

# CRC Rights Guide

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AUTUMN/WINTER 2024



CRC Press  
Taylor & Francis Group

# In focus this season

The disciplines of Chemistry, Biology, and Biotechnology are instrumental in helping to solve global social, economic, and environmental issues, and we are proud to be at the forefront with essential content from top authors, helping our readers succeed in these rapidly evolving fields. The list includes a broad spectrum of topics within the subject area from assisting in the design of instruments, devices, and software to solve clinical problems to serving topics specializing in specific elements that combine biology and engineering, such as agriculture, pharmaceuticals, and natural resources. *The Digital Transformation of Product Formulation* helps readers make sense of the current digital transformation occurring in chemistry and materials research and development, where new and increasingly complex data are needed to support faster and more complex business decisions. In *Pearlite in Steels* Sir Harry Bhadeshia, a global authority, explains the basics, technologies, and many applications of this vital engineering material, which is the strongest commercially available mass-produced alloy. *Understanding Parkinson's Disease: The Zebrafish Model* explains an innovative technique for studying Parkinson's disease.

Our environmental chemistry books present issues resulting from rapid urbanization and industrialization, particularly in the developing world. Modern technologies and industrial chemicals have given rise to unique problems of ecosystem degradation, pollution, deprivation, and disease. Our latest publication, *Acknowledging Indigenous Knowledge*,

gives insight into why acknowledging IK as a science can help solve climate change, food and nutrition insecurity, and the increase of pandemics through evidence-based stories from Indigenous people. Our wide range of literature in the pharmaceutical sciences, including the latest edition of *Practical Guide to Clinical Data Management*, illustrates how chemistry remains the most invaluable science and plays the most critical role in the drug development process. Diverse themes including systematics, evolutionary biology, neuroscience, cell biology, and molecular biology represent our life sciences program with titles that focus on cutting-edge research and the latest findings which often include contributions from teams of leading international scholars.

*The Metaverse Series* explores the role, opportunities, and challenges of the Metaverse, from business and entertainment to our personal lives and humanity's future, and takes a critical view of the potential opportunities, dangers, and challenges of the Metaverse.

*The Pocket Mentors for Games Careers* series offers readers the essential information and guidance needed to get and keep a job in the modern games industry. Each book covers a different discipline within games – with titles on game writing, game audio, animation, testing, and community management - and explores the relevant skills needed to survive and thrive within that particular career path.

We are excited to present these titles by key authors leading the way in global innovation and thank you for your support.

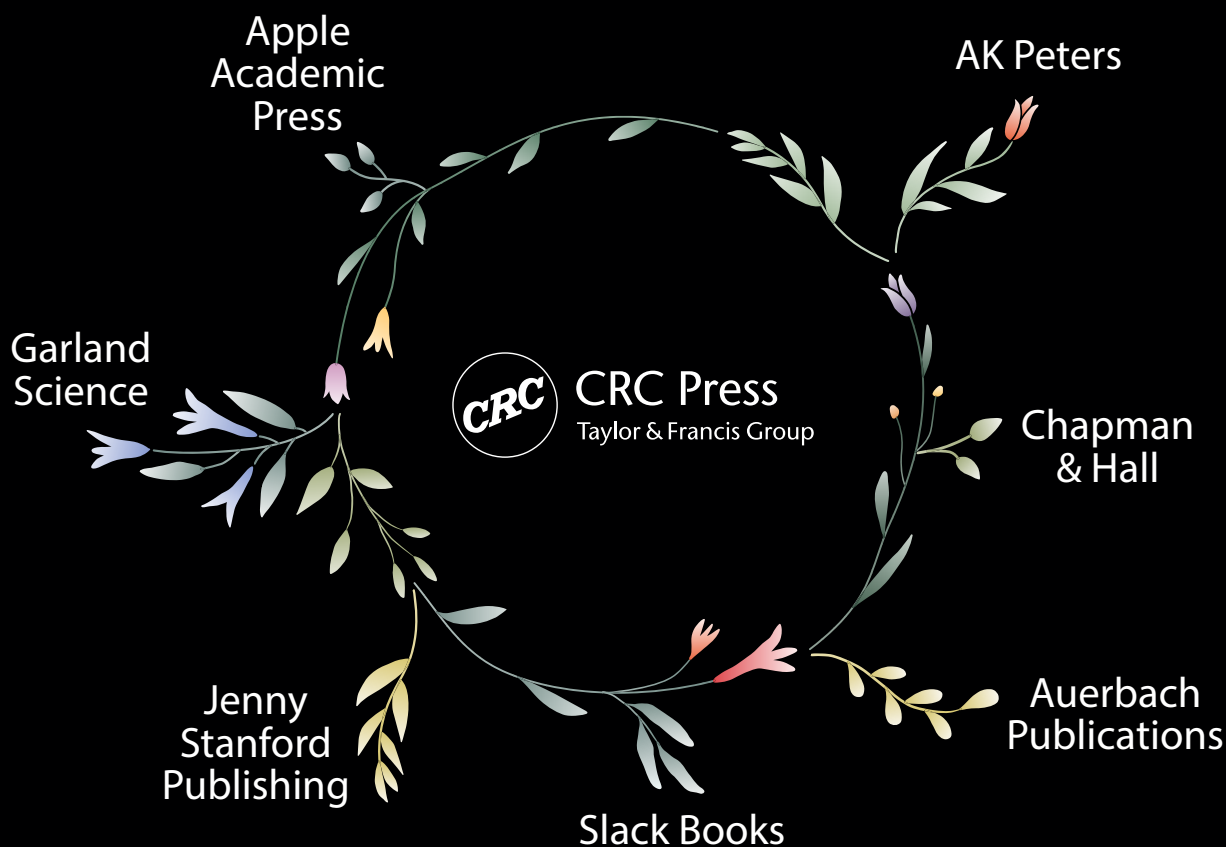


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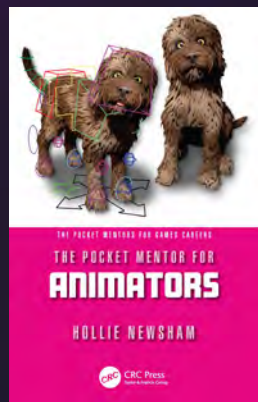
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S E R I E S

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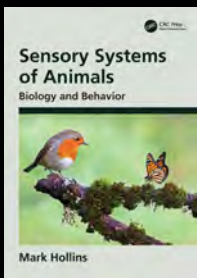
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## Mark Hollins

is Professor Emeritus, Department of Psychology and Neuroscience, University of North Carolina at Chapel Hill, USA, where he taught undergraduates the Sensation and Perception module for nearly half a decade. His interests are in sensory processes and perception, especially in the senses of vision and touch. Much of his work has focused on control processes, such as binocular rivalry in vision and pain gating in somesthesia, by which some sensory signals are able to amplify or attenuate others. He has also helped to establish that tactile textures are perceived by means of two sensory mechanisms: spatial coding for coarse textures, and vibration coding for fine ones.



## Sensory Systems of Animals

Biology and Behavior

Mark Hollins

September 30, 2024

ISBN 9781032423289

256 Pages 80 Color Illustrations

Subject: Biology & Life Science

[www.routledge.com/9781032423289](http://www.routledge.com/9781032423289)

IN CONVERSATION WITH

# Mark Hollins

the author of *Sensory Systems of Animals*, explains why it is important to understand the senses of animals.

*Sensory Systems of Animals* is about the biological systems that enable animals to get the information they need to survive and reproduce. A sensory system, such as the visual system, acquires information using receptors that respond to stimuli of a particular type and interprets that information using dedicated brain circuitry. Sensory systems of animals include vision, touch, hearing, taste, smell, and sometimes others. In my book I describe these abilities, asking questions like “**Can cats taste sweetness?**”. I also discuss the underlying anatomy and physiology (“**What receptors in the eye allow birds to see Earth’s magnetic field?**”), and the ways animals use sensory information (“**When a spider hears a sound overhead, how does it decide what to do?**”).

The book focuses on three groups of animals with complex nervous systems: vertebrates (including fish, amphibians, reptiles, birds and mammals); arthropods (including insects, spiders, and crustaceans); and molluscs (including octopus, squid, and cuttlefish). Evolution, resulting from a combination of adaptive radiation and natural selection, is the explanation for this diversity. A recurring theme is convergent evolution: the emergence of analogous sensory mechanisms in unrelated animals, such as the similar eyes of humans and octopuses.

**The book is organized by sensory system.** It starts with four chapters on **vision** (the sense about which most is known) and continues with individual chapters on **touch, hearing, taste, and smell**. The chapter on touch includes a section on pain, a subject relevant to the question of whether animals have conscious experience. There is also **a chapter on sensory systems humans don’t have: magnetic sense, electrical sense, and infrared sense**. Introductory and concluding chapters provide additional perspective.

We live in a crucial time for animals—the Anthropocene Epoch—in which human activity is driving many species toward extinction. Much of this endangerment involves their sensory systems. For example, our use of bright outdoor lighting at night distracts and disorients animals. It induces birds to collide with illuminated buildings, causes moths to ignore the echolocating cries of approaching bats, and prevents some fish from reproducing. Intense noise from oceangoing vessels, such as underwater sonar, causes whales and dolphins to flee, often beaching themselves. But the most pervasive anthropogenic effects are those involving climate change. Elevated levels of carbon dioxide acidify the oceans, directly affecting the chemical senses of aquatic animals. For instance, it causes some fish to find the odor of predators attractive. Examples like these are given in the book to illustrate that research is needed to understand, and then to prevent or remediate, the harm we are doing to animals’ sensory systems.



## The target audience for the book

*Sensory Systems of Animals* is a textbook addressed primarily to **advanced undergraduates and beginning graduate students in neuroscience, sensory psychology, veterinary science, and related fields.** The emphasis is on experimental research, conducted both in the lab and in natural settings. Descriptions of experiments are embedded in a narrative that emphasizes their cumulative effect on our growing understanding of how each sensory system works.

The book's more than 500 references, all of which are cited in the text, have been carefully chosen for their importance, accessibility, and readability. This makes the reference list a valuable resource for students who want to do additional reading.

To ensure unambiguous specification of animals, species are referred to by their scientific (Latin) name as well as a common name. This is particularly important in the case of a book that may be read in multiple countries, where a species often has different common names. I mention this because there are sensory researchers all over the world. **Experiments described in this book were carried out in Australia, Canada, Chile, China, the Czech Republic, Denmark, France, French Guiana, Germany, India, Israel, Italy, Japan, the Netherlands, Spain, Sweden, Turkey, the United Kingdom, the United States, Zambia, and other countries.**

The text is supplemented with 80 illustrations. Half are color photographs of animals discussed in the text; the other half are drawings, diagrams and graphs that add to the student's understanding of research findings. Each figure has an informative caption and is cited in the text.

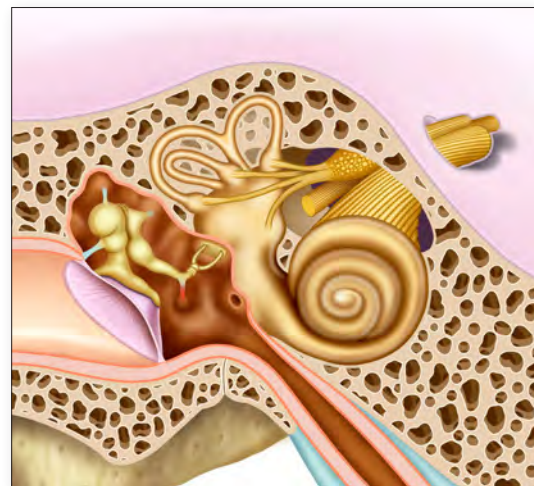
Although the book is designed for students, I think it will also be of interest to academics and professionals in relevant fields, and to anyone else who works with or studies animals.

Writing this book was the natural result of my lifelong interest in perception. In college at Florida State, I was privileged to learn from a group of outstanding sensory researchers including Lloyd Beidler (who studied the sense of taste), Dan Kenshalo (the skin senses), and Howard Baker (vision). And after earning

a PhD at Brown under Lorrin Riggs, and becoming a faculty member at UNC-Chapel Hill, I enjoyed teaching graduate and undergraduate courses in "sensation and perception," a mainstay of the psychology curriculum, for many years.

These courses were mostly about humans; it was anthropocentrically assumed that animals' senses were similar to our own. But a growing body of cutting-edge research has changed all that. It is now understood that animals' sensory systems are often radically different from ours. Discovering and analyzing these differences is not a mere cataloging of interesting animals. It is the revealing of fundamental principles of information capture and processing. I wrote the book to make these principles accessible to anyone with a scientific interest in animals and their welfare.

Today's students have a stronger interest in learning about the environment, and the animals that inhabit it, than their predecessors did. So, in 2013, I began teaching a course on the senses of animals. But when I did so, I found no textbook with the qualities I wanted: clear organization; an emphasis on basic principles and on the role of evolution; a focus on experimental research published in peer-reviewed journals; coverage that extends to all vertebrate classes, and to invertebrates; and a lucid and engaging style. I have tried to incorporate these qualities in the present work.





## Caroline Clark

has been working with cats and other companion animals for over 40 years and during that time has amassed a wealth of knowledge. She began her career as a veterinary nurse and, after many years in first opinion veterinary practice, spent some time lecturing. Having a passion for animal behaviour, she gained a post graduate diploma in companion animal behaviour at Southampton University, being fortunate to study under some of the world's leading behaviourists. Since then, Caroline has been working with cats and their caregivers to help them overcome a range of problematic behaviours so they can lead happier lives. Caroline divides her time between seeing clinical behaviour cases, mentoring budding behaviourists and providing online and in-person continuing education to the veterinary community and other pet professionals. In her spare time, Caroline loves to spend time with her animals in the Yorkshire Wolds where she lives. Caroline can be contacted at [www.carolineclarkauthor.co.uk](http://www.carolineclarkauthor.co.uk)



## A Professional's Guide to Feline Behaviour

Understanding, Improving and Resolving Problems

Caroline Clark

October 22, 2024

ISBN 9781032171999

330 Pages, 110 Color Illustrations

Subject: Veterinary Medicine

[www.routledge.com/9781032171999](http://www.routledge.com/9781032171999)

IN CONVERSATION WITH

# Caroline Clark

the author of *A Professional's Guide to Feline Behaviour*, explains how to better understand the cats.

*A Professional's Guide to Feline Behaviour* is a book that provides an insight into how the domestic cat's mind works and helps make sense of their unique, and sometimes quirky, behavioural characteristics. It's backed up by using the latest scientific research and covers the cat's wild origins and the rapid transformation they underwent to become the most popular companion animal in the world today. However, this prolific rise in standing hasn't come without challenges and, despite their popularity, they are still a misunderstood species. So, I look at their behavioural development, offer advice on how to interact and communicate with them effectively and detail how we can best meet their physical and mental needs - both within the home setting and in a variety of workplace environments. I also explain the underlying reasons for the development of problematic behaviours and present practical solutions for preventing and addressing them effectively.

One of the principal reasons for a cat being given up for re-homing or, in the worst-case scenario, euthanasia - is because of unwanted behaviours. However, by learning more about their way of life, how they interact with each other and the environment in which they choose to live, provides us with a deeper understanding of what our modern-day cat needs. Making minor changes to their environment and improving on the way we interact with them reaps huge rewards for the cat's emotional health and, in many cases, helps to resolve problem behaviours which, in turn, restores the human-cat relationship.

In recent years there has been some ground-breaking discoveries in our understanding of cat behaviour, and I hope to share this research in an accessible and applied way so that it appeals to a wide audience - including the cat professional who can cascade this information down to cat's main caregivers and, with the help of this book, implement a suitable behaviour modification plan. *A Professional's Guide to Feline Behaviour* will make a significant contribution to the improved welfare of cats and inspire the current and next generation of feline behaviour counsellors.







## The target audience for the book

The book is for anyone who wants to unravel the complexities of the cat's mind, get to know them better and help them lead their best lives. That covers a wide range of readers, including the dedicated and experienced cat owner. However, because the book delves deeply into the cat's psyche, covers a wide range of problematic behaviours and offers an insight into the work of a clinical animal behaviourist, through a range of subjects: **behaviour analysis, conducting stress reviews and detailed guidance on how to formulate an integrated and holistic behaviour modification plan– it would certainly suit the feline professional.** This may include veterinary teams, students of feline behaviour, shelter staff and those starting out their career in feline behaviour counselling.

My inspiration to write about feline behaviour stems from the work I do as a clinical animal behaviourist. Coupled with my background in veterinary nursing, I am routinely asked to see cats suffering from a wide range of behaviour problems. Yet, many of those are rooted in misunderstandings about what the cat requires in order to lead a fulfilled life. Without these needs being met puts them under a high level of stress. This can compromise them emotionally and physically, exacerbating existing problems and triggering other stress-related disorders. Additionally, because the cat has descended from a self-reliant and solitary species, that is both prey and predator, to survive, they cannot appear weak and vulnerable. This means that they are masters of disguise when it comes to exhibiting the signs of pain - and so it goes unnoticed. That is until problems emerge – most usually in the form of anxiety and fear-related behaviours. Being able to highlight these problems, share my knowledge and document some of my successes through the real-life case studies that feature in the book- seemed like the perfect way to help cats and their caregivers.

## Endorsements

"There are very few veterinary publications dedicated solely to feline evolution and behaviour. It is important that anyone involved with feline care, especially those in a professional capacity, keep up to date with understanding feline behaviour to safeguard their welfare. I would therefore thoroughly recommend this book, as it brings together the rapid advances in feline behaviour in a clear, interesting, and easily accessible manner."

– Dr Rayana Kamal,  
*BVSc., MRCVS, PG Diploma in Veterinary Physiotherapy, PG Cert  
in Small Animal Behaviour*

"This is a must read for all cat advocates. Caroline's wonderful way with words and obvious passion for the species makes this a powerful addition to any bookshelf. The species-specific needs of the feline variety is discussed in depth but with a kind and considerate message on how cats are definitely not small dogs. A fantastic follow-on from Caroline's canine fear and anxiety book, this book is an up to date, evidence based, kitty behaviour bible!"

– Nikki McLeod,  
*BSc(Hons), NCert. (Behav), ISFM Cert. in Feline Nursing,  
Advanced Cert. in Feline Behaviour, RVN*

"Caroline leads the reader on a journey through the mind of our domestic cats. This book gives the reader a solid grounding of the cat and its inner mind, but digs further into how they can then influence and improve their pet's welfare."

– Samantha Lympany-Tier,  
*MSc, BSc(Hons), PTLLS, (Feline Fine Behaviour Consultancy)*

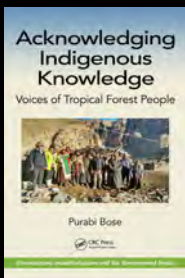


## Purabi Bose

a citizen of India with Santhal tribe/Adivasi ancestry, is a social anthropologist and environmental scientist with a research focus on forest tenure and land rights of indigenous peoples, climate adaptation, and food security in Asia, East Africa, and Latin America. Currently, she is an Associate Professor (Docent) and Senior Lecturer of Forest Policy at the Swedish University of Agricultural Sciences (SLU), Sweden.

Purabi holds a Ph.D. from Wageningen University and has held numerous fellowships, including those at the University of California, Berkeley, the Swedish University of Agricultural Sciences, the University of Copenhagen, and the Smithsonian Institute.

As a filmmaker, she is a producer and director of independent films on forests, mountains, land, and the way of living of indigenous peoples. This is done under her self-funded initiative, Landing Together. Further details about films and protagonists at [www.landingtogether.weebly.com](http://www.landingtogether.weebly.com)



## Acknowledging Indigenous Knowledge

Voices of Tropical Forest People

Purabi Bose

July 10, 2024

ISBN 9780367710255

128 Pages, 12 Color Illustrations

Subject: Environmental Science

[www.routledge.com/9780367710255](http://www.routledge.com/9780367710255)

IN CONVERSATION WITH

## Purabi Bose

the author of *Acknowledging Indigenous Knowledge*, on how her new book bridges the fractured space between science and nature.

Forests in the tropics cover about 12 percent of all of Earth's land surface. Moreover, they contain more than half of all known terrestrial biodiversity. Importantly, about 1.5 billion people in the tropics rely on forests for nutrition and food security, timber, medicine, and other livelihood needs.

Approximately 60 million Indigenous Peoples live in and around tropical forests and have been the guardians of the forest land and its resources for millennia. Even with all the information technology, Artificial Intelligence (AI), and internet connectivity, about three decades since "modern" citizen science has existed is nothing compared to tens of thousands of years of indigenous knowledge. Unjustly, some of them risk losing their way of living, cultures, and traditional knowledge to conserve the forest due to persistent deforestation and resource extraction, leading to climate crisis, and biodiversity loss.

How do indigenous peoples across the globe perceive this threat of losing connection with their ancestral knowledge about the environment and nature?

**How can today's Western science include a more diverse range of voices?**

**How can scientific research move beyond diversity as a matter of political correctness and become genuinely inclusive, acknowledging indigenous knowledge?**

These questions call for urgent action. The first step is to document the voices of indigenous peoples and their perceptions to amplify their voices.

*Acknowledging Indigenous Knowledge: Voices of Tropical Forest People* fills the gap by providing empirical evidence from remote indigenous territories of ten tropical countries in South and Southeast Asia, East Africa, and Latin America. It delves into understanding how indigenous peoples across the tropics perceive their ancestral knowledge. One common strength that binds them together and indigenous peoples are their respect towards nature, the environment, forest, and land including subsoil resources. Yet, across the tropics in Asia, Africa, and Latin America, they all have a common fear of losing their indigenous knowledge because it can only be kept alive by practicing and passing the oral and diverse forms of creative knowledge – painting, songs, dance, storytelling – from one generation to the next.

The book opens with an introductory chapter to outline the topic as well as to provide key arguments on why Indigenous knowledge matters, who are the knowledge holders, and how the debate of scientific forestry versus indigenous knowledge diverted attention from the main issue of recognition of survival knowledge. What is indigenous knowledge? Who holds the knowledge? How is it used? Why does the debate of Western science vs Indigenous knowledge exist? Recently, four children who survived 40 days in the Colombian Amazon jungle after a plane crash incident explain the significance of indigenous knowledge that even the best science practices and Western adventurers and scholars cannot teach.



This book focuses on themes ranging from mining to forest plantations, human-wildlife coexistence, factory schooling, pastoralism, and the food security of those people who are directly dependent on forest resources. It connects diverse challenges and outcomes of forest and land-use change policies. As such it would be beneficial as a qualitative case study for students, and teachers in academic universities, research institutions, government, and nongovernmental organizations. The case studies though from tropical landscapes, almost all of the issues are generic and applicable to other landscapes and Indigenous peoples. They relate as much to the mining issues faced by reindeer herding Sami people in the Arctic, food foraging Aboriginal Australians, or resource-related displacements of Native Americans.

The book's key features of ethnographic research in the remote indigenous territories of the ten tropical countries from the Global South are the communities' self-motivation and determination to revive indigenous knowledge by becoming forest stewards or 'guardians of the forests'. A few study areas were at the time of the fieldwork under armed conflicts or had limited access due to a lack of roads and other forms of transportation or were under extreme weather conditions.

Western science often fails to understand that indigenous peoples are not in conflict with wildlife. The so-called 'human-wildlife' conflict is not Indigenous culture. In one of the chapters, I highlight how nomadic pastoralists in the Tibetan plateau, the Changtangs of Ladakh, share nature with wild snow leopards. For Changtangs, all beings have equal rights to land resources, so the question of conflicts is alien to them. The co-existence of land use is to be understood from the land users' perspective, and the findings in this book chapter conclude the indigenous peoples' notion that land users are all living beings.

The modern education system fails to acknowledge the significance of learning from wisdom and traditional knowledge. Indigenous languages and education are interlinked. In modern schools, a lack of integrating indigenous knowledge means the children are to learn a new language that is devoid of vocabulary that they use daily to communicate with nature and about nature. I explore how remote tribes Lai and Warli, living in Mizoram and Maharashtra respectively along

with Huaoraris of Ecuadorian Amazon and Uro of Bolivia deal with a lack of protection of their native languages. "In our language, we used to have a word for the forest that means 'home'. We lost our native indigenous language therefore the cultural, physical, and spiritual worlds have now separated putting us at risk of the outside world", says one of the Huaoraris women during an interview with the author. "What we teach our children is that humans are not superior to animals. Hunting tools (preparing the darts using herbal formula) used should not harm or cause pain to the animal. Even the dead animal spirits are alive and therefore a ritual is performed. However, the children who go to school in cities are not taught this respect towards nature. The school education is so different that they (children) feel ashamed of our customs and traditions", says one of the customary leaders who has never been to modern school, but has acquired immense knowledge of trees, medicinal properties, and ecology of the region.

This book would benefit a diverse range of audiences in mind, including students, policymakers, politicians, practitioners, philanthropists, and scientists from multi-disciplinary fields to understand it. What you have in common is an open mind and an open heart. The book is to be read as a true narrative of the voices that are often secondary or ignored in the decision-making process. Written to simplify scientific communication, it should guide you to understand basic cases of all topics involved, and if you are new to the field to generate curiosity to explore more. I hope it will become a source of inspiration for all those interested in working with Indigenous Peoples across the globe without borders to create environmental justice and safeguard human rights.

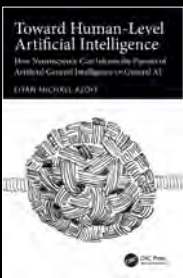
In brief, tropical forests provide everything and are more than carbon stock for indigenous peoples. Forests and their resources provide food, water, shelter, and healing medicines. The 'Collective' approach is the norm for indigenous knowledge as a form of resilience towards the changing world. Yet, it is this collective action that the world can learn and imbibe in our lifestyle to achieve the Sustainable Development Goals and to make a better world by 2050.





## Eitan Michael Azoff

PhD, is Chief Analyst at Cloud and Data Center Research Practice, Omdia, part of Informa.



## Toward Human-Level Artificial Intelligence

How Neuroscience Can Inform the Pursuit of Artificial General Intelligence or General AI

Eitan Michael Azoff

September 18, 2024

ISBN 9781032829074

192 Pages, 20 Color & 9 B/W Illustrations

Subject: Cognitive Artificial Intelligence

[www.routledge.com/9781032829074](http://www.routledge.com/9781032829074)

IN CONVERSATION WITH

# Eitan Michael Azoff

the author of *Toward Human-Level Artificial Intelligence*, about his new book, the human consciousness and AI.

## Artificial intelligence (AI) has many aspects, what exactly does your book cover?

My book falls into an area less covered at this time — how to get from where we are today with AI research to artificial general intelligence (AGI), or what I call in my book: human-level AI, i.e., machines with intelligence that match our capabilities. In order to carry out this mission my first step was to survey the state of the art today, and not just in the AI research field but also neuroscience, because a hypothesis of the book is that we need to understand what current neuroscience has to tell us about the human brain to give us pointers to what we should be engineering in AI to achieve AGI.

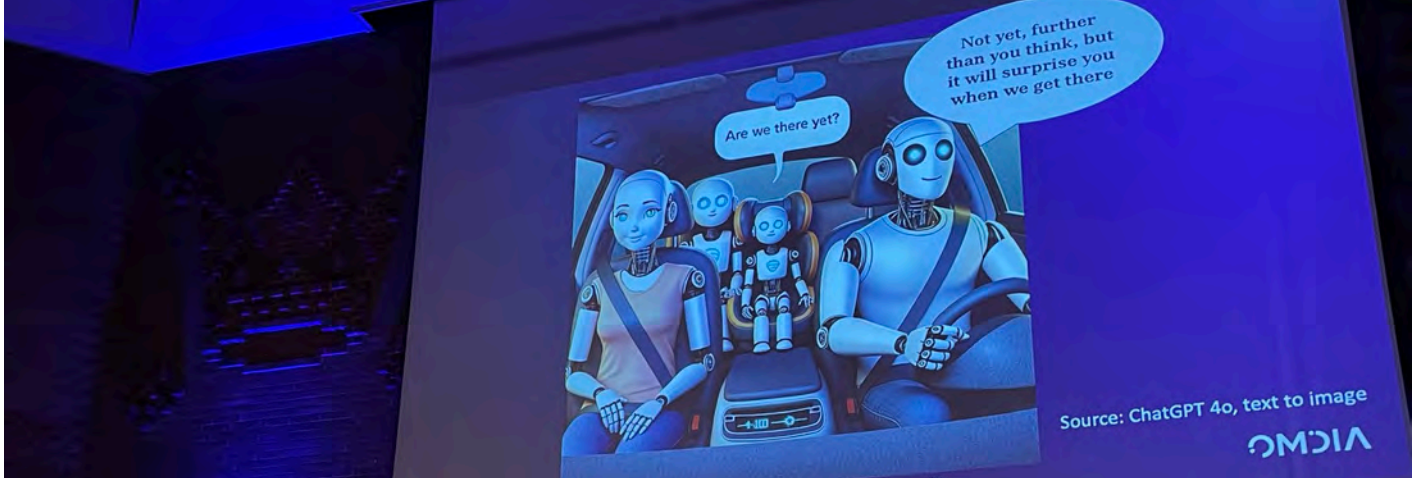
## So you're saying that despite all the coverage in the media, we haven't achieved AGI with generative AI and large language models (LLMs)?

That's right. The current state of the art takes us a little beyond narrow AI: narrow AI means being superb at highly specific real-world applications. The reason I say we have moved a little further towards AGI is that LLM models show emergent reasoning capabilities – not perfect, but in some cases very good and likely to improve over the next few years. This will be a significant milestone, but it will not be AGI.

## What will an AGI machine possess that current models do not?

After carrying out a survey of the most current neuroscience and AI research I was able to draw ideas that I believe will help AI researchers on their journey to build AGI. The first two parts of the book provide the survey findings, and I provide full references and believe this will be useful to all researchers in these fields. The last part of the book I title "speculations" to make clear what is evidence based in the book (in Parts 1 and 2) and what are novel ideas, however, these are grounded in the surveyed research. I draw the following conclusions:

- The best example of AGI is the human brain so we should look carefully at what neuroscience tells us about the brain.
- Neuroscience tells us that the brain provides substantial resources to process vision, which we experience in our heads as a 3D view of the world created by common neuron signals travelling in the brain from responses to light hitting our retina and generating initial electrical signals. Humans possessed intelligence before we had language, and our evolutionary tree of life makes



clear that most animals through time and today possess a degree of intelligence based on visual thinking. Therefore, as much as there is excitement about LLM we should also be looking at visual thinking – this is explored in the book.

- We need to model the brain as an entity that exists in thought whether there are external stimuli impacting our sensory organs or not. The brain is continually in a dynamic state of activity. Research shows that external stimuli form a small portion of the overall continuous brain activity, which continues even in our sleep.
- Furthermore, we interact with the world continually in trial-and-error experimentation. For example, what we look at is more guided by our thoughts and expectations (predictions) than simply acting as passive receivers of external inputs and processing them without relation to our internal state of mind. LLMs have no internal state of mind – they are brain dead. An AGI must possess a continuous cycle of activity, and for want of a good model I suggest in the book a neurorobot as scientist (i.e., practicing the scientific method). And this is another aspect of AGI, it must be a learning system and being embodied physically in the real world is one approach, and there are other possibilities such as computer simulation.

## What more will it take to achieve AGI and will current trends take us there?

AI researchers building LLMs today do not understand how the emergent capabilities are created inside the model – it is a black box. Examining models that emulate the brains of lesser animals than humans may provide useful insights. Animal brains use less than 20 Watts, while a single high-end AI hardware accelerator consumes 1200 Watts and LLMs require some 10,000 of these graphical processing units (GPUs) to be trained. There is a major mismatch between current generative AI and how the brain works. Other ideas that may prove useful include diffuse decision making by ensembles of neurons and a neuromodulation feature such as a machine equivalent of dopamine that reinforces learning.

## Who is the book targeted at?

I believe students learning about AI will find the depth of research surveyed a rewarding read, suggesting avenues for their own future research. There is a clear separation between the research survey parts and ideas drawn from the surveys that are more speculative in nature in the final part of the book. I hope that students will be stimulated by all the material. Practicing neuroscientists and AI researchers should find the book useful as it spans a wide field giving them a higher-level view from above their specialism.

For example, there is research that shows in the brain's neuron backpropagating signals travelling from spike initiation back to dendrites, and not just forward signals travelling to the synapses. It's not quite the same backpropagation as developed by Geoffrey Hinton, David Rumelhart and Yann LeCun, and others, in artificial neural networks, but the commonality is intriguing.

## Will AGI be conscious?

First of all, on human consciousness, in conducting the survey research I found that among neuroscientists the topic was taboo for many decades because it was so intractable. Recent advances in non-destructive monitoring of the brain through imaging has opened the door to possibilities such as detecting the signature of the onset of conscious thinking and brought the topic back to focus, but we have challenges in understanding how human consciousness works. To your question, the topic is addressed in the book where I pose it as three questions:

- 1. Is computer simulation of a brain sufficient to make it intelligent?**
- 2. Do you need consciousness to have intelligence?**
- 3. Do you need to be alive to have consciousness?**

I delve into the answers to these questions in the book.



## John Atkinson-Abutridy

is an AI expert and professor at Universidad Adolfo Ibañez in Chile and has been a university professor and researcher over the last 27 years. He received a PhD in AI from the University of Edinburgh, UK and has led scientific and technological projects both at national and international levels on several AI topics including Natural-Language Processing, Machine Learning, and Text Mining, and has published almost 100 peer review scientific articles in journals and conferences. Dr. Atkinson-Abutridy has been a visiting researcher in several universities and research centers worldwide including the University of Cambridge, MIT, IBM T.J. Watson Labs (USA), and INRIA (France). He also received the ACM Senior Member award for his practical contribution to computer sciences.



## Large Language Models

Concepts, Techniques and Applications

John Atkinson-Abutridy

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IN CONVERSATION WITH

# John Atkinson-Abutridy

the author of *Large Language Models*, explains the interactions between computers and humans through natural language.

In the modern era, the volume of data generated daily is staggering, with a significant portion comprising unstructured text data from sources such as customer conversations, social media, news articles, and customer reviews. Traditional computational methods struggle to effectively process and analyze this large amount of textual information due to its complexity and linguistic variability.

This challenge requires a robust solution that can bridge the gap between human language and machine understanding, a problem addressed by Natural Language Processing (NLP). NLP, a subfield of artificial Intelligence (AI), focuses on the interaction between computers and humans through natural language, aiming to enable machines to understand, interpret, and respond to human language in a meaningful way.

NLP plays a crucial role in enhancing communication between humans and machines. By enabling machines to understand and generate human language, NLP allows for more natural and efficient interactions. These assistants use advanced NLP algorithms to understand voice commands, process them, and respond in a way that mimics human conversation.

Such advancements in NLP not only improve user experience but also democratize access to technology. People no longer need to learn complex programming languages or interfaces to interact with computers. Instead, they can use their natural language, making technology more accessible to a broader audience, including those with limited technical skills.

Traditional NLP methods often relied on rule-based systems and machine learning models that required extensive feature engineering and task-specific adjustments. These approaches had several limitations including contextual understanding, scalability and manual effort for building NLP systems.

Many of these limitations were addressed by large language Models (LLM) through several key advancements such as transformer architectures, large-scale pretraining, and transfer learning. The shift to LLMs has significantly broadened the scope and impact of NLP applications. LLMs enable more natural and human-like interactions, improving user experiences in chatbots, virtual assistants, and customer support systems. They also support advanced applications in content creation, coding, healthcare, and more. This ongoing evolution will further bridge the gap between human and machine communication, unlocking new possibilities for innovation and collaboration across various domains.

*Large Language Models* will serve you as an introduction to the science and applications of LLM. You will discover the common thread that drives some of the most revolutionary recent applications of AI: from conversational systems like ChatGPT, Gemini to machine translation, summary generation, question answering, code generation, and much more.

At the heart of these innovative applications is the powerful and rapidly evolving discipline, NLP that for more than 60 years has been focused on enabling machines to efficiently understand and generate human language.

The secrets behind these technological advances lie in LLMs, whose power lies in their ability to capture complex patterns and learn contextual representations of language. How do these LLMs work? What are the available models and how are they evaluated? This book will help you answer these and many other questions. With a technical but accessible introduction. In this book you will explore the fascinating world of LLMs, from its

foundations to its most powerful applications. In addition, you will learn how to build your own simple applications with some of the LLMs.

From deep neural networks and attention mechanisms to the most relevant LLMs such as BERT, GPT-4, LLaMA, Palm-2 and Falcon, this book guides you through the most important achievements in LLM. Not only will you learn the benchmarks used to evaluate the capabilities of these models, but you will also gain the skill to create your own NLP applications. It will be of great value to professionals, researchers and students within AI, data science and beyond.





## David J. Gunkel

is professor of communication technology at Northern Illinois University (USA) and associate professor of applied ethics at Łazarski University (Poland). He is the author of 14 books on the social impact and significance of digital media, artificial intelligence, and robotics.



## AI for Everything

David J. Gunkel

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IN CONVERSATION WITH

# David J. Gunkel

the author of *AI for Communication*, explores the connections between the science and engineering practices of artificial intelligence (AI) and the field of communication.

## What Communication means for AI

Whether we have ever recognized it as such or not, the very idea of intelligent machines is dependent on and defined in terms of communication. This is immediately evident in the field's agenda setting paper—Alan Turing's *Computing Machinery and Intelligence*, which he initially published in 1950. In the paper, Turing asks and seeks to respond to what appears to be a very unpretentious and direct question: "Can machines think?" To respond to this question, however, one would need to know what the words "machine" and "think" mean. And this, Turing concedes, is difficult if not impossible to attain as both words admit of a wide range of different and not necessarily compatible definitions.

Unable to respond to his initial research question, Turing does what any good researcher would do, he changes the question. Instead of asking "Can machines think?" Turing proposes an evaluative method to decide if and/or when it would be reasonable to conclude that a machine was capable of behaviors that we typically take as signs or symptoms of intelligent thought. This is what Turing called the imitation game, which famously involves a situation where a human interrogator exchanges text messages with another human being and a computer. The objective of the game, as Turing describes it, is for the interrogator to discern—solely on the basis of the content of the messages sent back and forth—who's the real human person and what is the machine. If the computer in the game is able to successfully pass itself off as another human person, to such an extent that the interrogator cannot tell the difference, then that machine, Turing concludes, would need to be considered intelligent.

Right from the very beginning, Turing redefines the question concerning machine intelligence in terms of potentially deceptive interpersonal communication. Because intelligence—natural or artificial—is something that is neither easy to define nor able to be directly accessed and observed, we need a way to test for it. And according to Turing and generations of researchers who followed his lead, this capability can detect and decided on the basis of external behaviors that are considered to be indicators of intelligence, especially communication and human-level verbal conversation in particular. Consequently, artificial intelligence is—and has actually always been—a communication science. And *AI for Communication* not only proves this point but capitalizes on it, demonstrating how repositioning AI in this manner not only solves a number of seemingly intractable problems in the field of AI but opens up new opportunities for communication studies as one of the leading disciplines of the 21st century.



