. The text, presented in simple, precise and reader-friendly language, is amply supported by figures

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and tables. Together with its companion volume, *Building Materials*, the book will meet the academic requirements of degree, as well as diploma courses in civil engineering and architecture.

Rich selection of 123 poems by six great English Romantic poets: William Blake (24 poems), William Wordsworth (27 poems), Samuel Taylor Coleridge (10 poems), Lord Byron (16 poems), Percy Bysshe Shelley (24 poems) and John Keats (22 poems). Introduction and brief commentaries on the poets. Includes 2 selections from the Common Core State Standards Initiative:

"Ozymandias" and "Ode on a Grecian Urn."

We all negotiate on a daily basis. We negotiate with our spouses, children, parents, and friends. We negotiate when we rent an apartment, buy a car, purchase a house, and apply for a job. Your ability to negotiate might even be the most important factor in your career advancement. Negotiation is also the key to business success. No organization can survive without contracts that produce profits. At a strategic level, businesses are concerned with value creation and achieving competitive advantage. But the success of high-level

business strategies depends on contracts made with suppliers, customers, and other stakeholders.

Contracting capability—the ability to negotiate and perform successful contracts—is the most important function in any organization. This book is designed to help you achieve success in your personal negotiations and in your business transactions. The book is unique in two ways. First, the book not only covers negotiation concepts, but also provides practical actions you can take in future negotiations. This includes a Negotiation Planning Checklist and a

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completed example of the checklist for your use in future negotiations. The book also includes (1) a tool you can use to assess your negotiation style; (2) examples of "decision trees," which are useful in calculating your alternatives if your negotiation is unsuccessful; (3) a three-part strategy for increasing your power during negotiations; (4) a practical plan for analyzing your negotiations based on your reservation price, stretch goal, most-likely target, and zone of potential agreement; (5) clear guidelines on ethical standards that apply to

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negotiations; (6) factors to consider when deciding whether you should negotiate through an agent; (7) psychological tools you can use in negotiations—and traps to avoid when the other side uses them; (8) key elements of contract law that arise during negotiations; and (9) a checklist of factors to use when you evaluate your performance as a negotiator. Second, the book is unique in its holistic approach to the negotiation process. Other books often focus narrowly either on negotiation or on contract law. Furthermore, the books on negotiation tend to focus

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on what happens at the bargaining table without addressing the performance of an agreement. These books make the mistaken assumption that success is determined by evaluating the negotiation rather than evaluating performance of the agreement. Similarly, the books on contract law tend to focus on the legal requirements for a contract to be valid, thus giving short shrift to the negotiation process that precedes the contract and to the performance that follows. In the real world, the contracting process is not divided into independent phases. What happens during

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a negotiation has a profound impact on the contract and on the performance that follows. The contract's legal content should reflect the realities of what happened at the bargaining table and the performance that is to follow. This book, in contrast to others, covers the entire negotiation process in chronological order beginning with your decision to negotiate and continuing through the evaluation of your performance as a negotiator. A business executive in one of the negotiation seminars the author teaches as a University of Michigan

professor summarized negotiation as follows: "Life is negotiation!" No one ever stated it better. As a mother with young children and as a company leader, the executive realized that negotiations are pervasive in our personal and business lives. With its emphasis on practical action, and with its chronological, holistic approach, this book provides a roadmap you can use when navigating through your life as a negotiator.

Sustainable Industrial
Design and Waste Management
Python for Software Design
Technologies and
Applications

Materials, Processes,
Structures

A Unified Hardware/Software
Introduction

An Anthology

This book provides a structured treatment of the key principles and techniques for enabling efficient processing of deep neural networks (DNNs). DNNs are currently widely used for many artificial intelligence (AI) applications, including computer vision, speech recognition, and robotics. While DNNs

deliver state-of-the-art accuracy on many AI tasks, it comes at the cost of high computational complexity. Therefore, techniques that enable efficient processing of deep neural networks to improve metrics—such as energy-efficiency, throughput, and latency—without sacrificing accuracy or increasing hardware costs are critical to enabling the wide deployment of DNNs in AI systems. The book

includes background on DNN processing; a description and taxonomy of hardware architectural approaches for designing DNN accelerators; key metrics for evaluating and comparing different designs; features of the DNN processing that are amenable to hardware/algorithm co-design to improve energy efficiency and throughput; and opportunities for applying new technologies. Readers

will find a structured introduction to the field as well as a formalization and organization of key concepts from contemporary works that provides insights that may spark new ideas. The author outlines the major ideas and issues that have emerged in the growing movement of green architecture and sustainable design over the last thirty years. The book asks individuals to understand how the

philosophy of sustainable design can affect their own work. This book discusses the innovative and efficient technological solutions for sustainable smart societies in terms of alteration in industrial pollution levels, the effect of reduced carbon emissions, green power management, ecology, and biodiversity, the impact of minimal noise levels and air quality influences on human health. The book is focused on the smart

society development using innovative low-cost advanced technology in different areas where the growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy, and resource efficiency and prevention of the loss of biodiversity and ecosystem services. The book also covers the

paradigm shift in the sustainable development for the green environment in the post-pandemic era. It emphasizes and facilitates a greater understanding of existing available research i.e., theoretical, methodological, well-established and validated empirical work, associated with the environmental and climate change aspects. The first book on the subject written by a

