The fields of computer science and information science have had unquestioned impact over the several decades of their existence. As academic disciplines, they have evolved to take a central role in science, mathematics, and engineering at universities and research institutions around the world. They have a rich history that connects to David Hilbert, Alan Turing, John von Neumann, Alonzo Church, Claude Shannon, and many other leading mathematicians and scientists of the twentieth century.

Computer science and information science now encompass core areas such as algorithms and data structures, programming methodology and languages, theoretical computer science, computer architecture, artificial intelligence, networking and wireless communications, social and energy networks, database systems, parallel and distributed computation, cryptography, information theory, privacy and security, machine learning, computer-human interaction, computer graphics, data analytics, probabilistic methods, signal processing, and operating systems. These fields are all expanding and have direct impact on the development of the computational and communication infrastructure that surrounds us today.

Research in computer science and information science now provides a foundation for research in many other fields, including computational biology, chemistry to physics, neuroscience, and all subareas of engineering. Indeed, computation and information now play an essential role in science, as scientists are confronted with massive amounts of data, computational models, and large-scale simulations of natural phenomena. More broadly, academics in all fields are recognizing the essential role of computer science and information science in the production and dissemination of knowledge in their disciplines.

As demonstrated by the titles in this catalog, Princeton University Press has a history of publishing in these areas and has begun developing a new book list dedicated to computer science and information science. It will include a select list of advanced field-shaping textbooks, outstanding research monographs, and excellent trade books of broad interest covering the areas mentioned above. We see this expansion as a logical extension of what Princeton University Press has published across the disciplines in recent years.

As advisers to this publishing venture, we hope that you will offer your suggestions or even consider contributing to a list that includes books by many leaders who have made computer science and information science what they are today.

SANJEEV KULKARNI & ROBERT SEDGEWICK
NEW & FORTHCOMING

The Discrete Charm of the Machine

The genesis of the digital idea and why it transformed civilization

A few short decades ago, we were informed by the smooth signals of analog television and radio; we communicated using our analog telephones; and we even computed with analog computers. Today our world is digital, built with zeros and ones. Why did this revolution occur? The Discrete Charm of the Machine explains, in an engaging and accessible manner, the varied physical and logical reasons behind this radical transformation.

The spark of individual genius shines through this story of innovation: the stored program of Jacquard’s loom, Charles Babbage’s logical branching, Alan Turing’s brilliant abstraction of the discrete machine, Harry Nyquist’s foundation for digital signal processing, Claude Shannon’s breakthrough insights into the meaning of information and bandwidth, and Richard Feynman’s prescient proposals for nanotechnology and quantum computing. Ken Steiglitz follows the progression of these ideas in the building of our digital world, from the internet and artificial intelligence to the edge of the unknown. Are questions like the famous traveling salesman problem truly beyond the reach of ordinary digital computers? Can quantum computers transcend these barriers? Does a mysterious magical power reside in the analog mechanisms of the brain? Steiglitz concludes by confronting the moral and aesthetic questions raised by the development of artificial intelligence and autonomous robots.

The Discrete Charm of the Machine examines why our information technology, the lifeblood of our civilization, became digital, and challenges us to think about where its future trajectory may lead.


February 2019. 256 pages. 40 b/w illus.
Hardback 9780691179438 $27.95 | £22.00
E-book 9780691184173

“The Discrete Charm of the Machine is an inspirational must-read and delightful guide for anyone interested in traveling from the computational past through to the present. Reading this book will make you rethink what computation really is.”
—Andrew Adamatzky, University of the West of England
NEW & FORTHCOMING

“This excellent book is an outstanding combination of clarity, rigor, and elegance…. [W]ill be invaluable for any student of computer science.” —John MacCormick, Dickinson College

Essential Discrete Mathematics for Computer Scientists

Discrete mathematics is the basis of much of computer science, from algorithms and automata theory to combinatorics and graph theory. This textbook covers the discrete mathematics that every computer science student needs to learn. Proven in the classroom, the book teaches students not just the “content” of discrete mathematics but how to think rigorously about computational problems.

A welcome alternative to costly, encyclopedic volumes on the subject, this accessible book is versatile enough to adapt to any instructor’s curriculum and teaching style.

HARRY LEWIS is Gordon McKay Professor of Computer Science and former dean of Harvard College at Harvard University. RACHEL ZAX is a software engineer at Google.