## What AI means for Communication

Because communication is hardwired into the very idea of AI, it should be no surprise that innovations in the field have a direct impact on communication—not just our everyday understanding of the term but also the academic disciplines of communication as well as existing industries and professional practices. There is no aspect of human communication and social interaction that escapes from or resides outside the influence and impact of AI, and *AI for Communication* focuses attention on five areas where this is having a very real impact.

**1) Machine translation (MT)** – Machine translation is the use of computer applications to bridge the gap that separate human populations from each other due to differences in the languages we speak. In fact, MT was the presumptive kill app of the first generation of AI technology and has only recently come into its own due to innovations in artificial neural networks trained on big data. But in taking over the task of translating between human languages, these applications not only displace human workers but compel us to ask important questions concerning the very nature of human communication and the future of linguistic diversity.

**2) Natural Language Processing (NLP)** – With machine translation, the machine is still regarded as a mediator between human senders and receivers. NLP, however, takes things one step further by disrupting this standard instrumentalist formulation and making the AI an active participant in communicative interaction. But when we are talking to a machine, like Siri or a chatbot, who exactly is it that we are talking to? Can we trust what these things say? And might these human-to-machine interactions not only replace human-to-human communication but lead to a deskilling of our own social capabilities?

**3) Social Robots** – With NLP we have things that talk. But talking is not the only way human beings communicate. When I say, “it’s just great that machines can now use language,” that statement can have at least two different and entirely opposite meanings, depending on the tone of voice, facial expression, and body language that accompany it. One way to accommodate this is to put the NLP application in a body. This is the domain of social robotics. But as the channels of communication come to be expanded—from language use to

things like social presence, facial expression, and a wide range of non-verbal behaviors—we see a remarkable increase in the technical and social complexity of these devices.

**4) Large Language Models (LLMs)** – The current state-of-the-art in NLP AI is the large language model. Unlike many of the chatbots or digital assistants with which we are already familiar, LLMs do not use language by following pre-scripted conversational behaviors. Instead, they leverage the power of pretrained transformers, a type of artificial neural network that is trained on massive amounts of human generated textual content. As a result, LLMs can produce all kinds of written material of remarkable quality. With these technological innovations, then, we immediately confront a number of questions: How do LLMs work with language? Can we trust the information that they provide? What is the future of writing and literacy, when machines can do the work for us? And in using natural languages are LLMs showing signs or even sparks of consciousness?

**5) Computational Creativity** – As technologies of various sorts and configurations encroach on human abilities with language and other modes of communication, the one remaining bulwark of human exceptionalism appears to be creativity and artistry. Unfortunately for us, this may no longer be the case as there are already technologies that can produce what appear to be creative work in all areas of human endeavor. In the face of these machine generated works, we come face-to-face with deeply important questions: Is what is generated by generative AI original and new, or is it derivative and a cheap imitation? Can machines even make art? And if so, what does that mean for us, especially for those of us looking to make a career in one of the creative fields involving content creation like art and design, journalism, web development, film/video, music, or story telling?

## The target audience for the book

*AI for Communication* is designed for students, educators, and general readers who want to know how the field of communication intersects with machine intelligence and how recent developments in the techniques and technologies of AI will affect all aspects of human social interaction.



## Seth Dobrin

is a renowned AI and Data Science Leader known for his transformative work. At Monsanto, he revolutionized agriculture by integrating AI to enhance farming through precision agriculture. As IBM's first Global Chief AI Officer, he led the IBM Data Science Elite Team, driving ethical AI development and diversity across multiple projects. His leadership was instrumental in IBM's AI and data transformation.

He continued his journey by founding Qantm AI, championing a human-focused approach centered on ethical AI in business. His work at Qantm AI guides Fortune 500 companies and Private Equity firms in developing responsible AI strategies. A strong advocate for diversity and against technological colonialism, he supports organizations like Women Leaders in Data and AI (WLDA) and Wonder Women Tech (WWT). His multidisciplinary expertise, combining molecular and cellular biology with industry experience, sets AI leadership benchmarks, shaping its future to be responsible, ethical, and inclusive.



## AI iQ for a Human-Focused Future

Strategy, Talent, and Culture

Seth Dobrin

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IN CONVERSATION WITH

# Seth Dobrin

the author of *AI iQ for a Human-Focused Future*, on how to integrate AI and generative AI (GenAI) in business.

In today's rapidly evolving technological landscape, artificial intelligence (AI) stands at the forefront of innovation, promising to revolutionize industries and reshape how we work and live. However, the journey to successful AI implementation is fraught with challenges, misconceptions, and potential pitfalls. *AI iQ for a Human-Focused Future: Strategy, Talent, and Culture* by offers a pioneering approach to integrating AI and generative AI (GenAI) in business, emphasizing a business strategy-first mindset over a technology-centric one.

**The book is a practical toolkit for any business leader aiming to leverage AI initiatives effectively in their organizations.**

It begins by challenging the usual hype surrounding AI, advocating for a more realistic perspective. It delves into the evolution of AI, from traditional data science and machine learning to GenAI, all through the lens of strategic business application. Unlike other texts, it moves away from case studies, favoring practical, real-world advice from extensive field experience.

One of its key strengths is its holistic approach to AI integration. I emphasize that successful AI implementation goes beyond mere technological adoption. It requires a fundamental organizational culture, strategy, and talent management shift. I present strategies for creating an environment that accepts but thrives on AI, focusing on strategic leadership, talent development, and inclusivity.

The crucial aspects of AI integration:

1. **The Foundation:** The book starts by laying out the fundamental concepts of AI and GenAI, providing readers with a solid understanding of these technologies and their potential impact on business.
2. **The Uncomfortable Truth About AI:** I aim to provide a balanced view of AI's capabilities and limitations, helping readers develop a realistic expectation of what AI can achieve.
3. **Connection to Tangible Value:** The book aligns AI initiatives with business objectives. I present frameworks for identifying and prioritizing AI projects that deliver real, measurable value to the organization.
4. **AI-Ready Culture:** The book emphasizes fostering a culture that embraces AI. This includes strategies for change management, employee upskilling, and creating an environment that encourages innovation and experimentation.
5. **Organizational Structure:** I discuss how to structure organizations to best support AI initiatives, including creating new roles and restructuring existing teams.
6. **Infrastructure Readiness:** The book covers the technical aspects of AI implementation, including data architecture, computing resources, and the importance of scalable infrastructure.
7. **Data Readiness:** The book emphasizes the critical role of data in AI success, covering topics such as data quality, governance, and accessibility.

8. **AI Readiness:** This chapter provides a comprehensive framework for assessing and improving an organization's readiness to implement AI effectively.
9. **Generative AI Readiness:** With the rapid advancement of GenAI, I dedicated a chapter to preparing organizations for this transformative technology.
10. **Compliance Readiness:** I discuss ethics, regulation, and governance in AI implementation.
11. **Assessing Your Readiness:** The tools and methodologies for organizations to evaluate their AI readiness across various dimensions.
12. **CAIO, One Leader for AI:** I addressed the emerging role of the Chief AI Officer and its importance in driving AI strategy and implementation.
13. **Putting it all Together:** Wraps up the book with a clear, concise summary of how to apply the learnings to create real, tangible value for your organization while keeping the human-needs front and center

A unique feature of the book is its emphasis on the human element in AI adoption. It argues that successful AI implementation is not just about technology but about people. I provided insights on building diverse and inclusive AI teams, fostering collaboration between humans and AI, and addressing AI's ethical implications in the workplace.

Each chapter concludes with key takeaways, offering actionable steps and implementation tips. This practical approach transforms theoretical concepts into actionable business strategies, providing leaders with the tools to apply AI initiatives effectively in their organizations.

## The target audience for the book

- C-suite executives and business leaders looking to integrate AI into their strategic planning
- IT and data science professionals seeking to align their technical knowledge with business objectives
- Human resources professionals preparing for the workforce changes brought about by AI
- Policymakers and regulators interested in understanding the broader implications of AI in business and society
- Entrepreneurs and innovators looking to leverage AI in their ventures

In an era where AI is becoming increasingly prevalent, "AI iQ for a Human-Focused Future" stands out as a comprehensive, practical, and forward-thinking guide. It prepares organizations for the AI revolution and ensures that this revolution is human-centered, ethical, and sustainable.

As AI continues to evolve and shape our world, *AI iQ for a Human-Focused Future* provides the knowledge, strategies, and insights needed to navigate this new landscape successfully. It's not just about surviving in an AI-driven world; it's about thriving, creating value, and shaping a future where technology and humanity work in harmony.

This book is an indispensable resource for any organization looking to embark on or enhance its AI journey. It offers a balanced, comprehensive, and practical approach to AI adoption, ensuring that organizations are not just technologically ready but culturally and strategically prepared for the AI-driven future.

*AI iQ for a Human-Focused Future: Strategy, Talent, and Culture* is a roadmap for the future of business in the age of AI. It's a must-read for anyone looking to understand, implement, and benefit from AI in a strategic, ethical, and human-focused way.

### Endorsement

"Without a doubt the GEN/ AI is the most significant Innovation in a lifetime. Seth's new book is a must read for all serious Executives, looking to Innovate and unleash this fast breaking opportunity. Seth goes beyond hype, and delivers real practical frameworks and strategies based on his 40 years studying AI and 18 years exploiting it for the Global 2000. Do not miss this incredible once in a career opportunity. And Seth has the way."

– Hunter Muller, founder and CEO HMG Strategy



## Chris Colbert

is the former Managing Director of the Harvard Innovation Labs and a global speaker and advisor on the convergence between technology, innovation, and humanity.



## Technology is Dead

The Path to a More Human Future

Chris Colbert

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IN CONVERSATION WITH

# Chris Colbert

the author of *Technology is Dead*,  
about his new book.

## What inspired you to write this book?

I have long been an observer of humans, suffering a sort of insatiable curiosity about why we do what we do and don't do what we should do. And how over the centuries of us we have repeatedly not responded well to the influence of unhealthy things. More recently I have had a growing sense that modern humans have made some serious missteps in our response to two of the greatest forces we have ever unleashed: capitalism and technology. Both are wondrous inventions and yet troubling and potentially life threatening. And I believe technology is the more problematic of the two. Our lack of intentional stewardship of technology to realize its benefits while mitigating its societal and human costs is an existential issue, and one I felt worth exploring and expressing. The final motivating straw to write the book came with the pandemic. It seemed to magnify the power of technology to both enable and disable us. It also provided a pause, a lull in the frenzied transaction-laden world, for me to more deeply consider why we are where we are and what we can do about it.

A secondary answer, which I speak to in the book, is my view that we all have a responsibility to each other. That the collective need is far greater than that of any one person. And that we must all sacrifice in some form to ensure a better, healthier and more equal future. In that regard I wrote the book for the world, to nudge more people to help save humanity from us. That sounds grandiose and perhaps pompous, but in my view, it is the humblest of intentions: to present the truth of what may be humanity's greatest threat in simple, approachable terms and then provide a way forward together, because together is our only hope.

## What does the title, *Technology is Dead*, mean?

Given technology's infinite manifestations and now ubiquitous presence in every second of our lives, "it" can sometimes seem like a constant companion; like a sentient creature with intentions, responsibilities and seemingly accommodating behaviors. **It can appear alive and directly considerate of us. But is not alive. Technology is inanimate; it is dead. It only has value, when its capacities are constructively linked to the truth of our humanity and the positive, whole human outcomes we seek for ourselves, for future generations, and the planet we rely on.** Over the last 50 years we have allowed a troubling disconnection, a gap, to appear. Technology is now stewarding us instead of us stewarding it, resulting in a myriad of unintended, problematic, and even existential consequences. As well as it has done helping us meet our healthy human needs it has also become quite good at preying on and promulgating our dark ones. We must close the gap between us and it while taking back the steering wheel. And given the rapid advances of Artificial Intelligence, we do not have time to waste.

## **In the book you talk about “decoding humans.” Can you describe what this means?**

During my time as Managing Director of the Harvard Innovation Labs, I came to realize that any effort to improve, to innovate, to invent, stands a far greater chance of success if the creators place as much importance understanding the human factors as they do any other. If you want to improve your relationship with loved ones, put more effort into intimately understanding them. If you want your start up business to succeed, make sure your innovation's human benefits far exceeds its human costs. If you are trying to reduce partisanship in your country, dive deep into the psychological of your citizenry, and then respond in ways that meet them where they are. The critical variable in any equation designed to improve some aspect of our world, is the human one. And yet, we tend to shy away from human understanding in part because the human code is far more complex than any technological or scientific code. It scares us in its complexity and potential to reveal the uncomfortable truth about ourselves. So, we ignore it. And yet, the only way we become more effective stewards of technology is to by investing in better understanding ourselves. And that means decoding humans.

## **In your view, what are some of the unintended consequences of our increased dependence on technology?**

In the original manuscript of the book, I catalogued the litany of unintended consequences, from the loneliness and obesity epidemics to teenage mental health issues, climate change, and every issue in between. I came to realize that the list was too long, overwhelming in fact, and that most readers would not be able to handle all that truth. In the final edit I chose to focus on the unintended consequences that are more structural: the existential global threats of climate, zero population growth, pandemics, and the like; the growing divisions in the world and the rapid rise of autocracies and dictators; and the imbalance between the new power structures we need to mitigate the unintended consequences versus what the legacy structures we have. I do believe one of the most fundamental and problematic unintended consequences that influences all the others is what I refer to as the atomization and anonymization of society. Technology has resulted in a sort of hyper-individualization that gives humans the sense that they no longer need the other. When we lose our embrace of the social contract between us, it's hard to imagine a better world ahead. But that statement also holds the solution to our predicament.

## **How do you think the Covid-19 pandemic had an impact on people's views of technology and humanity?**

The history of adversity in the form of natural disasters, pandemics, and world wars has tended to motivate our species to come together, to reset expectations and find greater clarity and compassion about what it means to be human. I suppose it's the one benefit of millions of people being faced with the very real potential of death. Covid-19 was no different. At least in the western world it created a pause from the frenzied pace, and effectively forced the luckier ones among us to look in the mirror for the first time in a long time and ask ourselves some simple but important questions: Is this enough? Am I happy? Do I want this life? The questioning was really about our own individual humanity and our relationship with others, with technology and the world. Covid-19 also forced us to see what we had always known, but in magnified form: the divisions, the gross inequalities, the entitlements, and the inability of national governments and legacy global organizations to respond effectively to a global and existential threat. In a way, it revealed just how vulnerable and out of synch the whole thing is. The problem now is that as the world has returned to our pre-Covid lifestyles, we seem to have lost the clarity and the motivation to do anything about it. My book is an attempt to get people to pause again, and then act.

## **What is the Humanist Revolution you describe in the book?**

At its simplest, it is a call to action. I believe that the only way we can bring more human understanding into every equation, the only way we can effectively steward technology and mitigate its unintended consequences, and the only way we can achieve greater well-being for all people and the planet we rely on, is for each of us to step forward as humanists. By that I mean putting collective and individual human consideration at the forefront of all our innovations, decisions and behaviors. The good news is that there are already thousands of individuals and organizations doing that. My ask is that more of us join them, in whatever way you can. To some I say lead. To others I say give and forgive. In all cases some level of risk and sacrifice will be involved. But those have been the essential ingredients of all human progress since humans first banded together.

## **What kind of impact do you hope this book will have?**

My hope is that a greater conversation ensues, the context of some peoples' lives change, and more people walk the earth caring about the other, including saying hello to strangers. Because they are not strange, they are humans, just like us.



### **Alix Schmidt**

is a senior data scientist in Dow's Core R&D Information Research team in Midland, Michigan. Alix earned a BS in chemical engineering at the University of Illinois Urbana-Champaign in 2009 and then joined Dow Corning initially as a process research engineer. Since then, Alix has held a variety of roles at Dow Corning and Dow and completed an MS in data science at Northwestern University.



### **Kristin Wallace**

earned a BS in chemical engineering (2006) and an MS in applied science (optimization focus) (2008) at McMaster University. She has worked on a variety of analytics projects since joining ProSensus Inc. in 2018 as a project engineer in Burlington, Ontario. She was involved with related consulting projects, contributing to the development of FormuSense (commercial software), authoring blogs and magazine articles, as well as presenting and chairing at several AIChE spring meetings.

IN CONVERSATION WITH

## **Alix Schmidt and Kristin Wallace**

the authors of *The Digital Transformation of Product Formulation*, on how to implement data-driven, accelerated product development through concepts, challenges, and applications.

### **What motivated you to develop this book? What do you hope to achieve through it?**

Formulated products are a large portion of the materials we interact with daily, and there are thousands of formulation scientists working to innovate new products every day. In writing this book, we hope to make machine learning approachable to these researchers, and to show that data science capabilities can go beyond deep learning on millions of data points to the types of pragmatic "small data" problems that they see every day. There is a digital transformation occurring in chemistry and materials research and development, where new and increasingly complex data are needed to support faster and more complex business decisions. There is significant value, and risk, in this transformation. We want to give beginners living within this data-driven ecosystem a place to start when considering how to make the most of data science on their problems.

One additional factor that inspired us to take action with both this book and our conference symposia is the relative lack of literature on formulated materials specifically. When you look at the public discourse on machine learning for chemistry and materials, the vast majority of it is focused on molecular discovery for catalysis and pharmaceuticals and inorganic material discovery for semiconductors. While these are indeed exciting and high value applications, they are not directly relevant to the formulation science that goes into delivering consumer products. And most importantly, the data structures and their challenges in machine learning are actually very different, meaning that approaches and techniques learned in those spaces cannot always be leveraged directly into the formulation problem. In bringing this field and its specific technical challenges to the forefront, we hope to engage a wider audience in both the application of machine learning as well as innovation on the problems unique to optimizing formulated materials.

### **What do you think are the most exciting current developments in the field?**

The AI buzz around foundational image models and Large Language Models (e.g. OpenAI's GPT-4) is certainly diffusing into the materials science space, although currently the use of those particular techniques is limited. Nonetheless, we find that researchers, managers, and students alike are increasingly curious about how to get more from their data, or at a minimum, how to not get left behind. This enthusiasm and embrace for the changes which are coming is a noticeable pivot from the silence of skepticism of a decade ago. The formulation inverse design community has been relatively

# The Digital Transformation of Product Formulation

Concepts, Challenges, and Applications for Accelerated Innovation

Edited by **Alix Schmidt** and **Kristin Wallace**

August 14, 2024

ISBN 9781032474069

363 Pages, 113 B/W Illustrations

Subject: Chemical Engineering

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small in the past, and now we are excited to welcome others into the field! The field has been getting some attention lately, with the number of modeling algorithms and approaches being developed continuing to grow, so we are in a thought-provoking period of experimentation and innovation. The book is thorough in both describing well-established methodologies and providing a survey of emerging techniques. This includes advanced material feature engineering from unstructured data such as images through getting the most from your models by carefully applying mathematical programming techniques that have decades of development to capitalize on.

It is also exciting to see the range tools now being offered to those interested in learning more. Of course, many techniques are accessible to researchers who know how to code via open source data science packages. But there are now also software platforms with interfaces for interacting with formulation data and models for those looking for a more curated experienced. Recommendations for both paths are included in the book.

## What are the current challenges?

It is clear you can do a lot with your data, and there are many successful approaches discussed in the book and referenced case studies. Importantly, however, we also present many common pitfalls that our authors have observed in our collective 179 years of experience. Many of these pertain not to the modeling process itself but rather the data going into it and how to assess what your particular data can and cannot be expected to do. We have found that amongst the excitement in developing new model or optimization algorithms, this careful consideration of the alignment between the data available and the problem to be solved is very often overlooked, leading to disappointing results. There is discussion throughout the text to guide beginners on these topics, including initial project selection, thorough data quality assessment, and careful definition of the mathematical problem. Data science is so much more than model training – that can be automated in AutoML. True data science is understanding the business needs and correctly applying data towards a solution, and to that end the book considers the challenge holistically.

## Is there a particular chapter or section you would recommend if readers picked just one? Why?

The book was designed to be both broad and modular, so readers could pick and choose which topics relate to them and the challenges they care about. That being said, there are two chapters we can point to which give a reader a sense of the book. For those uninitiated to the digital transformation of science, Chapter 1 provides a utopian vision of what research work could look like in a fully data-driven laboratory, framing the motivation for learning more. For those familiar with formulation problems and their data, we find that the first portion of Chapter 10 – Introduction to Formulation Optimization – brings a lot of the individual puzzle pieces together to build out the overall mathematical problem. Through this process, a reader gets exposure to the importance of carefully designing the value case, thoroughly understanding the data quality, what is required of the predictive model, and how to translate researcher know-how and preferences into success of the AI tool they are building.

### Endorsements

"...a valued resource for production formulators in multiple industries."

– Marlene Cardin, ProSensus, Canada

"Altogether, this book presents a unique perspective on product development challenges and approaches that are pertinent to a wide range of industries. The diverse expertise of the authors reflect the current state of the diverse, interdisciplinary field."

– Jeffrey Ting, Nanite, Inc., US



### **Natalie M. Scala**

is a professor at Towson University (Maryland, USA) with extensive research in decision analysis, cybersecurity, election security, and military security issues.



### **James P. Howard, II**

is an analytics professional with vast experience in data science, consulting, teaching, and community service, having worked with various United States government agencies.

IN CONVERSATION WITH

# **Natalie M. Scala and James P. Howard, II**

the authors of *Handbook of Military and Defense Operations Research*, on how OR integrates with cutting-edge areas like artificial intelligence, cybersecurity, and big data analytics.

## **What is the primary focus of the Handbook of Military and Defense Operations Research?**

*The Handbook of Military and Defense Operations Research* offers a comprehensive guide to applying operations research and analytics techniques within the military and national defense sectors, featuring expert insights, case studies, and practical applications. The book includes approaches, case studies, and perspectives that illustrate how OR supports dynamic problem spaces related to national security, policing, cyberspace, foreign policy, terrorism, and homeland security. The handbook covers a broad spectrum of topics, from strategic planning, logistics, and supply chain management to decision analysis, risk assessment, and resource allocation.

At its core, the book aims to bridge the gap between theoretical advancements in OR and their practical applications in real-world military scenarios. It emphasizes the importance of analytical methods in improving decision making processes, optimizing resource utilization, and enhancing operational effectiveness within defense organizations. An interdisciplinary approach is the key strength of the Handbook. It integrates perspectives from various fields, including mathematics, statistics, computer science, and engineering, to provide a holistic understanding of the challenges and opportunities in military operations research.

## **What are the new features and improvements in the second edition?**

The second edition of the Handbook features a reorganized three-part structure, extensive revisions, numerous new exercises, examples, real-world case studies, and several new chapters. The revisions to returning chapters update to reflect the current state of the field. The new chapters address emerging areas of artificial intelligence, cybersecurity, and machine learning. The end-of-chapter exercises provide practical insights and hands-on experiences, helping readers understand the application of OR techniques in various defense contexts. Overall, these updates make the Handbook more comprehensive and practical for both newcomers and seasoned professionals.

## **Who is the intended audience for the Handbook?**

The Handbook is intended for a diverse audience that includes researchers, practitioners, and policymakers working in military and defense sectors. Researchers and academics in operations research, applied mathematics, and related fields will find it valuable for its comprehensive coverage of methodologies, approaches, and applications. Practitioners working within



military and defense organizations can use it as a guide to applying OR techniques to real-world problems, improving decision making, logistics, and strategic planning. Additionally, the Handbook is a useful textbook for students and educators in military studies, defense analysis, and operations research programs, providing a thorough grounding in the application of OR in defense contexts.

## How can the Handbook be used in educational settings?

Instructors can use the approaches and case studies provided in the Handbook directly in the classroom. The end-of-chapter exercises and discussion questions enable students to practice and engage with the content, facilitating a deeper understanding of the material. These exercises also aid instructors with classroom discussions and enhancing their course learning outcomes. The Handbook's interdisciplinary approach makes it suitable for courses in applied mathematics, computer science, analytics, operations research, and engineering. Additionally, it can be used for advanced seminars, workshops, and research projects to foster critical thinking and problem solving skills.

## What makes the Handbook a valuable resource for practitioners?

The Handbook is valuable for practitioners because it combines theoretical approaches with real-world case studies and practical applications. It offers insights into best practices and lessons learned in the field, helping practitioners implement cutting-edge OR and analytics techniques in their organizations. Practitioners from various fields, including logistics, strategic planning, and risk management, can find relevant and actionable information to address the unique challenges in military and defense operations.

## Why is the Handbook of interest to international audiences?

There are several reasons international audiences will be interested in the Handbook, including its global relevance of topics, international contributions, and presentation of universal best practices. The insights and methodologies presented in the book can be applied to enhance security and defense strategies in any country. Cybersecurity, artificial intelligence, and machine learning transcend national boundaries; emerging application areas such as insider risk and threat are pertinent to international security. The Handbook features contributions from a diverse group of experts to ensure the approaches, applications, and perspectives are not solely U.S.-centric but offer a broad, global view of military and defense operations research. Furthermore, the second edition provides best practices and lessons learned from real-life problems that are

applicable in different contexts around the world. By addressing these universal issues and providing actionable insights, the Handbook becomes a critical resource for international audiences looking to enhance their understanding and application of OR in defense and security contexts.

## What do you think the next major advance in Operations Research will be?

The next major advance in Operations Research (OR) is likely to be driven by the integration of advanced technologies and the development of new methodologies that address increasingly complex and dynamic problems. Some potential areas of significant advancement include artificial intelligence, machine learning, predictive analytics, big data analytics, simulation, cybersecurity, and advanced optimization algorithms. The Handbook addresses each of these topics with foundational approaches and application examples of case studies in practice. Furthermore, the end-of-chapter exercises and discussion questions enable students and practitioners to understand and apply the cutting-edge techniques they experience in the Handbook.

## If a reader were to take away just one thing from this book, what do you hope it would be?

If a reader were to have just one take away from the Handbook, we intend for it to be the understanding that operations research (OR) is an indispensable tool for solving complex problems and making informed decisions in the defense sector. By leveraging advanced OR techniques, professionals can optimize resources, mitigate risks, and enhance strategic planning to address the challenges of modern military and defense operations. The Handbook's holistic approach, that combines theory with practical applications and case studies, empowers readers to apply these methodologies effectively in real-world scenarios, ultimately contributing to stronger and more resilient defense systems worldwide.



## Handbook of Military and Defense Operations Research

2nd Edition

Edited by **Natalie M. Scala** and **James P. Howard, II**

August 21, 2024

ISBN 9781032497488

574 Pages, 169 Color Illustrations

Subject: Operations Research

[www.routledge.com/9781032497488](http://www.routledge.com/9781032497488)



## James Ottavio Castagnera

Esq., holds an M.A. in Journalism from Kent State University, and a J.D. and Ph.D. (American Studies) from Case Western Reserve University. He worked for ten years as a labor, employment, and intellectual-property attorney with the Saul Ewing law firm and 23 years as associate provost & legal counsel for academic affairs at Rider University, where in 2018 he received the university's highest annual award for distinguished service. He was also a full-time law professor at UT-Austin and Widener University Law School.



## Counter Terrorism Issues

Case Studies in the Courtroom, 2nd Edition  
James Ottavio Castagnera

August 29, 2024

ISBN 9781032754604

300 Pages

Subject: Homeland Security and Law

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IN CONVERSATION WITH

## James Ottavio Castagnera

the author of *Counter Terrorism Issues* 2nd Edition, on a panoramic view of the American judiciary's handling of domestic terrorism in the last 30 years.

### You've made some important updates to the new edition. Can you tell us what the original idea for the 1st Edition was, and what you've added this time around to bring it up to date?

A decade ago, we were early into President Obama's second term. Osama Bin Laden had finally been tracked down and killed. A second prominent Jihadist named Anwar al-Awlaki, who was in Yemen, had been tracked down and killed in a drone strike. From a legal standpoint, this assassination was to my mind more significant than Bin Laden's. I say that because al-Awlaki was an American citizen. He wasn't arrested, read his rights, arraigned, or put on trial. He was assassinated by presidential order. Like many other legal scholars and academic attorneys, I was concerned about the due-process implications. I asked myself, "Just how well has the American system of justice responded to the challenges raised by the post-9/11 'War on Terror'?"

I opened my book with a brief retrospective on terrorism and the courts' responses, going back to the Molly Maguires, who were Irish terrorists in the 19th century coal fields of Pennsylvania, and the anarchists Sacco and Vanzetti in the 1920s. The heart of the book begins with the first World Trade Center bombing in 1993 and carries the analysis through a series of case studies, culminating with the Obama era and what I called "the Yemeni connection."

In each chapter, I have tried to bring the legal proceedings, along with the underlying events, alive for the reader—be that an instructor or student, attorney, or concerned citizen—through original sources, such as excerpts from the indictments and trial transcripts. I concluded that, despite a handful of noteworthy aberrations, the American criminal justice system has acquitted itself pretty well.

The two new chapters—that are written entirely for the new edition—on the resurrection of the radical right, the Trump presidency, and the January 6, 2021 insurrection haven't altered that conclusion.

### What is your goal with the new book? Who's the intended audience and how should the book be used? And why is it so important.

The 2nd Edition is, quite literally, as current as today's daily headlines. The inspiration is the unprecedented events of the Trump Administration. In the first edition, the only chapter dealing with America's radical right concerns Timothy McVeigh and the Oklahoma City Bombing in 1995. The bulk of the book necessarily dealt with Al-Qaeda and radical Islamic terrorism. The radical right had

receded into the shadows after Oklahoma City. When Donald Trump came to power and brought blatantly right-wing advisors, such as Steve Bannon, into the White House, the right was emboldened. One of the consequences was the Charlottesville (VA) “Unite the Right” rally in August 2017. And, of course, there was the January 6, 2021 attack on the U.S. Capitol building in Washington DC. I realized that we were witnessing a resurgence of the radical right, which had been keeping a low profile since 1995. This seemed to demand a new edition of my book.

The target audiences include faculty and students in the fields of Homeland Security, counter terrorism law and policy, as well as law professors and students interested in national security and civil liberties. But any concerned citizen will find it enlightening and instructive.

The 2nd Edition also brings all the original chapters up to date. Some of the ongoing cases of 2013, including the Boston Marathon bomber, have reached resolutions as of 2024. I wrap up those long-running legal sagas in the new book, as well. I know of no other book that covers this legal terrain in the way that I do.

## **We are in a very polarizing time in this country, but, really, all around the world. Conservative and populist leaders and regimes are being elected in places like the Netherlands, Italy, and Argentina, and being voted out or rejected in others—the UK, France, and Poland come to mind recently. What has been the lasting impact of Donald Trump and, say, the January 6th insurrection?**

Here in the United States, we may not know the lasting impact of Donald Trump until the voters speak at the polls in November of this year. This year’s EU elections reflect a definitive turn to the right across much of Western Europe. One of the driving catalysts of this socio-political right turn is illegal immigration. Polls show that this is a significant concern of many, many Americans as well. Candidate Trump is seeking to amplify and capitalize on this concern. In May he unveiled a plan, that would include use of the military, to deport millions of undocumented immigrants.

Trump pledged to be “dictator for a day,” then back peddled, saying, “That was said sarcastically. That was meant as a joke.” If he is elected to a second term, then we will see the full impact of Trump and the January 6 insurrection played out during the next four years.

## **And what role can the courts play—or do you see the courts playing—in maintaining normalcy in such turbulent times or, at the very least, in maintaining the rule of law?**

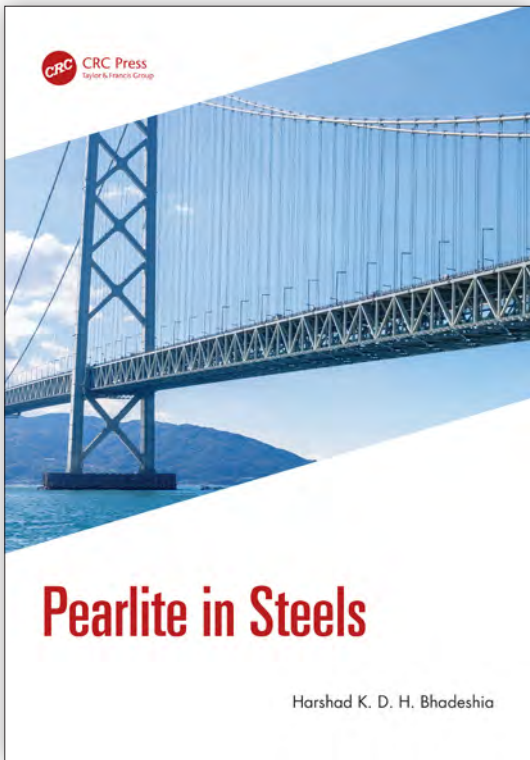
Our courts are the guardians of our rights. The U.S. Supreme Court is the final arbiter of what the Constitution means and what it requires. On July 1st we witnessed the most recent example of this role. The Court defined the boundaries of executive immunity enjoyed by a sitting President of the United States. Now the lower federal courts will interpret that guidance. The decision preserved the case against Donald Trump for the events of January 6, 2021, allowing it to proceed, but narrowed the range of accusations the federal prosecutor can pursue against the former president. The trial judge will have to operationalize that guidance.

This is not only the most recent, but also one of the most instructive examples, of how the courts play their crucial role in balancing our rights against the demands of national security. In my book, I present many more examples.

Some pundits, politicians, and legal scholars have decried—as did the three dissenting Justices—the 6-3 decision to give the president an area of official actions that are absolutely immune from subsequent criminal prosecution. But imagine if Barack Obama didn’t believe that he enjoyed such immunity. Would he have authorized the drone attack on al-Awlaki? As I’ve pointed out in my book, al-Awlaki instigated a series of attempted terrorist attacks on the U.S. and was legally untouchable. Shouldn’t our president be empowered to address such threats without fear of prosecution after leaving office? The book provides the essential context in which to evaluate the wisdom of the Supreme Court’s presidential-immunity decision. That’s just one example of how the book is so important in giving context to today’s headlines. It’s not only a retrospective analysis; it’s a lens through which to evaluate inevitable new developments.

As my new edition amply illustrates, the balance is always between civil liberties and national security. Those are the scales of justice. The executive branch will always seek to exercise its power. The legislature will bend with the political winds. It falls to the courts to maintain or reset the balance between those two scales. Judges are human, as are juries, and will always be imperfect. But, by and large, they have risen to the challenge in an era when our republic’s resilience is being tested more than at any other time since the end of the Civil War.

These are exciting, but also dangerous and disturbing, times. As the United States’ founders—especially Thomas Jefferson, Alexander Hamilton, and James Madison stressed—an educated citizenry is crucial to safeguarding our democracy. I intend this book to be my contribution to achieving that crucial goal.



# Pearlite in Steels

Harshad K.D.H. Bhadeshia

October 29, 2024  
ISBN 9781032631929  
416 Pages, 285 B/W Illustrations  
Subject: Engineering/ Materials Science  
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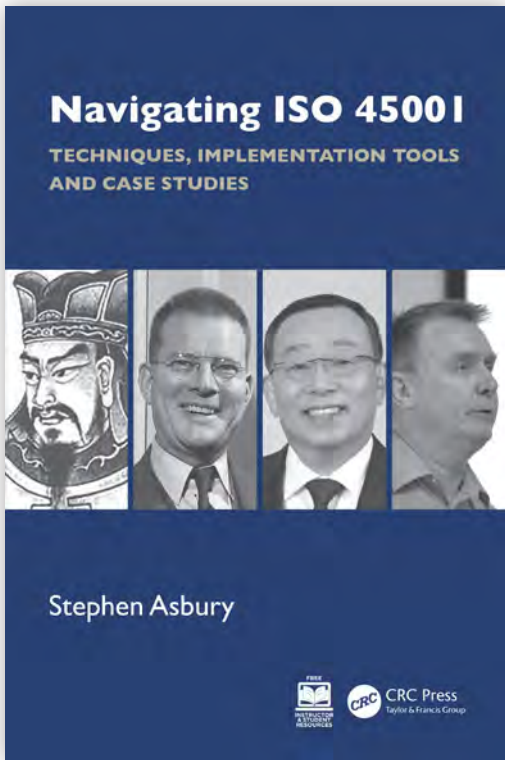
## Harshad K.D.H. Bhadeshia

is the Emeritus Tata Steel Professor of Metallurgy at the University of Cambridge and Professor of Metallurgy at Queen Mary University of London. He became a Fellow of the Royal Society in 1998, of the Royal Academy of Engineering in 2002, a Foreign Fellow of the National Academy of Engineering (India) in 2004 and was awarded the Bessemer Gold Medal in 2006. Professor Bhadeshia was appointed a Knights Bachelor in the Queen's Birthday Honours for services to science and technology.

Pearlitic steel is the strongest commercially available mass-produced alloy, and pearlite is used in a myriad of applications, from the reinforcement of tyres in every single road vehicle in the world, to the creation of pathways across troubled waters. *Pearlite in Steels* is the first book dedicated to this vast subject. The book uniquely covers the topic in depth, providing a comprehensive coverage of fundamentals and technologies that make pearlite vital as an engineered material.

- Covers the 3D-structure of pearlite over a wide range of length scales.
- Details the relationship between imperfect structure and consequences.
- Discusses all aspects of structure and complex properties.
- Covers the evolution of structure during traumatic processing.
- Engineering aspects are highlighted: the twisting of pearlitic wires, for the safe application of the strongest of ropes in safety-critical scenarios.
- Highlights difficulties and inconsistencies, thereby helping to develop research.

Aimed at materials engineers and metallurgists, this book by a leading global authority on the subject offers readers the deepest and broadest overview of pearlite in steels to date.



# Navigating ISO 45001

Techniques, Implementation Tools and Case Studies

Stephen Asbury

September 27, 2024  
ISBN 9781032702001  
338 Pages, 59 B/W Illustrations  
Subject: Engineering / Occupational Health & Safety  
[www.routledge.com/9781032702001](http://www.routledge.com/9781032702001)



## Stephen Asbury

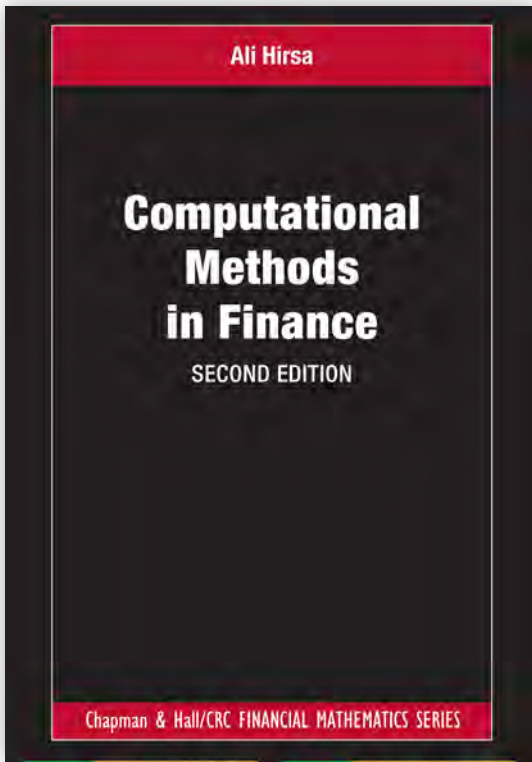
is the author of eight books on auditing, decision-making, and occupational health and safety risk management for Taylor & Francis. He is a Chartered Fellow of the Institution of Occupational Safety and Health (CfIOSH), an Emeritus Professional of the American Society of Safety Professionals (ASSP), and a Fellow of the Institute of Environmental Management and Assessment (FIEMA). He has 40 years' experience from assignments in over 60 countries on six continents.