*practitioner
for practitioners.
Geotechnical
Instrumentation for
Monitoring
Field Performance
Geotechnical
Instrumentation for
Monitoring
Field Performance goes
far beyond a mere
summary of the
technical literature and
manufacturers'
brochures: it guides
reader through the
entire geotechnical
instrumentation process,
showing them when to*

monitor safety and performance, and how to do it well. This comprehensive guide: * Describes the critical steps of planning monitoring programs using geotechnical instrumentation, including what benefits can be achieved and how construction specifications should be written * Describes and evaluates monitoring methods and recommends instruments for monitoring groundwater pressure,

*deformations, total stress in soil, stress change in rock, temperature, and load and strain in structural members * Offers detailed practical guidelines on instrument calibrations, installation and maintenance, and on the collection, processing, and interpretation of instrumentation data * Describes the role of geotechnical instrumentation during the construction and operation phases of*

*civil engineering projects, including braced excavations, embankments on soft ground, embankment dams, excavated and natural slopes, underground excavations, driving piles, and drilled shafts **
Provides guidelines throughout the book on the best practices
Condensed Matter Field Theory
Solar Thermal Energy Storage
Case Studies in the Residential Sector

*Framework for
Determining Research
Gaps During Systematic
Review
Business and
Sustainability
Gene Editing*

Exercise interactions with green and blue spaces offer low-cost, non-invasive solutions to public health challenges—particularly around mental health and obesity—and issues around environmental sustainability. Physical Activity in Natural Settings brings together multi-disciplinary, international research on physical activity, health and the

natural environment, offering evidence-based guidance on implementing nature-based solutions at individual, patient and population levels. Divided over four sections, the book assesses the current research landscape, explores the underlying psychological and physiological mechanisms of the benefits of green exercise, details applied examples of physical activity in natural settings, and suggests future directions for research and practice. It features contributions from experts from around the world and covers topics including: Self-

determination, nature and wellbeing
Visual cognition and multisensory stimuli
Nature's role in growing resilience
Physical education and nature
Mindfulness and green exercise
Positive psychology and pro-environmental behaviour
Timely and prescient, and showcasing real-life examples of green exercise prescription,
Physical Activity in Natural Settings is fascinating and important reading for any students or researchers in the psychology or physiology of physical activity and health, physical education or outdoor studies, and policy-makers and

health professionals.

Building Construction
Vikas
Publishing House

Now in its second edition: the trailblazing introduction and textbook on construction includes a new section on translucent materials and an article on the use of glass.

Designed for both undergraduate and postgraduate students of mechanical, aerospace, chemical and metallurgical engineering, this compact and well-knitted textbook provides a sound conceptual basis in fundamentals of combustion processes, highlighting the

basic principles of natural laws. In the initial part of the book, chemical thermodynamics, kinetics, and conservation equations are reviewed extensively with a view to preparing students to assimilate quickly intricate aspects of combustion covered in later chapters. Subsequently, the book provides extensive treatments of 'pre-mixed laminar flame', and 'gaseous diffusion flame', emphasizing the practical aspects of these flames. Besides, liquid droplet combustion under quiescent and convective environment is covered in the book. Simplified

analysis of spray combustion is carried out which can be used as a design tool. An extensive treatment on the solid fuel combustion is also included. Emission combustion systems, and how to control emission from them using the latest techniques, constitute the subject matter of the final chapter. Appropriate examples are provided throughout to foster better understanding of the concepts discussed. Chapter-end review questions and problems are included to reinforce the learning process of students.

Promoting Energy Efficiency

Investments

Machine Learning with

TensorFlow, Second Edition

From Fundamentals Towards

Autonomous Systems

Evaluation

Alternative Building Materials

Technology

Envelope Design for Buildings

Energy Storage not only plays an

important role in conserving the

energy but also improves the

performance and reliability of a

wide range of energy systems.