“A beautiful, broad view of theoretical computer science, by a giant in the field. A must-read.” —Ryan O’Donnell, Carnegie Mellon University

Mathematics and Computation

This book provides a broad, conceptual overview of computational complexity theory—the mathematical study of efficient computation. With important practical applications to computer science and industry, computational complexity theory has evolved into a highly interdisciplinary field, with strong links to most mathematical areas and to a growing number of scientific endeavors. Useful for undergraduates in mathematics and computer science as well as researchers and teachers in the field, Mathematics and Computation brings conceptual clarity to this central and dynamic scientific discipline.

AVI WIGDERSO is the Herbert H. Maass Professor in the School of Mathematics at the Institute for Advanced Study in Princeton, New Jersey.
NEW & FORTHCOMING

“This sophisticated, rich, and accessible book walks us through something we all need but are almost never taught: number sense. The reader is left with real skills and confidence about understanding and interpreting numbers, probabilities, graphics, and much more.”
—Zeynep Tufekci, contributing opinion writer for the New York Times

**Millions, Billions, Zillions**

Numbers are often intimidating, confusing, and even deliberately deceptive—especially when they are really big. The media loves to report on millions, billions, and trillions, but frequently makes basic mistakes or presents such numbers in misleading ways. And misunderstanding numbers can have serious consequences.

Giving you the simple tools you need to avoid being fooled by dubious numbers, *Millions, Billions, Zillions* is an essential survival guide for a world drowning in big—and often bad—data.

**BRIAN W. KERNIGHAN** is professor of computer science at Princeton University. His many books include *Understanding the Digital World* (Princeton).

“Evocative . . . reveals many resonances between ancient thinking and current debates around robotics and AI.”
—E. R. Truitt, author of *Medieval Robots*

**Gods and Robots**

More than 2,500 years ago, Greek mythology was exploring ideas about creating artificial life—and grappling with still-unresolved ethical concerns about it. This is the fascinating story of how ancient Greek, Roman, Indian, and Chinese myths envisioned automata, self-moving devices, and human enhancements—and how these visions relate to and reflect the ancient invention of real animated machines. A groundbreaking account of the earliest expressions of the timeless impulse to create artificial life, *Gods and Robots* reveals how science has always been driven by imagination. This is mythology for the age of AI.

**ADRIENNE MAYOR** is the author, most recently, of *The Amazons: Lives and Legends of Warrior Women across the Ancient World* and *The Poison King: The Life and Legend of Mithradates, Rome’s Deadliest Enemy*, which was a finalist for the National Book Award (both Princeton). She is a research scholar in classics and the history of science at Stanford University.
“We often claim that education should not just teach facts; it should help us learn how to think clearly. [This] is a book that takes that goal seriously. It is brilliantly constructed, clearly written, and fun.”
—William C. Powers Jr., former president of the University of Texas, Austin

**Making Up Your Own Mind**

We solve countless problems—big and small—every day. With so much practice, why do we often have trouble making simple decisions—much less arriving at optimal solutions to important questions? Is there a practical way to learn to think more effectively and creatively? Edward Burger shows how we can become far better at solving real-world problems by learning creative puzzle-solving skills using simple, effective thinking techniques.

**EDWARD B. BURGER** is the president of Southwestern University, a mathematics professor, and a leading teacher on thinking, innovation, and creativity. He has written more than seventy research articles, video series, and books, including *The 5 Elements of Effective Thinking* (with Michael Starbird) (Princeton).

“Much of today’s college talk revolves around getting in—but this book meaningfully shifts the focus to how to be successful once getting to college. Johnson provides expert advice to make this book an important and eye-opening read.”
—Sarah Graham, director of college counseling, Princeton Day School

**Will This Be on the Test?**

*Will This Be on the Test?* is the essential survival guide for high-school students making the transition to college academics. In this entertaining and informative book, Dana Johnson shares wisdom and wit gleaned from her decades of experience as an award-winning teacher in the freshman classroom—lessons that will continue to serve you long after college graduation.