There has been a 2,500-year evolution in structured means of control and management systems. Occupational health and safety management systems are an essential tool for initiating and driving cultural change, and for establishing a framework for continual improvement in safety performance. *Navigating ISO 45001* charts this evolution up to the launch of the world's first occupational health and safety management system (OH&S-MS) standard ISO 45001:2018, and then forecasts its future for the next ten years.

This book delivers approaches and techniques that include the Navigating 45001: Three-Step Model, sixteen OH&S-MS implementation Toolkits, and 24 case studies presented as practical examples to facilitate your organization's success in this critical business area. Acting as the essential companion to *Health and Safety, Environment, and Quality Audits: A Risk-based Approach* (Asbury, 2023) which is now in its fourth edition and has sold thousands of copies, this new book presents OH&S-MS from the organization's side. Written with the safety manager in mind, it will become the "go-to" title for those who aspire to drive a prosperous and thriving organization based on world-class OH&S management and performance.

*Navigating ISO 45001* is an essential reading for senior managers and safety managers in any safety-critical role or profession.

Downloadable and copyright-free documents, videos, and useful URL links are provided on the book's companion website.



# Computational Methods in Finance

2nd Edition

Ali Hirsra

August 2, 2024  
ISBN 9781498778602  
652 Pages, 52 Color & 87 B/W Illustrations  
Subject: Mathematics & Statistics / Finance  
[www.routledge.com/9781498778602](http://www.routledge.com/9781498778602)



## Ali Hirsra

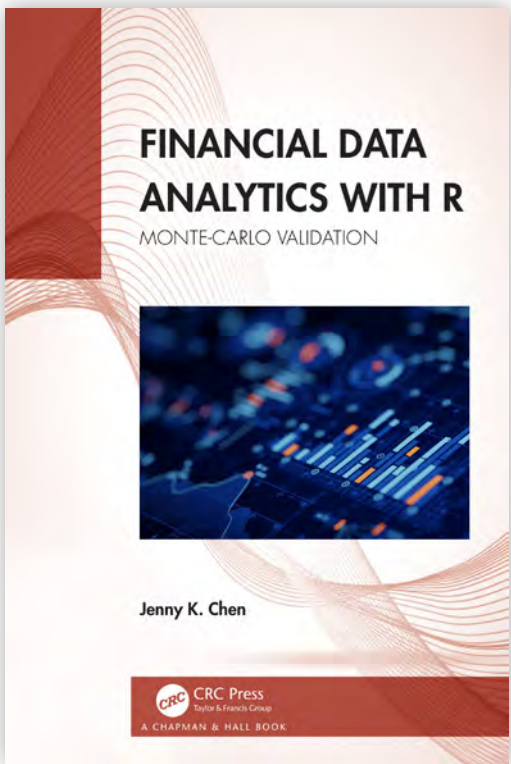
is a Professor and director of the Center for Artificial Intelligence in Business Analytics and Financial Technology and director of the Financial Engineering Program in the Industrial Engineering & Operations Research Department at Columbia University in the City of New York. He is also Chief Scientific Officer at ASK2.ai and Managing Partner at Sauma Capital, LLC, a New York Hedge Fund.

*Computational Methods in Finance* is a book developed from the author's courses at Columbia University and the Courant Institute of New York University. This self-contained text is designed for graduate students in financial engineering and mathematical finance, as well as practitioners in the financial industry. It will help readers accurately price a vast array of derivatives.

This new edition has been thoroughly revised throughout to bring it up to date with recent developments. It features numerous new exercises and examples, as well as two entirely new chapters on machine learning.

## KEY FEATURES

- Explains how to solve complex functional equations through numerical methods
- Includes dozens of challenging exercises
- Suitable as a graduate-level textbook for financial engineering and financial mathematics or as a professional resource for working quants.



# Financial Data Analytics with R

Monte-Carlo Validation

Jenny K. Chen

July 12, 2024  
ISBN 9781032741499  
298 Pages, 47 B/W Illustrations  
Subject: Mathematics & Statistics  
[www.routledge.com/9781032741499](http://www.routledge.com/9781032741499)



## Jenny K. Chen

graduated with a Master's and Bachelor's degree in the Department of Statistics and Data Science at Cornell University. With expertise honed through academic pursuits and her current role as a quantitative product manager at Morgan Stanley, she is particularly interested in the applications of statistical modelling in finance and portfolio management. She was the youngest published author at the Joint Statistical Meetings in 2016 and has published several research papers in statistical modelling and data analytics.

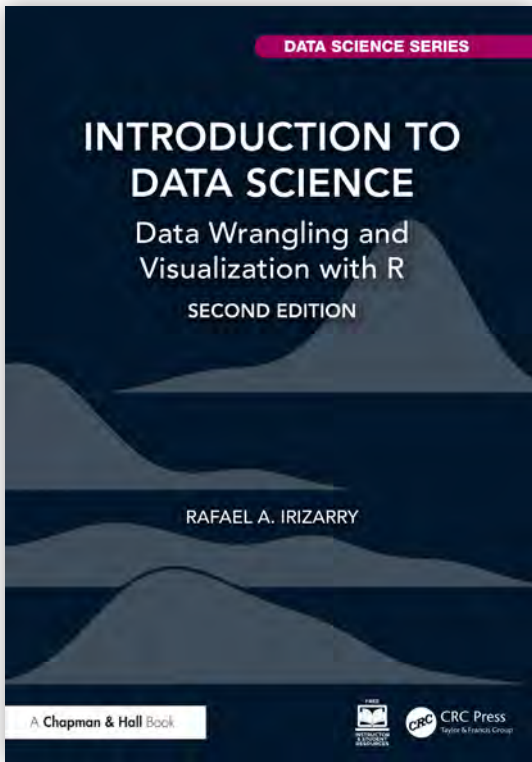
*Financial Data Analysis with R: Monte-Carlo Validation* is a comprehensive exploration of statistical methodologies and their applications in finance. Readers are taken on a journey in each chapter through practical explanations and examples, enabling them to develop a solid foundation of these methods in R and their applications in finance.

This book serves as an indispensable resource for finance professionals, analysts, and enthusiasts seeking to harness the power of data-driven decision-making.

The book goes beyond just teaching statistical methods in R and incorporates a unique section of informative Monte-Carlo simulations. These Monte-Carlo simulations are uniquely designed to showcase the reader the potential consequences and misleading conclusions that can arise when fundamental model assumptions are violated. Through step-by-step tutorials and real world cases, readers will learn how and why model assumptions are important to follow.

## KEY FEATURES:

- An extensive compilation of commonly used financial data analytics methods from fundamental to advanced levels
- Learn how to model and analyze financial data with step-by-step illustrations in R and ready-to-use publicly available data
- Includes Monte-Carlo simulations uniquely designed to showcase the reader the potential consequences and misleading conclusions that arise when fundamental model assumptions are violated
- Data and computer programs are available for readers to replicate and implement the models and methods themselves



# Introduction to Data Science

Data Wrangling and Visualization with R,  
*2nd Edition*

Rafael A. Irizarry

August 2, 2024  
ISBN 9781032116556  
346 Pages, 137 Color & 56 B/W Illustrations  
Subject: Mathematics & Statistics  
[www.routledge.com/9781032116556](http://www.routledge.com/9781032116556)



## Rafael A. Irizarry

is professor and chair of Data Science at the Dana-Farber Cancer Institute, professor of biostatistics at Harvard, and a fellow of the American Statistical Association and the International Society of Computational Biology. Prof. Irizarry is an applied statistician and during the last 25 years has worked in diverse areas, including genomics, sound engineering, and public health surveillance. He disseminates solutions to data analysis challenges as open source software, tools that are widely downloaded and used. Prof. Irizarry has also developed and taught several data science courses at Harvard as well as popular online courses.

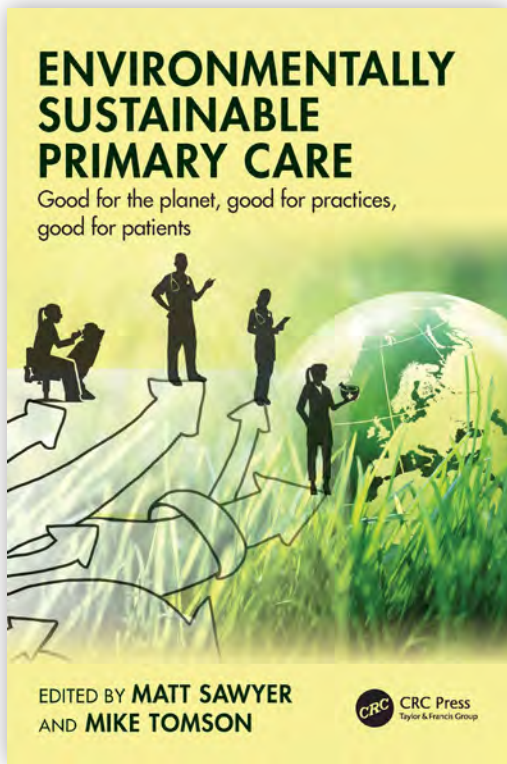
Unlike the first edition, the new edition has been split into two books.

Thoroughly revised and updated, this is the first book of the 2nd Edition of *Introduction to Data Science: Data Wrangling and Visualization with R*. It introduces skills that can help you tackle real-world data analysis challenges. These include R programming, data wrangling with dplyr, data visualization with ggplot2, file organization with UNIX/Linux shell, version control with Git and GitHub, and reproducible document preparation with Quarto and knitr. The new edition includes additional material/chapters on data.table, locales, and accessing data through APIs. The book is divided into four parts: R, Data Visualization, Data Wrangling, and Productivity Tools. Each part has several chapters meant to be presented as one lecture and includes dozens of exercises. The second book will cover topics including probability, statistics and prediction algorithms with R.

Throughout the book, we use motivating case studies. In each case study, we try to realistically mimic a data scientist's experience. For each of the skills covered, we start by asking specific questions and answer these through data analysis. Examples of the case studies included in the book are: US murder rates by state, self-reported student heights, trends in world health and economics, and the impact of vaccines on infectious disease rates.

This book is meant to be a textbook for a first course in Data Science. No previous knowledge of R is necessary, although some experience with programming may be helpful. To be a successful data analyst implementing these skills covered in this book requires understanding advanced statistical concepts, such as those covered the second book. If you read and understand all the chapters and complete all the exercises in this book, and understand statistical concepts, you will be well-positioned to perform basic data analysis tasks and you will be prepared to learn the more advanced concepts and skills needed to become an expert.





# Environmentally Sustainable Primary Care

Good for the planet, good for practices, good for patients

Edited by **Matt Sawyer** and **Mike Tomson**

November 7, 2024  
ISBN 9781032793573  
264 Pages, 33 Color & 15 B/W Illustrations  
Subject: General Medicine  
[www.routledge.com/9781032793573](http://www.routledge.com/9781032793573)



## **Matt Sawyer**

is a former GP, current Director of SEE Sustainability and a Carbon Literacy trainer, UK.



## **Mike Tomson**

is a former GP (clinically retired), a medical educator coach and a Trustee for Centre for Sustainable Healthcare, previously Director of Greener Practice CIC, UK.

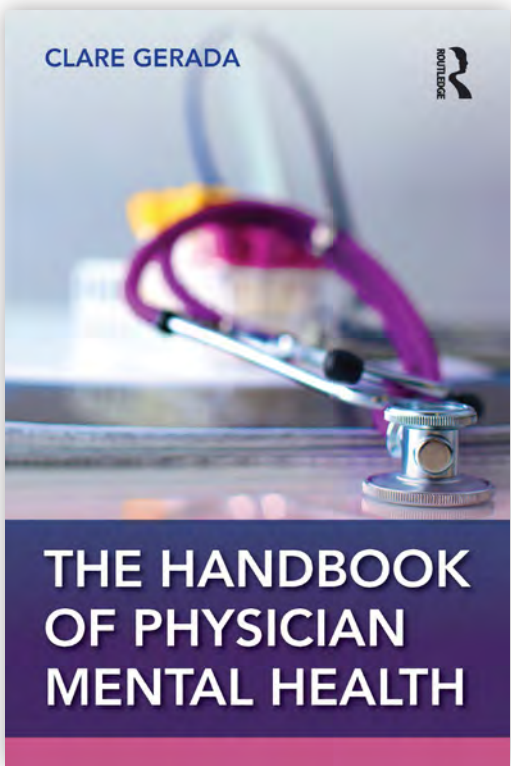
This practical guide, for primary care, provides a context-specific introduction to the sustainability challenges associated with good healthcare delivery and provides easy-to-implement yet impactful actions that can be taken to reduce and mitigate the impact of primary care on the living world whilst also looking at the impact of the changing planet on healthcare that people will encounter.

The chapters address the following key questions – What is the issue? What can I do/what can my practice do? How do my actions help patients, practice and planet? Included throughout are case studies, vignettes and anecdotes of previous successful interventions, while a check list of the most impactful actions for others to follow, as supported by the current evidence base, provides a convenient summary. References and additional resource recommendations give directions to further guidance. The book looks at the four pillars of primary care, Dentistry, General Practice, Optometry and Pharmacy, and includes international contributions.

### **KEY FEATURES:**

- Specific to primary care and highly practical
- Covers a broad spectrum of environmental topics directly relevant to primary care
- Illustrated with examples from real-life experience supported by published evidence

Providing invaluable direction to turn good intentions into meaningful action, the book will be invaluable to health professionals and practice managers across all primary care disciplines and to students preparing to enter practice in those fields. It will also be of interest to integrated care system administrators and to health policy makers.



# Handbook of Physician Mental Health

Clare Gerada

July 22, 2024  
ISBN 9781032479866  
198 Pages, 4 B/W Illustrations  
Subject: General Medicine  
[www.routledge.com/9781032479866](http://www.routledge.com/9781032479866)

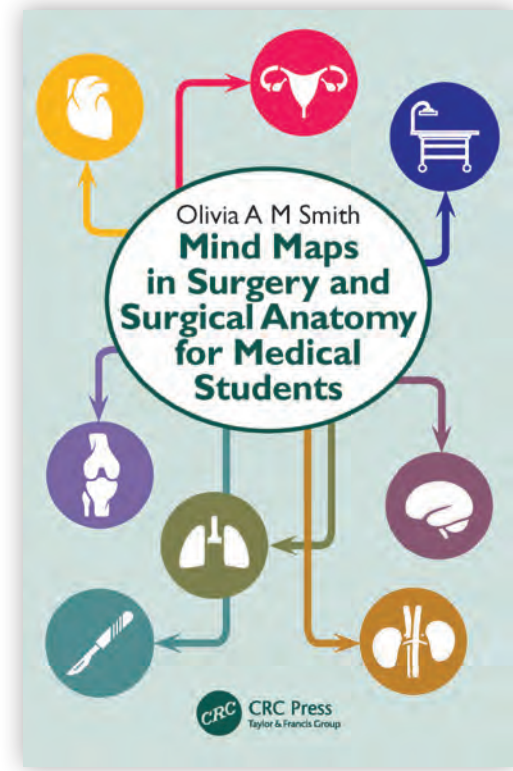


## Clare Gerada

is an international leader in practitioner health and, until recently, has led the largest physician health programme in the world. She is a Co-Chair of the NHS Assembly and Past President of the Royal College of General Practitioners, UK.

This definitive textbook on Practitioner Health mixes academic rigour with practitioner and patient experiences. The book covers all aspects of care relevant to any regulated health professional, focusing on the care of doctors and nurses with mental illness. The book builds on themes introduced in the award-winning publication *Beneath the White Coat: Doctors, Their Minds and Mental Health* from the same author. It provides an invaluable 'how to manage' companion to supplement and enhance the broader issues relating to doctors and mental illness addressed in that first book.

Drawing together 15 years of expertise in caring for more than 30,000 doctors with mental illness, the book is relevant to any health professional working in clinical practice and will be essential reading for those who regulate, appraise, train and support health practitioners across various disciplines.



# Mind Maps in Surgery and Surgical Anatomy for Medical Students

Olivia A.M. Smith

November 14, 2024  
ISBN 9781032298580  
256 Pages, 94 B/W Illustrations  
Subject: Surgery

[www.routledge.com/9781032298580](http://www.routledge.com/9781032298580)

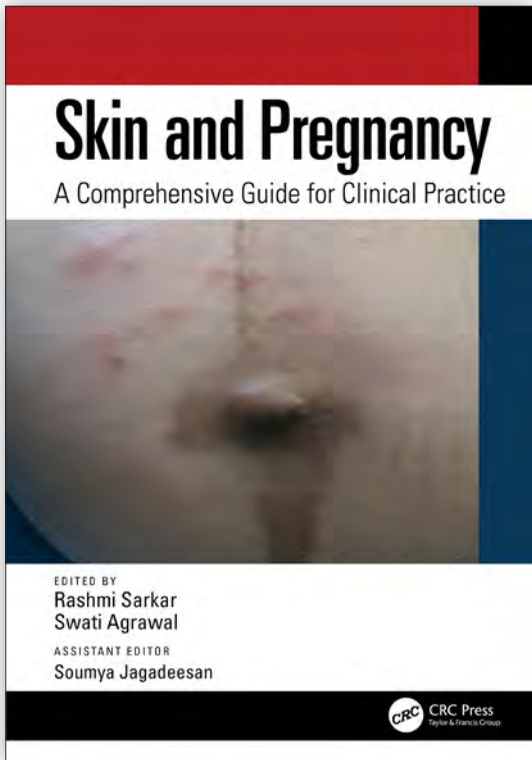


## Olivia A.M. Smith

is a Plastic Surgery Registrar, South West Deanery, UK and the author of *Mind Maps for Medical Students*, *Mind Maps for Medical Students: Clinical Specialties* and *Cracking the MRCS Part A: A Revision Guide*.

This new learning and revision aid from the author of the bestselling *Mind Maps for Medical Students* has been designed specifically to help medical students memorize essential facts in surgical pathology and anatomy, invaluable throughout undergraduate studies and particularly useful in the pressured run-up to final exams.

Over 100 maps are organized by surgical specialty and anatomical region as appropriate and reflect the latest surgical information and published guidelines. The book has been carefully designed with the student in mind – it is pocket sized and the maps summarize a variety of aspects in a consistent format to aid rapid recall. Ideally suited for students and early postgraduates revising for surgical exams, this convenient and portable distillation of knowledge will aid memorization and save many hours of note taking.



# Skin and Pregnancy

A Comprehensive Guide for  
Clinical Practice

Edited by **Rashmi Sarkar, Swati Agrawal** and  
**Soumya Jagadeesan**

November 27, 2024  
ISBN 9781032583471  
224 Pages, 53 Color & 5 B/W Illustrations  
Subject: Specialist Medicine

[www.routledge.com/9781032583471](http://www.routledge.com/9781032583471)



## Rashmi Sarkar

MD, FAMS, IFAAD, is the Director Professor, Department of Dermatology, Lady Hardinge Medical College and associated KSCH and SSK Hospitals New Delhi, and Immediate Past President of IADVL, India.



## Swati Agrawal

MD, FICOG, FMAS, is a Professor, Department of Obstetrics and Gynaecology, Lady Hardinge Medical College, New Delhi, India.



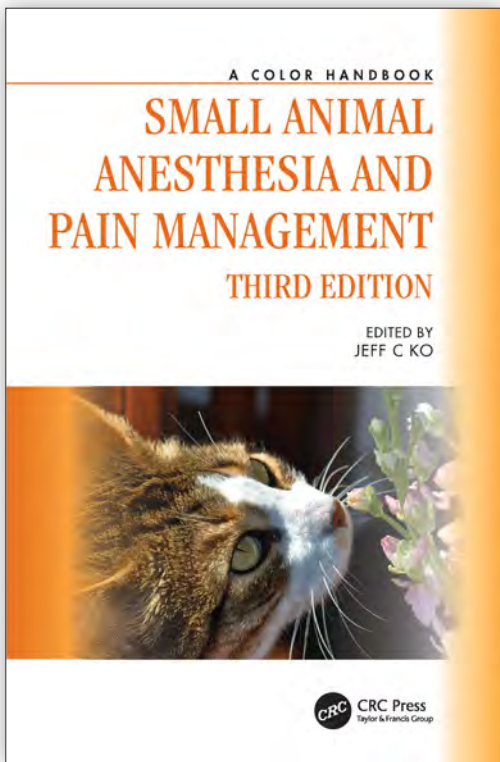
## Soumya Jagadeesan

MD, is a Professor, Department of Dermatology, Amrita School of Medicine, Kochi, India.

This text fills the gap between medical specialties in this topic, covering the dermatological diseases appearing during or affected by pregnancy; it also looks at safe drug usage and the cosmetic and aesthetic concerns of the pregnant woman. Most of the conditions discussed require a combined approach and treatment by the dermatologist and gynaecologist and obstetrician, and this text establishes a united therapeutic approach for all practitioners.

### KEY FEATURES:

- Fills the gap between the various specialties involved in managing skin diseases in pregnant patients
- Offers a unified approach for all health professionals managing pregnant patients
- Presents a practical and detailed clinical resource



# Small Animal Anesthesia and Pain Management

A Color Handbook, *3rd Edition*

Edited by **Jeff C. Ko**

November 6, 2024  
ISBN 9781032405896  
520 Pages, 410 Color Illustrations  
Subject: Veterinary Medicine  
[www.routledge.com/9781032405896](http://www.routledge.com/9781032405896)



## Jeff C. Ko

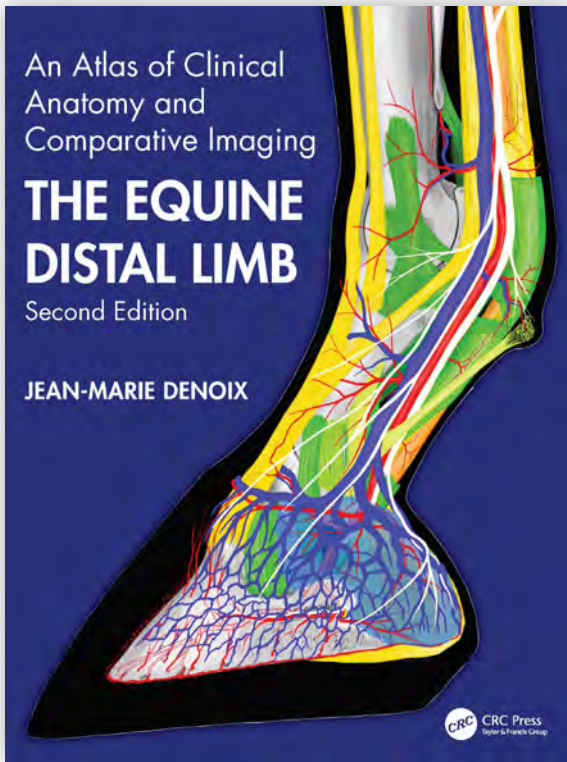
earned his veterinary degree from Taiwan in 1981 and pursued advanced studies and residency training in veterinary anesthesiology at the University of Illinois between 1990-1992. Commencing his academic journey as an assistant professor at Virginia Tech between 1992-1994. He obtained his diplomate status in 1995. He then ascended through the ranks at the University of Florida and Oklahoma State University, ultimately achieving the position of full professor in 2005. Since 2006, he has held the roles of full professor and clinical anesthesiologist at Purdue University.

In this thoroughly updated and much expanded third edition, this book provides comprehensive coverage of the world of veterinary anesthesia and pain management. Opening with a detailed exploration of inhalant anesthetic equipment and its essential accessories, emphasizing the crucial role of preoperative blood work and its interpretations, coverage continues with a systematic introduction to clinical anesthetic practice, encompassing premedication drugs and dosages, intravenous induction options, and concluding in a discussion of modern inhalant anesthetics. These chapters shine a spotlight on a newly approved drug, showcasing the practical application of Zenalpa® (medetomidine and vatinoxan) for a range of sedative and anesthetic combinations in dogs and cats.

Updated chapters also cover a wide range of scenarios and procedures, including:

- Injectable and sedative combinations.
- Monitoring anesthetic depth and antinociception, utilizing EEG (electroencephalography) and Parasympathetic Tone Analysis (PTA) devices.
- Comprehensive guidance on intervening in cases of abnormalities.
- Anesthetic considerations, management, and interventions.
- Acupuncture, herbal medicine, and photobiomodulation therapy.

This clinically focused text draws upon practical experience and clinical evidence from various sources. It provides drug dosages and anesthetic protocols in tabular form, complemented by over 400 illustrations that enhance comprehension and visual clarity.



# The Equine Distal Limb

An Atlas of Clinical Anatomy and Comparative Imaging, *2nd Edition*

Jean-Marie Denoix

September 10, 2024  
ISBN 9781032060712  
462 Pages, 1315 Color Illustrations  
Subject: Veterinary Medicine  
[www.routledge.com/9781032060712](http://www.routledge.com/9781032060712)



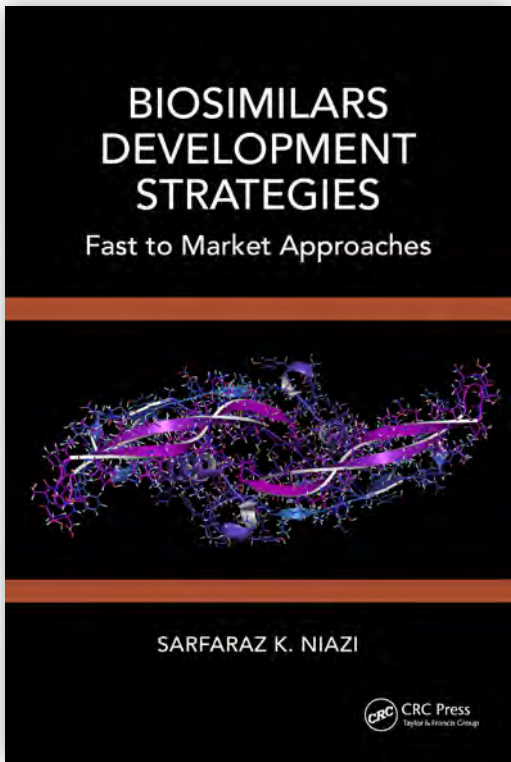
## Jean-Marie Denoix

Professor, DVM, PhD, Founder ISELP, DACVSMR, DECVSMR. For more than forty years, Pr J-M Denoix has been captivated by equine musculoskeletal system anatomy and biomechanics and was involved in the diagnosis and rehabilitation of equine lameness.

Jean-Marie Denoix is the world's leading equine musculoskeletal system anatomist and has become one of the foremost equine diagnostic ultrasonographers. There is therefore nobody better to compile a reference atlas of the clinical anatomy of the foot, pastern and fetlock, correlated with images obtained by radiography, diagnostic ultrasonography and magnetic resonance imaging. Advanced imaging techniques require in depth knowledge of anatomy for accurate interpretation and especially when using magnetic resonance imaging this must be a 3-dimensional concept of anatomy.

This new edition replaces existing ultrasound images and most of the radiographic and MRI images with new, updated versions and adds new images of extraordinarily high quality, the multiple views of each area of the distal limb providing an extremely detailed evaluation. Each part opens with a characteristically superb anatomical drawing by the author. Each spread of pages deals with a single dissection viewed by means of colour photographs, labelled black and white equivalents, plus x-rays, ultrasound and MRI scans as required.

The diagnosis and management of distal limb lameness require a precise knowledge of the functional anatomy and biomechanics of the equine distal joints, ligaments and tendons which are presented in the last chapter. The book is designed for maximum clarity using a generous page size. The atlas is essential for anybody involved in detailed anatomical study, complex lameness evaluation or advanced imaging techniques.



# Biosimilars Development Strategies

Fast to Market Approaches

Sarfaraz K. Niazi

July 31, 2024  
ISBN 9781032517018  
198 Pages, 18 B/W Illustrations  
Subject: Pharmaceutical Science  
[www.routledge.com/9781032517018](http://www.routledge.com/9781032517018)



## Sarfaraz K. Niazi

Ph.D., is an Adjunct Professor at the University of Illinois. He has authored 60+ major books, 100+ research papers, and 100+ patents, mainly in bioprocessing. He has hands-on experience establishing biopharmaceutical projects, from concept to market, including setting up the first biosimilar company in the US and leading to several FDA approvals. He serves as an advisor to several regulatory agencies, including the FDA.

After 18 years since the first biosimilar was approved, a lot has changed, from the regulatory guidelines to the stakeholder perceptions about the safety and efficacy of biosimilars. However, the development costs remain high, preventing faster entry into markets with more than 200 choices. Analyzing the regulatory filings of all approved biosimilars in the US and EU, a deep analysis of the scientific principles, and continuous challenges to the regulatory authorities have made it possible to plan the development on a fast track. This book teaches how to cut the current time and cost by more than 70%, based on the author's hands-on experience.

### KEY FEATURES:

- Describes the emergence of biosimilars since the first publication of the recombinant engineering patent, as well as a listing of all approved recombinant products, their patent expiry and their adoption across the globe.
- Provides a better understanding of the safety and efficacy of approved biosimilars.
- Global approval requires accommodating guidelines and detailed planning to avoid redundancy as well as high costs. The basic expectations of the agencies are presented here.
- Presents a detailed analysis of all EU and FDA-approved products with a comparative analysis.
- Renowned author and entrepreneur in the field of drug discovery and production.

DRUGS AND THE PHARMACEUTICAL SCIENCES

## GOOD CLINICAL PRACTICES IN PHARMACEUTICALS



Edited by  
**Graham P. Bunn**



# Good Clinical Practices in Pharmaceuticals

Edited by **Graham P. Bunn**

December 2, 2024

ISBN 9781032524078

200 Pages, 6 B/W Illustrations

Subject: Pharmaceutical Science

[www.routledge.com/9781032524078](http://www.routledge.com/9781032524078)



### **Graham P. Bunn**

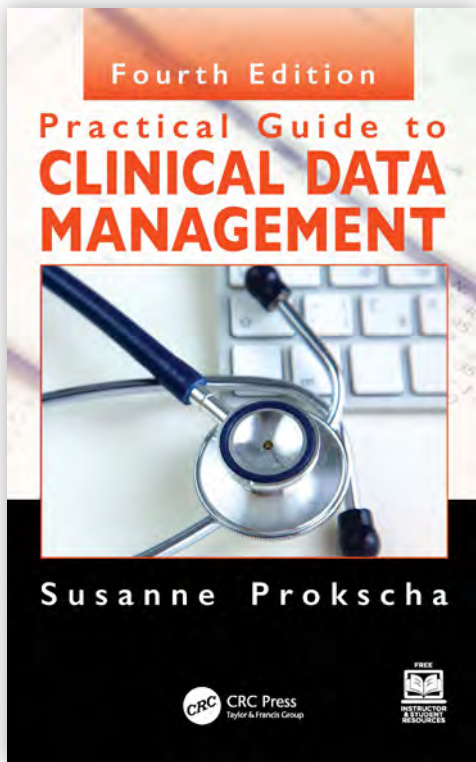
has been the president of GB Consulting LLC, in Pennsylvania, since 2000 and provides regulatory compliance guidance and technical consulting services for pharmaceutical, biotechnology, and other FDA related industries. His experience includes supporting and leading teams for quality systems assessments, regulatory action responses and remediations (FDA483, Warning Letter, Consent Decree), and preparing sites to host regulatory inspections.

Good clinical practice (GCP) is a set of internationally-recognised ethical and scientific quality requirements that must be followed when designing, conducting, recording and reporting trials that involve the participation of human subjects. Compliance with GCP assures patients and the public that the rights, safety and wellbeing of people taking part in studies are protected and that research data is reliable.

### **KEY FEATURES:**

- Presents details on Good Clinical Practice (GCP), the international ethical, scientific, and practical standard to which all clinical research is conducted.
- Provides the most up-to-date and best practices, techniques, and methodologies in good clinical practice.
- Discusses applicable laws and regulations supporting GCP compliance, quality and operations.
- Diverse audience including clinical operations, regulatory affairs, medical affairs, clinical pharmacology, and biostatistics.
- Describes who is responsible for implementing and maintaining quality assurance and quality control systems to ensure that studies are conducted, and data are generated, documented, and reported in compliance with the protocol.





# Practical Guide to Clinical Data Management

4th Edition

Susanne Prokscha

July 3, 2024  
ISBN 9781032495583  
270 Pages, 24 B/W Illustrations  
Subject: Pharmaceutical Science  
[www.routledge.com/9781032495583](http://www.routledge.com/9781032495583)



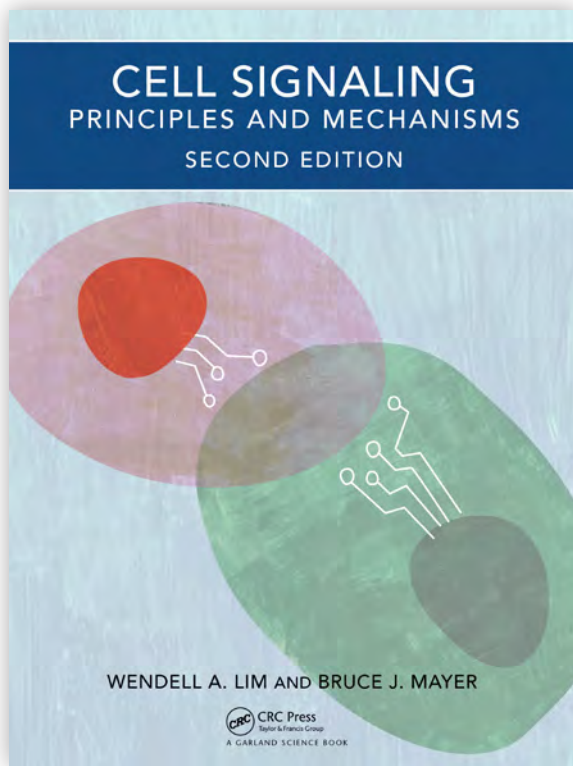
## Susanne Prokscha

has been involved in clinical data management (CDM) processes and technologies since the mid-1980's. She has worked both as a consultant and directly for companies large and small, gaining experience with a wide range of studies and a variety of CDM systems. Since 2007, Susanne has been focusing on standard operating procedure (SOP) development, document management, and training plans for CDM and for other functions in clinical research and development.

The management of clinical data, from its collection during a trial to its extraction for analysis, has become critical in preparing a regulatory submission and obtaining approval to market a treatment. Groundbreaking on its initial publication nearly 14 years ago, and evolving with the field in each iteration since then, this latest volume includes revisions to all chapters to reflect the recent updates to ICH E6, good clinical practices, electronic data capture, and interactive response technologies. Keeping the coverage practical, the author focuses on the most critical information that impacts clinical trial conduct, providing a full end-to-end overview for clinical data managers.

### KEY FEATURES:

- Provides an introduction and background information for the spectrum of clinical data management tasks.
- Outstanding text in the industry and has been used by the Society for Clinical Data Management in creating its certification exam.
- Explains the high-level flow of a clinical trial from creation of the protocol through study lock.
- Reflects electronic data capture and interactive response technologies.
- Discusses using the concept of three phases in the clinical data management of a study: study startup, study conduct, and study closeout, to write procedures and train staff.



# Cell Signaling

Principles and Mechanisms,  
*2nd Edition*

Wendell A. Lim and Bruce J. Mayer

October 30, 2024  
ISBN 9780367279370  
463 Pages, 370 Color Illustrations  
Subject: Bioscience

[www.routledge.com/9780367279370](http://www.routledge.com/9780367279370)

## Wendell A. Lim

is Professor of Cellular and Molecular Pharmacology at the University of California, San Francisco. The principal focus of his research is the structure and mechanism of protein interaction domains and the logic by which these components are used to build complex cellular signaling systems.

## Bruce J. Mayer

is Professor of Genetics and Genome Sciences at the University of Connecticut, School of Medicine. Current work of his group focuses on characterizing and manipulating tyrosine kinase-mediated signal transduction pathways.

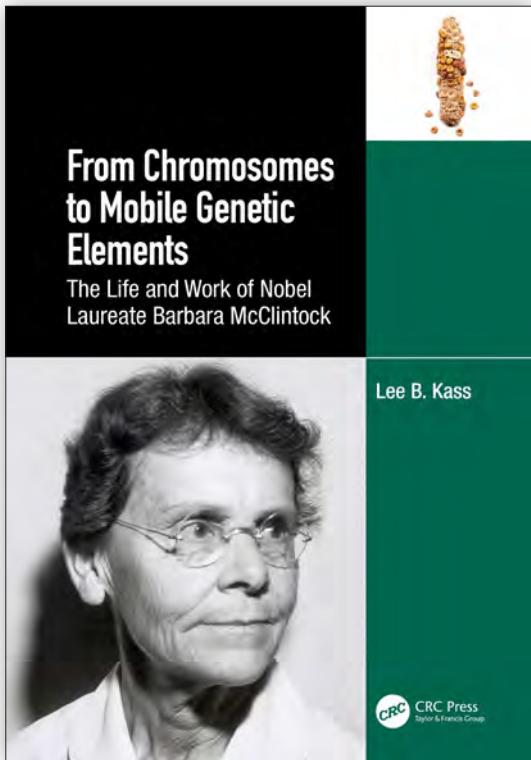


*Cell Signaling* provides undergraduate and graduate students with the conceptual tools needed to make sense of the dizzying array of pathways that cells use to detect, process, and respond to signals from the environment. By emphasizing the common design principles and molecular processes that underlie all signaling mechanisms, the book develops a broad conceptual framework through which students can understand diverse signaling pathways and networks. The book first examines the common currencies of cellular information processing and the core components of the signaling machinery. It then shows how these individual components link together into networks and pathways to perform more sophisticated tasks. Many specific examples are provided throughout to illustrate common principles, and to provide a comprehensive overview of major signaling pathways.

Thoroughly revised, this second edition includes two new chapters and substantial updates to the text and figures throughout the book.