Energy storage. leads to saving of

premium fuels and makes the

system more cost effective by

reducing the wastage of energy. In

most systems there is a mismatch

between the energy supply and energy demand. The energy storage can even out this imbalance and thereby help in savings of capital costs. Energy storage is all the more important where the energy source is intermittent such as Solar Energy. The use of intermittent energy sources is likely to grow. If more and more solar energy is to be used for domestic and industrial applications then energy storage is very crucial. If no storage is used in solar energy systems then the major part of the energy demand will be met by the back-up or auxiliary energy and therefore the so called annual solar load fraction will be very low. In case of solar

energy, both short term and long term energy storage systems can be used which can adjust the phase difference between solar energy supply and energy demand and can match seasonal demands to the solar availability respectively.

Thermal energy storage can lead to capital cost savings, fuel savings, and fuel substitution in many application areas. Developing an optimum thermal storage system is as important an area of research as developing an alternative source of energy.

Updated with new code, new projects, and new chapters, Machine Learning with TensorFlow, Second Edition gives readers a solid foundation in machine-

learning concepts and the TensorFlow library. Summary Updated with new code, new projects, and new chapters, Machine Learning with TensorFlow, Second Edition gives readers a solid foundation in machine-learning concepts and the TensorFlow library. Written by NASA JPL Deputy CTO and Principal Data Scientist Chris Mattmann, all examples are accompanied by downloadable Jupyter Notebooks for a hands-on experience coding TensorFlow with Python. New and revised content expands coverage of core machine learning algorithms, and advancements in neural networks such as VGG-Face facial

identification classifiers and deep speech classifiers. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Supercharge your data analysis with machine learning! ML algorithms automatically improve as they process data, so results get better over time. You don't have to be a mathematician to use ML: Tools like Google's TensorFlow library help with complex calculations so you can focus on getting the answers you need. About the book Machine Learning with TensorFlow, Second Edition is a fully revised guide to building machine learning models using Python and

TensorFlow. You'll apply core ML concepts to real-world challenges, such as sentiment analysis, text classification, and image recognition. Hands-on examples illustrate neural network techniques for deep speech processing, facial identification, and auto-encoding with CIFAR-10. What's inside Machine Learning with TensorFlow

- Choosing the best ML approaches
- Visualizing algorithms with TensorBoard
- Sharing results with collaborators
- Running models in Docker

About the reader Requires intermediate Python skills and knowledge of general algebraic concepts like vectors and matrices. Examples use the super-stable 1.15.x branch of TensorFlow and

TensorFlow 2.x. About the author
Chris Mattmann is the Division
Manager of the Artificial
Intelligence, Analytics, and
Innovation Organization at NASA
Jet Propulsion Lab. The first edition
of this book was written by Nishant
Shukla with Kenneth Fricklas. Table
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Computer science and economics have engaged in a lively interaction

over the past fifteen years, resulting in the new field of algorithmic game theory. Many problems that are central to modern computer science, ranging from resource allocation in large networks to online advertising, involve interactions between multiple self-interested parties. Economics and game theory offer a host of useful models and definitions to reason about such problems. The flow of ideas also travels in the other direction, and concepts from computer science are increasingly important in economics. This book grew out of the author's Stanford University course on algorithmic game theory, and aims to give students and other newcomers a

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quick and accessible introduction to many of the most important concepts in the field. The book also includes case studies on online advertising, wireless spectrum auctions, kidney exchange, and network management.

The construction of buildings and structures relies on having a thorough understanding of building materials. Without this knowledge it would not be possible to build safe, efficient and long-lasting buildings, structures and dwellings. Building materials in civil engineering provides an overview of the complete range of building materials available to civil engineers and all those involved in the building and construction

industries. The book begins with an introductory chapter describing the basic properties of building materials. Further chapters cover the basic properties of building materials, air hardening cement materials, cement, concrete, building mortar, wall and roof materials, construction steel, wood, waterproof materials, building plastics, heat-insulating materials and sound-absorbing materials and finishing materials. Each chapter includes a series of questions, allowing readers to test the knowledge they have gained. A detailed appendix gives information on the testing of building materials. With its distinguished editor and eminent editorial committee,

Building materials in civil engineering is a standard introductory reference book on the complete range of building materials. It is aimed at students of civil engineering, construction engineering and allied courses including water supply and drainage engineering. It also serves as a source of essential background information for engineers and professionals in the civil engineering and construction sector. Provides an overview of the complete range of building materials available to civil engineers and all those involved in the building and construction industries Explores the basic properties of building materials