**DANA T. JOHNSON** taught for many years at the College of William and Mary, where she twice won the Simon Prize for Excellence in the Teaching of Mathematics. **JENNIFER E. PRICE** is a biologist who has much experience teaching online as well as traditional college courses.
“I recommend this book to all interested in biology and nature-inspired engineering. They will learn much and be marvelously entertained.”—Bert Hölldobler, coauthor of *The Ants*

**How to Walk on Water and Climb up Walls**

Animals move with astounding grace, speed, and versatility: how do they do it, and what can we learn from them? Integrating biology, engineering, physics, and robotics, David Hu shows how animals have adapted and evolved to traverse their environments, and how discoveries about animal mechanics are inspiring scientists to invent robots and devices that move with similar elegance and efficiency.

**DAVID L. HU** is associate professor of mechanical engineering and biology and adjunct professor of physics at Georgia Institute of Technology.

2018. 240 pages. 12 color + 33 b/w illus.  
Hardback 9780691169866 $24.95 | £20.00  
E-book 9780691184081

“An impassioned call to action from one of the world’s foremost scientists. A book to be read by anyone on Earth who cares about its future.”—*Kirkus*, starred review

**On the Future**

Humanity has reached a critical moment. Our world is unsettled, and we face existential risks over the next century. In this short, exhilarating book, Martin Rees argues that the future of humanity is bound to the future of science and hinges on how successfully we harness technological advances to address our challenges.

**MARTIN REES** is Astronomer Royal, and has been Master of Trinity College and Director of the Institute of Astronomy at Cambridge University.

2018. 272 pages.  
Hardback 9780691180441 $18.95 | £14.99  
E-book 9780691184401  
Audiobook 9780691192994

“A page-turner about the sense and nonsense of modern brain imaging research.”—Michael S. Gazzaniga, author of *The Consciousness Instinct*

**The New Mind Readers**

Mind reading has long been a fascination of science fiction, but new brain-imaging methods are bringing it closer to scientific reality. Russell Poldrack looks at the origins, development, and future of these tools, revealing how they are increasingly being used to decode our thoughts and experiences—and the questions this raises about their application in domains such as marketing, politics, and the law.

**RUSSELL A. POLDRACK** is the Albert Ray Lang Professor of Psychology at Stanford University.

2018. 232 pages. 12 color + 25 b/w illus.  
Hardback 9780691178615 $27.95 | £22.00  
E-book 9780691184128
“This wonderful book explores the theory of computing from a practical viewpoint. John MacCormick covers the basic concepts of computability and complexity, what we can and cannot compute—keeping the material grounded by connecting it with Python—the popular programming language.”
—Lance Fortnow, author of The Golden Ticket

What Can Be Computed?

This is a uniquely accessible yet rigorous introduction to the most profound ideas at the heart of computer science. Crafted specifically for undergraduates studying the subject for the first time, the book focuses on the essential fundamentals of computer science theory and features a practical approach that encourages active experimentation. Throughout, the book recasts traditional computer science concepts by considering how computer programs are used to solve real problems.

JOHN MACCORMICK is associate professor of computer science at Dickinson College.
ERIK DEMAIN & MARTIN DEMAIN created the curved crease sculpture featured on the cover of What Can Be Computed? Cover photo courtesy of the artists.

“Block chain technology is set to disrupt many different industries. If you want to get up to speed on this fast-moving technology, this book should be your first stop.” —Campbell R. Harvey, Duke University

Bitcoin and Cryptocurrency Technologies

This book provides a comprehensive introduction to the revolutionary yet often misunderstood new technologies of digital currency. Whether you are a student, software developer, tech entrepreneur, or researcher in computer science, this authoritative and self-contained book tells you everything you need to know about the new global money for the Internet age.

The book begins by tracing the history and development of Bitcoin and cryptocurrencies, and then gives the conceptual and practical foundations you need to engineer secure software that interacts with the Bitcoin network as well as to integrate ideas from Bitcoin into your own projects.

ARVIND NARAYANAN, JOSEPH BONNEAU, EDWARD FELTEN, ANDREW MILLER & STEVEN GOLDFEDER

Honorable Mention for the 2017 PROSE Award in Computing and Information Sciences, Association of American Publishers
Praise for the previous edition:
“Imai’s new textbook has the potential to totally transform how undergraduate statistics is taught…. Students will engage this book rather than dread it.”
—Christopher Winship, Harvard University

Quantitative Social Science
Quantitative analysis is an increasingly essential skill for social science research, yet students in the social sciences and related areas typically receive little training in it—or end up in statistics classes that offer few insights into their field. This textbook is a practical introduction to data analysis and statistics written especially for undergraduates and beginning graduate students in the social sciences and allied fields, such as business, economics, education, political science, psychology, sociology, public policy, and data science.