### KEY FEATURES:

- The book provides a conceptual framework through which all signaling pathways can be understood without memorization of details
- It is extensively illustrated, including high-quality diagrams and schematics to elucidate important concepts and processes
- Each chapter concludes with a useful summary section that brings together the key concepts
- End-of-chapter review questions test the reader's understanding of the material covered
- Two new chapters have been written especially for this edition: "Signaling and Disease" and "Diversity in Signaling across Phylogeny"



# From Chromosomes to Mobile Genetic Elements

The Life and Work of Nobel Laureate Barbara McClintock

Lee B. Kass

June 27, 2024  
ISBN 9781032365329  
282 Pages, 6 Color & 33 B/W Illustrations  
Subject: Natural History / Biography  
[www.routledge.com/9781032365329](http://www.routledge.com/9781032365329)



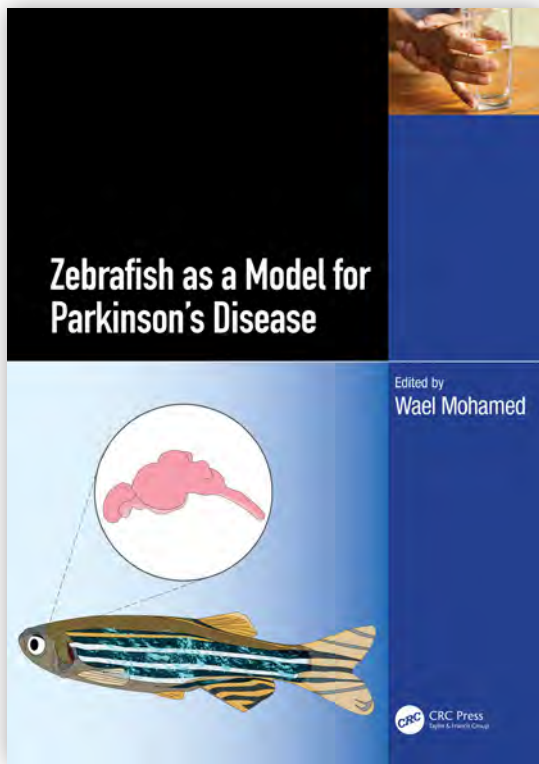
## Lee B. Kass

received her Ph.D. in Botany and Genetics from Cornell University after earning a B.S. in biology from The City University of New York. She did Postdoctoral research at The University of Cambridge-UK and Vanderbilt University. She has served on the faculties of The University of Cambridge, University of Tennessee-Nashville, Elmira College, The College of the Bahamas, Cornell University and West Virginia University-Morgantown. Kass has authored, edited or co-edited twelve books, and authored or co-authored numerous book chapters, proceedings papers, and articles in scientific journals. She is a member of the Botanical Society of America, The Bahamas National Trust, The Maize Genetics Cooperation, and a former member of many botanical organizations.

This biography of Nobel Laureate Barbara McClintock (1902-1992) places her life and work in its social, scientific and personal context. The author examines the development of Barbara McClintock's scientific work and her influence upon individuals and upon the fields of cytogenetics and evolutionary biology in the period from 1902 to the present. The history documents years of McClintock's notable and lauded scientific work long before she discovered and named transposable elements in the mid-1940s for which she ultimately received the Nobel Prize. The biography employs documented evidence to expose, demystify, and provide clarity for legends and misinterpretations of McClintock's life and work.

## KEY FEATURES:

- Exposes and demystifies myths and legends told about McClintock's time in Missouri
- Clarifies the changing language of genes and genetics
- Places in perspective the history of McClintock's research
- Documents McClintock's family and early life before college
- Provides documented details of McClintock's time in Nazi Germany



# Zebrafish as a Model for Parkinson's Disease

Edited by Wael Mohamed

October 8, 2024  
ISBN 9781032515779  
324 Pages, 32 Color & 8 B/W Illustrations  
Subject: Neuroscience  
[www.routledge.com/9781032515779](http://www.routledge.com/9781032515779)



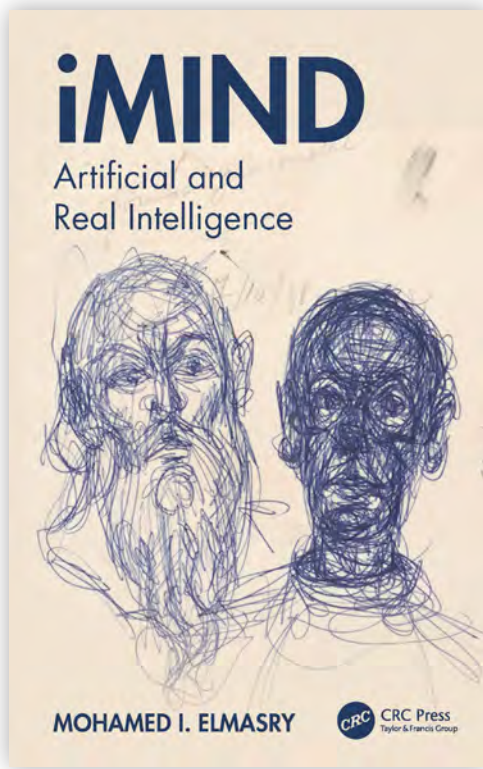
## Wael Mohamed

BBCH (Egypt), MMSc (Egypt), MD/PhD (USA). Dr. Mohamed, a Physician Neuroscientist, earned his PhD from PSU in the USA and currently holds the position of Associate Professor at IIUM Medical School in Malaysia. With an extensive background, Dr. Mohamed has been invited to deliver over 150 lectures both domestically and internationally. His contributions to Neuroscience/Psychiatry are notable, with the publication of more than 100 peer-reviewed papers, boasting an h-index of 20.

The increasing demand for innovative techniques arises from the lack of safe, effective, and patient-friendly therapies for neurodegenerative disorders. With this objective in mind, the chapters of the book are structured to offer a thorough insight into recent advancements in utilizing the zebrafish (ZF) as a model for studying Parkinson's disease (PD). This book aims to present readers with a comprehensive understanding of the clinical application of the ZF model in treating PD, encompassing the latest developments, challenges, safety considerations, toxicity issues, regulatory aspects, future potential, and limitations. Individuals in academia, the scientific community, business, and education seeking a more effective approach to target the brain stand to benefit from this resource.

## KEY FEATURES:

- Provides a comparative perspective of the zebrafish–Parkinson's disease model
- Highlights the restrictions of available medicines
- Describes biochemical and histopathological characteristics, advantages, and disadvantages of this model
- Emphasizes distinct facets of histopathology
- Presents advances and developments of the future potential perspectives



# iMind

Artificial and Real Intelligence

Mohamed I. Elmasry

August 29, 2024  
ISBN 9781032778747  
206 Pages, 1 B/W Illustrations  
Subject: Human Computer Interaction  
[www.routledge.com/9781032778747](http://www.routledge.com/9781032778747)



## Mohamed I. Elmasry

PhD, FRSC, FIEEE, FCAE, FEIC is Emeritus Professor of Computer Engineering at the University of Waterloo. He is a leading world expert, having over 50 year research and consulting industrial experience, in microchips and Artificial Neural Networks. He published 20 books and over 500 research papers. His students are leaders in academia and industry. One of his students was the co-founder of the Blackberry Company. Elmasry is a member of the San Francisco-based Center for AI Safety.

Why has so much of our recent attention been focused on AI while RI (Real Intelligence) is all but forgotten? And why are we spending so much energy debating the future of AI rather than that of its human original? Why can't those who are concerned about AI and those who care about RI talk to one another using a common language?

***iMind: Artificial and Real Intelligence* is the first comprehensive popular science account of AI and RI. Unique in scope, it discusses the interdisciplinary science of AI, RI, smartphones, smart sensors, microchips, and the brain-mind connection.** It explores what is beyond the physical, including mindfulness and spirituality, and how they can impact our wellbeing in the here and now, and how they can help us achieve a healthy and fulfilling old age.

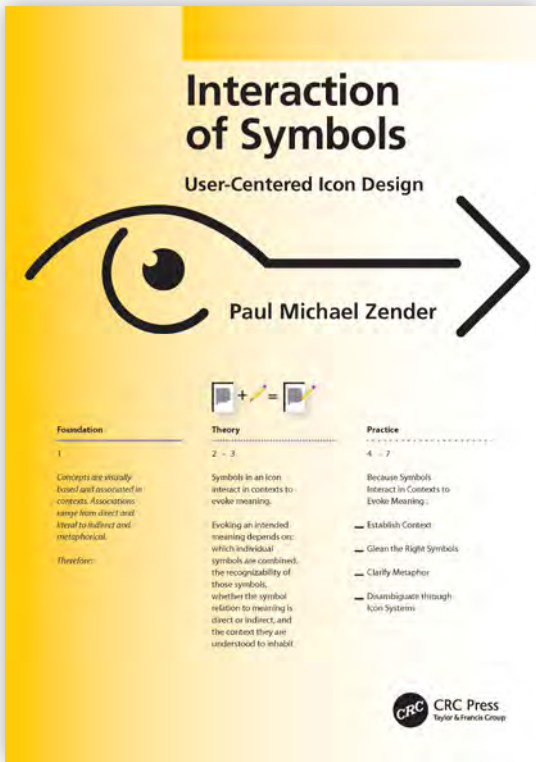
## ENDORSEMENTS:

"In the age of AI, we must know about both AI and RI. My friend Professor Elmasry has done an excellent job of narrowing the knowledge gap in his new book."

– Youssef El-Mansy, PhD, former VP, Intel

"*iMind: Artificial and Real Intelligence* is a well-researched popular interdisciplinary science book. It's timely, addressing important areas, exploring intelligence, artificial and real, and the brain-mind connection. This book is transformative, empowering readers to improve their well-being; it doesn't matter how non-technical they are."

– Dr. Mohamad Sawan, Emeritus Professor at Polytechnique, Montréal QC, Canada, founder of its Polystim Neurotech Lab, and an Officer of the Order of Quebec.



# Interaction of Symbols

User-Centered Icon Design  
Paul Michael Zender

September 9, 2024  
ISBN 9781032591254  
350 Pages, 73 Color & 100 B/W Illustrations  
Subject: Graphic Design  
[www.routledge.com/9781032591254](http://www.routledge.com/9781032591254)



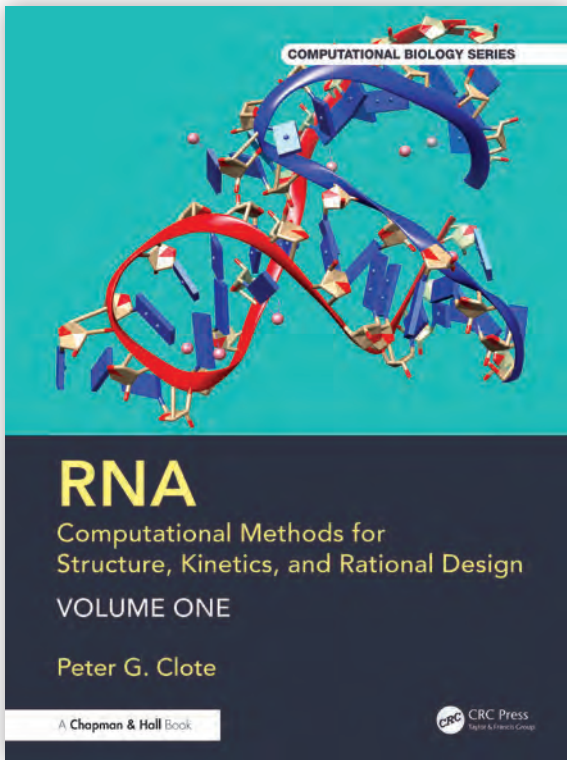
## Paul Michael Zender

is Professor Emeritus of Design at the University of Cincinnati. He received his MFA in 1977 from Yale University, where he was the Carl Purrington Rollins Fellow. In 2004 he was a Medical Informatics Course Fellow at the Marine Biology Laboratory, Woods Hole, MA. He founded and operated the design practice Zender + Associates, Inc. for thirty years. His work and that of his associates was published regularly and exhibited broadly. He is a past president of Cincinnati AIGA (American Institute of Graphic Arts) and in 2009 was named a National Fellow of the AIGA for his contributions to design and design education. He has written two books on design, more than 25 journal articles, and in 2013 became editor of the 48 year-old communication design research journal *Visible Language*.

*Interaction of Symbols* is a book for everyone engaged with icon design. It presents a theory of how icons work: symbols in an icon interact to evoke meaning. From this theory flow design principles and practices based on evidence from Design and other disciplines such as Psychology, Perception and Cognition. The theory, principles, and practices impact how all symbol-based communications are conceived, designed, and applied

The book focuses on icons that elicit a concept without any previous training or use of language. Findings from twenty years' worth of empirical design research studies explore, illustrate, and support each principle, process, and recommendation. The book begins with a review of icon research from various fields before laying a conceptual foundation that grounds the theory of the book. After and elaborating on that theory are chapters that demonstrate how to Establish Contexts to Guide Comprehension, Glean Which Symbols to Draw, Learn How to Draw Understandable Symbols, Clarify Metaphor, and Use Icons to Decipher Icons in Icon Systems. Written and carefully designed for a broad audience, the book's scholarly level is elevated while the presentation is approachable. Scholar or professional can skim, scan, or dig, it's up to them.

Heavily illustrated and supported with ample citations, it is not only a book for students and professionals within the field of communication design, but also for anyone who communicates with visual symbols, from healthcare professionals to software engineers, affecting all kinds of graphic communications from advertisements to assembly instructions.



# RNA

## Computational Methods for Structure, Kinetics, and Rational Design, Volume 1

Peter G. Clote

November 20, 2024  
ISBN 9781032496641  
394 Pages, 52 Color & 45 B/W Illustrations  
Subject: Computer Science / Bioinformatics  
[www.routledge.com/9781032496641](http://www.routledge.com/9781032496641)



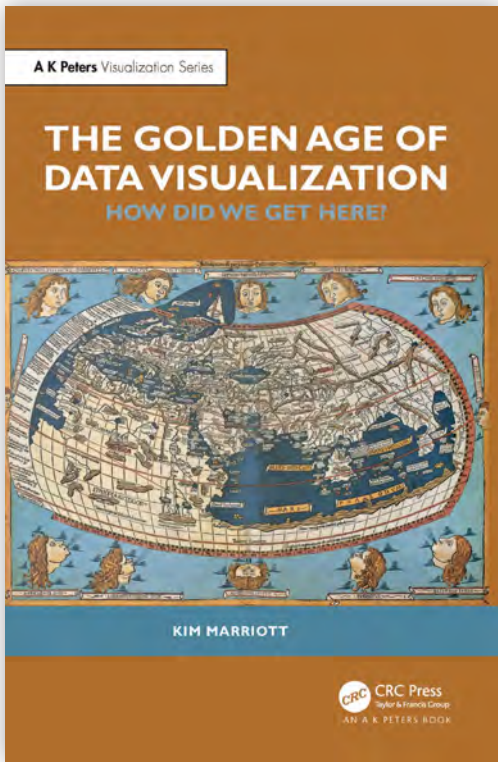
### Peter G. Clote

is Professor of Biology at Boston College, USA, with courtesy appointment in Computer Science. He is an international expert in computational biology, with focus on RNA. Earning B.Sc. and PhD degrees in mathematics from MIT and Duke University, as well as a Doctorat d'Etat from Université Paris 7, Clote has held faculty positions in mathematics, computer science, and biology departments at universities in France (Paris 7), the United States (BC), and Germany (LMU). As Gentzen Chair of Computer Science at the University of Munich (LMU), he played a leading role in the establishment of the bioinformatics graduate program there.

Comprising two volumes, *RNA: Computational Methods for Structure, Kinetics, and Rational Design* is a comprehensive treatment of computational methods concerning the secondary structure, folding kinetics and rational design of RNA.

Volume One concerns energy and structure and is divided into five chapters. Chapter 1 describes the molecular structure of ribonucleotides, basic classes of RNA and databases of RNA sequences and structure. Chapter 2 presents the basic concepts of thermodynamics, since thermodynamics-based algorithms constitute an essential tool in rational design of functional RNA molecules. Chapter 3 describes how empirical secondary structure energy parameters are obtained from ultraviolet absorbance experiments via Van 't Hoff plots and least-squares data fitting. Chapter 4 describes methods from combinatorics, automata and formal language theory, and complex analysis. Chapter 5 provides an overview of some of the most important thermodynamics-based algorithms related to secondary structure. Exercises and solutions are provided at the end of every chapter and source code is available at the book's website (sometimes including computer programs using Python and extensions Numpy and Scipy).

This book provides the nuts, bolts and tools to take the next steps in computational RNA synthetic biology. It is perfect for advanced undergraduate, graduate and post-graduate readers having analytical interests and skills from areas such as physical chemistry, physics, mathematics, computer science, and statistics.



# The Golden Age of Data Visualization

How Did We Get Here?

Kim Marriott

September 4, 2024  
ISBN 9781032830773  
374 Pages, 118 Color & 41 B/W Illustrations  
Subject: Computer Graphics & Visualisation  
[www.routledge.com/9781032830773](http://www.routledge.com/9781032830773)



## Kim Marriott

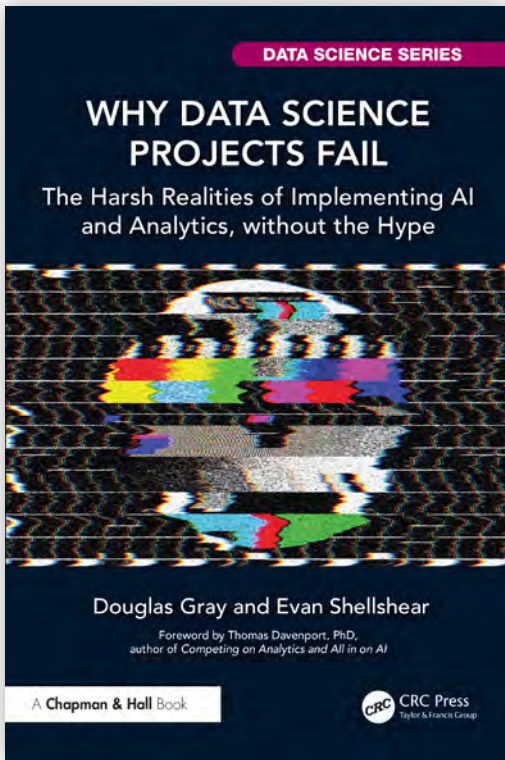
is a Professor in Computer Science at Monash University, where he leads the Monash Assistive Technology and Society (MATS) Centre. His research interests include data visualization and assistive technologies for people who are blind or have low vision.

We are living in the Golden Age of Data Visualization. The COVID-19 pandemic has demonstrated how we increasingly use data visualizations to make sense of the world. Business analysts fill their presentations with charts, journalists use infographics to engage their readers, we rely on the dials and gauges on our household appliances, and we use mapping apps on our smartphones to find our way.

This book explains how and why this has happened. It details the evolution of information graphics, the kinds of graphics at the core of data visualization—maps, diagrams, charts, scientific and medical images—from prehistory to the present day. It explains how the cultural context, production and presentation technologies, and data availability have shaped the history of data visualization. It considers the perceptual and cognitive reasons why data visualization is so effective and explores the little-known world of tactile graphics—raised-line drawings used by people who are blind. The book also investigates the way visualization has shaped our modern world. The European Renaissance and the Scientific Revolution relied on maps and technical and scientific drawings, and graphics influence how we think about abstract concepts like time and social connection.

This book is written for data visualization researchers and professionals, and anyone interested in data visualization and the way we use graphics to understand and think about the world.





# Why Data Science Projects Fail

The Harsh Realities of Implementing AI and Analytics, without the Hype  
Douglas Gray and Evan Shellshear

September 10, 2024  
ISBN 9781032660301  
222 Pages, 13 B/W Illustrations  
Subject: Computer Science / Data  
[www.routledge.com/9781032660301](http://www.routledge.com/9781032660301)



## Douglas Gray

is a practitioner, leader, and educator with over 30 years of experience leading award-winning teams at industry luminaries in Analytics, including INFORMS Prize-winning American Airlines and Walmart. His teams have delivered advanced game-changing solutions in the airline operations, healthcare, and omnichannel retail supply chain domains which deliver hundreds of millions of dollars in business value and economic impact annually. He teaches Analytics and AI Strategy at Southern Methodist University (SMU) in the Executive MBA, Executive Education, and MS Data Science programs, and has published over a dozen articles on Analytics best practices and applications.



## Evan Shellshear

is an expert in artificial intelligence with a Ph.D. in Game Theory from the Nobel Prize winning University of Bielefeld in Germany. He has almost two decades of international experience in the development and design of AI tools for a variety of industries having worked with the world's top companies on all aspects of advanced analytical solutions from optimisation to machine learning in applications from HR to oil and gas, and robotics to supply chain. He is also the author of the Amazon best seller, Innovation Tools.

The field of artificial intelligence, data science, and analytics is crippling itself. Exaggerated promises of unrealistic technologies, simplifications of complex projects, and marketing hype are leading to an erosion of trust in one of our most critical approaches to making decisions: data driven.

This book aims to fix this by countering the AI hype with a dose of realism. Written by two experts in the field, the authors firmly believe in the power of mathematics, computing, and analytics, but if false expectations are set and practitioners and leaders don't fully understand everything that really goes into data science projects, then a stunning 80% (or more) of analytics projects will continue to fail, costing enterprises and society hundreds of billions of dollars, and leading to non-experts abandoning one of the most important data-driven decision-making capabilities altogether.

For the first time, business leaders, practitioners, students, and interested laypeople will learn what really makes a data science project successful. By illustrating with many personal stories, the authors reveal the harsh realities of implementing AI and analytics.

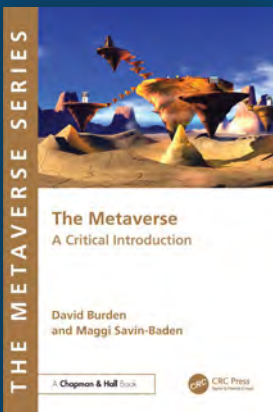
# THE METAVERSE SERIES

**The Metaverse Series** is a series of books from Taylor & Francis launching in September 2024 which will explore the role, opportunities, and challenges of the Metaverse in the present and near future, from business and entertainment to our personal lives and to humanity's future.

Social virtual worlds such as Active Worlds and Second Life gave an early glimpse of the possibilities of the Metaverse two decades ago. In recent years, the widespread availability of virtual reality headsets, the pronouncements of companies like Meta and the increasing popularity of environments such as Minecraft, Roblox, Fortnite and VRChat suggest that the Metaverse is a concept whose time may finally have come.

**The Metaverse Series** will take a critical view of the potential and opportunities, dangers and challenges of the Metaverse. The series intends to focus more on the consensual social virtual space that the Metaverse creates rather than any specific technology used to build it. The value of the Metaverse is that it offers people opportunities to transcend and blur personal, cultural, geographic and temporal barriers, and even physical existence. Equally, inappropriate use may result in unimaginative education, unproductive collaboration, intolerance and psychological abuse, corporate greed and profiteering, and even government surveillance and control. Whilst many of its features are already finding their way into everyday activities, these early manifestations give little sense of the long-term impact that the Metaverse could have on the future of humanity. Yet even the form and scope of the "metaverse" are subject to debate, and this series will aim to ensure that such discussion is well informed.

## NEW TITLES:



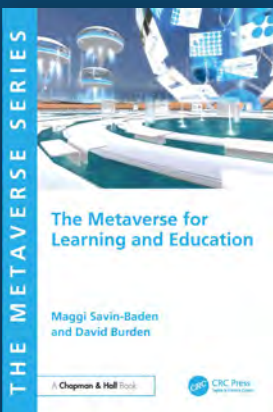
### The Metaverse

A Critical Introduction

**David Burden and Maggi Savin-Baden**

*The Metaverse: A Critical Introduction* provides a clear, concise and well-grounded introduction to the concept of the Metaverse, its history, the technology, the opportunities, the challenges and how it is having an impact almost every facet of society. The book serves as a standalone introduction to the Metaverse, and as an introduction to the range of topics that will be covered by the specialist volumes in The Metaverse Series.

9781032497884  
September 24, 2024  
264 Pages • 54 B/W Illustrations



### The Metaverse for Learning and Education

**Maggi Savin-Baden and David Burden**

*The Metaverse for Learning and Education* book explores the ways in which the Metaverse can be used for education and learning, as well as how it is different from virtual reality (VR) application development. For example, institutions and tutors can make use of the Metaverse space to represent themselves in it or create their own content and share experiences, whilst students can access a wider range of material, learn within appropriate settings and create content to support their own and others' learning.

9781032538334  
September 11, 2024  
124 Pages • 2 Color & 5 B/W Illustrations

## FORTHCOMING TITLES:

### Cities in the Metaverse

Digital Twins, Society, Avatars, and Economics on the New Frontier

**Andrew Hudson-Smith, Valerio Signorelli and Duncan Wilson**

December 2024

### The Military Metaverse

**Andy Fawkes and David Burden**

March 2025

### The Metaverse and Religion

**Eric Trozzo**

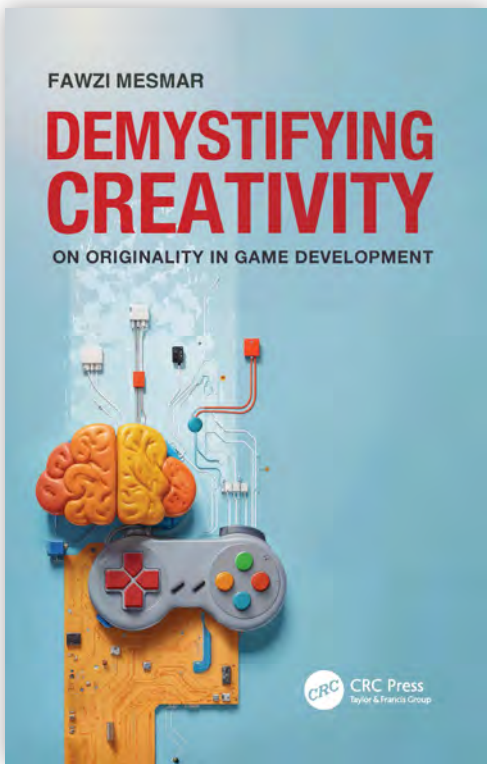
March 2025

### The Metaverse for Psychotherapy

A Practitioner's Guide to Effective Mental Health Treatment

**Bruce Bassi**

June 2025



# Demystifying Creativity

On Originality in Game Development  
Fawzi Mesmar

December 24, 2024  
ISBN 9781032200033  
176 Pages, 20 B/W Illustrations  
Subject: Game Development  
[www.routledge.com/9781032200033](http://www.routledge.com/9781032200033)



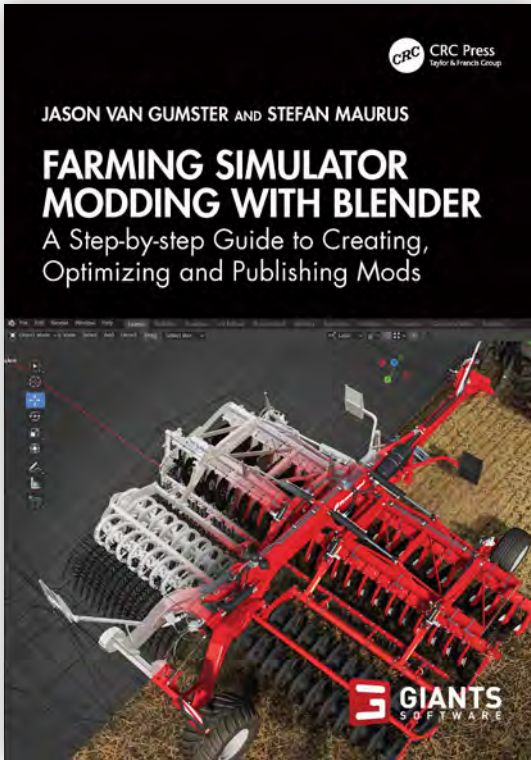
## Fawzi Mesmar

is an award winning Creative Director, Game designer, Leader, author, public speaker and mentor that has been in the gaming industry for over two decades in a career that spanned The Middle East, New Zealand, Japan and Europe working for companies such as Ubisoft, Electronics Arts, Activision Blizzard King, Gameloft and Atlas to name a few.

This book is a study of the psychology, neuroscience and philosophy of creativity, originality and inspiration viewed from the lens of a seasoned game developer. It introduces the concept of creative sobriety, a practice that advocates better understanding our own sources of inspiration so that we can intellectually drive our creative voice closer to originality.

The creative process is not just a methodical sequence of steps - it's organic in its nature. It's an improvised dance between the conscious and the subconscious mind, where knowledge, experience, intuition, observation, imagination and projection meet in ways that are completely unique to each person. Presenting practical and theoretical approaches to originality and game concept generation, the book begins by offering a definition of creativity and exploring the notion of creative sobriety. It then moves on to chapters that blend theory and practice, covering topics such as innovation, the creative process, auteurship, collaboration, and creative vision.

Written by award-winning Creative Director and Game Designer Fawzi Mesmar, this book will be of great interest to students of game design and creative professionals working within industry, as well as those looking to learn more about the creative process.



# Farming Simulator Modding with Blender

A Step-by-step Guide to Creating, Optimizing and Publishing Mods

Jason van Gumster and Stefan Maurus

October 23, 2024  
ISBN 9781032639697  
272 Pages, 83 B/W Illustrations  
Subject: Game Development  
[www.routledge.com/9781032639697](http://www.routledge.com/9781032639697)



## Jason van Gumster

does a lot of things. Mostly he makes stuff up. He writes, animates, and occasionally teaches. He has heavy entrepreneurial tendencies that run nearly as deep as his creative ones, so he has a constant fascination with producing creative content with as much control and independence as possible. Naturally, he's a big proponent of open source software; very nearly everything that he produces is made using Free and open source tools.

## Stefan Maurus

serves as the Lead Integrator at GIANTS Software, overseeing the integration of vehicles and assets into the Farming Simulator game series. Prior to entering the gaming industry, Stefan initiated his career as a modder, gaining recognition for the detailed mods he crafted. At GIANTS FarmCon and other industry events, he conducts workshops and presentations to assist modders in enhancing their mod creation skills.

This is a comprehensive guide to creating and customizing mods for the popular video game Farming Simulator within Blender. This book covers all aspects needed to create your own vehicle mods from start to finish.

The book begins with a basic introduction in Blender, before showing you how to prepare your hierarchy and set up pivots. You'll then learn to create physics components and how to set up your ModDesc and Vehicle XML files. The book then covers all you need to know about implementing vehicle functions, before applying LOD meshes ahead of testing and finally publishing your mod on the official GIANTS ModHub.

This book will appeal to all Farming Simulator modders, as well as those looking to learn game development concepts within Blender.



# Introducing Autodesk Maya

Dariush Derakhshani

July 15, 2024  
ISBN 9781138590540  
416 Pages, 901 Color & 58 B/W Illustrations  
Subject: Gaming & Animation  
[www.routledge.com/9781138590540](http://www.routledge.com/9781138590540)



## Dariush Derakhshani

is a Creative Director and CG Supervisor with Radium in Santa Monica and an award-winning CG animator and author of several Maya books, including the best-selling series *Introducing Maya: 3D for Beginners* and *Maya: Secrets of the Pros*. Dariush has been an animator and supervisor on commercials and feature films for the past 10 years at such places as Café FX, Cobalt FX, and Sight Effects. Dariush has an MFA in Film, TV and Computer Animation from USC Film School and has been teaching Maya and animation classes in Los Angeles for the past six years for schools like USC, Art Institute of Ca., and Gnomon. Dariush is the Editor in Chief of *HDRI3d Magazine* and has been publishing tutorials, articles, and books on Maya for the past four years in such publications as Post, CGW, 3D World, DigitalMediaNet.com, and AWN.com.

This book is your perfect hands on guide to start animating quickly. Using approachable, real world exercises, you'll master the fundamentals of this animation software by following full color screenshots step by step. Each chapter opens with a quick discussion of concepts and learning objectives, and then launches into hands on tutorials that give you firsthand experience and a good start. You'll learn the basics of modeling, texturing, animating, and visual effects. Whether you're a complete beginner or migrating from another 3D application, this task based book provides the solid grounding you need in Autodesk Maya.

## KEY FEATURES:

- Model with polygons, meshes, and more
- Add motion with simple and complex animations
- Add color and textures to visualize materials and surfaces
- Render scenes with great lighting and camera placement

## CHEMICAL ENGINEERING

## Advanced Modelling and Simulation in the Chemical and Biochemical Process Industry



Edited by **Sudip Chakraborty** and **Stefano Curcio**

This book explores modelling and simulation of chemical and biochemical processes at industrial scale using a variety of approaches. Particular attention is devoted to simulations in different scales to achieve a wide-spectrum and more efficient analysis of problems ranging from the design of novel materials to the optimization of industrial processes as a function of the operating conditions. It covers optimization with experimental data and offers readers a thorough understanding and analysis of different parameters of a whole process stream. This text will be of interest to researchers in chemical, biochemical, environmental, and materials engineering and industrial chemistry.

CRC Press

**Market:** Chemical Engineering

October 2024: 234x156: 174pp: 48 illus, 25 halftones, 23 line drawings

Hb: 978-1-032-56369-5: **£99.99**

★ For full contents and more information, visit: [www.routledge.com/9781032563695](http://www.routledge.com/9781032563695)

## Advancements in Chemical Enhanced Oil Recovery



Edited by **Tushar Sharma, Krishna Raghav Chaturvedi, Tarek Ganat** and **Imtiaz Ali**

Presents, describes, and summarizes the latest advances in chemical enhanced oil recovery, covering methods that include low-salinity water flooding, polymer and surfactant flooding, foam flooding, nanofluid flooding, hybrid methods, ionic liquid applications, and others. It discusses chemical synthesis of EOR agents and numerical simulation of compositional models in porous media, including a description of possible application of nanotechnology acting as a booster of traditional chemical EOR processes. The volume also addresses the need for customized approaches for unconventional reservoirs and the challenges.

Apple Academic Press

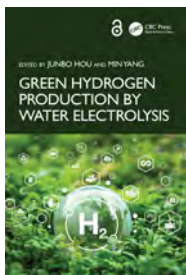
**Market:** Petroleum & Oil Industries

September 2024: 234x156: 404pp: 107 illus, 107 line drawings

Hb: 978-1-77491-508-0: **£170.00**

★ For full contents and more information, visit: [www.routledge.com/9781774915080](http://www.routledge.com/9781774915080)

## Green Hydrogen Production by Water Electrolysis



Edited by **Junbo Hou** and **Min Yang**

From an Economy, Energy, and Environment (3E) point of view, hydrogen energy is an ideal technology for enabling the energy transition from fossil fuels, restructuring energy systems, securing national energy sources, accelerating carbon neutralization, and driving development of technologies and industry. Green hydrogen production by water electrolysis is key for hydrogen energy and this book offers urgently needed guidance on the most important scientific fundamentals and practical applied technologies in this field. This comprehensive reference is aimed at engineers and scientists working on renewable and alternative energy to meet global energy demands and climate action goals.

CRC Press

**Market:** Chemical Engineering

July 2024: 234x156: 362pp: 137 illus, 87 halftones, 50 line drawings

Hb: 978-1-032-43807-8: **£145.00**

★ For full contents and more information, visit: [www.routledge.com/9781032438078](http://www.routledge.com/9781032438078)

## 3-Volume Set

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Towards Stability, Large Area, and Commercialization



Edited by **Jiangzhao Chen** and **Sam Zhang**, Southwest University, Chongqing, China

Series: *Advances in Materials Science and Engineering*

Comprised of 3 volumes, the *Handbook of Perovskite Solar Cells* serves as the comprehensive reference on key aspects of PSCs, detailing working principles, critical materials and technologies, device performance, and industrialization. It takes readers step-by-step from materials properties, crystal structures, device configurations, working mechanisms, and research advances to commercial applications. This comprehensive set is aimed at researchers, advanced students, and industry professionals in materials, energy, and related areas of engineering who are interested in development and commercialization of photovoltaic technologies.

CRC Press

**Market:** Materials Science and Engineering

September 2024: 234x156: 1112pp: 371 illus, 287 halftones, 84 line drawings

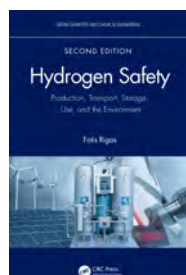
Hb: 978-1-032-50989-1: **£280.00**

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## 2nd Edition

## Hydrogen Safety

Production, Transport, Storage, Use, and the Environment



**Fotis Rigas**

Series: *Green Chemistry and Chemical Engineering*

Updated to include the latest advances in the decade since original publication, *Hydrogen Safety*, Second Edition highlights physiological, physical, and chemical hazards associated with hydrogen production, storage, distribution, and use systems. Focused on providing a balanced view of hydrogen safety this book is organized to address questions associated with the hazards of hydrogen and the ensuing risk associated with its industrial and public use. Offering a holistic view of hydrogen safety, from properties to safety systems, this book helps readers in chemical, industrial, safety, and related engineering subjects

ensure a safe application and environment.

CRC Press

**Market:** Renewable Energy

September 2024: 234x156: 454pp: 120 illus, 30 halftones, 90 line drawings

Hb: 978-1-032-31723-6: **£120.00**

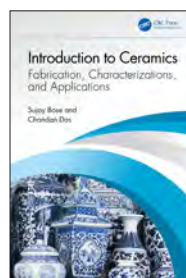
Prev. Ed Hb: 978-1-4398-6231-5

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## TEXTBOOK

## Introduction to Ceramics

Fabrication, Characterizations, and Applications



**Sujoy Bose** and **Chandan Das**

The field of ceramics has applications in diverse fields including electronic engineering, electrical engineering, biochemical engineering, automobile engineering and defense sector. This textbook discusses ceramic raw materials, properties of ceramics, fabrication techniques of ceramics and testing of ceramics. It comprehensively discusses mechanical properties, thermal properties, optical properties, electrical properties and magnetic properties of ceramics.

CRC Press

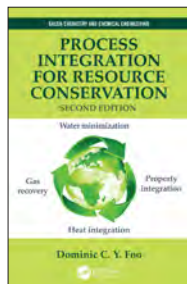
**Market:** Engineering - Chemical

June 2024: 234x156: 478pp: 174 illus, 41 halftones, 133 line drawings

Hb: 978-0-367-75057-2: **£145.00**

★ For full contents and more information, visit: [www.routledge.com/9780367750572](http://www.routledge.com/9780367750572)

TEXTBOOK • 2nd Edition

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Dominic C.Y. Foo, University of Nottingham, Malaysia

Series: Green Chemistry and Chemical Engineering

*Process Integration for Resource Conservation* presents state-of-the-art, cost-effective techniques, including pinch analysis and mathematical optimization, for numerous conservation problems. The Second Edition of this best seller adds new chapters on heat integration and retrofitting of water networks and features multiple optimisation examples via downloadable MS Excel spreadsheets. Ideal for students preparing for real-world work as well as industrial practitioners in chemical processing, the text provides a systematic guide to the latest process integration techniques for performing material recovery in process plants.

CRC Press

Market: Chemical Engineering

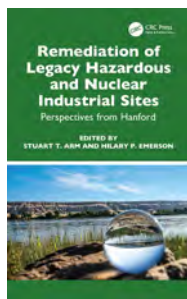
November 2024: 234x156: 560pp: 336 illus, 56 halftones, 280 line drawings

Pb: 978-1-032-00393-1: **£74.99**

Prev. Ed Pb: 978-1-4665-7332-1

★ For full contents and more information, visit: [www.routledge.com/9781032003931](http://www.routledge.com/9781032003931)**Remediation of Legacy Hazardous and Nuclear Industrial Sites**

Perspectives from Hanford



Edited by Stuart T. Arm and Hilary P. Emerson

The book provides an overview of the key elements involved in remediating complex waste sites using the Hanford nuclear site, one of the most complex waste sites in the world, as a case study. The book is aimed at a non-technical audience and describes the stages of remediation based on general RCRA/CERCLA processes, from establishing a strategy that includes all stakeholders to site assessment, waste treatment and disposal, and long-term monitoring. Aimed at a broad audience, this book offers approachable guidance to technical and non-technical readers through a series of real-world examples that cover each important step in the complex waste cleanup process.