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featuring air hardening cement materials, wall and roof materials and sound-absorbing materials
Each chapter includes a series of questions, allowing readers to test the knowledge they have gained
Product-Service Development, Competitiveness and Sustainability
Handbook on Battery Energy Storage System
Networks, Crowds, and Markets
How to Think Like a Computer Scientist
Constructing Architecture
Geotechnical Instrumentation for Monitoring Field Performance
Existing buildings are responsible for over 40% of the world's total primary energy consumption. An

impressive amount of energy could be saved simply by applying energy-efficient technologies. Yet, various market barriers inhibit energy efficiency improvements in existing buildings and result in energy savings that are significantly lower than potentials. This publication provides illustrations of policies and measures implemented in five IEA member countries and the European Union. Each case includes relevant background and contextual information, as well as a

detailed evaluation of each policy according to five pre-defined criteria: relevance, effectiveness, flexibility, clarity and sustainability. The Study Companion is a comprehensive self-study guide for the 2009 International Energy Conservation Code. Ten study sessions cover administration and enforcement as well as energy efficiency in residential and commercial structures. A 20-question quiz is provided at the end of each study session. This second edition of a well-

received text, with 20 new chapters, presents a coherent and unified repository of recommender systems' major concepts, theories, methodologies, trends, and challenges. A variety of real-world applications and detailed case studies are included. In addition to wholesale revision of the existing chapters, this edition includes new topics including: decision making and recommender systems, reciprocal recommender systems, recommender systems in social networks,

mobile recommender systems, explanations for recommender systems, music recommender systems, cross-domain recommendations, privacy in recommender systems, and semantic-based recommender systems. This multi-disciplinary handbook involves world-wide experts from diverse fields such as artificial intelligence, human-computer interaction, information retrieval, data mining, mathematics, statistics, adaptive user interfaces, decision support systems, psychology,

marketing, and consumer behavior. Theoreticians and practitioners from these fields will find this reference to be an invaluable source of ideas, methods and techniques for developing more efficient, cost-effective and accurate recommender systems.

Modern experimental developments in condensed matter and ultracold atom physics present formidable challenges to theorists. This book provides a pedagogical introduction to quantum field theory in many-particle physics, emphasizing the

applicability of the formalism to concrete problems. This second edition contains two new chapters developing path integral approaches to classical and quantum nonequilibrium phenomena. Other chapters cover a range of topics, from the introduction of many-body techniques and functional integration, to renormalization group methods, the theory of response functions, and topology. Conceptual aspects and formal methodology are emphasized, but the

discussion focuses on practical experimental applications drawn largely from condensed matter physics and neighboring fields. Extended and challenging problems with fully worked solutions provide a bridge between formal manipulations and research-oriented thinking. Aimed at elevating graduate students to a level where they can engage in independent research, this book complements graduate level courses on many-particle theory.

Physical Activity in Natural

Settings

Green Building

Fundamentals

Introduction to IoT

New Business for Old Europe

Green and Blue Exercise

Study Companion

Gene-editing

technologies (e.g.,

ZFNs, TALENs, and

CRISPRs/Cas9) have been

extensively used as

tools in basic research.

They are further applied

in manufacturing

agricultural products,

food, industrial

products, medicinal

products, etc.

Particularly, the discovery of medicinal products using gene-editing technologies will open a new era for human therapeutics. Though there are still many technical and ethical challenges ahead of us, more and more products based on gene-editing technologies have been approved for marketing. These technologies are promising for multiple applications. Their development and implications should be

explored in the broadest context possible. Future research directions should also be highlighted. In this book, the applications, perspectives, and challenges of gene-editing technologies are significantly demonstrated and discussed.

Sustainable Industrial Design and Waste Management was inspired by the need to have a text that enveloped awareness and solutions to the ongoing issues

and concerns of waste generated from industry. The development of science and technology has increased human capacity to extract resources from nature and it is only recently that industries are being held accountable for the detrimental effects the waste they produce has on the environment. Increased governmental research, regulation and corporate accountability are digging up issues pertaining to pollution

control and waste treatment and environmental protection. The traditional approach for clinical waste, agricultural waste, industrial waste, and municipal waste are depleting our natural resources. The main objective of this book is to conserve the natural resources by approaching 100 % full utilization of all types of wastes by cradle - to - cradle concepts, using Industrial Ecology

methodology documented with case studies.

Sustainable development and environmental protection cannot be achieved without establishing the concept of industrial ecology.