KOSUKE IMAI is Professor of Government and of Statistics at Harvard University.


“Written by one of the world’s most respected computational social scientists, Bit by Bit addresses the benefits as well as the pitfalls of leveraging digital data for scientific insight. The result is a highly readable yet intellectually rigorous introduction to the brave new world of computational social science.”
—Duncan Watts, Microsoft Research

Bit by Bit
This is the essential guide to mastering the key principles of doing social research in this fast-evolving digital age. Matthew Salganik explains how the digital revolution is transforming how social scientists observe behavior, ask questions, run experiments, and engage in mass collaborations. Bit by Bit is an invaluable resource for social scientists who want to harness the research potential of big data and a must-read for data scientists interested in applying the lessons of social science to tomorrow’s technologies.

MATTHEW J. SALGANIK is professor of sociology at Princeton University, where he is also affiliated with the Center for Information Technology Policy and the Center for Statistics and Machine Learning.
**Praise for the previous edition:**
“Friendly and succinct, yet surprisingly comprehensive.”
—Vinothan N. Manoharan, Harvard University

**A Student’s Guide to Python for Physical Modeling**

Python is a computer programming language that is rapidly gaining popularity throughout the sciences. This fully updated edition of *A Student’s Guide to Python for Physical Modeling* aims to help you, the student, teach yourself enough of the Python programming language to get started with physical modeling. You will learn how to install an open-source Python programming environment and use it to accomplish many common scientific computing tasks: importing, exporting, and visualizing data; numerical analysis; and simulation. No prior programming experience is assumed.

**JESSE M. KINDER** is assistant professor of physics at the Oregon Institute of Technology. **PHILIP NELSON** is professor of physics at the University of Pennsylvania.

“**A brilliant book that not only teaches the reader how to visualize data but also carefully considers why data visualization is essential for good social science…. [E]asily accessible for students at any level.”**
—Becky Pettit, University of Texas at Austin

**Data Visualization**

This book provides students and researchers a hands-on introduction to the principles and practice of data visualization. It explains what makes some graphs succeed while others fail, how to make high-quality figures from data using powerful and reproducible methods, and how to think about data visualization in an honest and effective way.

Effective graphics are essential to communicating ideas and a great way to better understand data. This book provides the practical skills students and practitioners need to visualize quantitative data and get the most out of their research findings.

**KIERAN HEALY** is associate professor of sociology at Duke University. He is the author of *Last Best Gifts: Altruism and the Market for Human Blood and Organs.*
Praise for the previous edition:
“A sound basis for an excellent course on linear systems theory.”
—Geir E. Dullerud, University of Illinois, Urbana-Champaign

Linear Systems Theory

Linear systems theory is the cornerstone of control theory and a well-established discipline that focuses on linear differential equations from the perspective of control and estimation. This updated second edition covers the subject’s key topics in a unique lecture-style format, making the book easy to use for instructors and students.

JOÃO P. HESPANHA is professor of electrical engineering in the Center for Control, Dynamical Systems and Computation at the University of California, Santa Barbara.

2018. 352 pages. 52 b/w illus.
Hardback 9780691179575  $85.00 | £66.00 E-book 9781400890088

“Hespanha’s standing in the field is stellar and students will appreciate his textbook in courses. This well-written book is clear and focused, and organized around suitable modules and lectures. It contains compelling theoretical and computational exercises.”—Magnus Egerstedt, coauthor of Graph Theoretic Methods in Multiagent Networks

Noncooperative Game Theory

This book is aimed at students interested in using game theory as a design methodology to solve problems in engineering and computer science. It shows that such design challenges can be analyzed through game theoretical perspectives that help pinpoint each problem’s essence.

JOÃO P. HESPANHA is a professor in the Department of Electrical and Computer Engineering at the University of California, Santa Barbara.

2017. 248 pages.
Hardback 9780691175218  $65.00 | £50.00 E-book 9781400885442

“Innovative, mathematically exact, and very well written. Garoche is a rare resource.”—Eric Feron, Georgia Institute of Technology

Formal Verification of Control Systems Software

The verification of control systems software is critical to a host of technologies and industries, from aeronautics and medical technology to the cars we drive—the failure of controller software can cost people their lives. This authoritative and accessible book provides an indispensable introduction to the formal techniques for analyzing and verifying this important class of software.