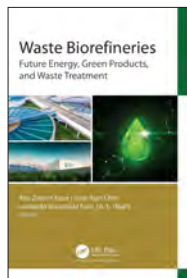
CRC Press

Market: Engineering / Materials Engineering

September 2024: 254x178: 280pp: 108 illus, 57 halftones, 51 line drawings

Hb: 978-1-032-35672-3: **£68.99**★ For full contents and more information, visit: [www.routledge.com/9781032356723](http://www.routledge.com/9781032356723)**Waste Biorefineries**

Future Energy, Green Products, and Waste Treatment



Edited by Abu Zahrim Yaser, Siew-Xian Chin, Leonardo Sepúlveda Torre and A.K. Haghi

Provides a comprehensive overview of biorefining processing techniques, technologies, and materials that can use waste products in a number of innovative ways. It covers proven case studies that demonstrate the most advanced and innovative processes and product developments on waste biorefinery principles. This new book also provides valuable data and technologies that consider environmental impacts. The book discusses recent steps toward renewable and clean energy along with waste-to-energy technologies, modern technologies for waste valorization that holds a valuable perspective for a sustainable green world and the future energy, green products, and waste treatment.

Apple Academic Press

Market: Hazardous Waste

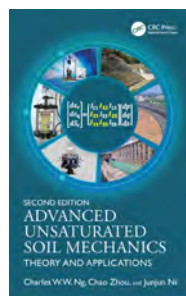
August 2024: 234x156: 298pp: 86 illus

Hb: 978-1-77491-546-2: **£147.00**★ For full contents and more information, visit: [www.routledge.com/9781774915462](http://www.routledge.com/9781774915462)**CIVIL & MECHANICAL ENGINEERING**

2nd Edition

**Advanced Unsaturated Soil Mechanics**

Theory and Applications



Charles W.W. Ng, Hong Kong University of Science and Technology, Hong Kong, Chao Zhou, Hong Kong Polytechnic University, Hong Kong and Junjun Ni, Hong Kong University of Science and Technology, Hong Kong

This book is designed to meet the increasing challenges of climate change and engineering activities by covering the mechanics and engineering of unsaturated soil in a logical manner. This second edition covers fundamental topics not covered in other similar books, including the state-dependency of soil-water retention behaviour and water permeability functions, small strain stiffness considering the influence of wetting-drying cycles and recent suction history, suction effects on dilatancy and peak shear strength, cyclic thermal effects on soil behaviour, state-dependent elastoplastic constitutive modelling of monotonic and cyclic behaviour, and several engineering applications.

CRC Press

Market: Civil Engineering

October 2024: 246x174: 520pp: 435 illus, 33 halftones, 402 line drawings

Hb: 978-1-032-29832-0: **£160.00**

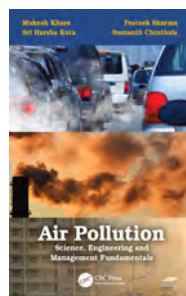
Prev. Ed Hb: 978-0-415-43679-3

★ For full contents and more information, visit: [www.routledge.com/9781032298320](http://www.routledge.com/9781032298320)

TEXTBOOK

**Air Pollution**

Science, Engineering and Management Fundamentals



Mukesh Khare, Professor, IIT Delhi Hauz Khas, New Delhi, Prateek Sharma, Professor, Teri School of Advanced Studies Vasant Kunj, New Delhi, Sri Harsha Kota, Assistant Professor, IIT Delhi Hauz Khas, New Delhi and Sumanth Chinthala, National Institute Of Technology Warangal, Telangana

This comprehensive and up-to-date textbook discusses fundamental aspects of air pollution with the help of solved and case examples within the chapter and review questions at the end of each chapter to help readers. The textbook discusses in-depth the entire domain of air pollution starting from the fundamentals, sources, types, effects, associated risk, ecology, meteorology, climatology, sampling, monitoring and instrumentation, air pollution laboratory quality control, data analysis and interpretation, modelling, control technologies, indoor air pollution, to the latest principles of air quality management, and legislation, regulations, and standards.

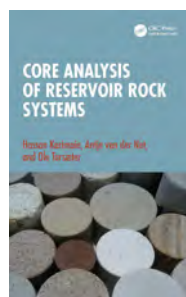
CRC Press

Market: Engineering - Civil

September 2024: 234x156: 466pp: 147 illus, 3 halftones, 144 line drawings

Hb: 978-0-367-75052-7: **£120.00**★ For full contents and more information, visit: [www.routledge.com/9780367750527](http://www.routledge.com/9780367750527)

TEXTBOOK

**Core Analysis of Reservoir Rock Systems**

Hassan Karimaie, Antje van der Net and Ole Torsæter

Core analysis is an important source for quantitative data on reservoir properties. While there are several books on core analysis for practitioners in these fields, this book fills a gap for students and introduces the basic laboratory equipment and procedures used in core analysis and the theoretical aspects of the parameters. It offers detailed instructions on experimental execution for core analysis for persons with limited to no experience starting in the laboratory. This concise and practical workbook is written for advanced students and early career practitioners in petroleum, chemical, and geotechnical engineering.

CRC Press

Market: Reservoir Engineering

November 2024: 234x156: 368pp: 214 illus, 182 halftones, 32 line drawings

Hb: 978-1-032-46618-7: **£59.99**★ For full contents and more information, visit: [www.routledge.com/9781032466187](http://www.routledge.com/9781032466187)

## Air Transportation Industry

History and Developments



Edited by **Edward Majewski, Konrad Stasiczak, Sonia Huderek-Glapska, Łukasz Olipra and Wojciech Augustyniak**

*Air Transportation Industry* considers the influence of political, legal, economic, social, and technological factors on the developments in the industry. It provides a brief historical background of the air transport industry, the determinants of the changes in the airline business, and adaptation processes that resulted in the evolution of business models and structural changes in the industry. The book will interest air transportation and airport operations researchers. It can also serve as a reference for management and operations transportation students in logistics, air transportation, and economics courses.

CRC Press

**Market:** Engineering - Aviation

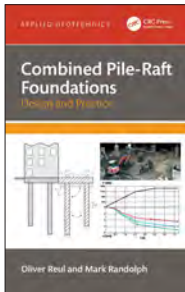
October 2024: 234x156: 368pp: 84 illus, 84 line drawings

Hb: 978-1-032-56903-1: **£99.99**

★ For full contents and more information, visit: [www.routledge.com/9781032569031](http://www.routledge.com/9781032569031)

## Combined Pile-Raft Foundations

Design and Practice



**Oliver Reul**, University of Kassel, Germany and **Mark Randolph**, University of Western Australia

Series: *Applied Geotechnics*

This book presents the fundamental features of the design and performance of combined pile-raft foundations (CPRFs), including detailed case studies. Whereas in a traditional foundation the loads are carried either by the raft or by the piles, the capacity of CPRFs is assessed for the foundation as a whole, reducing total and differential settlements economically. Based on the combined experience of the authors obtained in the last decades working in the industry and research, the book particularly suits consulting engineers engaged in foundation engineering, as well as graduate students and researchers

interested in the bearing behaviour of piled rafts and pile groups.

CRC Press

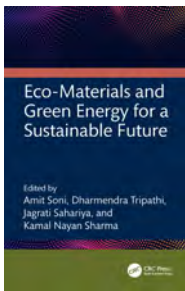
**Market:** Civil Engineering

December 2024: 234x156: 280pp: 143 illus, 20 halftones, 123 line drawings

Hb: 978-1-032-15550-0: **£84.99**

★ For full contents and more information, visit: [www.routledge.com/9781032155500](http://www.routledge.com/9781032155500)

## Eco-Materials and Green Energy for a Sustainable Future



Edited by **Amit Soni**, Manipal University Jaipur, **Dharmendra Tripathi**, National Institute of Technology Uttarakhand, **Jagrati Sahariya**, National Institute of Technology Uttarakhand and **Kamal Nayan Sharma**, Amity University Haryana, Gurugram

*Eco-Materials and Green Energy for a Sustainable Future* emphasizes the synergy between eco-materials and green energy solutions, highlighting their combined power to reduce carbon emissions, conserve resources, and create a more resilient and sustainable future. It provides a detailed discussion on cutting-edge green energy technologies and their potential to transform the energy landscape. The book will interest researchers and senior undergraduate and graduate students studying renewable energy

sources, green materials engineering and chemistry, and sustainability.

CRC Press

**Market:** Engineering - Energy

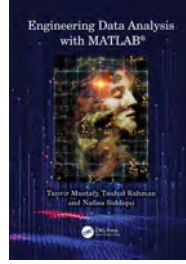
November 2024: 234x156: 416pp: 167 illus, 45 halftones, 122 line drawings

Hb: 978-1-032-75380-5: **£150.00**

★ For full contents and more information, visit: [www.routledge.com/9781032753805](http://www.routledge.com/9781032753805)

## TEXTBOOK

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**Tanvir Mustafy**, Military Inst. of Science and Tech, BD, **Tauhid Rahman**, Military Inst. of Science and Tech, BD and **Nafisa Siddiqui**, Military Inst. of Science and Tech, BD

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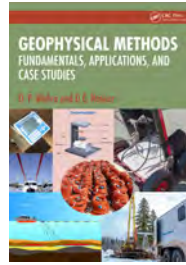
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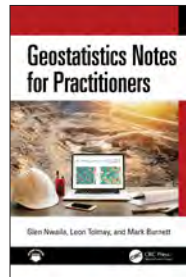
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**Donald A. Bruce**, Consulting Engineer, USA and  
**Stuart Littlejohn**, Retired from University of Bradford, UK

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This definitive international technical and practical manual from world-leading practitioners covers new and current design methods and quantitative analyses for precast linings. It details proper and reliable design, manufacturing and construction in line with ACI and ASTM codes and the main global standards; and incorporates new science and technology, such as new admixtures and manufacturing processes and precisions, such as tight dimensional controls and high repeatability cycles.

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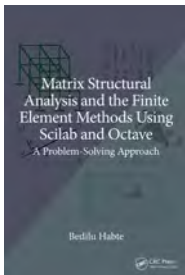
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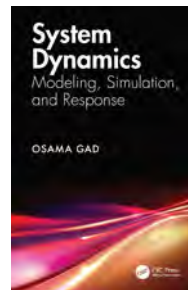
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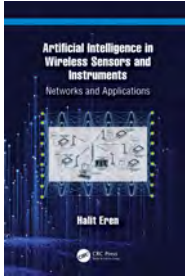
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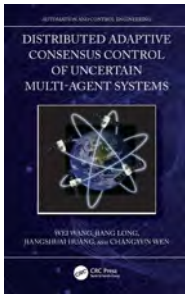
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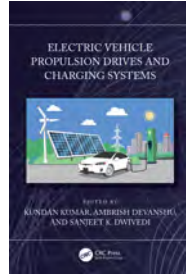
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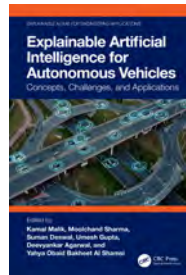
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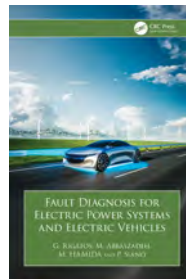
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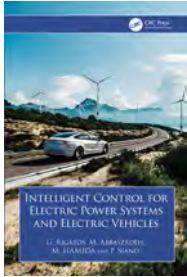
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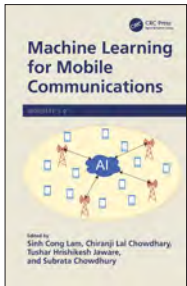
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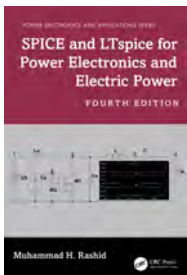
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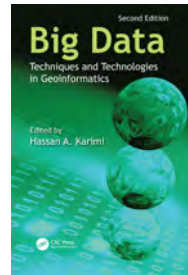
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CRC Press

**Market:** Remote Sensing / Radar

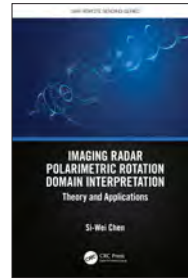
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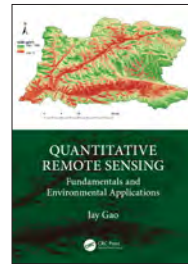
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## Biosafety and Biosecurity

Practical Insights and Applications for Low and Middle-Income Countries



Edited by **Jonathan Jaime G. Guerrero, Rohani Cena-Navarro, Raul V. Destura, Marian P. De Leon,** Museum of Natural History, University of the Philippines Los Banos, **Kin Israel Notarte,** Dept of Pathology, Johns Hopkins University School of Medicine and **Mark Angelo O. Balendres,** Dept of Biology, College of Science, De La Salle University

This book provides a comprehensive summary of the state and development of biosafety and biosecurity in developing and developed nations in a comparative analysis. It includes basic concepts and principles of biosafety and biosecurity, including certification and legal frameworks across disciplines including environmental, medical, and special topics that are relevant to

countries with comparable conditions. This proposed book solves the problem of the lack of a prescribed professional title that comprehensively summarizes the state and development of biosafety and biosecurity throughout the world, allowing the reader a 360 view of the subject area.

CRC Press

**Market:** Occupational Health and Safety

July 2024: 234x156: 386pp: 14 illus, 4 halftones, 10 line drawings

Hb: 978-1-032-54405-2: **£110.00**

★ For full contents and more information, visit: [www.routledge.com/9781032544052](http://www.routledge.com/9781032544052)

## Decoding Black Swans and Other Historic Risk Events

Themes of Progress and Opportunity for Risk Science



**Shital Thekdi** and **Terje Aven,** University of Stavanger, Norway

The field of risk science is continuously evolving to develop principles and practices that enable individuals, organizations, and societies to understand and manage future risk. These risk events are reminders that risk and uncertainty are prevalent yet, it is important to consider what is on the horizon, anticipate the possibility of future events, its consequences, our vulnerability to those events, and how to recover from them. This title will benefit professionals in the fields of occupational health and safety, risk management, civil engineering, mechanical engineering, energy, marine engineering, environmental engineering, business and management, and healthcare.

CRC Press

**Market:** Occupational Health & Safety

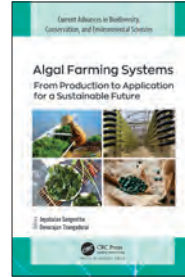
October 2024: 234x156: 131pp: 26 illus, 20 halftones, 6 line drawings

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## Algal Farming Systems

From Production to Application for a Sustainable Future



Edited by **Jeyabalan Sangeetha** and **Devarajan Thangadurai**

*Series: Current Advances in Biodiversity, Conservation, and Environmental Sciences*

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applications of algae, green synthesis of nanoparticles from algae etc.

Apple Academic Press

**Market:** Marine & Aquatic Science

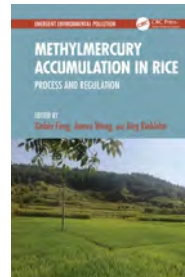
April 2024: 234x156: 432pp: 28 illus, 9 halftones, 19 line drawings

Hb: 978-1-77491-652-0: **£180.00**

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## Methylmercury Accumulation in Rice

Process and Regulation



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This book presents state-of-the-art knowledge related to concerns on methylmercury (Hg) in the soil-rice system. It covers increasing concerns of human exposure to methylmercury through the consumption of Hg-contaminated rice and shows the global contamination of soil, and how Hg can be mobilized, immobilized, methylated, and de-methylated in soils. The authors present the biogeochemical process through which rice plants accumulate Hg. This book comprehensively displays

the biogeochemical behavior of Hg in paddy soils and rice plants, as well as the current remediation technologies to mitigate Hg risks from paddy soil ecosystems.

CRC Press

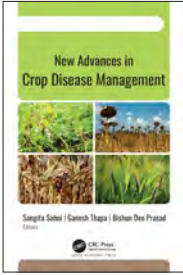
**Market:** Geochemistry / Environmental Studies

September 2024: 234x156: 228pp: 73 illus, 4 halftones, 69 line drawings

Hb: 978-1-032-52025-4: **£99.99**

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## New Advances in Crop Disease Management



Edited by **Sangita Sahni, Ganesh Thapa** and **Bishun Deo Prasad**

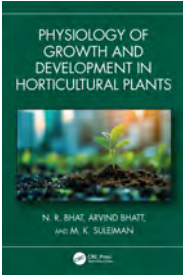
Provides a comprehensive overview of diverse crop protection strategies with special emphasis on the recent advances in crop protection approaches, fundamental concepts, principles, methodology, relationships, and benefits for crop protection and human health. It covers a variety of disciplines such as plant pathology, biochemistry, cell, and molecular biology, plant physiology, host-pathogen interactions, precision agriculture, decision analysis, disease risk, new ways of exploiting host genetic diversity including host resistance deployment, biological control and microbial interactions, and the consequences of climate change and signaling.

Apple Academic Press

**Market:** Agriculture & Agronomy  
November 2024: 234x156: 492pp: 56 illus  
Hb: 978-1-77491-607-0: **£170.00**

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## Physiology of Growth and Development in Horticultural Plants



**N.R. Bhat, Arvind Bhatt** and **M.K. Suleiman**

*Physiology of Growth and Development in Horticultural Plants* contains 22 chapters organized into six sections, beginning with an introduction on basic concepts of plant growth and development; followed by genetic basis of plant development; quantification of growth; and sensing and response of plants to various environmental signals. It also explores plant growth hormones and their role either singly or in combination in controlling various aspects of plant growth and development, and hormonal regulation of physiological and developmental processes.

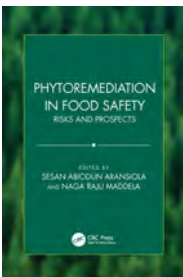
CRC Press

**Market:** Horticulture and Plant Sciences  
September 2024: 254x178: 358pp: 39 illus, 39 halftones  
Hb: 978-1-032-42958-8: **£150.00**

★ For full contents and more information, visit: [www.routledge.com/9781032429588](http://www.routledge.com/9781032429588)

## Phytoremediation in Food Safety

Risks and Prospects



Edited by **Sesan Abiodun Aransiola**, National Biotechnology Development Agency, Nigeria and **Naga Raju Maddela**, UTM, Ecuador

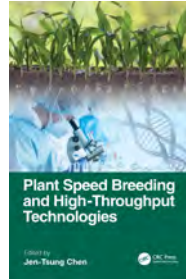
Phytoremediation is the process that uses plants to remove pollutants from soils. These pollutants are stored in the edible parts of plants and if they are consumed above a certain level, they become a health risk for humans and animals. This book is a critical review of phytoremediation, its direct or indirect effects on food products, and the risks posed by this cost-effective technology in food safety. It shows how different plants are suited for phytoremediation, explains the role of toxicants in the environment, and analyses their effects and risks in the food chain at a global level. It also reviews the extraction methods of toxicants from plants after phytoremediation.

CRC Press

**Market:** Plants / Food Engineering / Agriculture / Environment  
September 2024: 254x178: 306pp: 19 illus, 16 halftones, 3 line drawings  
Pb: 978-1-032-68374-4: **£110.00**

★ For full contents and more information, visit: [www.routledge.com/9781032683744](http://www.routledge.com/9781032683744)

## Plant Speed Breeding and High-throughput Technologies



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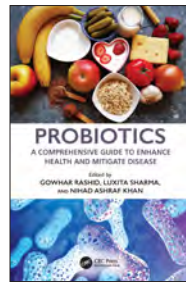
CRC Press

**Market:** Plant Sciences  
August 2024: 254x178: 398pp: 66 illus, 44 halftones, 22 line drawings  
Hb: 978-1-032-55327-6: **£140.00**

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A Comprehensive Guide to Enhance Health and Mitigate Disease



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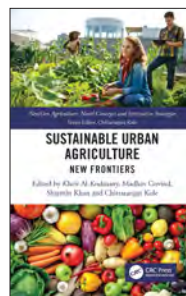
CRC Press

**Market:** Food and Nutrition  
July 2024: 254x178: 384pp: 56 illus, 33 halftones, 23 line drawings  
Hb: 978-1-032-58694-6: **£145.00**

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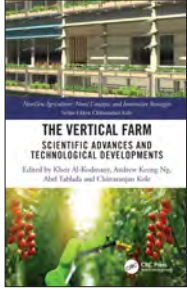
CRC Press

**Market:** Agriculture  
September 2024: 254x178: 261pp: 44 illus, 44 line drawings  
Pb: 978-1-032-41716-5: **£29.99**

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Market: Agriculture

October 2024: 254x178: 240pp: 83 illus, 57 halftones, 26 line drawings

Hb: 978-1-032-43722-4: **£140.00**

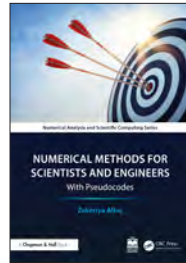
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Chapman and Hall/CRC

Market: Mathematics

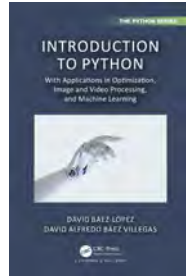
October 2024: 254x178: 784pp: 114 illus, 114 line drawings

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Chapman and Hall/CRC

Market: Computer Science

July 2024: 234x156: 452pp: 121 illus, 121 line drawings

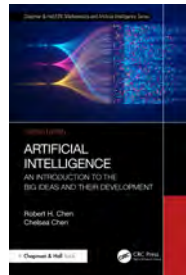
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This book guides readers through the history and development of AI, from its early mathematical beginnings through to the exciting possibilities of its potential future applications. To make this journey as accessible as possible, the authors build their narrative around accounts of some of the more popular and well-known demonstrations of artificial intelligence, including Deep Blue, AlphaGo and even Texas Hold'em, followed by their historical background, so that AI can be seen as a natural development of the mathematics and computer science of AI.

Chapman and Hall/CRC

Market: Mathematics

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**Samuel Dittmer, Hiram Golze, Grant Molnar and Caleb Stanford**, University of California, Davis, USA

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This book is a compilation of the problems and solutions for the first ten years of the Utah Math Olympiad. The problems are challenging but should be understandable at a high school level. Besides putting all problems in one place (70 in total), which have not previously appeared in print, the book provides additional inspiration for many of the problems and will contain the first published solutions for 10 problems that were originally published on the contest flyer. The book will be a fantastic resource for anyone who enjoys mathematical and/or logic puzzles or is interested in studying for mathematics competitions.

A K Peters/CRC Press

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August 2024: 234x156: 134pp: 68 illus, 68 line drawings

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Chapman and Hall/CRC

**Market:** Mathematics

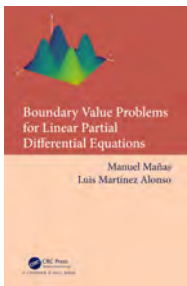
November 2024: 234x156: 352pp: 158 illus, 158 line drawings

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Chapman and Hall/CRC

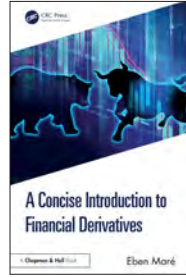
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Chapman and Hall/CRC

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A K Peters/CRC Press

**Market:** Mathematics

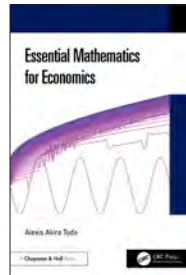
July 2024: 234x156: 208pp: 106 illus, 23 halftones, 83 line drawings

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Chapman and Hall/CRC

**Market:** Mathematics

October 2024: 234x156: 308pp: 36 illus, 36 line drawings

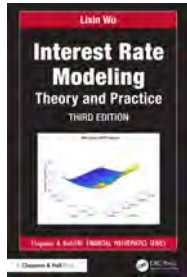
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Chapman and Hall/CRC

**Market:** Mathematics

August 2024: 234x156: 439pp: 77 illus, 77 line drawings

Hb: 978-1-032-48355-9: **£74.99**

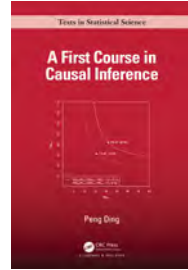
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Chapman and Hall/CRC

**Market:** Statistics

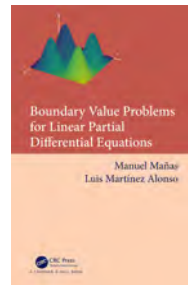
July 2024: 254x178: 448pp: 51 illus, 51 line drawings

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Chapman and Hall/CRC

**Market:** Mathematics

July 2024: 234x156: 452pp: 166 illus, 166 line drawings

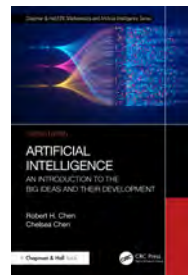
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Chapman and Hall/CRC

**Market:** Mathematics

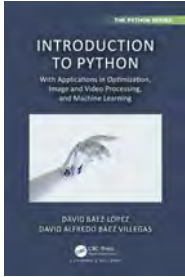
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**David Báez-López and David Alfredo Báez Villegas**

Series: *Chapman & Hall/CRC The Python Series*

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Chapman and Hall/CRC

**Market:** Computer Science

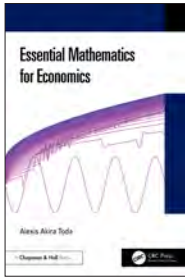
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Chapman and Hall/CRC

**Market:** Mathematics

October 2024: 234x156: 308pp: 36 illus, 36 line drawings

Hb: 978-1-032-68030-9: **£130.00**

★ For **full contents** and more information, visit: [www.routledge.com/9781032680309](http://www.routledge.com/9781032680309)

### TEXTBOOK

## Numerical Methods for Scientists and Engineers

With Pseudocodes



**Zekeriya Altaç**

Series: *Chapman & Hall/CRC Numerical Analysis and Scientific Computing Series*

This book is designed as a primary textbook for a one-semester course on Numerical Methods for sophomore or junior-level students. It covers the fundamental numerical methods required for scientists and engineers, as well as some advanced topics which are left to the discretion of instructors. The objective of the text is to provide readers with a strong theoretical background on numerical methods encountered in science and engineering, and to explain how to apply these methods to practical, real-world problems. Readers will also learn how to convert

numerical algorithms into running computer codes.

Chapman and Hall/CRC

**Market:** Mathematics

October 2024: 254x178: 784pp: 114 illus, 114 line drawings

Hb: 978-1-032-75474-1: **£89.99**

★ For **full contents** and more information, visit: [www.routledge.com/9781032754741](http://www.routledge.com/9781032754741)

## Mathematics of Tabletop Games



**Aaron Montgomery**

Series: *AK Peters/CRC Recreational Mathematics Series*

This book provides a bridge between mathematics and hobby tabletop gaming. Instead of focusing on games mathematicians play, such as nim and chomp, this book starts with the tabletop games played by avid gamers and hopes to address the question: which field of mathematics concerns itself with this situation? Readers interested in either mathematics or tabletop games will find this book an engaging way to begin exploring the other topic or the connection between the topics.

A K Peters/CRC Press

**Market:** Mathematics

July 2024: 234x156: 208pp: 106 illus, 23 halftones, 83 line drawings

Hb: 978-1-032-46851-8: **£74.99**

★ For **full contents** and more information, visit: [www.routledge.com/9781032468518](http://www.routledge.com/9781032468518)

## Derivatives Unlocked

A Practitioner's Perspective



**Philippe Dufournier**

This book offers the reader a practical explanation of the key concepts underpinning financial derivatives. Resolutely selective and user-friendly, this book constitutes an introduction to the basic pricing, design and use cases of derivatives products in modern global finance. The book is articulated around two parallel streams of content. On the one hand, the Derivatives Toolbox comes as a set of calculation and pricing rules behind the building blocks of most derivatives products. On the other hand, the Case Studies, largely inspired by real European corporate finance and risk management situations, allow the reader to make explicit use of the design and pricing principles learned.

Chapman and Hall/CRC

**Market:** Mathematics

November 2024: 234x156: 352pp: 158 illus, 158 line drawings

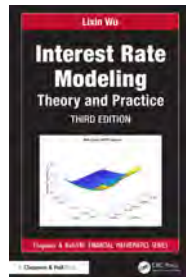
Hb: 978-1-032-78009-2: **£150.00**

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### TEXTBOOK • 3rd Edition

## Interest Rate Modeling

Theory and Practice



**Lixin Wu**

Series: *Chapman and Hall/CRC Financial Mathematics Series*

Containing many results that are new, or which exist only in recent research articles, this thoroughly revised third edition of *Interest Rate Modeling: Theory and Practice, Third Edition* portrays the theory of interest rate modeling as a three-dimensional object of finance, mathematics, and computation. It introduces all models with financial-economical justifications, develops options along the martingale approach, and handles option evaluations with precise numerical methods.

Chapman and Hall/CRC

**Market:** Mathematics

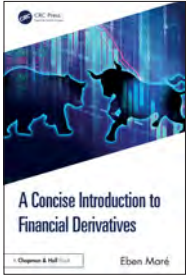
August 2024: 234x156: 439pp: 77 illus, 77 line drawings

Hb: 978-1-032-48355-9: **£74.99**

Prev. Ed Hb: 978-0-8153-7891-4

★ For **full contents** and more information, visit: [www.routledge.com/9781032483559](http://www.routledge.com/9781032483559)

## A Concise Introduction to Financial Derivatives



**Eben Maré**

*A Concise Introduction to Financial Derivatives* seeks to present financial derivatives in a manner that requires minimal mathematical background. Readers will obtain, in a quick and engaging way, a working knowledge of the field and a collection of practical working insights. The book would be ideal for aspiring young practitioners, advanced undergraduates and masters-level students who require a concise and practice-led introduction to financial derivatives.

Chapman and Hall/CRC

**Market:** Mathematics

November 2024: 234x156: 288pp: 9 illus, 9 line drawings

Hb: 978-1-032-63085-4: **£74.99**

★ For full contents and more information, visit: [www.routledge.com/9781032630854](http://www.routledge.com/9781032630854)

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## Modern Statistics with R

From Wrangling and Exploring Data to Inference and Predictive Modelling



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Chapman and Hall/CRC

**Market:** Statistics

August 2024: 254x178: 492pp: 44 illus, 3 halftones, 41 line drawings

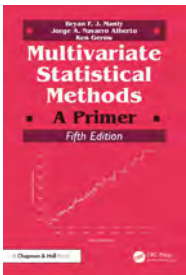
Pb: 978-1-032-51244-0: **£59.99**

★ For full contents and more information, visit: [www.routledge.com/9781032512440](http://www.routledge.com/9781032512440)

TEXTBOOK • 5th Edition

## Multivariate Statistical Methods

A Primer



**Bryan F.J. Manly**, University of Otago, Dunedin, New Zealand, **Jorge A. Navarro Alberto** and **Ken Gerow**

Great starting point for readers looking to become proficient in multivariate statistical methods, but who might not be deeply versed in the language of mathematics. In this edition, we provide readers with conceptual introductions to methods, practical suggestions, new references, and a more extensive collection of R functions and code that will help them to deepen their toolkit of multivariate statistical methods.

Chapman and Hall/CRC

**Market:** Statistics

October 2024: 234x156: 294pp: 45 illus, 45 line drawings

Hb: 978-1-032-59200-8: **£140.00**

★ For full contents and more information, visit: [www.routledge.com/9781032592008](http://www.routledge.com/9781032592008)

## Puzzle and Proof

A Decade of Problems from the Utah Math Olympiad



**Samuel Dittmer, Hiram Golze, Grant Molnar and Caleb Stanford**, University of California, Davis, USA

*Series: AK Peters/CRC Recreational Mathematics Series*

This book is a compilation of the problems and solutions for the first ten years of the Utah Math Olympiad. The problems are challenging but should be understandable at a high school level. Besides putting all problems in one place (70 in total), which have not previously appeared in print, the book provides additional inspiration for many of the problems and will contain the first published solutions for 10 problems that were originally published on the contest flyer. The book will be a fantastic resource for anyone who enjoys mathematical and/or logic puzzles or is interested in studying for mathematics competitions.

A K Peters/CRC Press

**Market:** Mathematics

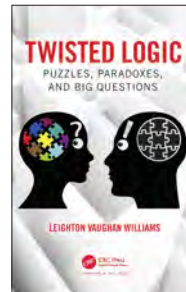
August 2024: 234x156: 134pp: 68 illus, 68 line drawings

Hb: 978-1-032-76263-0: **£89.99**

★ For full contents and more information, visit: [www.routledge.com/9781032762630](http://www.routledge.com/9781032762630)

## Twisted Logic

Puzzles, Paradoxes, and Big Questions



**Leighton Vaughan Williams**

Draws upon an array of popular and novel puzzles, problems, and paradoxes, and uses these to help understand and navigate our everyday world. Addresses some of the big questions. Aimed at all those interested in learning about weird and wonderful problems and paradoxes. Designed for everyone - accessible to the layman and student alike. No prior mathematical skill or technical knowledge is required.

Chapman and Hall/CRC

**Market:** Statistics

July 2024: 234x156: 226pp

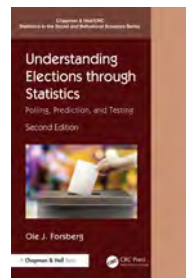
Pb: 978-1-032-51334-8: **£23.99**

★ For full contents and more information, visit: [www.routledge.com/9781032513348](http://www.routledge.com/9781032513348)

2nd Edition

## Understanding Elections through Statistics

Polling, Prediction, and Testing



**Ole J. Forsberg**

*Series: Chapman & Hall/CRC Statistics in the Social and Behavioral Sciences*

Regarding elections and polls, it explores this random phenomenon from three primary points of view: predicting election outcome using opinion polls, testing outcome using government-reported data, and exploring election data to better understand the people.

Chapman and Hall/CRC

**Market:** Statistics / Political Science

October 2024: 234x156: 356pp: 128 illus, 128 line drawings

Pb: 978-1-032-62186-9: **£56.99**

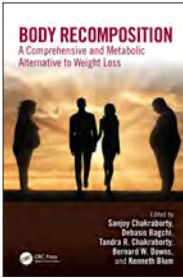
Prev. Ed Pb: 978-0-367-89535-8

★ For full contents and more information, visit: [www.routledge.com/9781032621869](http://www.routledge.com/9781032621869)

## GENERAL MEDICINE

### Body Recomposition

A Comprehensive and Metabolic Alternative to Weight Loss



Edited by **Sanjoy Chakraborty, Debasis Bagchi, Tandra R. Chakraborty, Bernard W. Downs and Kenneth Blum**

Obesity has become a global pandemic rising beyond the status of a lifestyle disorder, and its consequences include impaired metabolism, energy disruption, and abdominal fat deposition and storage. *Body Recomposition: A Comprehensive and Metabolic Alternative to Weight Loss* presents information on a unique approach to weight loss through body recombination, which emphasizes the approach of losing fat whilst gaining muscle.

CRC Press

**Market:** Food & Nutrition

September 2024: 254x178: 584pp: 95 illus, 45 halftones, 50 line drawings

Hb: 978-1-032-42168-1: **£170.00**

★ For full contents and more information, visit: [www.routledge.com/9781032421681](http://www.routledge.com/9781032421681)

### Human Factors and Patient Safety

A Primer For Doctors and Medical Students



**Ibrahim Imam**, Royal Devon and Exeter, UK

This book fulfils the need of doctors, medical students and all healthcare personnel for information that addresses fundamental patient safety concepts that are not usually covered in conventional medical curricula. The content encompasses the main areas of human factors and patient safety in short and easily accessible language supplemented by anecdotes from safety-critical industries such as aviation and nuclear power. Each chapter highlights the problems of human error and provides solutions that help to reduce the risks to patients. The coverage highlights the important role the public should play in protecting their own safety when in contact with healthcare systems.

CRC Press

**Market:** Medicine

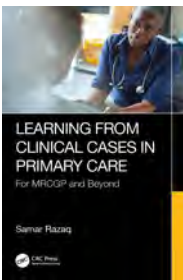
August 2024: 198x129: 162pp

Pb: 978-1-032-79669-7: **£24.99**

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### Learning from Clinical Cases in Primary Care

For MRCGP and Beyond



**Samar Razaq**

This new book is designed around twenty clinical cases, each representative of scenarios encountered by doctors who work in primary care and which will prompt learning in related issues surrounding each clinical scenario. Each case description concludes with an initial exam style question which MRCGP candidates will recognise as being directed towards learning for the Applied Knowledge Test (AKT). An expanded answer to that initial question is followed by a detailed explanation, concluding with further questions for self-assessment and reflection.

CRC Press

**Market:** Medicine

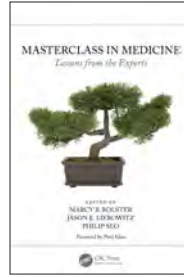
October 2024: 234x156: 186pp: 6 illus, 6 line drawings

Pb: 978-1-032-57720-3: **£34.99**

★ For full contents and more information, visit: [www.routledge.com/9781032577203](http://www.routledge.com/9781032577203)

### Masterclass in Medicine

Lessons from the Experts



Edited by **Marcy B. Bolster, Jason Liebowitz**, Skylands Medical Group, Rockaway, USA and **Philip Seo**, Johns Hopkins University School of Medicine, Baltimore, USA

Nearly every medical school around the world teaches a class about the clinical foundations of medicine and how to start the process of becoming a skilled and caring physician. However, there has never been a book on it - until now. This premier text brings together talented and renowned physicians globally, to discuss important topics related to clinical excellence, including humility, empathy, and ingenuity in medicine. Healthcare professionals will gain tremendous knowledge by hearing the stories of what these master clinicians have learned from their patients and colleagues, thereby giving a foundation in how to achieve greatness as a clinician.

CRC Press

**Market:** Medicine

October 2024: 234x156: 230pp: 15 illus, 15 halftones

Pb: 978-1-032-52949-3: **£24.99**

★ For full contents and more information, visit: [www.routledge.com/9781032529493](http://www.routledge.com/9781032529493)

### The Physiology of Aerobic Capacity in Women

**David Montero Barril**



This book questions the dominating concept of the limitation of exercise capacity in women by discussing female physiology from the perspective of respiratory, circulatory, skeletal, body composition, and training adaptations perspectives. The book covers not only sex differences in Exercise Physiology but also touches upon such questions as doping and novel mechanisms in exercise theory and practice. Based on first-hand research experience, this book offers new and realistic perspectives, including positive and negative aspects of women's capacity to perform exercise, that should interest the readers of Kinesiology, Integrative Physiology, and Sociology of Sports topics.

CRC Press

**Market:** Medicine

December 2024: 216x138: 128pp: 6 illus, 6 line drawings

Pb: 978-1-032-77693-4: **£39.99**

★ For full contents and more information, visit: [www.routledge.com/9781032776934](http://www.routledge.com/9781032776934)

### The Role of Vitamins in Combating Infectious Viral Diseases

Edited by **Aditya Arya**, National Institute of Malaria Institute (NIMR), ICMR Lab Dwarka, Delhi, India and **Rakesh Kaushik**

This book highlights the role of vitamins in preventing or reducing the pathogenesis or treatment of infectious viral diseases based on current ongoing research and past work. Using clinical evidence and trials that suggest the potential benefits of vitamin supplementation as prophylactic and therapeutic in infectious viral diseases, each individual vitamin is described in this context in separate chapters. It will be a valuable reference aid to researchers, clinicians, and medical bodies to develop improved therapeutic regimens.