The main tools necessary for establishing

Industrial Ecology and sustainable development

will be covered in the

book. The concept of "industrial ecology will

help the industrial

system to be managed and operated more or less

like a natural ecosystem

hence causing as less damage as possible to the surrounding environment. Numerous case studies allow the reader to adapt concepts according to personal interest/field Reveals innovative technologies for the conservation of natural resources The only book which provides an integrated approach for sustainable development including tools, methodology, and indicators for sustainable development In this essential book

Bill Allen imparts his experience gained over many years into the investigation and remedy of the numerous misfortunes which have afflicted buildings here and elsewhere. He provides not only a very substantial new body of reliable back-up for good modern design but also useful material for conservation, and for surveyors who have to evaluate premises or who become specification writers. This book is divided into two parts,

the first dealing with external and internal climates and the second with the ways in which the main categories of basements, walls and roof systems operation to mediate between them. The external climate is a character-forming part of the book because our climate, though technically temperate, is powerfully intemperate with buildings. The text of the book becomes markedly relevant to climates of the UK kind,

but designers can also see what to look for as risk factors in other climates and how to evaluate them; the global nature of modern practice makes this important. When it comes to the envelope itself, the author works his way up from below ground to the roof. After a chapter on basement design, he begins with cavity structures; these now fall into several sub-categories and because they exploit the cavity in different

ways, he looks at what goes on in a cavity and then handles the sub-categories around this. Cavities now have two main functions, the traditional one of being a rain barrier and the new one of being the repository for much increased insulation, and it is the latter that has greatly changed behaviour patterns because it results in sharp increases of the temperature range for the outer cladding, causing a lot of damage,

and by the same token stabilises the inner leaf, opening the way for heating economies. There have been some disastrous fires in cavities, causing several deaths, and this risk is dealt with too. Curtain walls have a chapter to themselves and so do timber walls, and so many problems have developed in applied finishes and in doors and windows that these, too, have their own chapters. Finally roofs, flat and pitched,

in two separate chapters. Flat roofs have a bad press and people are still suspicious about them, but we now know how to make them long-lasting and handsome, while pitched roofs have had a good press but sometimes don't deserve it. The corrosion of metal finishes especially lead, has be-devilled pitched roofs and given some terrible shocks; on one roof lead that was heavy enough to give 100 years protection failed

in 10 months following official recommendations. The author is a well known consultant and is an authority in the field of 'oddities in buildings' Book provides a good thinking base for design decisions about new buildings Vital for architects, engineers, surveyors and clients The EU-funded project "Sustainable Consumption Research Exchanges" (SCORE!) consists of around 200 experts in the field of sustainable

innovation and sustainable consumption. The SCORE! philosophy is that innovation in SCP policy can be achieved only if experts that understand business development, (sustainable) solution design, consumer behaviour and system innovation policy work together in shaping it. Sustainable technology design can be effective only if business can profitably make the products and consumers are attracted to them.

To understand how this might effectively happen, the expertise of systems thinkers must be added to the mix. The publication in 2008 of System Innovation for Sustainability 1 was the first result of a unique positive confrontation between experts from all four communities. It examined what SCP is and what it could be, provided a state-of-the-art review on the governance of change in SCP policy and looked at the strengths and

weaknesses of current approaches. System Innovation for Sustainability 3 is the second of three books of case studies covering respectively the three key consumption areas of mobility, food and agriculture, and energy use and housing – responsible for 70% of the life-cycle environmental impacts of Western societies – with the aim of stimulating, fostering or forcing change to SCP theory in practice. The

availability of healthy food for all is a basic human need. Yet, primarily due to higher food prices, the overall number of undernourished people in the world increased from 923 million in 2007 to 963 million in 2008 – the vast majority of whom live in developing countries. Experts estimate that close to half of the human impact on the environment is directly or indirectly related to food production and

consumption. Food production, distribution, consumption and disposal are important in terms of land and resource use, pollution and emissions, biodiversity and landscape design. Also of key importance are health issues and issues surrounding the satisfaction of citizens' basic needs: more than 200 million adults in the European Union are overweight or even obese due to unhealthy diets and too

little exercise.

Sustainability issues are now clearly on the agenda for food producers and market actors, politicians and regulators, as well as being increasingly important in the decisions consumers make about food. A large number and variety of efforts to stimulate sustainability have been instigated and numerous studies, research programmes and publications have addressed such issues.

Agri-food issues have also been prominent in the evolving definition of what sustainability means. This book focuses largely on providing answers to the question of how food production and consumption systems can stay within the limits of the carrying capacity of our natural environment. But it also considers the challenges of food security and nutrition in the context of sustainability and a growing world population. The book

first analyses the state of the art in sustainable agriculture and food production in Europe. Eleven case studies follow, examining issues such as food policy, greening mainstream agricultural systems, organic farming, farmers' markets, sustainable food networks, eco-labelling, consumer behaviour, slow food and fair trade. Finally, a concluding chapter summarises what has been learned by the 60-plus

experts active in the SCORE! food project. In brief: bottom-up and top-down processes have to be linked, industrialised nations must reduce their meat consumption, and agriculture should become a multifunctional sustainable system not only producing food but also delivering other services such as energy and material production, CO₂ storage and recreation – which would have the added benefit of improving farmers'

socioeconomic situations. The System Innovation for Sustainability series is the fruit of the first major international research network on SCP and will set the standard in this field for some years to come. It will be required reading for all involved in the policy debate on sustainable production and consumption from government, business, academia and NGOs for designers, scientists, businesses and system

innovators.