PIERRE-LOÏC GAROCHE is senior research scientist at ONERA, France’s national aerospace research center.

May 2019. 232 pages. 79 b/w illus.
Hardback 9780691181301  $55.00 | £43.00 E-book 9780691189581
“A crucial and timely book on ethics in engineering and science by one of the world’s foremost ethicists of technology and society.”
—Stephen R. Barley, University of California, Santa Barbara

The Ethical Engineer

This book explores ethical issues that arise in engineering practice, from technology transfer to privacy protection to whistle-blowing. Presenting key concepts and real-life examples, McGinn illuminates the ethical dimension of engineering practice and helps students and professionals determine engineers’ context-specific ethical responsibilities.

ROBERT MCGINN is professor of management science and engineering and of science, technology, and society at Stanford University.

2018. 352 pages. 25 b/w illus.
Paperback 9780691177700 $55.00 | £43.00
Hardback 9780691177694 £95.00 | £74.00 E-book 9781400889105

Agent-Based and Individual-Based Modeling

This has become the standard textbook on the subject for classroom use and self-instruction. Now fully updated with new examples and exercises, the latest version of NetLogo, and an enhanced text for easier comprehension, this is the essential resource for anyone seeking to understand how the dynamics of biological, social, and other complex systems arise from the characteristics of the agents that make up these systems.

STEVEN F. RAILSBACK is adjunct professor of mathematics at Humboldt State University and a consulting environmental scientist. VOLKER GRIMM is senior scientist in the Department of Ecological Modeling at the Helmholtz Centre for Environmental Research – UFZ in Leipzig and professor of theoretical ecology at the University of Potsdam.

March 2019. 352 pages. 60 b/w illus.
Paperback 9780691190839 $59.95 | £47.00
Hardback 9780691190822 £120.00 | £93.00 E-book 9780691190044

“A valuable gift for students.”—Martin Rosvall, Umeå University

Computing Skills for Biologists

While biological data continues to grow exponentially in size and quality, many biologists are not trained adequately in the computing skills necessary for leveraging this information deluge. This book presents a valuable toolbox for the effective analysis of biological data.

STEFANO ALLESINA is a professor in the Department of Ecology and Evolution at the University of Chicago and a deputy editor of PLoS Computational Biology. MADLEN WILMES is a data scientist and web developer.

January 2019. 440 pages. 7 b/w illus.
Paperback 9780691182759 $45.00 | £35.00
Hardback 9780691167299 £110.00 | £85.00 E-book 9780691183961
“In this adventurous, elegant book, Ording shows to what extent mathematics is also a question of style.”
—Sina Najafi, editor in chief of Cabinet magazine

99 Variations on a Proof

This book offers a multifaceted perspective on mathematics by demonstrating 99 different proofs of the same theorem. Each chapter solves an otherwise unremarkable equation in distinct historical, formal, and imaginative styles that range from Medieval, Topological, and Doggerel to Chromatic, Electrostatic, and Psychedelic. With humor and scholarly aplomb, Philip Ording weaves these variations into an accessible and wide-ranging narrative on the nature and practice of mathematics.

PHILIP ORDING is professor of mathematics at Sarah Lawrence College.

February 2019. 272 pages. 1 color + 25 b/w illus.
Hardback 9780691158839 $24.95 | £20.00 E-book 9780691185422

“A highly original approach to a very serious and difficult subject.”
—Nicolas Gisin, University of Geneva

Totally Random

Totally Random will completely change the way you think about the nature of physical reality. It is a comic for the serious reader who wants to really understand the central mystery of quantum mechanics—entanglement.

TANYA BUB is founder of 48th Ave Productions, a web development company. JEFFREY BUB is Distinguished University Professor in the Department of Philosophy and the Institute for Physical Science and Technology at the University of Maryland, where he is also a fellow of the Joint Center for Quantum Information and Computer Science.

2018. 272 pages. 254 b/w illus.
Paperback 9780691176956 $22.95 | £17.99 E-book 9781400890392

“A terrific study with real mathematical depth.”—New Yorker

Infinity and the Mind

Using cartoons, puzzles, and quotations to enliven his text, Rudy Rucker leads an excursion to that stretch of the universe he calls the “Mindscape,” where he explores infinity in all its forms: potential and actual, mathematical and physical, theological and mundane. By closely examining the paradoxes that arise, we gain profound insights into the human mind, its powers, and its limitations.