CRC Press

**Market:** Medicine

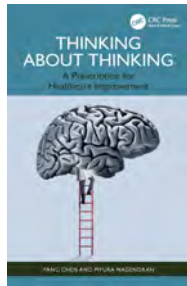
November 2024: 254x178: 148pp: 17 illus, 1 halftone, 16 line drawings

Pb: 978-1-032-56327-5: **£44.99**

★ For full contents and more information, visit: [www.routledge.com/9781032563275](http://www.routledge.com/9781032563275)

## Thinking About Thinking

A Prescription for Healthcare Improvement



Yang Chen and Myura Nagendran

This book is about the practice of medicine and the decision-making of the people we entrust with our care. Through personal experience, research and feedback from colleagues across healthcare, the authors examine how metacognition – or thinking about thinking – can provide a toolkit with which to improve the decision-making of all healthcare professionals. The rise of digital tools and AI-based clinical support systems makes this a critical time to grasp how human decision-makers operate and how to best harness the increasing volume of healthcare data available.

CRC Press

Market: Medicine

July 2024: 216x138: 256pp: 24 illus, 8 halftones, 16 line drawings

Pb: 978-0-367-34088-9: **£29.99**

★ For full contents and more information, visit: [www.routledge.com/9780367340889](http://www.routledge.com/9780367340889)

## Traditional and Herbal Medicines for COVID-19



Edited by Jen-Tsung Chen

*Traditional and Herbal Medicines for COVID-19* explores promising ways to manage COVID-19, post-COVID, and long-COVID conditions. The management plans are based on anti-virus activity, anti-inflammatory, and diverse health benefits of traditional and herbal medicines through a comprehensive summarization of scientific literature by experts in the field. It presents information on a view of the origin of SARS-CoV-2, emerging variants and pathogenesis, and it proposes renewed strategies of diagnostics, vaccines, and therapies.

CRC Press

Market: Herbal Medicine

November 2024: 254x178: 488pp: 56 illus, 37 halftones, 19 line drawings

Hb: 978-1-032-58944-2: **£180.00**

★ For full contents and more information, visit: [www.routledge.com/9781032589442](http://www.routledge.com/9781032589442)

## What do I say next? Everyday Mental Health Conversations in Primary Care

A Practical Guide



Sophie Jadwiga Ball and Liz Moulton

A significant problem experienced by some GPs and many trainees is the challenge of completing a useful and safe consultation with patients with mental health problems within the constraints of a standard-length appointment. These challenges may arise from a lack of specific expertise in this area, poor training in the relevant skills and, perhaps, the attitude that there is not much that the primary care practitioner can do to help. This new book focuses on enhancing the repertoire of communication skills available for mental health consultation. Essential reading for all primary care practitioners in training and in practice.

CRC Press

Market: Medicine

August 2024: 234x156: 268pp: 4 illus, 4 line drawings

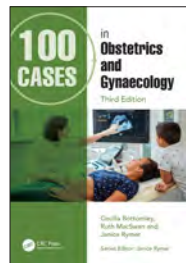
Pb: 978-1-032-51318-8: **£26.99**

★ For full contents and more information, visit: [www.routledge.com/9781032513188](http://www.routledge.com/9781032513188)

## SPECIALIST MEDICINE

TEXTBOOK • 3rd Edition

### 100 Cases in Obstetrics and Gynaecology



Cecilia Bottomley, Consultant in Obstetrics and Gynaecology, Chelsea and Westminster NHS Trust, London, UK, Ruth MacSwan and Janice Rymer

Series: 100 Cases

*100 Cases in Obstetrics and Gynaecology* presents 100 obstetric or gynaecology-related scenarios commonly seen by medical students and junior doctors in the emergency department, outpatient clinic, or on the ward. A succinct summary of the patient's history, examination, and initial investigations—including photographs where relevant—is followed by questions on the diagnosis and management of each case.

The answer includes a detailed discussion on each topic, with further illustration where appropriate, providing an essential revision aid as well as a practical guide for students and junior doctors.

CRC Press

Market: Obstetrics and Gynecology

September 2024: 246x174: 314pp: 47 illus, 37 halftones, 10 line drawings

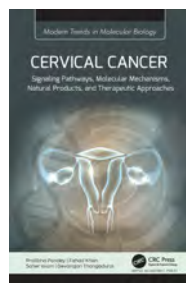
Pb: 978-1-032-39773-3: **£24.99**

Prev. Ed Pb: 978-1-4441-7425-0

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### Cervical Cancer

Signaling Pathways, Molecular Mechanisms, Natural Products, and Therapeutic Approaches



Edited by Pratibha Pandey, Fahad Khan, Saher Islam and Devarajan Thangadurai

Series: *Modern Trends in Molecular Biology*

Focuses on new approaches to one of the major cancers of the female reproductive system—cervical cancer. Cervical cancer is the fourth most frequent cancer in women worldwide and, especially, a foremost cause of morbidity in women in developing countries, including India. Several research findings have suggested that modulation in various signaling pathways is responsible for cervical cancer pathogenesis, and inhibition of these crucial pathways could be a better therapeutic approach for cervical cancer management.

Apple Academic Press

Market: Oncology and Radiation Therapy

April 2024: 229x152: 322pp: 29 illus

Hb: 978-1-77491-566-0: **£150.00**

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CRC Press

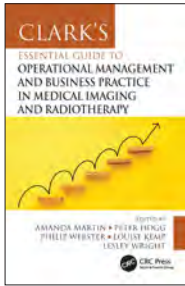
Market: Medicine

August 2024: 198x129: 200pp: 158 illus, 145 halftones, 13 line drawings

Pb: 978-1-032-14782-6: **£26.99**

★ For full contents and more information, visit: [www.routledge.com/9781032147826](http://www.routledge.com/9781032147826)

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and *Business Practice in Medical Imaging and Radiotherapy* takes the systematic approach adopted within books in the Clark's family and designed to be clear and consistent, introducing the reader to differing concepts of management.

CRC Press

Market: Medicine

November 2024: 198x129: 282pp: 39 illus, 2 halftones, 37 line drawings

Pb: 978-1-032-43615-9: **£29.99**

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2nd Edition

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**Janet Dunphy**, Retired Clinical Nurse Specialist & Teacher in Palliative Care, UK

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CRC Press

Market: Palliative Care

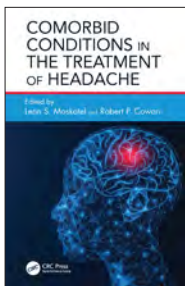
October 2024: 254x178: 160pp: 1 illus, 1 line drawing

Pb: 978-1-032-54757-2: **£34.99**

Prev. Ed Pb: 978-1-84619-569-3

★ For full contents and more information, visit: [www.routledge.com/9781032547572](http://www.routledge.com/9781032547572)

## Comorbid Conditions in the Treatment of Headache



Edited by **Leon S. Moskatal** and **Robert P. Cowan**

A practical reference and educational tool that teaches headache specialists and neurologists about the comorbid illnesses they will encounter in their patients. Headache Medicine is recognized as a dedicated specialty with an emerging cohort of physicians treating the condition. Headache patients often have other comorbid conditions, which affect treatment decisions and outcomes in innumerable ways. This easy-to-use reference a holistic understanding of the patient with a headache. In addition to headache specialists, it will benefit a wide range of health care providers, including primary care physicians, subspecialists, gynecologists.

CRC Press

Market: Medicine

December 2024: 254x178: 326pp: 17 illus, 10 halftones, 7 line drawings

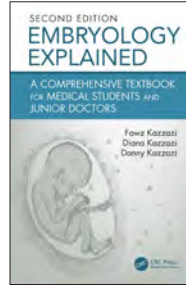
Pb: 9781032876788: **£74.99**

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TEXTBOOK • 2nd Edition

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A Comprehensive Textbook for Medical Students & Junior Doctors



**Fawz Kazzazi, Diana Kazzazi** and **Danny Kazzazi**

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CRC Press

Market: Medicine

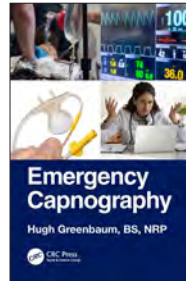
November 2024: 234x156: 180pp: 57 illus, 56 halftones, 1 line drawing

Pb: 978-1-032-76666-9: **£34.99**

★ For full contents and more information, visit: [www.routledge.com/9781032766669](http://www.routledge.com/9781032766669)

TEXTBOOK

## Emergency Capnography



**Hugh Greenbaum**

This portable and practical pocket guide explains how capnography works both physiologically and electronically, helping clinical staff to correctly apply the tool and to appropriately interpret the numeric and graphic displays. Ensuring that the value of capnography can be maximized to the benefit of patients, the book is an essential primer to capnography for those studying for and practising within the emergency medical services, and a convenient reference for other emergency department personnel, explaining how to interpret the data displayed in the context of various conditions, as well as how the care provider may respond to that data.

CRC Press

Market: Medicine

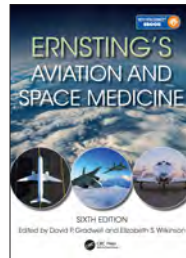
August 2024: 198x129: 132pp: 22 illus, 6 halftones, 16 line drawings

Pb: 978-1-032-79346-7: **£22.99**

★ For full contents and more information, visit: [www.routledge.com/9781032793467](http://www.routledge.com/9781032793467)

6th Edition

## Ernsting's Aviation and Space Medicine



Edited by **David Gradwell** and **Elizabeth Wilkinson**

*Ernsting's Aviation and Space Medicine* applies current understanding in medicine, physiology and the behavioural sciences to the medical challenges and stresses that are faced by both civil and military aircrew, and their passengers, on a daily basis. The structure of the book has been refined, bringing related chapters together where appropriate, while the clinical content has been carefully streamlined in line with the specific requirements of the aviation medicine practitioner and adviser, with new chapters added on Commercial Space Travel, Skin Disease and Women's Health.

CRC Press

Market: Medicine

October 2024: 280x210: 918pp: 297 illus, 81 halftones, 216 line drawings

Hb: 978-0-367-47162-0: **£170.00**

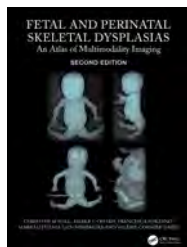
Prev. Ed Hb: 978-1-4441-7994-1

★ For full contents and more information, visit: [www.routledge.com/9780367471620](http://www.routledge.com/9780367471620)

2nd Edition

## Fetal and Perinatal Skeletal Dysplasias

An Atlas of Multimodality Imaging



Christine M. Hall, Amaka C. Offiah, Francesca Forzano, Mario Lituania, Gen Nishimura and Valerie Cormier-Daire

This atlas is intended to give all relevant clinicians a thorough insight into conditions (and variants) of skeletal dysplasias. Clinical and imaging findings are properly illustrated, enriched by updated genetic information. This acclaimed text returns in a revised form, with updated material particularly on the new knowledge surrounding the genetic basis and mechanism for the various skeletal dysplasias. No clinician dealing with fetal or neonatal skeletal diagnosis or treatment will want to be without access to the wealth of illustrations and detail condensed here.

CRC Press

**Market:** Gynecology / Perinatology & Neonatology

July 2024: 280x210: 700pp: 2327 illus, 2327 halftones

Hb: 978-0-367-76443-2: **£170.00**

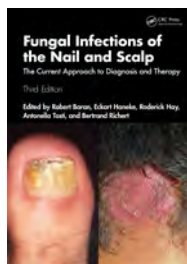
Prev. Ed Hb: 978-1-84619-488-7

★ For full contents and more information, visit: [www.routledge.com/9780367764432](http://www.routledge.com/9780367764432)

3rd Edition

## Fungal Infections of the Nail and Scalp

The Current Approach to Diagnosis and Therapy



Edited by Robert Baran, Nail Disease Center, Cannes, France, Eckart Haneke, University of Berne, Switzerland, Roderick Hay, Queens University, Belfast, Antonella Tosti, University of Miami, USA and Bertrand Richert, CHU Brugmann, Brussels

This new edition of a bestselling text has been expanded to include scalp infections; as before, this illustrated text has been written by clinicians for clinicians, to provide an authoritative guide to the steps needed to identify and effectively manage the patient with fungal nail or scalp infection.

CRC Press

**Market:** Dermatology

November 2024: 254x178: 208pp: 101 illus, 97 halftones, 4 line drawings

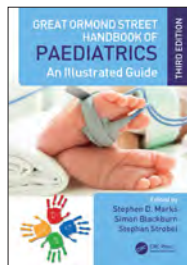
Pb: 978-1-032-46430-5: **£69.99**

★ For full contents and more information, visit: [www.routledge.com/9781032464305](http://www.routledge.com/9781032464305)

3rd Edition

## Great Ormond Street Handbook of Paediatrics

An Illustrated Guide



Edited by Stephen D. Marks, Simon Blackburn and Stephan Strobel

Series: *Great Ormond Street Handbook Series*

The product of a world centre of excellence in teaching and medical and surgical practice, this new edition of a bestseller has been revised throughout for easier quick reference. Building on the range of expertise showcased in the previous editions, this text incorporates updated material and new figures to helpfully illustrate clinical features and epidemiology. This compact volume offers expert knowledge useful for trainees and professional clinicians in other disciplines.

CRC Press

**Market:** Medicine / Pediatrics

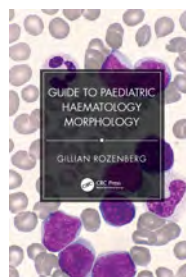
December 2024: 254x178: 640pp: 826 illus, 819 halftones, 7 line drawings

Pb: 978-1-032-00687-1: **£79.99**

Prev. Ed Pb: 978-1-4822-2279-1

★ For full contents and more information, visit: [www.routledge.com/9781032006871](http://www.routledge.com/9781032006871)

## Guide to Paediatric Haematology Morphology



Gillian Rozenberg

This illustrated guide to identifying or confirming blood disorders in paediatric patients presents examples of the abnormal morphology involved. Clinicians in both Haematology and Paediatrics will find this an invaluable resource.

CRC Press

**Market:** Haematology

August 2024: 254x178: 113pp: 162 illus, 156 halftones, 6 line drawings

Pb: 978-1-032-75390-4: **£74.99**

★ For full contents and more information, visit: [www.routledge.com/9781032753904](http://www.routledge.com/9781032753904)

## Intelligent Drug Prescribing in Psychiatry

Supporting the Patient-Prescriber Partnership



Peter Tyrer

This new book describes how to bring patient and prescriber together in an active partnership for better understanding of the positive and negative elements of drug prescription, drawing on the author's distinguished career in front-line psychiatric practice. At present there is a gap between doctor and patient expectations, but balanced decision-making with joint involvement is needed to separate the drugs that are needed regularly to maintain health, those that are only needed when required, and those that are mere fashion accessories. The consequence of a better partnership will be less over-prescribing, a reduction of polypharmacy, and a lessened need for deprescribing.

CRC Press

**Market:** Medicine

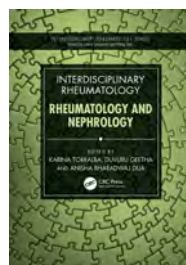
September 2024: 216x138: 170pp: 13 illus, 13 line drawings

Pb: 978-1-032-60980-5: **£22.99**

★ For full contents and more information, visit: [www.routledge.com/9781032609805](http://www.routledge.com/9781032609805)

## Interdisciplinary Rheumatology

Rheumatology and Nephrology



Edited by Karina Torralba, Duvuru Geetha and Anisha B. Dua

Series: *Interdisciplinary Rheumatology*

Ask rheumatologists what is one thing that they most desire and they will say: "I wish I knew more about nephrology so I could care for patients whose rheumatologic diseases manifest with renal complications. Nephrologists feel just the same, seeking to understand the implications that autoimmune diseases have for their patients." As part of the Interdisciplinary Rheumatology book series, this book will serve as a dialogue between rheumatologists and nephrologists and provide a masterclass from world-renowned experts on these topics. Led by a team of

international editors with in-depth knowledge and cutting-edge research.

CRC Press

**Market:** Medicine

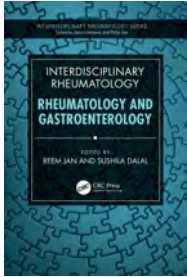
December 2024: 254x178: 176pp: 12 illus, 7 halftones, 5 line drawings

Pb: 978-1-032-57217-8: **£48.99**

★ For full contents and more information, visit: [www.routledge.com/9781032572178](http://www.routledge.com/9781032572178)

## Interdisciplinary Rheumatology

Rheumatology and Gastroenterology



Edited by **Reem Jan** and **Sushila Dalal**

Series: *Interdisciplinary Rheumatology*

*Interdisciplinary Rheumatology: Rheumatology and Gastroenterology* is the first complete textbook that examines the myriad complications of rheumatic syndromes in the gastrointestinal tract. Each disease is summarized for a broad medical audience, with focus on the consequences of the disorder throughout the gut. The reader will formulate an understanding of the clinical, pharmacological and nutritional aspects of the interface of these two specialties with expert contributors from a range of academic centers.

CRC Press

Market: Medicine

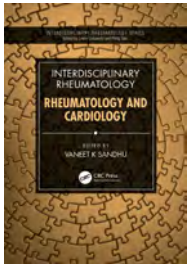
October 2024: 254x178: 158pp: 24 illus, 18 halftones, 6 line drawings

Pb: 978-1-032-43435-3: **£44.99**

★ For full contents and more information, visit: [www.routledge.com/9781032434353](http://www.routledge.com/9781032434353)

## Interdisciplinary Rheumatology

Rheumatology and Cardiology



Edited by **Vaneet Sandhu**

Series: *Interdisciplinary Rheumatology*

This book represents a dialogue between specialties, helping clinicians understand the implications of disease both within their own specialty and in the overlapping specialty of the case. Here leading experts from the fields of rheumatology and cardiology provide a masterclass in the care of patients with systemic illnesses that involve the immune system and the cardiovascular system.

CRC Press

Market: Medicine

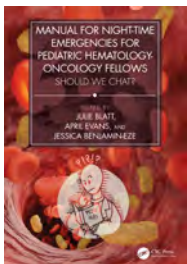
November 2024: 254x178: 176pp: 17 illus, 6 halftones, 11 line drawings

Pb: 978-1-032-47221-8: **£44.99**

★ For full contents and more information, visit: [www.routledge.com/9781032472218](http://www.routledge.com/9781032472218)

## Manual for Night-Time Emergencies for Pediatric Hematology-Oncology Fellows

Should We Chat?



Edited by **Julie Blatt**, University of North Carolina, USA, **April Evans**, Sanford Health Roger Maris Cancer Center, ND, USA and **Jessica Benjamin-Eze**, University of North Carolina, USA

This manual is intended as a one-stop solution for such frantic moments – a quick resource to bridge the hours between the start of night call and morning rounds that focuses on what needs to be done immediately to avoid hurting a patient. It offers succinct guidelines and algorithms to address the emergencies most likely to come up overnight. For those tempted to turn to AI for quick solutions, there are some salutary lessons from responses AI has given when asked about such emergencies.

CRC Press

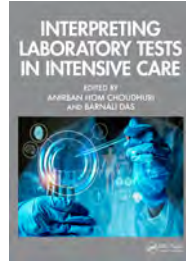
Market: Hematologic Oncology

September 2024: 254x178: 162pp: 33 illus, 33 line drawings

Pb: 978-1-032-74963-1: **£42.99**

★ For full contents and more information, visit: [www.routledge.com/9781032749631](http://www.routledge.com/9781032749631)

## Interpreting Laboratory Tests in Intensive Care



Edited by **Anirban Hom Choudhuri**, GIPMER, ND and **Barnali Das**

The book tries to translate the complex physiological principles and diagnostic algorithms into clinically relevant format that can be easily understood by the clinicians. It also explains at length the key clinical inputs to be acquired by the laboratory physicians before reporting the results and tries to solve the common dilemmas leading to misinterpretation. The importance of every detail starting from sample collection, despatch and correlation of report with the clinical state has been adequately explained with suitable examples and proper explanations.

CRC Press

Market: Medicine

January 2025: 254x178: 296pp: 33 illus, 3 halftones, 30 line drawings

Pb: 978-1-032-58353-2: **£49.99**

★ For full contents and more information, visit: [www.routledge.com/9781032583532](http://www.routledge.com/9781032583532)

## Introduction to Vision Training



**Nadia Jankielsohn**

This book addresses the limited information about vision training and the importance of having knowledge of superior visual skills in our everyday, individualised environment like the classroom, workspace, and sports setting. It explains the tests that an eye care professional can do to determine the level of a patient/athlete's visual skills to regulate where improvement needs to be done. Written in a concise manner and supplemented with insightful visual materials, the book will allow the reader to formulate an individualised program according to the needs of the patient/athlete.

CRC Press

Market: Medicine

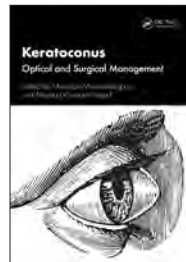
October 2024: 234x156: 350pp: 88 illus, 59 halftones, 29 line drawings

Pb: 978-1-032-77325-4: **£52.99**

★ For full contents and more information, visit: [www.routledge.com/9781032773254](http://www.routledge.com/9781032773254)

## Keratoconus

Optical and Surgical Management



Edited by **Mehrdad Mohammadpour** and **Masoud Khorrami-Nejad**

This is an updated and comprehensive treatise on optical, medical and surgical management of keratoconus with an exclusive panoramic view of all existing modalities for confronting serious disabling morbidity affecting people in their youth. Early diagnosis and proper treatment can salvage vision and help patients to get back to their routines and enhance their quality of life. The contents include optical and glass prescription, and contact lens fitting, cxi alone and combined surgeries, phakic IOLs, and corneal transplantation. The illustrated and organized 360 degrees approach makes this a must-have manual

for ophthalmology trainees, fellows, and professionals.

CRC Press

Market: Medicine

October 2024: 254x178: 330pp: 99 illus, 48 halftones, 51 line drawings

Pb: 978-1-032-44323-2: **£74.99**

★ For full contents and more information, visit: [www.routledge.com/9781032443232](http://www.routledge.com/9781032443232)

## Postgraduate Ophthalmology Exam Success

**Maneck Nicholson, Anjali Nicholson** and **Syed Faraaz Hussain**

Series: *MasterPass*

This book provides a core revision resource for candidates preparing for ophthalmology exams in a direct and logical format. Covering not just Ophthalmology instruments, drugs, emergencies, charts, etc. in detail, but also the related questions that such viva exams may ultimately lead to, like the community, legal and ethical aspects. Ophthalmic specialist trainees, residents, and speciality doctors will find this book to be an essential guide to revising for oral and clinical-based exams in Ophthalmology.

CRC Press

Market: Medicine

September 2024: 254x178: 320pp: 404 illus, 341 halftones, 63 line drawings

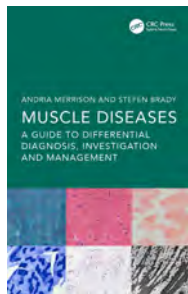
Pb: 978-1-032-59274-9: **£52.99**

★ For full contents and more information, visit: [www.routledge.com/9781032592749](http://www.routledge.com/9781032592749)



## Muscle Diseases

A Guide to Differential Diagnosis, Investigation and Management



Edited by **Andria Merrison** and **Stefen Brady**

A how-to-guide on the clinical assessment and investigation of patients presenting with muscle-related symptoms. Featuring a case-based approach, this accessible text is suitable for a wide range of clinical specialists who see patients presenting with both common and rare muscle diseases. Patients with muscle diseases may be referred to one of several medical or surgical specialties including neurology, rheumatology, neuropathology, neurophysiology, cardiology, respiratory medicine, intensive care medicine, gastroenterology, ophthalmology, orthopaedic and spinal surgery, before the correct diagnosis is considered. This accessible text is an ideal resource for clinicians.

CRC Press

**Market:** Medicine

December 2024: 234x156: 154pp: 46 illus, 46 halftones

Pb: 978-1-138-36802-6: **£59.99**

★ For full contents and more information, visit: [www.routledge.com/9781138368026](http://www.routledge.com/9781138368026)

3rd Edition

## Practical Ultrasound

An Illustrated Guide

Jane Alty, Edward Hoey and Michael Weston

In the hands of a skilled operator, ultrasound scanning is a simple and easy procedure. However, reaching that level of proficiency can be a long and tedious process. Commended by the British Medical Association, *Practical Ultrasound*, Third Edition incorporates up-to-date techniques and protocols, focusing on the scans regularly encountered in a busy ultrasound department. This book provides everything novice practitioners need to know to become competent and skilled in scanning. The authors' precise approach puts an immense amount of knowledge within easy reach, making it an ideal aid for learning the practicalities of ultrasound.

CRC Press

**Market:** Medicine

November 2024: 280x210: 200pp: 734 illus, 134 halftones, 600 line drawings

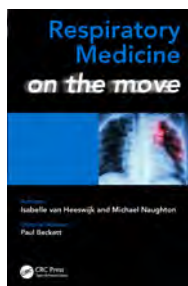
Pb: 978-1-032-46431-2: **£69.99**

Prev. Ed Pb: 978-1-4441-6829-7

★ For full contents and more information, visit: [www.routledge.com/9781032464312](http://www.routledge.com/9781032464312)

TEXTBOOK

## Respiratory Medicine on the Move



Isabelle van Heeswijk, University of Sheffield, UK and Michael Naughton, University of Sheffield, UK

Series: *Medicine on the Move*

*Respiratory Medicine on the Move* provides a convenient distillation of the specialty in note form, ideal for the busy medical student and junior doctor. No matter what your learning style, whether you are studying the subject for the first time or revisiting it during exam preparation, *Respiratory Medicine on the Move* is structured to deliver the right information whenever and wherever you need it. Dip into the book as needed for information to suit different clinical and learning situations and you really will learn medicine on the move!

CRC Press

**Market:** Medicine

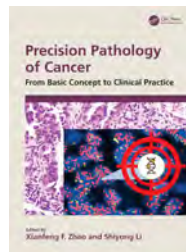
December 2024: 216x138: 460pp: 67 illus, 30 halftones, 37 line drawings

Pb: 978-1-4987-2770-9: **£34.99**

★ For full contents and more information, visit: [www.routledge.com/9781498727709](http://www.routledge.com/9781498727709)

## Precision Pathology of Cancer

From Basic Concept to Clinical Practice



Edited by **Xianfeng F. Zhao**, University of Tennessee Health Science Center College of Medicine, USA and **Shiyong Li**, Emory University School of Medicine, Atlanta, USA

This text covers both basic concepts (the role of the precision pathologist, ethical issues, molecular basis, tools used in precision pathology, and specimen procurement) and clinical practice (the precise genes/pathways, ongoing clinical trials, therapeutics, pharmacogenomics, pharmacoproteomics, and pharmacometabolomics) in precision pathology of cancer.

CRC Press

**Market:** Oncology

October 2024: 280x210: 244pp: 165 illus, 121 halftones, 44 line drawings

Hb: 978-1-032-84486-2: **£150.00**

★ For full contents and more information, visit: [www.routledge.com/9781032844862](http://www.routledge.com/9781032844862)

## Preventive Hepatology

Edited by **Ajeet Singh Bhadoria**

Almost all major liver diseases like viral hepatitis (A-E), non-alcoholic fatty liver diseases (NAFLD), and alcoholic liver diseases (ALD) are preventable, which highlights the significance and need for a book dedicated to a preventive approach to liver diseases. Covering all liver diseases, with a comprehensive focus on different levels of prevention (primordial, primary, secondary, and tertiary), with well-defined interventions provides an edge to this book. The contents specifically focus on key measures that can prevent the development of liver diseases or delay the progression and complication of chronic liver diseases, useful for medical students and clinicians.

CRC Press

**Market:** Medicine

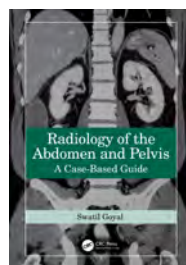
January 2025: 254x178: 256pp: 27 illus, 2 halftones, 25 line drawings

Pb: 978-1-032-55958-2: **£59.99**

★ For full contents and more information, visit: [www.routledge.com/9781032559582](http://www.routledge.com/9781032559582)

## Radiology of the Abdomen and Pelvis

A Case-Based Guide



**Swati Goyal**, Gandhi Medical College, Bhopal, India

A succinct account of various routinely experienced pathologies and suitable images has been enlisted as 162 case studies. The cases are structured into thematic chapters with an integrated approach to basic learning. Each case study follows a similar format with a brief clinical presentation, relevant imaging findings, discussion with differential diagnosis, management, and suggested readings. The book focuses on the pointwise description of cases routinely encountered in abdominopelvic imaging that help students, trainees and radiologists to write certificate examinations.

CRC Press

**Market:** Medicine

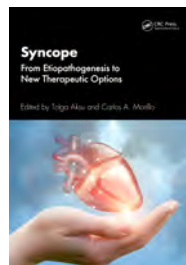
September 2024: 254x178: 248pp: 219 illus, 206 halftones, 13 line drawings

Pb: 978-1-032-58774-5: **£49.99**

★ For full contents and more information, visit: [www.routledge.com/9781032587745](http://www.routledge.com/9781032587745)

## Syncope

From Etiopathogenesis to New Therapeutic Options



Edited by **Tolga Aksu** and **Carlos A. Morillo**

Syncope is a common condition related to transient loss of consciousness due to global cerebral hypoperfusion and caused by a variety of aetiologies. Although it is self-limited, and usually benign, syncope can be the harbinger of life-threatening heart rhythm problems due to cardiac conditions. This book provides a detailed review of etiopathogenesis and a state-of-the-art update on therapeutic options offering recommendations based on the guidelines and experience of experts while discussing procedures and tests with their indications, methodology, interpretation, and limitations.

CRC Press

**Market:** Medicine

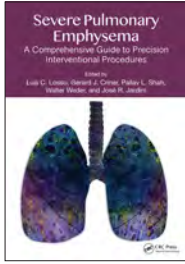
October 2024: 254x178: 192pp: 39 illus, 3 halftones, 36 line drawings

Pb: 978-1-032-54233-1: **£74.99**

★ For full contents and more information, visit: [www.routledge.com/9781032542331](http://www.routledge.com/9781032542331)

## Severe Pulmonary Emphysema

A Comprehensive Guide to Precision Interventional Procedures



Edited by **Luis Carlos Losso**, **Gerard J. Criner**, **Pallav L. Shah**, MD, MBBS, FRCP, Consultant Physician, Royal Brompton Hospital and Chelsea and Westminster Hospital, London, UK, **Walter Weder** and **José R. Jardim**

Pulmonary emphysema is one of its most serious phenotypes, with chronic and inexorable progression and, in the most severe stages, it is highly disabling and lethal. This book reviews knowledge about the pathophysiology of severe pulmonary emphysema and current innovative interventional and minimally invasive therapeutic concepts for the management of these advanced stages of emphysema, based on the best scientific evidence. This book is a valuable resource for clinicians dealing

with critically ill patients with COPD

CRC Press

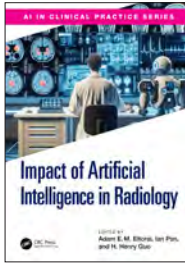
**Market:** Medicine

October 2024: 254x178: 198pp: 49 illus, 35 halftones, 14 line drawings

Pb: 978-1-032-17023-7: **£49.99**

★ For full contents and more information, visit: [www.routledge.com/9781032170237](http://www.routledge.com/9781032170237)

## The Impact of Artificial Intelligence in Radiology



Edited by **Adam E.M. Eltorai** and **H. Henry Guo**

Series: *AI in Clinical Practice*

Implementation of artificial intelligence (AI) in Radiology is an important topic of discussion. Advances in AI—which encompass machine learning, artificial neural networks, and deep learning—are increasingly being applied to diagnostic imaging. While some posit radiologists are irreplaceable, certain AI proponents have proposed to “stop training radiologists now.” By compiling perspectives from experts from various backgrounds, this book explores the current state of AI efforts in Radiology along with the clinical, financial, technological, and societal perspectives on the role and expected impact of AI in Radiology.

CRC Press

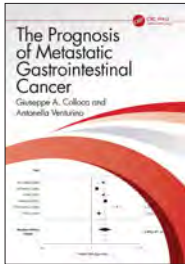
**Market:** Medicine

November 2024: 254x178: 252pp: 16 illus, 2 halftones, 14 line drawings

Pb: 978-0-367-55815-4: **£74.99**

★ For full contents and more information, visit: [www.routledge.com/9780367558154](http://www.routledge.com/9780367558154)

## The Prognosis of Metastatic Gastrointestinal Cancer



**Giuseppe A. Colloca**, Oncologia Medica & Innovation, Imperia, Italy and **Antonella Venturino**, Oncologia Medica & Innovation, Imperia, Italy

The purpose of this book is to systematize the evidence regarding the prognostic factors of metastatic gastrointestinal tumors, separating the findings with the highest level of evidence among those available for each disease by selecting studies with the highest scientific evidence level.

CRC Press

**Market:** Oncology

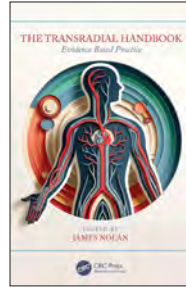
October 2024: 254x178: 252pp: 17 illus, 17 line drawings

Pb: 978-1-032-69971-4: **£74.99**

★ For full contents and more information, visit: [www.routledge.com/9781032699714](http://www.routledge.com/9781032699714)

## The Transradial Handbook

Evidence Based Practice



Edited by **James Nolan**, Univ. Hospital of North Midlands and Keele Univ.

Access site techniques for invasive cardiology and interventional radiology procedures have undergone rapidly evolving technological advances, with radial access offering important benefits for patients and health care systems. This book provides a concise practical guide to the practice of transradial procedures in both specialties. It provides an overview of relevant trial data, cannulation technique, catheter selection and manipulation, catheter delivery, right heart catheterisation and complication management. It offers a comprehensive but portable reference to aid learning for cardiology and radiology professionals and trainees.

CRC Press

**Market:** Medicine

January 2025: 216x138: 152pp: 33 illus, 26 halftones, 7 line drawings

Pb: 978-0-367-72141-1: **£29.99**

★ For full contents and more information, visit: [www.routledge.com/9780367721411](http://www.routledge.com/9780367721411)

2nd Edition

## Transcatheter Aortic Valve Implantation

Current and Future Developments



Edited by **Patrick W. Serruys**, Interventional Department, Heartcenter Rotterdam; Thoraxcenter, Erasmus Medical Center, Rotterdam, The Netherlands, **Alain Cribier**, University Hospital Charles Nicolle, Rouen, France, **Helene Eltchaninoff**, Centre Hospitalier Universitaire de Rouen, France, **Eberhard Grube**, University Hospital Bonn, Germany, **Raj Makkar**, Smidt Heart Institute, USA, **Yoshinobu Onuma**, CORRIB Core Laboratory, Ireland, **John G. Webb**, St. Paul's Hospital, University of British Columbia, Vancouver, Canada and **Martin B. Leon**, Columbia University Irving Medical Center, USA

Written by pioneers in the field of interventional cardiology, this new edition provides readers with the information and expert guidance needed to perform safe and effective transcatheter aortic valve implantation/replacement (TAVI/TAVR). The book is supplemented by visual aids, including more than 300 illustrations and videos.

CRC Press

**Market:** Medicine / Cardiology

September 2024: 280x210: 388pp: 297 illus, 182 halftones, 115 line drawings

Hb: 978-1-032-47147-1: **£150.00**

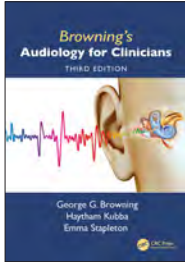
Prev. Ed Hb: 978-1-84184-689-7

★ For full contents and more information, visit: [www.routledge.com/9781032471471](http://www.routledge.com/9781032471471)

## SURGERY

3rd Edition

### Browning's Audiology for Clinicians



Edited by **George Browning, Emma Stapleton and Haytham Kubba**

This book is a practical guide to interpreting audiometric tests, alongside the clinical assessment, to make sound evidence-based decisions in the clinical management of adults and children with ear conditions. This third edition of a popular and classic text is an essential revision aid for ENT trainees preparing for specialist examinations including the FRCS (ORL-HNS). Fully updated and well-illustrated, it provides up-to-date content on the management of a wide range of ear conditions and will be of interest to the whole multi-disciplinary team including audiologists, audiological scientists, audiological physicians, private hearing aid providers and speech and language therapists.

CRC Press

**Market:** Medicine

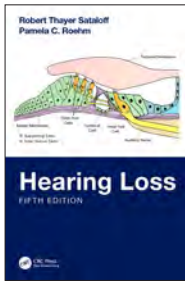
January 2025: 254x178: 200pp: 110 illus, 107 halftones, 3 line drawings

Pb: 9781032554129: **£49.99**

★ For full contents and more information, visit: [www.routledge.com/9781032554129](http://www.routledge.com/9781032554129)

5th Edition

### Hearing Loss



Edited by **Robert Thayer Sataloff and Pamela C. Roehm**

Covering all aspects of the anatomy, physiology, diagnosis, and treatment of hearing loss, this is an accessible and comprehensive text for all clinicians interested in expanding their knowledge of hearing loss. This new edition includes new material on many topics such as cochlear biology and synaptopathy. In addition, it contains expanded chapters as well as updated material. It is extensively augmented with case reports that illustrate important principles. This is of value to otolaryngologists, general practitioners, pediatricians, residents, medical students, audiologists, nurses, audiometric technicians, attorneys, and other professionals with interests in the ear and hearing.

CRC Press

**Market:** Medicine

October 2024: 254x178: 636pp: 262 illus, 253 halftones, 9 line drawings

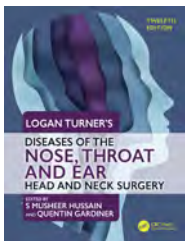
Pb: 978-1-032-56759-4: **£99.99**

★ For full contents and more information, visit: [www.routledge.com/9781032567594](http://www.routledge.com/9781032567594)

TEXTBOOK • 12th Edition

### Logan Turner's Diseases of the Nose, Throat and Ear

Head and Neck Surgery



Edited by **S. Musheer Hussain and Quentin Gardiner**

This classic ENT textbook has been updated and expanded to reflect the increasing sophistication of diagnostic and management skills. New material includes a chapter on Middle Ear Devices and information on recent technical advances, including brand new implant devices. Each chapter includes key learning points, up-to-date references, and suggestions for further reading. Many chapters benefit from updated figures which provide clarity and enhance the effectiveness of the text. ENT trainees and other practitioners with an interest in otorhinolaryngology will find this all-purpose textbook ideal for

a thorough understanding of the speciality.