Building Construction

Building Materials in

Civil Engineering

Twenty Lectures on

Algorithmic Game Theory

Recommender Systems

Handbook

Structural Glass Facades

and Enclosures

Efficient Processing of

Deep Neural Networks

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book.

This book helps readers understand the fundamental concepts of sustainable design

and green building practices, which will soon become common practice on every project. It is also intended as a practical study guide for the LEED Green Associate exam, with a step-by-step study guide and an assessment (a practice exam with 80 questions and a focused discussion for each example). This book includes a discussion on why this topic is important to understand, practice, and teach along with practical examples of methods that are being used to increase a project's environmental performance and additional study resources/references. Some features include:

- Covers cost implications of green building practices, including initial

investments, long-term cost benefits, and current market trends. Provides a practical guide to understanding fundamental sustainable design and green building practices. Includes a Focused Study Guide that helps readers prepare for the LEED-Green Associate exam.

¿

Climate change, the resource constrained economy, and sustainability in general are amongst the hottest and most problematic topics for contemporary businesses. This book provides a comprehensive overview of how the world's sustainability challenges are affecting and being affected by business.

Current concerns regarding

greenhouse gas-related environmental effects, energy security, and the rising costs of fossil fuel-based energy has renewed interest in solar energy in general and photovoltaics in particular. Exploring state-of-the-art developments from a practical point of view, Nanotechnology for Photovoltaics examines issues in increasing

Wheeled Mobile Robotics: From Fundamentals Towards Autonomous Systems covers the main topics from the wide area of mobile robotics, explaining all applied theory and application. The book gives the reader a good foundation, enabling them to continue to more advanced topics. Several examples are included for better

understanding, many of them accompanied by short MATLAB® script code making it easy to reuse in practical work. The book includes several examples of discussed methods and projects for wheeled mobile robots and some advanced methods for their control and localization. It is an ideal resource for those seeking an understanding of robotics, mechanics, and control, and for engineers and researchers in industrial and other specialized research institutions in the field of wheeled mobile robotics. Beginners with basic math knowledge will benefit from the examples, and engineers with an understanding of basic system theory and control will find it easy to follow the more

demanding fundamental parts and advanced methods explained. Offers comprehensive coverage of the essentials of the field that are suitable for both academics and practitioners Includes several examples of the application of algorithms in simulations and real laboratory projects Presents foundation in mobile robotics theory before continuing with more advanced topics Self-sufficient to beginner readers, covering all important topics in the mobile robotics field Contains specific topics on modeling, control, sensing, path planning, localization, design architectures, and multi-agent systems

English Romantic Poetry

LEED Practices, Certification, and

Accreditation Handbook Mathematics for Machine Learning The Future of Architecture

Sustainable Alternative Syngas Fuel

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.

The identification of gaps from

systematic reviews is essential to the practice of "evidence-based research." Health care research should begin and end with a systematic review. A comprehensive and explicit consideration of the existing evidence is necessary for the identification and development of an unanswered and answerable question, for the design of a study most likely to answer that question, and for the interpretation of the results of the study. In a systematic review, the consideration of existing evidence often highlights important areas where deficiencies in information limit our ability to make decisions. We define a research gap as a topic or area for which

missing or inadequate information limits the ability of reviewers to reach a conclusion for a given question. A research gap may be further developed, such as through stakeholder engagement in prioritization, into research needs. Research needs are those areas where the gaps in the evidence limit decision making by patients, clinicians, and policy makers. A research gap may not be a research need if filling the gap would not be of use to stakeholders that make decisions in health care. The clear and explicit identification of research gaps is a necessary step in developing a research agenda. Evidence reports produced by Evidence-based Practice

Centers (EPCs) have always included a future research section. However, in contrast to the explicit and transparent steps taken in the completion of a systematic review, there has not been a systematic process for the identification of research gaps. We developed a framework to systematically identify research gaps from systematic reviews. This framework facilitates the classification of where the current evidence falls short and why the evidence falls short. The framework included two elements: (1) the characterization the gaps and (2) the identification and classification of the reason(s) for the research gap. The PICOS structure (Population, Intervention,