RUDY RUCKER is a mathematician, computer scientist, author, and one of the founders of the cyberpunk literary movement.

July 2019. 288 pages. 110 b/w illus.
Paperback 9780691191386 $17.95 | £13.99 E-book 9780691191256
Princeton Science Library
Not for sale in the Commonwealth (except Canada)
“Shows that complex and simple contagion processes are different, and that these differences are important for understanding a wide class of diffusion outcomes.”—Peter Bearman, Columbia University

**How Behavior Spreads**

Can the lessons learned from the viral diffusion of diseases be used to improve the spread of beneficial behaviors and innovations? Damon Centola examines how changes in societal behavior occur and the ways social networks can be used to influence how they propagate.

**DAMON CENTOLA** is an associate professor in the Annenberg School for Communication and the School of Engineering and Applied Sciences at the University of Pennsylvania.

2018. 312 pages. 53 b/w illus.
Hardback 9780691175317 $35.00 | £27.00
E-book 9781400890095
Princeton Analytical Sociology Series


**Watch Me Play**

Every day thousands of people broadcast their gaming live to huge audiences over the internet. Esports events live stream globally, and audiences can interact in real time. Through extensive interviews and immersion in this gaming scene, T. L. Taylor delves into the inner workings of the live streaming platform Twitch, offering a vibrant look at the melding of private play and public entertainment.

**T. L. TAYLOR** is professor of comparative media studies at the Massachusetts Institute of Technology.

2018. 328 pages. 16 color + 23 b/w illus.
Paperback 9780691183558 $27.95 | £22.00
Hardback 9780691165967 $80.00 | £62.00
E-book 9780691184975
Princeton Studies in Culture and Technology

“Persuasively argues that substate actors … form international networks to accomplish internationally what they cannot win domestically.”—Peter Swire, Georgia Institute of Technology

**Of Privacy and Power**

This book investigates how the European Union and United States, the two major regulatory systems in world politics, have regulated privacy and security, reshaping the transatlantic relationship.

**HENRY FARRELL** is professor of political science and international affairs at George Washington University. **ABRAHAM L. NEWMAN** is professor of government in the Edmund A. Walsh School of Foreign Service at Georgetown University.

April 2019. 248 pages. 6 b/w illus. 1 table.
Hardback 9780691183640 $28.95 | £24.00
E-book 9780691189956
“Packed with evidence and examples, this book makes a stimulating and challenging contribution to understanding the role of social science in the conduct of modern war.”

—Lawrence Freedman, author of *The Future of War: A History*

**Small Wars, Big Data**

Modern warfare is not about struggles over territory but over people; civilians—and the information they might choose to provide—can turn the tide at critical junctures. The authors show that a revolution in the study of conflict—enabled by vast data, rich qualitative evidence, and modern methods—yields new insights into these contemporary confrontations and how they should be fought.

**Eli Berman, Joseph H. Felter & Jacob N. Shapiro**

2018. 408 pages. 19 b/w illus. 1 table.

Hardback 9780691177076 $29.95 | £24.00 E-book 9781400890118

“This is as good as it gets. Theoretically and empirically sophisticated, *Censored* is the new state of the art in research on the Chinese Internet censorship regime.”—Jonathan Sullivan, University of Nottingham

**Censored**

As authoritarian governments develop sophisticated technologies for controlling information, this book demonstrates that even censorship that is easy to circumvent can still be enormously effective. Using digital data harvested from the Chinese Internet and leaks from China’s Propaganda Department, *Censored* sheds light on how censorship influences the Chinese public.

**Margaret E. Roberts** is assistant professor of political science at the University of California, San Diego.

2018. 288 pages. 23 b/w illus. 2 tables.

Hardback 9780691178868 $29.95 | £24.00 E-book 9781400890057

“Provides the technological background to Thomas Piketty’s analysis of inequality, *Capital in the Twenty-First Century.*”

— Jane Humphries, University of Oxford

**The Technology Trap**

From the Industrial Revolution to the age of artificial intelligence, this book looks at how technological progress has radically shifted the distribution of economic and political power in society, showing that the lessons of the past can help us to more effectively face the present.

**Carl Benedikt Frey** is the Oxford Martin Citi Fellow and codirector of the Oxford Martin Programme on Technology and Employment at the Oxford Martin School, University of Oxford.