CRC Press

**Market:** Medicine

October 2024: 246x189: 772pp: 482 illus, 449 halftones, 33 line drawings

Pb: 978-1-138-36620-6: **£69.99**

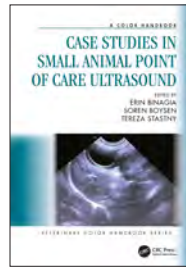
Prev. Ed Pb: 978-0-340-98732-2

★ For full contents and more information, visit: [www.routledge.com/9781138366206](http://www.routledge.com/9781138366206)

## VETERINARY MEDICINE

### Case Studies in Small Animal Point of Care Ultrasound

A Color Handbook



Edited by **Erin Binaglia**, Michigan State Univ., USA, **Soren Boysen**, Calgary Univ., USA and **Tereza Stastny**, Arizona Veterinary, Emergency and Critical Care Centre, USA  
*Series: Veterinary Color Handbook Series*

This illustrated practical guide covers the many facets of small animal point of care ultrasound (POCUS) using clinical cases commonly seen in practice. It details specific point of care ultrasound techniques, views, interpretations, pitfalls and knowledge gaps, highlighting the utility initial and serial point of care ultrasound for both diagnostic and patient management purposes. Focusing on commonly asked questions and applications, the authors take a binary question approach to veterinary POCUS, shown to decrease errors in human POCUS. The ideal reference for small animal and mixed practitioners and students, accompanying videos can be accessed by QR codes in the text.

CRC Press

**Market:** Veterinary Medicine

November 2024: 254x178: 340pp: 299 illus, 274 halftones, 25 line drawings

Pb: 978-0-367-54725-7: **£86.99**

★ For full contents and more information, visit: [www.routledge.com/9780367547257](http://www.routledge.com/9780367547257)

### Sheep Veterinary Practice



Edited by **Kym A. Abbott**, The University of Adelaide, Australia

Following on from Professor Abbott's *The Practice of Sheep Veterinary Medicine*, this new text remains the ideal reference for veterinarians in farm animal practice, veterinary and animal science students, agriculturalists and sheep producers. Principally addressing sheep health, welfare and production matters in Australia, this book also covers issues of relevance in any country where sheep are raised. Sheep veterinary specialist Professor Kym Abbott and his co-authors inform the reader of the science underpinning the occurrence of disease syndromes, giving special attention to commonly investigated problems related to nutrition, reproduction and helminthiasis.

CRC Press

**Market:** Veterinary Medicine

July 2024: 280x210: 564pp: 158 illus, 96 halftones, 62 line drawings

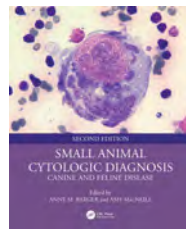
Pb: 978-1-032-38283-8: **£120.00**

★ For full contents and more information, visit: [www.routledge.com/9781032382838](http://www.routledge.com/9781032382838)

2nd Edition

### Small Animal Cytologic Diagnosis

Canine and Feline Disease



Edited by **Anne M. Barger**, University of Illinois, Urbana, USA and **Amy L. MacNeill**, University of Illinois, Urbana, USA

This second edition of *Small Animal Cytologic Diagnosis* presents clinically applicable information about the use of cytology in small animals and indicates when advanced diagnostic testing can be beneficial to diagnose underlying disease processes. It includes more images, additional cases, and a new user-friendly chapter organization.

CRC Press

**Market:** Veterinary Medicine

November 2024: : 548pp: 1441 illus, 1423 halftones, 18 line drawings

Hb: 978-1-032-19297-0: **£125.00**

Prev. Ed Hb: 978-1-4822-2575-4

★ For full contents and more information, visit: [www.routledge.com/9781032192970](http://www.routledge.com/9781032192970)

## BIOLOGY, LIFE & PLANTS SCIENCE

### Anti-SARS-CoV-2 Activity of Flavonoids



Edited by **Jen-Tsung Chen**

In the past years, COVID-19 caused millions of deaths and severely damaged not only public health, but also the global economy. New variants continue to threaten human health. Thus, natural compounds for retarding infection are in high demand. This book summarizes the emerging research with flavonoids, whose application holds great promise of anti-virus, anti-inflammation, antioxidative stress, and immunomodulatory. Topics include the role of flavonoids in preventing an inflammatory storm and how flavonoids interact with critical protein targets that are involved in the infection stages of COVID-19.

CRC Press

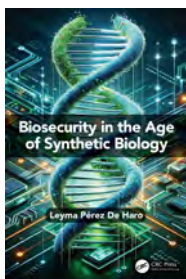
**Market:** Molecular Biology / Covid

July 2024: 280x210: 268pp: 73 illus, 34 halftones, 39 line drawings

Hb: 978-1-032-55621-5: **£105.00**

★ For **full contents** and more information, visit: [www.routledge.com/9781032556215](http://www.routledge.com/9781032556215)

### Biosecurity in the Age of Synthetic Biology



Leyma Pérez De Haro

*Biosecurity in the Age of Synthetic Biology* is a comprehensive review of the biosecurity issues faced by the innovative and rapidly evolving field of synthetic biology. The book provides an in-depth examination of the ethical, legal, and societal dimensions shaping the future of synthetic biology research, in addition to a practical protocol for biosecurity risk assessment. This essential guide illuminates scientific and technological frontiers and advocates for a proactive approach ensuring the responsible development and use of synthetic biology.

CRC Press

**Market:** Biosafety / Biosecurity

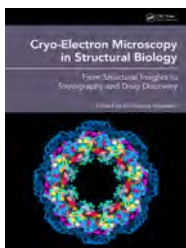
September 2024: 234x156: 296pp: 32 illus, 21 halftones, 11 line drawings

Pb: 978-1-032-72536-9: **£58.99**

★ For **full contents** and more information, visit: [www.routledge.com/9781032725369](http://www.routledge.com/9781032725369)

### Cryo-Electron Microscopy in Structural Biology

From Structural Insights to Tomography and Drug Discovery



Edited by **Krishnarao Appasani**

Cryo-Electron Microscopy, in combination with Tomography, has emerged as a new technology for visualizing molecular structures at a resolution beyond even 1 Å. Using this technology has revealed the native molecular details of membranes, viruses, and cells. This comprehensive, volume brings together authoritative overviews of these methods from structural and biological perspective. It is a must-have for researchers and graduate students, as well as those working in industry, primarily in the areas of biophysics, structural biology, crystallography and genomics.

CRC Press

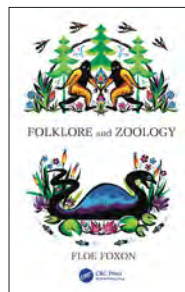
**Market:** Microscopy

October 2024: 280x210: 482pp: 151 illus, 141 halftones, 10 line drawings

Hb: 978-1-032-35253-4: **£180.00**

★ For **full contents** and more information, visit: [www.routledge.com/9781032352534](http://www.routledge.com/9781032352534)

### Folklore and Zoology



Floe Foxon, Folk Zoology Soc., PA

*Folklore & Zoology* accessibly reviews the science of DNA samples; film and photograph analysis; hair and footprint examination; and the statistics behind such alleged animals as Sasquatch and the Yeti, Nessie and Champ, the Griffin and the Thunderbirds, and the possible survival of the thylacine, ivory-billed woodpecker, eastern cougar, and others. With over 400 references, *Folklore & Zoology* is among the most complete scientific reviews of cryptozoology to date offering a fresh synthesis of a highly interdisciplinary literature. This book is ideal reading for students and academics interested in and studying zoology, palaeontology, and folklore courses.

CRC Press

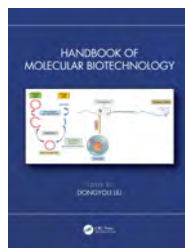
**Market:** Zoology, Folk Zoology

September 2024: 234x156: 121pp: 24 illus, 14 halftones, 10 line drawings

Hb: 978-1-032-75767-4: **£29.99**

★ For **full contents** and more information, visit: [www.routledge.com/9781032757674](http://www.routledge.com/9781032757674)

### Handbook of Molecular Biotechnology



Edited by **Dongyou Liu**, Royal College of Pathologists of Australasia, St. Leonards, New South Wales, Australia

With a history that dates back to the dawn of human civilization more than 10,000 years ago, and a record that includes the domestication and selective breeding of plants and animals, the harnessing of fermentation process for bread, cheese and brewage production, and the development of vaccines against infectious diseases, biotechnology has acquired a molecular focus during the 20th century, and transformed our practices in disease diagnosis, treatment and prevention, pharmaceutical and industrial manufacturing, animal and plant industry, and food processing.

CRC Press

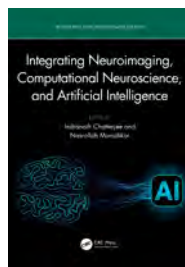
**Market:** Biotechnology

September 2024: 280x210: 762pp: 98 illus, 32 halftones, 66 line drawings

Hb: 978-0-367-51787-8: **£325.00**

★ For **full contents** and more information, visit: [www.routledge.com/9780367517878](http://www.routledge.com/9780367517878)

### Integrating Neuroimaging, Computational Neuroscience, and Artificial Intelligence



Edited by **Indranath Chatterjee**, Tongmyong University, South Korea and **Nasrollah Moradikor**

*Series: Neuroscience of Neurodegenerative Disorder*

Unveil the next frontier in neurodegenerative disorder research with Integrating Neuroimaging, Computational Neuroscience, and Artificial Intelligence. This groundbreaking book goes beyond traditional approaches, utilizing the power of interdisciplinary integration to illuminate new pathways in diagnosis and treatment. From AI-driven diagnostics to computational neuroscience models, this book showcases the forefront of innovation. Join us in exploring the future of neurodegenerative care, where collaboration and cutting-edge technology converge to redefine possibilities.

CRC Press

**Market:** Neuroscience

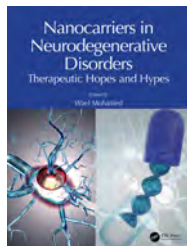
December 2024: 254x178: 200pp: 9 illus, 5 halftones, 4 line drawings

Hb: 978-1-032-70189-9: **£130.00**

★ For **full contents** and more information, visit: [www.routledge.com/9781032701899](http://www.routledge.com/9781032701899)

## Nanocarriers in Neurodegenerative Disorders

Therapeutic Hopes and Hypes



Edited by **Wael Mohamed**

This book aims to furnish readers with a thorough understanding of the clinical application of nanocarrier systems for treating neurodegenerative disorders, encompassing the latest developments, challenges, safety concerns, toxicity issues, regulatory considerations, future prospects, and limitations. Individuals in academia, the scientific community, business, and education seeking a more effective approach to target the brain would find valuable insights in this resource.

CRC Press

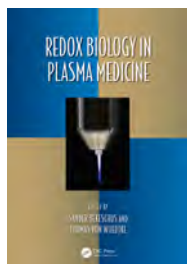
**Market:** Neuroscience

September 2024: 280x210: 366pp: 55 illus, 37 halftones, 18 line drawings

Hb: 978-1-032-46795-5: **£150.00**

★ For **full contents** and more information, visit: [www.routledge.com/9781032467955](http://www.routledge.com/9781032467955)

## Redox Biology in Plasma Medicine



Edited by **Sander Bekeschus** and **Thomas von Woedtke**

*Series: Oxidative Stress and Disease*

Plasma medicine uses non-equilibrium plasmas generated under atmospheric-pressure conditions. Therapeutical plasmas can stimulate tissue regeneration or inactivate cancer cells. This book reviews the interrelation between plasma chemistry and biochemistry complemented by discussion of the ways plasmas inactivate various pathogens. Focus is on the plasma effects on mammalian cells, subsequent consequences for cell-biological processes, and plasma applicability specific medical therapies. Contributions illustrate the ways cold atmospheric-pressure plasma can be used as a controllable source of redox-active

species and as a useful tool for research in redox biology.

CRC Press

**Market:** medicinal Chemistry

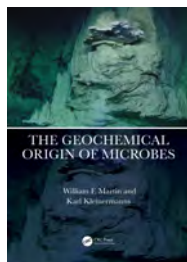
July 2024: 254x178: 234pp: 41 illus, 20 halftones, 21 line drawings

Hb: 978-1-032-35692-1: **£155.00**

★ For **full contents** and more information, visit: [www.routledge.com/9781032356921](http://www.routledge.com/9781032356921)

### TEXTBOOK

## The Geochemical Origin of Microbes



**William F. Martin** and **Karl Kleinermanns**

This textbook covers the transition from energy releasing reactions on the early Earth to energy releasing reactions that fueled growth in the first microbial cells, and is intended for teachers and college students with an interest in microbiology, biochemistry, or evolution. The scope of the book is a quantum departure from existing "origin of life" books in that it starts with basic chemistry and links energy-releasing geochemical processes to the reactions of microbial metabolism.

CRC Press

**Market:** Geochemistry and Microbiology

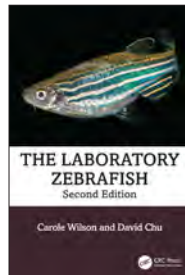
June 2024: 297x210: 248pp: 182 illus, 48 halftones, 134 line drawings

Hb: 978-1-032-45772-7: **£155.00**

★ For **full contents** and more information, visit: [www.routledge.com/9781032457727](http://www.routledge.com/9781032457727)

### 2nd Edition

## The Laboratory Zebrafish



**Carole Wilson**, University College London, UK and **David Chu**, Stanford University, USA

*Series: Laboratory Animal Pocket Reference*

This guide covers all aspects pertaining to the use of zebrafish with the goal to provide managers, veterinarians, investigators, technicians, and regulatory personnel with a concise yet thorough reference on zebrafish biology, care, husbandry, and management. The new edition includes more figures, tables and bullet points, a wealth of new full-colour images, major updates on health and welfare (including colony health surveillance and viruses) and a complete overhaul of the compliance section to address more international concerns.

CRC Press

**Market:** Laboratory Animal Science

November 2024: 234x156: 376pp: 99 illus, 82 halftones, 17 line drawings

Pb: 978-0-367-62807-9: **£59.99**

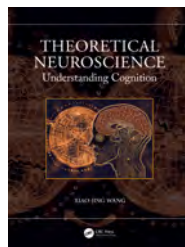
Prev. Ed Pb: 978-1-4398-0743-9

★ For **full contents** and more information, visit: [www.routledge.com/9780367628079](http://www.routledge.com/9780367628079)

### TEXTBOOK

## Theoretical Neuroscience

Understanding Cognition



**Xiao-Jing Wang**

This textbook synthesizes neuroscience and cognitive science and is grounded in recent experimental advances in cognitive functioning using mathematical modeling. Cognition and intelligence arise from neural circuits endowed with an abundance of feedback loops. Their behavior is difficult to understand by intuition alone. Thus, when considering interacting brain areas, prediction isn't straightforward. Furthermore, connectome and neurophysiology are presently undergoing a great upheaval with tremendous advances in both fields. The core of the book covers the basics of computational

neuroscience required for discussions of the brain mechanisms and computational principles of cognition.

CRC Press

**Market:** Neuroscience

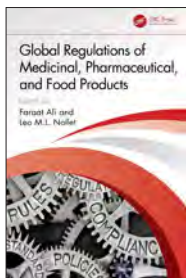
November 2024: 280x210: 574pp: 317 illus, 66 halftones, 251 line drawings

Pb: 978-1-032-60481-7: **£84.99**

★ For **full contents** and more information, visit: [www.routledge.com/9781032604817](http://www.routledge.com/9781032604817)

## CHEMISTRY & PHARMACEUTICAL SCIENCE

### Global Regulations of Medicinal, Pharmaceutical, and Food Products



Edited by **Faraat Ali**, Department of Inspection & Enforcement, Laboratory Services, Botswana Medicines Regulatory Authority, and **Leo M.L. Nollet**

Medicine regulation demands the application of sound medical, scientific, and technical knowledge and skills, and operates within a legal framework. Regulatory functions involve interactions with various stakeholders (e.g., manufacturers, traders, consumers, health professionals, researchers, and governments) whose economic, social, and political motives may differ, making implementation of regulation both politically and technically challenging. This book discusses regulatory landscape globally and the current global regulatory scenario of medicinal products and food products comprehensively.

CRC Press

**Market:** Pharmaceutical Science

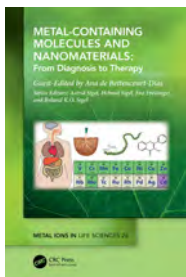
July 2024: 234x156: 358pp: 38 illus, 38 line drawings

Hb: 978-1-032-28362-3: **£105.00**

★ For full contents and more information, visit: [www.routledge.com/9781032283623](http://www.routledge.com/9781032283623)

### Metal-Containing Molecules and Nanomaterials

From Diagnosis to Therapy



Edited by **Ana de Bettencourt-Dias**, University of Nevada, USA

*Series: Metal Ions in Life Sciences Series*

Since the discovery and successful deployment of salvarsan to treat syphilis, as well as cisplatin as a cancer drug, the field of metalodrugs has been flourishing. In addition to therapeutic applications, metals and metal-containing molecules have properties, such as an electrochemical or an optical signal, used to diagnose biologically relevant molecules or unravel cellular metabolism. Metals are part of the essential elements for life, and of increased attention in nutraceuticals.

CRC Press

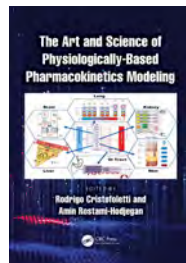
**Market:** Chemistry

July 2024: 229x152: 188pp: 67 illus, 2 halftones, 65 line drawings

Hb: 978-1-032-42214-5: **£125.00**

★ For full contents and more information, visit: [www.routledge.com/9781032422145](http://www.routledge.com/9781032422145)

### The Art and Science of Physiologically-Based Pharmacokinetics Modeling



Edited by **Rodrigo Cristofolotti**, University of Florida, USA and **Amin Rostami-Hodjegan**, The University of Manchester, UK

This state of the art text describes the science behind the system and drug-dependent components of PBPK models, its applications in translational and regulatory science e.g. guiding drug discovery and development, and supporting precision medicine initiatives. In order to incorporate the state-of-the-art knowledge, each chapter is written by leaders in the field and illustrated by clear case studies.

CRC Press

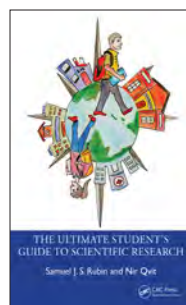
**Market:** Chemistry

July 2024: 254x178: 356pp: 106 illus, 3 halftones, 103 line drawings

Hb: 978-0-367-46887-3: **£105.00**

★ For full contents and more information, visit: [www.routledge.com/9780367468873](http://www.routledge.com/9780367468873)

### The Ultimate Student's Guide to Scientific Research



**Samuel J.S. Rubín and Nir Qvit**

A scientific career is a long and winding or often circuitous journey. Many key factors come together for the journey to go smoothly and produce a positive outcome, however that may be defined individually. This book addresses numerous aspects of the scientific career path, including but not limited to building a strong knowledge base and foundational skills; choosing and applying to advanced degree programs; composing winning research proposals and grants; writing major types of papers and reports; collaborative research programs both with academics and industry; the process of conducting and completing research projects; career advancement; and many more topics.

CRC Press

**Market:** Chemistry

September 2024: 234x156: 150pp: 4 illus, 4 line drawings

Hb: 978-1-032-29387-5: **£76.99**

★ For full contents and more information, visit: [www.routledge.com/9781032293875](http://www.routledge.com/9781032293875)

## COMPUTER SCIENCE & COMPUTER GRAPHICS

### TEXTBOOK

#### A Gamer's Introduction to Programming in C#

Welcome Brave Adventurer!



**Aaron Langille**

The first in an ongoing series designed to take readers from zero experience to writing their own video games and interactive digital experiences using industry standard languages and tools, this book is a great way to turn a love of video games into a new love of programming. It teaches the coding ins-and-outs of how we keep track of high scores, what video game heroes and loot boxes are made of, how the dreaded RNG or, random number generation works, and much, much more. Engaging and concise, this book is appealing to both a general readership as well as course convenors and students of programming.

Chapman and Hall/CRC

**Market:** Gaming

August 2024: 234x156: 342pp: 63 illus, 63 line drawings

Pb: 978-1-032-39122-9: **£44.99**

★ For full contents and more information, visit: [www.routledge.com/9781032391229](http://www.routledge.com/9781032391229)

#### AlphaGo Simplified

Rule-Based AI and Deep Learning in Everyday Games



**Mark Liu**

What exactly is ML? How is it related to AI? Why is deep learning (DL) so popular these days? This book explains how traditional rule-based AI and ML work and how they can be implemented in everyday games such as Last Coin standing, Tic Tac Toe, or Connect Four. Game rules in these three games are easy to implement. As a result, readers will learn rule-based AI, deep reinforcement learning, and more importantly, how to combine the two to create powerful game strategies (the whole is indeed greater than the sum of its parts) without getting bogged down in complicated game rules.

Chapman and Hall/CRC

**Market:** Computer Science

August 2024: 254x178: 408pp: 21 illus, 21 line drawings

Pb: 978-1-032-72212-2: **£44.95**

★ For full contents and more information, visit: [www.routledge.com/9781032722122](http://www.routledge.com/9781032722122)

#### Artificial Intelligence and Large Language Models

An Introduction to the Technological Future



**Kutub Thakur**, New Jersey City University, New Jersey, USA,  
**Helen G. Barker** and **Al-Sakib Khan Pathan**

Having been catapulted into public discourse in the last few years, this book serves as an in-depth exploration of the ever-evolving domain of Artificial Intelligence, Large Language Models and ChatGPT. It provides a meticulous and thorough analysis of Artificial Intelligence (AI), ChatGPT technology, and their prospective trajectories given the current trend, in addition to tracing the significant advancements that have materialized over time. Illustrated and organized in an accessible manner, this textbook contains particular appeal to students and course convenors at the undergraduate and graduate level, as well as a reference source for general readers.

Chapman and Hall/CRC

**Market:** Computer Science

July 2024: 234x156: 290pp: 65 illus, 65 line drawings

Pb: 978-1-032-75480-2: **£48.99**

★ For full contents and more information, visit: [www.routledge.com/9781032754802](http://www.routledge.com/9781032754802)

#### Augmenting Public Relations

An Introduction to AI and Other Technologies for PR



**David Phillips**

In recent years, the PR monitoring industry has deployed AI to search for content of interest by clients across a vast range of media. It throws up huge amounts of data to be managed. The book explores how such resources can be harnessed for intelligence gathering and activity deployment in easy-to-understand language

CRC Press

**Market:** Artificial Intelligence / Public Relations

October 2024: 234x156: 222pp: 1 illus, 1 halftone

Hb: 978-1-032-83132-9: **£120.00**

★ For full contents and more information, visit: [www.routledge.com/9781032831329](http://www.routledge.com/9781032831329)

### TEXTBOOK

#### Coding Android Apps



**Margaret Kozak Polk**

As Android apps continue to grow in popularity and an associated job market emerges, the ability to develop software and applications for Android smartphones will only grow more relevant in the foreseeable future. This book is particularly appealing for students of mobile apps development courses offered in computer science and information technology departments, as well as information systems disciplines within business schools, at both the undergraduate and graduate levels.

Chapman and Hall/CRC

**Market:** Computer Science

August 2024: 234x156: 308pp: 190 illus, 190 halftones

Pb: 978-1-032-25888-1: **£54.99**

★ For full contents and more information, visit: [www.routledge.com/9781032258881](http://www.routledge.com/9781032258881)

#### Computer Vision

Challenges, Trends, and Opportunities



Edited by **Md Atiqur Rahman Ahad**, **Upal Mahbub**,  
**Matthew Turk** and **Richard Hartley**

*Series: Chapman & Hall/CRC Computer Vision*

This book brings together a range of leading researchers to examine a wide variety of challenges and prospects for computer vision and its applications and covers important topics including as data-driven AI, R&D in industry perspective, biometrics, digital forensics, healthcare, robotics, entertainment and XR, autonomous driving, sports analytics, and neuromorphic computing. Providing a mix of breadth and depth, the book will have an impact across the fields of computer vision, imaging, and AI and will be of great benefit to students, researchers, and industry practitioners.

Chapman and Hall/CRC

**Market:** Computer Science

July 2024: 280x210: 360pp: 154 illus, 108 halftones, 46 line drawings

Hb: 978-1-032-31705-2: **£120.00**

★ For full contents and more information, visit: [www.routledge.com/9781032317052](http://www.routledge.com/9781032317052)

## Create Stunning Renders Using Corona in 3ds Max

Guiding the Next Generation of 3D Renderers



**Margarita Nikita**

The book progresses to the creation of materials, their application to the scene, and the utilization of Corona's libraries and presets for efficiency. The potentials of Corona are detailed using a bedroom scene as an example. This practical guide demystifies the complexities of 3D rendering without delving into modeling techniques. With design studios increasingly incorporating 3D renderings into their proposals, this book serves as an invaluable resource for professionals and aspiring renderers alike.

CRC Press

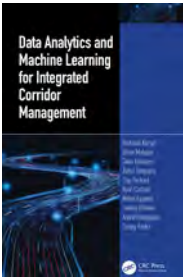
**Market:** Computer Graphics / Design

August 2024: 234x156: 220pp: 361 illus, 361 halftones

Hb: 978-1-032-64986-3: **£120.00**

★ For full contents and more information, visit: [www.routledge.com/9781032649863](http://www.routledge.com/9781032649863)

## Data Analytics and Machine Learning for Integrated Corridor Management



**Yashawi Karnati, Sanjay Ranka**, University of Florida, Gainesville, USA, **Dhruv Mahajan, Tania Banerjee**, Prof, Uni of Florida, USA, **Rahul Sengupta, Packard Clay, Ryan Casburn, Nithin Agarwal, Jeremy Dilmore** and **Anand Rangarajan**, Prof, Uni of Florida, USA

In an era defined by rapid urbanization and ever-increasing mobility demands, effective transportation management is paramount. This book takes readers on a journey through the intricate web of contemporary transportation systems, offering unparalleled insights into the strategies, technologies, and methodologies shaping the movement of people and goods in urban landscapes. With insights into traffic data visualization and operational performance measures, this book empowers traffic engineers and administrators to design 21st-century signal policies that optimize mobility, enhance safety, and shape the future of urban transportation.

CRC Press

**Market:** Computer Science

October 2024: 234x156: 243pp: 85 illus, 10 halftones, 75 line drawings

Hb: 978-1-032-57464-6: **£99.99**

★ For full contents and more information, visit: [www.routledge.com/9781032574646](http://www.routledge.com/9781032574646)

## Decentralized Music

Exploring Blockchain for Artistic Research



Edited by **Paulo de Assis** and **Adam Lukawski**

This book offers a thorough examination of the potential of blockchain to transform musical practices. Moving beyond blockchain's financial applications, this book presents various perspectives on how this technology plays an important role in a creative, conceptual and philosophical rethinking of the current modes of artistic creation. Including contributions from leading researchers in music, arts, and technology, the chapters of the book address blockchain's capacity to reconfigure notions of agency, authorship, authenticity, provenance, and ownership in music. Taken together, these chapters challenge conventional centralized mechanisms in music creation and dissemination.

CRC Press

**Market:** Computer Science

August 2024: 234x156: 208pp: 14 illus, 5 halftones, 9 line drawings

Hb: 978-1-032-60240-0: **£44.99**

★ For full contents and more information, visit: [www.routledge.com/9781032602400](http://www.routledge.com/9781032602400)

## Designing Interactions with Robots

Methods and Perspectives



Edited by **Maria Luce Lupetti**, Politecnico di Torino, Dept. of Architecture & Design, Italy, **Cristina Zaga, Nazli Cila, Selma Šabanović** and **Malte F. Jung**

Series: *Chapman & Hall/CRC Artificial Intelligence and Robotics Series*

While engineering and social science perspectives on designing human-robot interactions are readily available, the body of knowledge and practices related to design, specifically interaction design, often remain tacit. This book fills an important resource gap in the human-robot interaction (HRI) community, and acts as a guide to navigating design-specific methods, tools, and techniques. With contributions from the field's leading experts and rising pioneers, this collection presents state of the art knowledge and a range of design methods, tools, and techniques which cover the various phases of an HRI project.

Chapman and Hall/CRC

**Market:** AI / Robotics

November 2024: 234x156: 217pp: 38 illus, 35 halftones, 3 line drawings

Pb: 978-1-032-43027-0: **£44.99**

★ For full contents and more information, visit: [www.routledge.com/9781032430270](http://www.routledge.com/9781032430270)

## TEXTBOOK

## Developing Web Sites with HTML, CSS and JavaScript



**Efrim G. Mallach**, Rhode Island College, Providence, and Kea Company, New Bedford, Massachusetts, USA

Covering the three underlying technologies of Web pages: HTML, CSS, and JavaScript, this book is a one-stop guide to getting started in web development, be it in a class or as a solo-learner. Starting with no prerequisites beyond minimal exposure to programming, this book guides readers in an accessible fashion through modern page layout methods to building a complete site. Building knowledge from the ground-up, this book appeals to those looking to learn web development from a range of backgrounds, be it academic, professional or personal.

Chapman and Hall/CRC

**Market:** Computer Science

October 2024: 254x178: 428pp: 301 illus, 11 halftones, 290 line drawings

Pb: 978-1-032-74126-0: **£44.99**

★ For full contents and more information, visit: [www.routledge.com/9781032741260](http://www.routledge.com/9781032741260)

## Formal Methods for Managing and Processing Ontology Alignments



**Marcin Pietranik**, Wroclaw University of Science and Technology Wybreze St Wyspinskiego 27 Wroclaw Poland 50-370

Ontologies are formal knowledge representation methods that can provide means for a shared understanding of a given domain. This book provides complete ontology alignment lifecycle, including modelling, methods, and maintenance processes. Summarizing the author's research from the past ten years, this book consolidates findings previously published in prestigious international journals and presented at leading conferences. The book introduces basic mathematical concepts, and later chapters build upon these foundations, but each

focuses on specific aspects of ontology alignment, making the content accessible and easy to follow.

CRC Press

**Market:** Computer Science

October 2024: 254x178: 209pp: 35 illus, 35 line drawings

Hb: 978-1-032-57117-1: **£89.99**

★ For full contents and more information, visit: [www.routledge.com/9781032571171](http://www.routledge.com/9781032571171)



## TEXTBOOK

**Mathematical Foundations of Computer Science**

**Ashwin Lall**, Denison University, USA

*Mathematical Foundations of Computer Science* introduces students to the discrete mathematics needed later in their Computer Science coursework with theory of computation topics interleaved throughout. Students learn about mathematical concepts just in time to apply them to theory of computation ideas. For instance, sets motivate the study of finite automata, direct proof is practised using closure properties, induction is used to prove the language of an automaton, and contradiction is used to apply the pumping lemma.

Chapman and Hall/CRC

**Market:** Computer Science

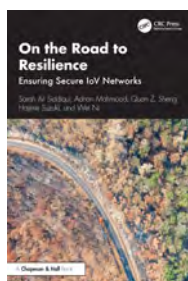
November 2024: 254x178: 236pp: 56 illus, 56 line drawings

Pb: 978-1-032-46787-0: **£44.99**

★ For **full contents** and more information, visit: [www.routledge.com/9781032467870](http://www.routledge.com/9781032467870)

**On the Road to Resilience**

Ensuring Secure IoV Networks



**Sarah Ali Siddiqui**, CSIRO Early Research Career Fellow, Australia, **Adnan Mahmood**, Macquarie University, Australia, **Quan Z. Sheng**, Macquarie University, Australia, **Hajime Suzuki**, Principal Research Scientist at CSIRO, Australia and **Wei Ni**, Principal Scientist at CSIRO, Australia

This book explores trust management within the Internet of Vehicles (IoV) networks, a paradigm crucial for safety-critical applications and a resource for non-safety applications and efficient traffic flows. However, the existence of malicious entities and the potential spread of harmful information within the network impairs its performance and resents a danger to both passengers and pedestrians. This book tackles the challenges

regarding the quantification of trust attributes and misbehavior detection threshold definition within the dynamic and distributed IoV environment. An essential guide for industry professionals and scholars in automotive systems and cybersecurity.

Chapman and Hall/CRC

**Market:** Artificial Intelligence / Transportation

September 2024: 234x156: 156pp: 43 illus, 43 halftones

Hb: 978-1-032-72352-5: **£59.99**

★ For **full contents** and more information, visit: [www.routledge.com/9781032723525](http://www.routledge.com/9781032723525)

## 2nd Edition

**Programming Language Explorations**

**Ray Toal**, **Sage Stricker** and **Marco Berardini**

*Programming Language Explorations* helps its readers gain proficiency in programming language practice and theory by presenting both example-focused, chapter-length explorations of fourteen important programming languages and detailed discussions of the major concepts transcending multiple languages. A language-by-language approach is sandwiched between an introductory chapter that motivates and lays out the major concepts of the field and a final chapter that brings together all that was learned in the middle chapters into a coherent and organized view of the field.

Chapman and Hall/CRC

**Market:** Information Technology

August 2024: 254x178: 408pp: 37 illus, 37 line drawings

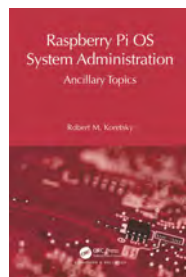
Pb: 978-1-032-11084-4: **£44.99**

Prev. Ed Pb: 978-1-4987-3846-0

★ For **full contents** and more information, visit: [www.routledge.com/9781032110844](http://www.routledge.com/9781032110844)

**Raspberry Pi OS System Administration**

Ancillary Topics



**Robert M. Koretsky**

*Series: Raspberry Pi OS System Administration with systemd*

The fourth volume in a new series exploring the basics of Raspberry Pi Operating System administration, this instalment builds on the insights provided in Volumes 1, 2 and 3 to provide a compendium of easy-to-use and essential Raspberry Pi OS system administration for the novice user, with specific focus on upstream Debian Bookworm release and Raspberry Pi 5.

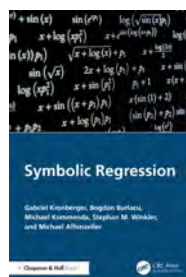
Chapman and Hall/CRC

**Market:** Computer Science

July 2024: 234x156: 292pp: 29 illus, 18 halftones, 11 line drawings

Pb: 978-1-032-75296-9: **£44.99**

★ For **full contents** and more information, visit: [www.routledge.com/9781032752969](http://www.routledge.com/9781032752969)

**Symbolic Regression**

**Gabriel Kronberger**, **Bogdan Burlacu**, **Michael Kommenda**, **Stephan M. Winkler**, and **Michael Affenzeller**

Symbolic regression (SR) is one of the most powerful machine learning techniques that produces transparent models, searching the space of mathematical expressions for a model that represents the relationship between the predictors and the dependent variable without the need of taking assumptions about the model structure. Currently, the most prevalent learning algorithms for SR are based on genetic programming (GP), an evolutionary algorithm inspired from the well-known principles of natural selection. This book is an in-depth guide to GP for SR, discussing its advanced techniques as well as examples of applications in science and engineering.

Chapman and Hall/CRC

**Market:** Computer Science & Engineering

August 2024: 234x156: 308pp: 136 illus, 136 line drawings

Hb: 978-1-138-05481-3: **£77.00**

★ For **full contents** and more information, visit: [www.routledge.com/9781138054813](http://www.routledge.com/9781138054813)

**The Naked Android**

Synthetic Socialness and the Human Gaze



**Julie Carpenter**

*Series: Chapman & Hall/CRC Artificial Intelligence and Robotics Series*

*The Naked Android: Synthetic Socialness and the Human Gaze* illuminates the connection between the stories people tell, their expectations of what a robot is, and how these beliefs and values manifest in how real robots are designed and used. Using ethnographic methods including in-depth interviews with a variety of stakeholders, each chapter explores how people are designing social robots, the experience of living with robots, and people whose jobs it is to dream about a future integrated with robots.

Chapman and Hall/CRC

**Market:** Computer Science

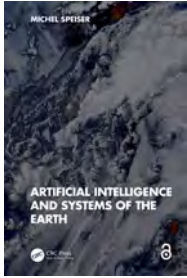
November 2024: 234x156: 320pp: 13 illus, 13 halftones

Pb: 978-0-367-77252-9: **£44.99**

★ For **full contents** and more information, visit: [www.routledge.com/9780367772529](http://www.routledge.com/9780367772529)

## ENVIRONMENTAL SCIENCE

### Artificial Intelligence and Systems of the Earth



**Michel Speiser**, International Centre for Earth Simulation (ICES) Foundation

*Artificial Intelligence and Systems of the Earth* is a book about the potential and capabilities of Artificial Intelligence and Machine Learning for studying the Earth. It aims to serve as an eye-opener on new avenues of scientific research that can be enabled by AI/ML. This is not meant to be a "how to" book but is written to answer the question "what if". It explains how these tools are currently being applied, and the new opportunities they have opened. Through many examples and application ideas from outside the Earth Sciences, the book discusses some of the most prevalent types of AI in current use, the future of AI hardware, and how AI/ML bring about change.

CRC Press

**Market:** Earth Science / Artificial Intelligence / Data Science / Computers

October 2024: 234x156: 112pp: 20 illus, 4 halftones, 16 line drawings

Hb: 978-1-032-71050-1: **£84.99**

★ For full contents and more information, visit: [www.routledge.com/9781032710501](http://www.routledge.com/9781032710501)

### Artificial Intelligence for Air Quality Monitoring and Prediction



Edited by **Amit Awasthi**, UPES, India, **Kanhu Charan Patttnayak**, Gaurav Dhiman, PSOU, India and **Pushp Raj Tiwari**

*Series: AI Applications in Earth Science*

This book is a comprehensive overview of advancements in artificial intelligence (AI) and how it can be applied in the field of air quality management. It explains the linkage between conventional approaches used in air quality monitoring with AI techniques such as data collection and preprocessing, deep learning, machine vision, natural language processing, and ensemble methods. The integration of climate models and AI enables readers to understand the relationship between air quality and climate change. Different case studies demonstrate

the application of various air monitoring and prediction methodologies and their effectiveness in addressing real-world air quality challenges.

CRC Press

**Market:** Atmospheric Science / Artificial Intelligence / Environmental Science / Environmental Engineering

October 2024: 234x156: 301pp: 60 illus, 2 halftones, 58 line drawings

Hb: 978-1-032-68379-9: **£110.00**

★ For full contents and more information, visit: [www.routledge.com/9781032683799](http://www.routledge.com/9781032683799)

### Biophysical Economy

Theory, Challenges, and Sustainability

**Steven M. Bartell**, University of Tennessee

*Series: Applied Ecology and Environmental Management*

This book explores the concept of transforming the current macroeconomic system from one based on continuous growth that doesn't recognize the fundamental importance of Earth's natural support structures, to a system consistent with the basic views of biophysical economics that acknowledges that all real wealth ultimately derives from planetary resources, both renewable and non-renewable. It describes how data and information collected by various institutions, government agencies, and the private sector, can be integrated with existing management structures to transform the "continuous growth" economy into an economy that functions within understandable boundaries on a finite planet.

CRC Press

**Market:** Science-Environmental Studies

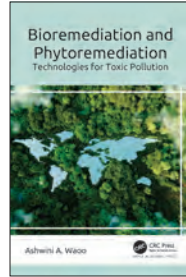
December 2024: 234x156: 200pp: 28 illus, 5 halftones, 23 line drawings

Hb: 978-1-032-31079-4: **£90.00**

★ For full contents and more information, visit: [www.routledge.com/9781032310794](http://www.routledge.com/9781032310794)

### Bioremediation and Phytoremediation

Technologies for Toxic Pollution



**Ashwini A. Wao**

Provides an informative overview of the emerging issues related to bioremediation and phytoremediation. It discusses alternative technologies for the removal of pollutants from the environment, restoring contaminated sites, and preventing further pollution using bioremediation. The multitude of bioremediation and phytoremediation technologies and methods covered include biochar for remediation, cyanobacteria, biosensors and bioindicators, rhizoremediation, and plant tissue culture studies such as dyes and plastics, mine waste, contaminated soil, heavy metals, wastewater, etc.