Comparison, Outcome and Setting) was used in this framework to describe questions or parts of questions inadequately addressed by the evidence synthesized in the systematic review. The issue of timing, sometimes included as PICOTS, was considered separately for Intervention, Comparison, and Outcome. The PICOS elements were the only sort of framework we had identified in an audit of existing methods for the identification of gaps used by EPCs and other related organizations (i.e., health technology assessment organizations). We chose to use this structure as it is one familiar to EPCs, and others, in developing questions. It is not only important to

identify research gaps but also to determine how the evidence falls short, in order to maximally inform researchers, policy makers, and funders on the types of questions that need to be addressed and the types of studies needed to address these questions. Thus, the second element of the framework was the classification of the reasons for the existence of a research gap. For each research gap, the reason(s) that most preclude conclusions from being made in the systematic review is chosen by the review team completing the framework. To leverage work already being completed by review teams, we mapped the reasons for research gaps to concepts from commonly

used evidence grading systems. Our objective in this project was to complete two types of further evaluation: (1) application of the framework across a larger sample of existing systematic reviews in different topic areas, and (2) implementation of the framework by EPCs. These two objectives were used to evaluate the framework and instructions for usability and to evaluate the application of the framework by others, outside of our EPC, including as part of the process of completing an EPC report. Our overall goal was to produce a revised framework with guidance that could be used by EPCs to explicitly identify research gaps from systematic reviews.

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A no-nonsense introduction to software design using the Python programming language. Written for people with no programming experience, this book starts with the most basic concepts and gradually adds new material. Some of the ideas students find most challenging, like recursion and object-oriented programming, are divided into a sequence of smaller steps and introduced over the course of several chapters. The focus is on the programming process, with special emphasis on debugging. The book includes a wide range of exercises, from short examples to substantial projects, so that students have ample opportunity to practise each new

concept. Exercise solutions and code examples are available from thinkpython.com, along with Swampy, a suite of Python programs that is used in some of the exercises.

Adopted in the United States and a number of other countries, LEED certification is the recognized standard for measuring building sustainability. Achieving LEED personal certification or project certification is the best way to demonstrate that the project is truly "green." Written by an architect with over 30 years of international experience, this book provides architects, designers, building owners, and construction engineers with an easy to understand guide to

the nuts and bolts of LEED project and personal certification. Written in plain and easy to understand language, this "hands on" book is designed to assist readers with all aspects of LEED certification. The handbook follows the rigorous third-party commissioning process, beginning with basic LEED concepts, and then carefully explains LEED documentation and technical requirements along with its standards, professional accreditation, and codes. The handbook provides readers with design strategies for sustainable site selection, and design process for high performance building and commissioning. Other important topics include green materials and

products selection as well as strategies for ensuring Indoor Environmental Quality (IEQ), water efficiency and sanitary waste disposal. This handbook also offers readers a multitude of forms with expert guidance for their completion. Clear and authoritative in scope, LEED Practices and Accreditation Handbook provides architects, builders/owners, construction managers, and engineers with a reference that will help them to offer their clients, peers, and the public at large compelling proof that they have achieved their projects environmental goals and that the building is performing as designed. Instruction for completing LEED

checklist and forms Detailed explanation of the third-party commissioning process Explains LEED documentation & technical requirements Topics include green materials and products selection International Energy Conservation Code

The Philosophy of Sustainable Design

Planning Algorithms

Embedded System Design

Nanotechnology for Photovoltaics

System Innovation for Sustainability

3

Selling products used to be the standard way of doing business.

Traditionally, it is left to the user to transform the purchase of a product into something that fulfils effectively a final-user need.

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Today, two streams of research – business management and sustainability – normally with very distinct perspectives on the world, have surprisingly converged to form a common conclusion: selling products is old-fashioned business. Companies should switch their focus to selling need fulfilment, satisfaction, or experiences. Or, in other words, selling integrated solutions or product-services. The business management literature argues that, by focusing on the integrated, final-client needs, and delivering integrated solutions fulfilling these needs, companies will be able to improve their position in the value chain, enhance added value of their offering, and improve their innovation potential. In a business

world where many products are becoming equally well-performing commodities, this strategy is one of the ways to avoid a sheer competition on price – a type of competition that Europe never can win with emerging and low-cost economies such as China. In that sense, product-services can mean new business for old Europe. The sustainability knowledge stream argues that need-focused solutions could be inherently more sustainable than products. Product-services could offer the value of use instead of the product itself and decrease the environmental load in two ways. First, companies offering the service would have all the incentives to make the (product-)system efficient, as they get paid by the result. Second,

consumers would be encouraged to alter their behaviour as they gain insight into all the costs involved with the use. Until today, the connections and interchange between the two research streams have been quite limited. The question of whether product-services truly are the avenue to a sustainable world is still under discussion. This book aims to develop a systematic view on this issue. The potential of product-services to enhance competitiveness and contribute to sustainable development prompted the EU to invest heavily in the theme under the EU's 5th Framework Programme (FP5; 1997-2002). A variety of research and development projects in the field were supported under the