May 2019. 312 pages. 10 b/w illus.

Hardback 9780691172798 $29.95 | £24.00 E-book 9780691191959 Audiobook 9780691193571
NEW IN PAPERBACK

“Bauer proves an able and entertaining guide to the world of real-life ciphers, codes, and encryption.”—Peter Dabbene, Foreword Reviews

Unsolved!

In this lively and entertaining book, Craig Bauer examines vexing ciphers yet to be cracked. Some may reveal the identity of a spy or serial killer, provide the location of buried treasure, or expose a secret society—while others may be elaborate hoaxes. Laying out the evidence surrounding each cipher, he describes the efforts to decipher it, and invites readers to try their hand at puzzles that have stymied so many others.

CRAIG P. BAUER is professor of mathematics at York College of Pennsylvania. He is editor in chief of the journal Cryptologia and has served as a scholar in residence at the NSA’s Center for Cryptologic History.

Paperback 9780691192291 $22.95 | £17.99 E-book 9781400884797

“The Power of Networks

Using no more math than simple addition and multiplication, this book provides a smart and accessible introduction to the handful of big ideas that drive the computer networks we use every day.

CHRISTOPHER G. BRINTON is the Head of Advanced Research at Zoomi Inc. and lecturer in electrical engineering at Princeton University. MUNG CHIANG is the John A. Edwardson Dean of the College of Engineering at Purdue University.

2018. 328 pages. 223 b/w illus. 12 tables.
Paperback 9780691183305 $24.95 | £20.00 E-book 9781400884070

“The Mathematics of Secrets

“This is a marvelous way of illustrating the use of simple mathematics in an important application that has triggered the wit of the designers and the ingenuity of the attackers since antiquity.”—Adhemar Bultheel, European Mathematical Society

The Mathematics of Secrets

The Mathematics of Secrets takes readers on a fascinating tour of the mathematics behind cryptography—the science of sending secret messages. Using a wide range of historical anecdotes and real-world examples, Joshua Holden shows how mathematical principles underpin the ways that different codes and ciphers work.

JOSHUA HOLDEN is professor of mathematics at the Rose-Hulman Institute of Technology.

2018. 392 pages. 97 b/w illus. 16 tables.
Paperback 9780691183312 $18.95 | £14.99 E-book 9780691184555

"Offers] an open and accessible pathway through the complexity of network design and deployment…. [A] course in digital citizenship.”—John Gilbey, Times Higher Education
The Golden Ticket
Lance Fortnow
Paperback 9780691175782 $17.95 | £13.99
E-book 9781400846610

Nine Algorithms That Changed the Future
John MacCormick
Paperback 9780691158198 $16.95 | £13.99
E-book 9781400839568

Flatland
Edwin Abbott Abbott
Paperback 9780691165554 $12.95 | £9.99
E-book 9781400866669

An Imaginary Tale
Paul J. Nahin
Paperback 9780691169248 $16.95 | £13.99
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Matthew Lane
Hardback 9780691161518 $29.95 | £24.00
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Understanding the Digital World
Brian W. Kernighan
Hardback 9780691176543 $22.95 | £17.99
E-book 978140084803

The Great Formal Machinery Works
Jan von Plato
Hardback 9780691174174 $35.00 | £27.00
E-book 9781400885039

Ten Great Ideas about Chance
Persi Diaconis & Brian Skyrms
Hardback 9780691174167 $27.95 | £22.00
E-book 9781400882823

Not for sale in the Commonwealth and other specific countries
The Princeton Companion to Mathematics
Edited by Timothy Gowers
Hardback 9780691118802 $99.50 | £77.00
E-book 9781400830398

The Probability Lifesaver
Steven J. Miller
Paperback 9780691149554 $29.95 | £24.00
Hardback 9780691149547 $99.50 | £77.00
E-book 9781400865381

Robust Optimization
Aharon Ben-Tal, Laurent El Ghaoui & Arkadi Nemirovski
Hardback 9780691143682 $97.50 | £76.00
E-book 9781400831050

The Fascinating World of Graph Theory
Arthur Benjamin, Gary Chartrand & Ping Zhang
Paperback 9780691175638 $19.95 | £14.99
E-book 9781400852000

The Structure and Dynamics of Networks
Mark Newman, Albert-László Barabási & Duncan J. Watts
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