Apple Academic Press

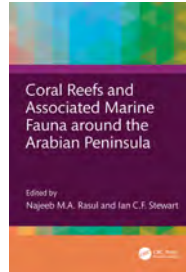
**Market:** Soil Science

February 2024: 234x156: 406pp: 56 illus

Hb: 978-1-77491-384-0: **£139.00**

★ For full contents and more information, visit: [www.routledge.com/9781774913840](http://www.routledge.com/9781774913840)

### Coral Reefs and Associated Marine Fauna around the Arabian Peninsula



Edited by **Najeeb M.A. Rasul**, Geological and Geophysical Research Systems, Canada and **Ian C.F. Stewart**, Stewart Geophysical Consultants Pty. Ltd., Australia.

*Coral Reefs and Associated Marine Fauna around the Arabian Peninsula* is a unique text that contains studies on a diverse range of topics related to the biology of the Red Sea and Arabian (Persian) Gulf region.

CRC Press

**Market:** Marine Biology

July 2024: 297x210: 376pp: 142 illus, 137 halftones, 5 line drawings

Hb: 978-1-032-34290-0: **£165.00**

★ For full contents and more information, visit: [www.routledge.com/9781032342900](http://www.routledge.com/9781032342900)

### Derelict Mines

Environmental Risk Assessment and Management



Edited by **Ravi Naidu**, Global Institute for Environmental Research, CRC CARE, University of Newcastle, Callaghan, Australia

Mine areas left behind by companies that no longer exist are defined as derelict mines- those that were operated and closed at a time when most countries did not have adequate regulations requiring rehabilitation of the impacted mine areas. This new book provides unique information on the extent and severity of derelict mines' impact on environmental degradation and human and environmental health. It examines the nature of derelict mines, short and long-term risks to sensitive receptors, tools for monitoring and prioritizing risks, and technological

advances for rehabilitation. This book considers a risk-based approach to managing derelict mines, which is reliable and cost-effective.

CRC Press

**Market:** Engineering - Environmental

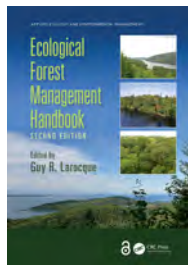
September 2024: 254x178: 394pp: 167 illus, 80 halftones, 87 line drawings

Hb: 978-1-138-30662-2: **£145.00**

★ For full contents and more information, visit: [www.routledge.com/9781138306622](http://www.routledge.com/9781138306622)

2nd Edition

## Ecological Forest Management Handbook



Edited by **Guy R. Larocque**

Series: *Applied Ecology and Environmental Management*

This second edition continues to provide forestry professionals and students with basic principles of ecological forest management and their applications at regional and site-specific levels. Thoroughly updated and revised, the handbook addresses numerous topics and explains that ecological forest management is a complex process that requires broad ecological knowledge. It discusses how to develop adaptive management scenarios to harvest resources in a sustainable way and provide ecosystem services and social functions. It includes new studies on ecological indicators, the carbon cycle, and ecosystem simulation models for

various forest types: boreal, temperate, and tropical forests.

CRC Press

**Market:** Forestry

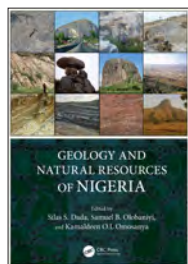
September 2024: 254x178: 584pp: 128 illus, 30 halftones, 98 line drawings

Hb: 978-1-032-55517-1: **£150.00**

Prev. Ed Hb: 978-1-4822-4785-5

★ For full contents and more information, visit: [www.routledge.com/9781032555171](http://www.routledge.com/9781032555171)

## Geology and Natural Resources of Nigeria



Edited by **Silas S. Dada, Samuel B. Olobaniyi and Kamaldeen O.L. Omosanya**

*Geology and Natural Resources of Nigeria* is an up-to-date and comprehensive overview of the geological framework of the continental crust of Nigeria, its evolution, and the natural resources it holds. It covers a wide set of topics and provides a detailed description of the rock units of the Nigerian continental crust, their geological settings and structural characteristics, and the potential of their mineral, energy, and water resources. It discusses the impact of geo-resources on the Nigerian economy, includes recommendations on how to fully exploit geo-resources, and explains how to prevent geological

processes that could lead to natural hazards.

CRC Press

**Market:** Earth Science - Geology / Petrology / Geophysics / Natural Resources

July 2024: 254x178: 579pp: 293 illus, 77 halftones, 216 line drawings

Hb: 978-1-032-59485-9: **£175.00**

★ For full contents and more information, visit: [www.routledge.com/9781032594859](http://www.routledge.com/9781032594859)

3rd Edition

## Greener Products

The Making and Marketing of Sustainable Brands



**Al Iannuzzi**, Johnson & Johnson Inc., New Brunswick, New Jersey, USA

Sustainability and its competitive advantage are the goals of every company and any brand that wants to stay successful in the marketplace. Customers also gravitate to brands that manage sustainability issues well. *Greener Products: The Making and Marketing of Sustainable Brands* written by a renowned sustainability expert, continues to address the latest developments in the extremely fast-moving field of sustainability. Thoroughly updated, this third edition introduces new case studies, includes a new chapter on natural capital cost accounting, and explores the best practices of leading global companies and helps readers learn what it is that makes them successful.

CRC Press

**Market:** Environmental Science / Sustainability

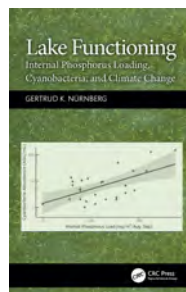
August 2024: 234x156: 302pp: 47 illus, 5 halftones, 42 line drawings

Hb: 978-1-032-57987-0: **£110.00**

★ For full contents and more information, visit: [www.routledge.com/9781032579870](http://www.routledge.com/9781032579870)

## Lake Functioning

Internal Phosphorus Loading, Cyanobacteria, and Climate Change



**Gertrud K. Nürnberg**

This book explores the interconnections of internal phosphorus loading, cyanobacteria, and climate change and their role in determining water quality in freshwater.

CRC Press

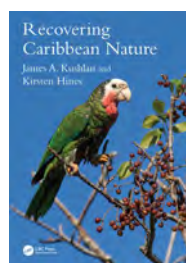
**Market:** Environmental Sciences

October 2024: 246x174: 298pp: 68 illus, 10 halftones, 58 line drawings

Hb: 978-1-032-29440-7: **£100.00**

★ For full contents and more information, visit: [www.routledge.com/9781032294407](http://www.routledge.com/9781032294407)

## Recovering Caribbean Nature



**James A. Kushlan and Kirsten Hines**

This book uniquely provides both a theoretical background and practical applications to restoring nature within the tropical Caribbean. Packed with beautiful and informative color photographs, it offers detailed accounts of Caribbean plants useful for restoration projects and the native animals that use them, as well as unifying principles that can be applied more broadly across the tropics. It provides explicit guidance on establishing sustainable and more naturalistic landscapes connecting large public lands to private yards and gardens.

CRC Press

**Market:** Ecology

September 2024: 254x178: 300pp: 149 illus, 147 halftones, 2 line drawings

Hb: 978-1-032-48983-4: **£155.00**

★ For full contents and more information, visit: [www.routledge.com/9781032489834](http://www.routledge.com/9781032489834)

## Sustainable Energy Pathways to Net Zero



**Larry E. Erickson**, Kansas State University, Manhattan, USA and **Gary Brase**

*Sustainable Energy Pathways to Net Zero* addresses realistic pathways, between now and 2050, to reach net zero: a steady state concentration of greenhouse gases in the atmosphere. It discusses solar and wind energy, hydrogen, energy storage, and electric vehicles, which are becoming increasingly cost-efficient and are all part of these pathways. Hydrogen, the price of electricity, the integration of different sources of electricity into the electrical grid, and the electrical vehicle charging networks, are crucial in balancing supply and demand. It is the intersection of these technologies where the most profound advances can occur.

CRC Press

**Market:** Sustainable Energy

December 2024: 234x156: 160pp

Hb: 978-1-032-49941-3: **£76.99**

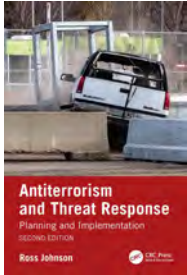
★ For full contents and more information, visit: [www.routledge.com/9781032499413](http://www.routledge.com/9781032499413)

## FORENSIC SCIENCE

2nd Edition

### Antiterrorism and Threat Response

Planning and Implementation



**Ross Johnson**, Capital Power Corporation, Edmonton, Alberta, Canada

The major contribution of *Antiterrorism and Threat Response: Planning and Implementation, 2e* is the detailed instruction and practical advice on how to see the weaknesses and vulnerabilities in physical protection systems and upgrade them to meet the challenges of terrorists and criminals. This is the advanced course in protecting physical assets from terrorists and criminals.

CRC Press

**Market:** Homeland Security

September 2024: 234x156: 464pp: 125 illus, 86 halftones, 39 line drawings

Pb: 978-1-032-44808-4: **£56.99**

★ For full contents and more information, visit: [www.routledge.com/9781032448084](http://www.routledge.com/9781032448084)

### Artificial Intelligence in Forensic Science

An Emerging Technology in Criminal Investigation Systems



Edited by **Kavita Saini**, Galgotias University, India, **Swaroop S. Sonone**, JSPM University, Pune, India, **Mahipal Singh Sankhla**, Chandigarh University, India and **Naveen Kumar**

This book addresses the current and emerging opportunities being utilized to apply modern Artificial Intelligence (AI) technologies to current forensic and investigation practices. The book also showcases the increasing benefits of AI where and when it can be applied to various techniques and forensic disciplines. In the last decade, the use of AI is common in many fields and now is an ideal time to look at the various ways AI can be integrated into judicial, forensic, and criminal cases to better collect and analyze evidence, thereby improving outcomes.

CRC Press

**Market:** Forensic Science / Artificial Intelligence

August 2024: 234x156: 206pp: 38 illus, 8 halftones, 12 line drawings

Pb: 978-1-032-26336-6: **£66.99**

★ For full contents and more information, visit: [www.routledge.com/9781032263366](http://www.routledge.com/9781032263366)

### Developing a Security Training Program



**Joseph McDonald**

*Developing a Security Training Program* focuses on how to establish a comprehensive training program for a security department from the ground up. The book highlights formal curriculum development, consistent and continual training, the organizational benefits including how such security training will be a value-add. This book provides the blueprint and tools for professionals to provide ongoing, targeted, and comprehensive security training at a low, budget-friendly cost.

CRC Press

**Market:** Security Management

July 2024: 234x156: 260pp: 11 illus, 11 line drawings

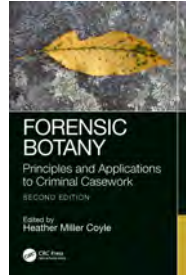
Pb: 978-1-032-27403-4: **£49.99**

★ For full contents and more information, visit: [www.routledge.com/9781032274034](http://www.routledge.com/9781032274034)

2nd Edition

### Forensic Botany

Principles and Applications to Criminal Casework



Edited by **Heather Miller Coyle**, University of New Haven, West Haven, Connecticut, USA

*Forensic Botany: Principles and Applications to Criminal Casework, Second Edition* updates what, at the time, was the very first book published on the subject. This latest edition offers a concise introduction to plant identification and biology, genetics and how to utilize and apply botanical evidence in criminal cases. This book will provide scientists working with DNA, trace evidence, and botanical evidence—as well as investigators and legal professionals—with a thorough understanding of the latest advances, and current capabilities, in utilizing such evidence in investigating and adjudicating criminal cases.

CRC Press

**Market:** Forensic Science

August 2024: 234x156: 328pp: 85 illus, 51 halftones, 34 line drawings

Hb: 978-1-4398-6674-0: **£71.99**

Prev. Ed Hb: 978-0-8493-1529-9

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### Handbook of Bloodstain Pattern Analysis



Edited by **Toby L. Wolson**

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CRC Press

**Market:** Criminal Justice & Forensic Science

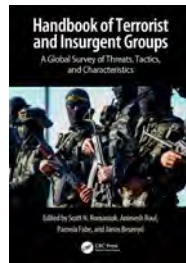
October 2024: 254x178: 784pp: 713 illus, 687 halftones, 26 line drawings

Hb: 978-0-367-74207-2: **£69.99**

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### Handbook of Terrorist and Insurgent Groups

A Global Survey of Threats, Tactics, and Characteristics



Edited by **Scott N. Romaniuk**, University of South Wales, UK, **Animesh Roul**, **Pamela Fabe** and **János Besenyő**

This volume examines the most current and significant terrorist and insurgent groups around the world. It brings the collective expertise and knowledge of more than 50 academics, intelligence and security officials, and professionals together, all of whom are considered subject experts in their respective areas of research and practice. The volume is based on both desk-based and fieldwork conducted by experts in these areas, incorporating analyses of secondary literature but also the use of primary data including first-hand interviews on the various groups' region of operation, their tactics, and how their ideologies motivate their actions.

CRC Press

**Market:** Global Security / Terrorism

October 2024: 280x210: 786pp: 34 illus, 34 line drawings

Pb: 978-1-032-71490-5: **£76.99**

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CRC Press

**Market:** Forensic Science / Human Trafficking

September 2024: 234x156: 304pp: 19 illus, 3 halftones, 16 line drawings

Pb: 978-1-032-17012-1: **£52.99**

★ For full contents and more information, visit: [www.routledge.com/9781032170121](http://www.routledge.com/9781032170121)

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The Science of Criminalistics



**James T. Spencer**, Syracuse University, USA

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CRC Press

**Market:** Forensic Science

October 2024: 280x210: 774pp: 1131 illus, 926 halftones, 205 line drawings

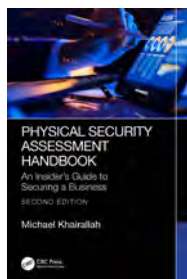
Hb: 978-1-032-02517-9: **£76.99**

★ For full contents and more information, visit: [www.routledge.com/9781032025179](http://www.routledge.com/9781032025179)

### 2nd Edition

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**Michael Khairallah**, Security Design Solutions LLC, USA

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CRC Press

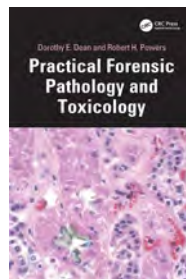
**Market:** Security / Electronic Systems

July 2024: 234x156: 338pp: 109 illus, 57 halftones, 52 line drawings

Pb: 978-1-032-79080-0: **£54.99**

★ For full contents and more information, visit: [www.routledge.com/9781032790800](http://www.routledge.com/9781032790800)

## Practical Forensic Pathology and Toxicology



**Dorothy E. Dean**, Summit County Medical Examiner's Office, Akron, Ohio, USA and **Robert H. Powers**, Connecticut Department of Public Safety, Hartford, USA

*Practical Forensic Pathology and Toxicology* is a companion to the authors' original book on the subject, *Forensic Toxicology: Mechanisms and Pathology*. *Practical Forensic Pathology and Toxicology* is an invaluable resource for practicing pathologists, toxicologists, and those training for those fields. It also serves as a useful reference for lawyers, judges, insurance companies, and other medical professionals who need to know, in light of what drugs are present in a particular case, what such compounds do, and how their presence (or absence thereof) is—or is not—related to an individual's death.

CRC Press

**Market:** Forensic Pathology / Toxicology

November 2024: 254x178: 232pp: 72 illus, 67 halftones, 5 line drawings

Hb: 978-0-367-63861-0: **£94.99**

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150 Things You Should Know



**Lawrence J. Fennelly** and **Marianna A. Perry**

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CRC Press

**Market:** Business / Security Management

August 2024: 234x156: 396pp: 10 illus, 8 halftones, 2 line drawings

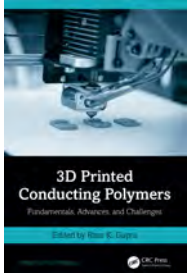
Pb: 978-1-032-51526-7: **£48.99**

★ For full contents and more information, visit: [www.routledge.com/9781032515267](http://www.routledge.com/9781032515267)

## MATERIALS SCIENCE

### 3D Printed Conducting Polymers

Fundamentals, Advances, and Challenges



Edited by **Ram K. Gupta**

Series: *Smart 3D/4D Printing*

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CRC Press

**Market:** Materials Science and Engineering

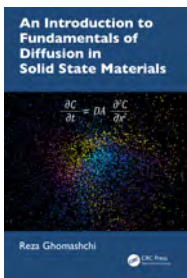
July 2024: 234x156: 360pp: 102 illus, 58 halftones, 44 line drawings

Hb: 978-1-032-54196-9: **£135.00**

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**Reza Ghomashchi**

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CRC Press

**Market:** Materials Science and Engineering

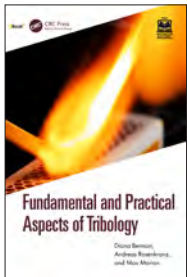
November 2024: 234x156: 230pp: 113 illus, 47 halftones, 66 line drawings

Hb: 978-1-032-74020-1: **£99.99**

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#### TEXTBOOK

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**Diana Berman, Andreas Rosenkranz and Max Marian**

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CRC Press

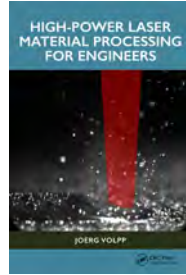
**Market:** Tribology

July 2024: 234x156: 314pp: 179 illus, 41 halftones, 138 line drawings

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CRC Press

**Market:** Materials Engineering

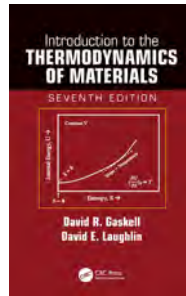
August 2024: 234x156: 176pp: 123 illus, 105 halftones, 18 line drawings

Hb: 978-1-032-78189-1: **£89.99**

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**David R. Gaskell and David E. Laughlin**, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA

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CRC Press

**Market:** Materials Science

July 2024: 234x156: 696pp: 265 illus, 265 line drawings

Hb: 978-1-032-45099-5: **£115.00**

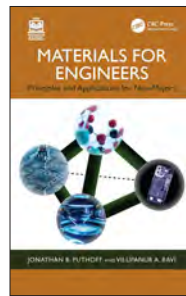
Prev. Ed Hb: 978-1-4987-5700-3

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CRC Press

**Market:** Engineering / Materials Engineering

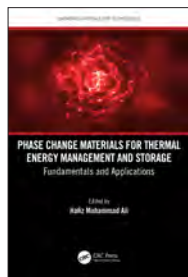
August 2024: 234x156: 366pp: 326 illus, 78 halftones, 248 line drawings

Hb: 978-1-032-10253-5: **£82.99**

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## Phase Change Materials for Thermal Energy Management and Storage

Fundamentals and Applications



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Series: *Emerging Materials and Technologies*

This book provides the latest advances in thermal energy applications of phase change materials (PCMs). It introduces definitions and offers a brief history, and then delves into preparation techniques, thermophysical properties and heat transfer characteristics with mathematical models, performance-affecting factors, and the applications and challenges of PCMs. This reference offers a comprehensive overview of the fundamentals, technologies, and current and near future applications of PCMs for thermal energy management and

storage for researchers and advanced students in materials, mechanical, and related fields of engineering.

CRC Press

**Market:** Materials Science and Engineering

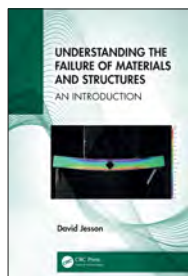
July 2024: 234x156: 348pp: 153 illus, 29 halftones, 124 line drawings

Hb: 978-1-032-35993-9: **£125.00**

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An Introduction



**David Jesson**, University of Surrey, Guildford

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CRC Press

**Market:** Materials Science and Engineering

September 2024: 234x156: 172pp: 32 illus, 1 halftone, 31 line drawings

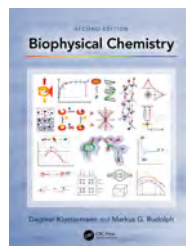
Hb: 978-0-367-36840-1: **£59.99**

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Hb: 978-1-032-06083-5: **£76.99**

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CRC Press

**Market:** Physics

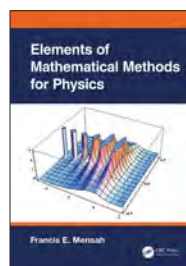
July 2024: 254x178: 146pp: 38 illus, 37 halftones, 1 line drawing

Hb: 978-0-367-50722-0: **£91.99**

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CRC Press

**Market:** Physics

August 2024: 254x178: 398pp: 114 illus, 1 halftone, 113 line drawings

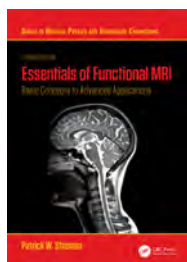
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CRC Press

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November 2024: 254x178: 400pp: 127 illus, 36 halftones, 91 line drawings

Hb: 978-1-032-87382-4: **£115.00**

Prev. Ed Hb: 978-1-138-45379-1

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CRC Press

**Market:** Physics

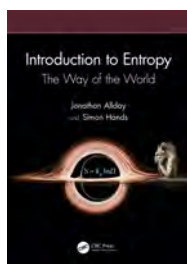
December 2024: 254x178: 288pp: 92 illus, 74 halftones, 18 line drawings

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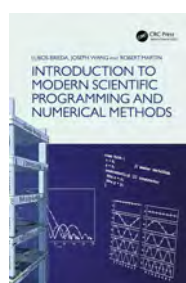
CRC Press

**Market:** Physics

October 2024: 254x178: 358pp: 75 illus, 5 halftones, 70 line drawings

Pb: 978-0-367-63866-5: **£44.99**★ For **full contents** and more information, visit: [www.routledge.com/9780367638665](http://www.routledge.com/9780367638665)

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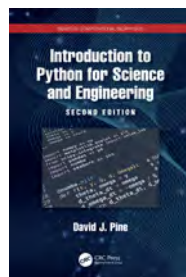
CRC Press

**Market:** Physics

September 2024: 234x156: 474pp: 92 illus, 30 halftones, 62 line drawings

Hb: 978-0-367-67191-4: **£74.99**★ For **full contents** and more information, visit: [www.routledge.com/9780367671914](http://www.routledge.com/9780367671914)

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CRC Press

**Market:** Physics

September 2024: 234x156: 444pp: 102 illus, 20 halftones, 82 line drawings

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CRC Press

**Market:** Physics

July 2024: 234x156: 442pp: 84 illus, 84 line drawings

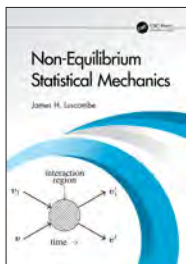
Hb: 978-1-032-12652-4: **£76.99**

Prev. Ed Hb: 978-1-4822-4593-6

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## Non-Equilibrium Statistical Mechanics



**James H. Luscombe**

Statistical mechanics provides a framework for relating the properties of macroscopic systems (large collections of atoms, such as in a solid) to the microscopic properties of its parts. However, what happens when macroscopic systems are not in thermal equilibrium, where time is not only a relevant variable, but also essential? That is the province of nonequilibrium statistical mechanics – there are many ways for systems to be out of equilibrium! The subject is governed by fewer general principles than equilibrium statistical mechanics and consists of a number of different approaches for describing nonequilibrium systems.

CRC Press

**Market:** Physics

September 2024: 254x178: 256pp: 14 illus, 14 line drawings

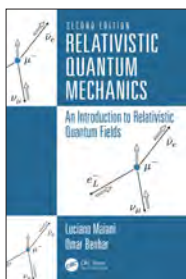
Hb: 978-1-138-54295-2: **£89.99**

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## Relativistic Quantum Mechanics

An Introduction to Relativistic Quantum Fields



**Luciano Maiani**, University of Rome, La Sapienza, and INFN Sezione di Roma, Rome, Italy and **Omar Benhar**, Istituto Nazionale di Fisica Nucleare, Roma, Italy

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CRC Press

**Market:** Physics

October 2024: 234x156: 384pp: 31 illus, 1 halftone, 30 line drawings

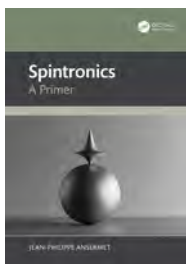
Hb: 978-1-032-56594-1: **£76.99**

★ For full contents and more information, visit: [www.routledge.com/9781032565941](http://www.routledge.com/9781032565941)

TEXTBOOK

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A Primer



**Jean-Philippe Ansermet**

A sound understanding of magnetism, transport theory, spin relaxation mechanisms, and magnetization dynamics is necessary to engage in spintronics research. In this primer, special effort has been made to give straightforward explanations for these advanced concepts. This book will be a valuable resource for graduate students in spintronics and related fields. Concepts of magnetism such as exchange interaction, spin-orbit coupling, spin canting, and magnetic anisotropy are introduced.

CRC Press

**Market:** Physics

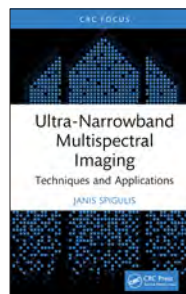
August 2024: 254x178: 454pp: 143 illus, 28 halftones, 115 line drawings

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Techniques and Applications



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CRC Press

**Market:** Physics

September 2024: 216x138: 104pp: 49 illus, 33 halftones, 16 line drawings

Hb: 978-1-032-75729-2: **£48.99**

★ For full contents and more information, visit: [www.routledge.com/9781032757292](http://www.routledge.com/9781032757292)

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**Sean G. Ryan**

The book presents a practical guide to using a small astronomical telescope of a size that corresponds to most "first" telescopes – around 75 to 150 mm, i.e. 3 to 6 inches, in diameter. The book is intended for people who are sufficiently interested in astronomy to have purchased a small telescope or received one as a gift, but who are still developing experience of using one.

CRC Press

**Market:** Physics

September 2024: 234x156: 196pp: 81 illus, 81 line drawings

Pb: 978-1-032-81289-2: **£22.99**

★ For full contents and more information, visit: [www.routledge.com/9781032812892](http://www.routledge.com/9781032812892)

## Anatomy of Game Design



Tom Smith

*Anatomy of Game Design* takes some of the most popular and beloved games of all time and dissects them to see what makes them tick. By breaking down the systems and content of each game, the underlying systems of game design are laid bare. Each game is discussed in detail, using the same methods for each game. What are the verbs of the game that give the player agency? How do those verbs fit together to form a core loop that makes the game engaging? What are the systems that power the gameplay? What is the larger flow that makes the game interesting over and over again?

CRC Press

**Market:** Games & Animation

October 2024: 229x152: 274pp: 103 illus, 30 halftones, 73 line drawings

Pb: 978-1-032-38738-3: **£36.99**

★ For full contents and more information, visit: [www.routledge.com/9781032387383](http://www.routledge.com/9781032387383)

## Game Design Deep Dive: Shooters



Joshua Bycer

This entry in the *Game Design Deep Dive* series takes a look at the shooter genre. One that has grown with the times and whose influence can be felt from indie teams to major studios. Josh Bycer discusses 30 plus year history of one of games industry's most popular genres to talk about how to design one your own. This book is perfect for students and designers to learn about one of the most popular genres on the market.

CRC Press

**Market:** Gaming

September 2024: 229x152: 244pp: 148 illus, 148 halftones

Pb: 978-1-032-58116-3: **£44.99**

★ For full contents and more information, visit: [www.routledge.com/9781032581163](http://www.routledge.com/9781032581163)

## Shader Writing in Open Shading Language

With RenderMan® Examples



Mitch J. Prater

Shaders make renderings look the way they look. They represent the intersection between the artistry and technology of rendering. The ability to program shaders is a foundational skill in the computer graphics field and its applications; however that skill is largely, if not entirely, self-taught. OSL Shaders for RenderMan is a treatise on shader writing and development that hopes to remedy the current lack of material on this important area of RenderMan expertise. It covers the entire range of independent variables upon which all shaded pattern generation is based.

CRC Press

**Market:** Games & Animation

October 2024: 254x178: 238pp: 156 illus, 156 halftones

Pb: 978-1-032-42110-0: **£53.99**

★ For full contents and more information, visit: [www.routledge.com/9781032421100](http://www.routledge.com/9781032421100)



## Paper Time Machines

Critical Game Design and Historical Board Games

Maurice W. Suckling

This book looks at a range of topics and design issues pertinent to the history, current state of design, and to developing trends within the hobby, industry, and the adjacent field of game scholarship. The book provides a definitive take on the current state of board wargaming, deeply informed by where the field came from and how it got to now.

Routledge

**Market:** Gaming & Animation

August 2024: 254x178: 346pp: 59 illus, 29 halftones, 30 line drawings

Pb: 978-1-032-41691-5: **£44.99**

★ For full contents and more information, visit: [www.routledge.com/9781032416915](http://www.routledge.com/9781032416915)

2nd Edition

## Getting Started in ZBrush

An Introduction to Digital Sculpting and Illustration



Gregory S. Johnson, Savannah College of Art and Design, Georgia, USA

Beginning with the fundamentals of digital sculpting as well as a thorough introduction to the user interface, *Getting Started in ZBrush* will have you creating a variety of professional-level 3D models in no-time. More than just another button-pushing manual, this comprehensive guide is packed with start-to-finish projects that ease you into the workflow of the program, while at the same time providing tips and tricks that will allow you to achieve certain tasks much more quickly. After progressing through the tutorials, you will be shown how to customize brushes, materials, scripts, and the interface so that you can

utilize these tools to their full advantage.

CRC Press

**Market:** Animation

June 2024: 254x178: 456pp: 422 illus, 422 halftones

Pb: 978-1-032-10425-6: **£58.99**

★ For full contents and more information, visit: [www.routledge.com/9781032104256](http://www.routledge.com/9781032104256)

## Graphic Design for Board Games



Daniel Solis

Series: *CRC Press Guides to Tabletop Game Design*

Board games are increasingly recognized as an artform of their own, but their design and aesthetics are just as important as their gameplay mechanics. In this handbook, art director and graphic designer Daniel Solis offers his 20+ years of expertise in graphic design in tabletop gaming. With a sense of humor, plenty of examples, and simple tips, *Graphic Design for Board Games* covers everything from typography to retail presence. Learn how to effectively use graphic design elements to enhance player experience. Create stunning game components, clear rulebooks, and effective game boards that will keep players engaged.

CRC Press

**Market:** Games & Animation

October 2024: 229x152: 302pp: 134 illus, 134 halftones

Pb: 978-1-032-58336-5: **£44.99**

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## Learning Video Game Design on the Tabletop



Ethan Ham

Learning to design tabletop games builds a solid foundation for game designers and provides methods that can be applied towards creating paper prototypes of computer-targeted games. Presented in a step-by-step format, this book helps the reader understand how the game design skills that are acquired through creating tabletop games can be used when designing video games. Fully playable games accompany every topic so you can truly understand and experience each component that goes into game creation.

CRC Press

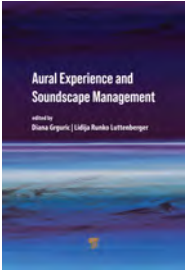
**Market:** Game Design

October 2024: 254x178: 364pp: 148 illus, 102 halftones, 46 line drawings

Pb: 978-1-032-10297-9: **£48.99**

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Jenny Stanford Publishing

**Market:** Acoustical Engineering

March 2024: 229x152: 232pp: 26 illus

Hb: 978-981-5129-03-8: **£91.99**

★ For **full contents** and more information, visit: [www.routledge.com/9789815129038](http://www.routledge.com/9789815129038)

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A Personal Odyssey



**Zafra Lerman**

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Jenny Stanford Publishing

**Market:** Human Rights

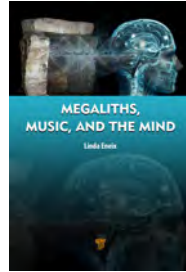
August 2024: 229x152: 206pp

Hb: 978-981-5129-24-3: **£45.99**

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## Megaliths, Music, and the Mind

A Transdisciplinary Exploration of Archaeoacoustics



**Linda Eneix**

With original photos and illustrations, *Megaliths, Music and the Mind* assembles content from the worlds of archaeology, architecture, anthropology, ethnomusicology, genetics, neuroscience, physics and more. Fascinating pieces of evidence are set side by side, resulting in a stunning premise. This book is a core overview focused on rediscovery of an ill-understood sensory element of developing culture, with hope for therapeutic application in the modern world.

Jenny Stanford Publishing

**Market:** Music

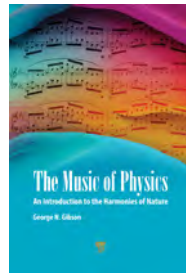
May 2024: 229x152: 280pp: 56 illus

Hb: 978-981-5129-25-0: **£61.99**

★ For **full contents** and more information, visit: [www.routledge.com/9789815129250](http://www.routledge.com/9789815129250)

## The Music of Physics

An Introduction to the Harmonies of Nature



**George N. Gibson**

This textbook is written for a very specific purpose and audience: It serves as a breadth requirement for a general education program at the college level for non-science majors. It is intended to satisfy a science-and-technology, quantitative-reasoning, and, optionally, a lab requirement. It is also suitable for an introductory course at the high school level. Music is an excellent medium to introduce physics to novice scientists, as it provides an intuitive understanding of the physics of waves, unlike standard approaches to physics, which can be quite unintuitive and, hence, frustrating.

Jenny Stanford Publishing

**Market:** Physics

August 2024: 229x152: 318pp: 166 illus, 14 halftones, 152 line drawings

Hb: 978-981-4968-99-7: **£76.99**

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Apple Academic Press

**Market:** Petroleum & Oil Industries

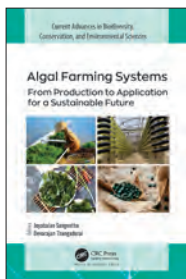
September 2024: 234x156: 404pp: 107 illus, 107 line drawings

Hb: 978-1-77491-508-0: **£170.00**

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From Production to Application for a Sustainable Future



Edited by **Jeyabalan Sangeetha and Devarajan Thangadurai**

*Series: Current Advances in Biodiversity, Conservation, and Environmental Sciences*

Presents the latest technological innovations in algae production, market status, and prospects for algal applications. It overviews different perspectives on the commercial production of algae-based food, health, and high-value cosmeceutical products, providing an institutional framework to support and promote the development and commercialization of algal farming. The book discusses phycotechnology, presents new information on algal culture conditions and cultivation strategies, the industrial applications of algae, green synthesis of nanoparticles from algae etc.

Apple Academic Press

**Market:** Marine & Aquatic Science

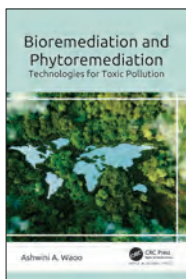
April 2024: 234x156: 432pp: 28 illus, 9 halftones, 19 line drawings

Hb: 978-1-77491-652-0: **£180.00**

★ For full contents and more information, visit: [www.routledge.com/9781774916520](http://www.routledge.com/9781774916520)

## Bioremediation and Phytoremediation

Technologies for Toxic Pollution



**Ashwini A. Waoo**

Provides an informative overview of the emerging issues related to bioremediation and phytoremediation. It discusses alternative technologies for the removal of pollutants from the environment, restoring contaminated sites, and preventing further pollution using bioremediation. The multitude of bioremediation and phytoremediation technologies and methods covered include biochar for remediation, cyanobacteria, biosensors and bioindicators, rhizoremediation, and plant tissue culture studies such as dyes and plastics, mine waste, contaminated soil, heavy metals, wastewater, etc.

Apple Academic Press

**Market:** Soil Science

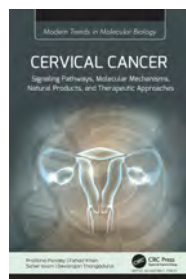
February 2024: 234x156: 406pp: 56 illus

Hb: 978-1-77491-384-0: **£139.00**

★ For full contents and more information, visit: [www.routledge.com/9781774913840](http://www.routledge.com/9781774913840)

## Cervical Cancer

Signaling Pathways, Molecular Mechanisms, Natural Products, and Therapeutic Approaches



Edited by **Pratibha Pandey, Fahad Khan, Saher Islam and Devarajan Thangadurai**

*Series: Modern Trends in Molecular Biology*

Focuses on new approaches to one of the major cancers of the female reproductive system—cervical cancer. Cervical cancer is the fourth most frequent cancer in women worldwide and, especially, a foremost cause of morbidity in women in developing countries, including India. Several research findings have suggested that modulation in various signaling pathways is responsible for cervical cancer pathogenesis, and inhibition of these crucial pathways could be a better therapeutic approach for cervical cancer management.

Apple Academic Press

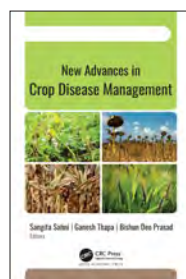
**Market:** Oncology and Radiation Therapy

April 2024: 229x152: 322pp: 29 illus

Hb: 978-1-77491-566-0: **£150.00**

★ For full contents and more information, visit: [www.routledge.com/9781774915660](http://www.routledge.com/9781774915660)

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Edited by **Sangita Sahni, Ganesh Thapa and Bishun Deo Prasad**

Provides a comprehensive overview of diverse crop protection strategies with special emphasis on the recent advances in crop protection approaches, fundamental concepts, principles, methodology, relationships, and benefits for crop protection and human health. It covers a variety of disciplines such as plant pathology, biochemistry, cell, and molecular biology, plant physiology, host-pathogen interactions, precision agriculture, decision analysis, disease risk, new ways of exploiting host genetic diversity including host resistance deployment, biological control and microbial interactions, and the consequences of climate change and signaling.

Apple Academic Press

**Market:** Agriculture & Agronomy

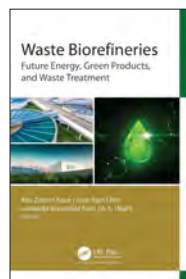
November 2024: 234x156: 492pp: 56 illus

Hb: 978-1-77491-607-0: **£170.00**

★ For full contents and more information, visit: [www.routledge.com/9781774916070](http://www.routledge.com/9781774916070)

## Waste Biorefineries

Future Energy, Green Products, and Waste Treatment



Edited by **Abu Zahrim Yaser, Siew-Xian Chin, Leonardo Sepúlveda Torre and A.K. Haghi**

Provides a comprehensive overview of biorefining processing techniques, technologies, and materials that can use waste products in a number of innovative ways. It covers proven case studies that demonstrate the most advanced and innovative processes and product developments on waste biorefinery principles. This new book also provides valuable data and technologies that consider environmental impacts. The book discusses recent steps toward renewable and clean energy along with waste-to-energy technologies, modern technologies for waste valorization that holds a valuable prospective for a sustainable green world and the future energy, green products, and waste treatment.

Apple Academic Press

**Market:** Hazardous Waste

August 2024: 234x156: 298pp: 86 illus

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