umbrella of the Sustainable Product Development Network (SusProNet). These included MEPSS (Methodology Product Service Systems); Home Services; HiCS (Highly Customerised Solutions); Prosecco (Product-Service Co-design); and Innopse (Innovation Studio and exemplary developments for Product-Service). The projects were undertaken by a mix of European research institutions and companies including Orange, Philips and Nokia. Some of these projects focused on developing methods that could help industries change their output from a product to a service. Others focused on the development of new product-services or solutions (HiCS, Prosecco, Innopse), and yet others

tried to analyze under which circumstances product-services are likely to be implemented and accepted by consumers (Home Services). One project focused on dissemination of the concept to SMEs (Lean Services). Other projects focused purely on new product-service development, such as Brainfridge (an intelligent fridge managing its supply chain), ASP-NET (application service providers), Protex (intelligent enzymes) and IPSCON (receivers for wireless telephones). New Business for Old Europe brings together the key outputs from all of these groups to present a state-of-the-art collection on product-service development, prospects and implications for competitiveness and sustainability.

The book has a number of aims. First, it attempts to bridge the gap between business and sustainability literature to lead to a better-founded understanding of the business drivers for embarking on product-service development, and its relation with sustainability and competitiveness. Second, the book reviews the large amount of studies that have developed toolkits, methods and approaches that can support marketers, product developers and strategists in business to develop product-services, selects the best-practice approaches and analyses any gaps. Third, the book examines what opportunities there are for product-service development in a variety of key areas including base materials, information and

communication technologies, offices, food and households. Each chapter in this section discusses the area, developments that will stimulate or hinder the market opportunities for product-services, product-service examples, and typical implementation challenges for product-services in that area. These chapters serve as a quick introduction for companies interested in developing product-services in a specific area. Fourth, the book translates all the lessons into suggested approaches for product-service development by companies. Annexes include a lightweight "product-service development manual" and an alphabetical list of useful underlying tools.

A structural glass facade is a glass

wall in which the glass itself is part of the building structure. The fundamental technology of structural fa ç ade systems has undergone a transition over the past decade from an emergent, experimental building form to a mature, fully robust technology. The book documents, defines, and categorizes the current state of the art in long-span glass fa ç ade design and construction, with a focus on structural systems, glass cladding options and implementation strategies for innovative design. With illustrations and case studies, the book discusses designs and design practices; engineering issues; material, process and fabrication considerations, installation means and methods, and project delivery

strategies. A must for architects, industrial designers, and interior designers.

The development and use of sustainable and alternative fuels (syngas, biogas, biodiesel, bio-oil, hydrogen) derived from sources other than petroleum is needed due to the limited fossil fuel resources, the need for reduction of atmospheric greenhouse gas emissions, energy security, and to meet the future high energy demand due to population growth. New alternative fuels that can be produced locally and derived from renewable sources will be more sustainable compared to fossil fuels. Alternative and renewable fuels can be produced using different thermochemical and biochemical processes. Gasification is

a thermochemical process used to produce syngas fuel (mainly hydrogen and carbon dioxide) from renewable (biomass) and conventional (coal) sources. The syngas fuels produced from the gasification process can be used for different applications: power generation (combustion of syngas fuel in gas turbine engines), heating, and transportation (internal combustion engines). This book intends to provide the reader with an overview of the current technologies, methods, and strategies of syngas fuel production, characterization, and application.

This book introduces a modern approach to embedded system design, presenting software design and hardware design in a unified

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manner. It covers trends and challenges, introduces the design and use of single-purpose processors ("hardware") and general-purpose processors ("software"), describes memories and buses, illustrates hardware/software tradeoffs using a digital camera example, and discusses advanced computation models, controls systems, chip technologies, and modern design tools. For courses found in EE, CS and other engineering departments.

Sustainable Mobility and Logistics

Wheeled Mobile Robotics

FUNDAMENTALS OF

COMBUSTION

Case Studies in Sustainable

Consumption and Production —

Food and Agriculture

Reasoning About a Highly
Connected World
Green Technological Innovation for
Sustainable Smart Societies

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 handbook serves as a guide to deploying battery energy storage technologies, specifically for distributed energy resources and flexibility resources. Battery

energy storage technology is the most promising, rapidly developed technology as it provides higher efficiency and ease of control. With energy transition through decarbonization and decentralization, energy storage plays a significant role to enhance grid efficiency by alleviating volatility from demand and supply. Energy storage also contributes to the grid integration of renewable energy and promotion of microgrid.

A valuable guide for new and experienced readers,

featuring the complex and massive world of IoT and IoT-based solutions.

*Negotiating for Success:
Essential Strategies and Skills*

*Cradle-to-Cradle for
Sustainable Development
Post Pandemic Era*