

Networks Crowds And Markets Solutions To

This book explores links and synergies between international trade and two of the most urgent challenges of the 21st century: achieving sustainable energy (i.e., energy that is affordable, secure, and clean) and mitigating climate change. It takes the unique approach of not only examining how international trade can help achieve energy and climate goals, but also the impact of emerging tools and technologies such as smart grids and demand response, and the potential role and impact of citizens and prosumers. The book analyzes energy- and trade-related regulations in a range of jurisdictions to assess how conducive the regulation is towards achieving sustainable energy, and identifies gaps and overlaps in the existing legal framework. UPDATED FOR 2020 WITH A NEW PREFACE BY NATE SILVER "One of the more momentous books of the decade." –The New York Times Book Review Nate Silver built an innovative system for predicting baseball performance, predicted the 2008 election within a hair's breadth, and became a national sensation as a blogger—all by the time he was thirty. He solidified his standing as the nation's foremost political forecaster with his near perfect prediction of the 2012 election. Silver is the founder and editor in chief of the website FiveThirtyEight. Drawing on his own groundbreaking work, Silver examines the world of prediction, investigating how we can distinguish a true signal from a universe of noisy data. Most predictions fail, often at great cost to society, because most of us have a poor understanding of probability and uncertainty. Both experts and laypeople mistake more confident predictions for more accurate ones. But overconfidence is often the reason for failure. If our appreciation of uncertainty improves, our predictions can get better too. This is the "prediction paradox": The more humility we have about our ability to make predictions, the more successful we can be in planning for the future. In keeping with his own aim to seek truth from data, Silver visits the most successful forecasters in a range of areas, from hurricanes to baseball to global pandemics, from the poker table to the stock market, from Capitol Hill to the NBA. He explains and evaluates how these forecasters think and what bonds they share. What lies behind their success? Are they good—or just lucky? What patterns have they unraveled? And are their forecasts really right? He explores unanticipated commonalities and exposes unexpected juxtapositions. And sometimes, it is not so much how good a prediction is in an absolute sense that matters but how good it is relative to the competition. In other cases, prediction is still a very rudimentary—and dangerous—science. Silver observes that the most accurate forecasters tend to have a superior command of probability, and they tend to be both humble and hardworking. They distinguish the predictable from the unpredictable, and they notice a thousand little details that lead them closer to the truth. Because of their appreciation of probability, they can distinguish the signal from the noise. With everything from the health of the global economy to our ability to fight terrorism dependent on the quality of our predictions, Nate Silver's insights are an essential read. In France and West Germany, where tax structures were more regressive, industrial policy more pro-growth, and welfare states universal and even reverse-redistributive, neoliberalism could not be anchored in electoral dissatisfaction, and therefore it stalled. The attempt to reduce the role of the state in the market through tax cuts, decreases in social spending, deregulation, and privatization – "neoliberalism" – took firm root in the United States under Ronald Reagan and in Britain under Margaret Thatcher. But why did neoliberal policies gain such prominence in these two countries and not in similarly industrialized Western countries such as France and Germany? A comparative-historical analysis of the development of neoliberal politics in these four countries, "The Politics of Free Markets" argues that neoliberalism was made possible in the United States and Britain not because the Left in these countries was too weak, but because it was in many respects too strong. At the time of the oil crisis in the 1970s, American and British tax policies were more progressive, their industrial policy more adversarial to business, and their welfare states more redistributive than those of France and West Germany. Monica Prasad shows that these adversarial structures created opportunities for politicians to find and mobilize dissatisfaction with the status quo. Gives a comparative-historical analysis of the development of neoliberal politics in different countries. This book argues that neoliberalism was made possible in the United States and Britain not because the Left in these countries was too weak, but because it was in many respects too strong. Why is it so hard to beat the market? How can you avoid getting caught in bubbles and crashes? You will find the answers in Carl Futia's new book, The Art of Contrarian Trading. This book will teach you Futia's novel method of contrarian trading from the ground up. In 16 chapters filled with facts and many historical examples Futia explains the principles and practice of contrarian trading. Discover the Edge which separates winning speculators from the losers. Find out how to apply the No Free Lunch principle to identify profitable trading methods. Learn about the wisdom and the follies of investment crowds – and how crowds are formed by information cascades that drive stock prices too high or too low relative to fair value. Discover the power of your Media Diary – and how to use it to spot these information cascades, measure the strength of the crowd's beliefs, and decide when the crowd's view is about to be proven wrong. You will watch Futia apply these principles of contrarian trading to navigate safely and profitably through the last 26 tumultuous years of roller coaster swings in the U.S. stock market – a time during which Futia kept his own media diary and developed his Grand Strategy of Contrarian

Trading. See how this Grand Strategy worked during the Great Bull Market of 1982–2000. Watch the Contrarian Rebalancing technique in practice during the dot.com crash of 2000–2002. Find out when the Aggressive Contrarian Trader bought and sold during the bull market of 2002–2007. Read about the causes of the Panic of 2008 and ups and downs of contrarian trading during that dangerous time. Futia shows you how the market turning points during the 1982–2008 period were foreshadowed by magazine covers and newspaper headlines that astonishingly and consistently encouraged investors to do the wrong thing at the wrong time. By monitoring crowd beliefs revealed by news media headlines – and with the guidance provided by the many historical examples Futia provides – a trader or investor will be well-equipped to anticipate and profit from market turning points.

Settling Climate Accounts

Social Physics

Symmetry

Complex Networks

A Guide to Evacuation and Crowd Management Planning

A Tutorial

How Social Production Transforms Markets and Freedom

Networks constitute the backbone of complex systems, from the human brain to computer communications, transport infrastructures to online social systems and metabolic reactions to financial markets. Characterising their structure improves our understanding of the physical, biological, economic and social phenomena that shape our world. Rigorous and thorough, this textbook presents a detailed overview of the new theory and methods of network science. Covering algorithms for graph exploration, node ranking and network generation, among others, the book allows students to experiment with network models and real-world data sets, providing them with a deep understanding of the basics of network theory and its practical applications. Systems of growing complexity are examined in detail, challenging students to increase their level of skill. An engaging presentation of the important principles of network science makes this the perfect reference for researchers and undergraduate and graduate students in physics, mathematics, engineering, biology, neuroscience and the social sciences.

Since he began posting in 2003, Dempsey has used his blog to explore nearly every important facet of library technology, from the emergence of Web 2.0 as a concept to open source ILS tools and the push to web-scale library management systems.

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

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. Algorithm Design introduces algorithms by looking at the real-world problems that motivate them. The book teaches students a range of design and analysis techniques for problems that arise in computing applications. The text encourages an understanding of the algorithm design process and an appreciation of the role of algorithms in the broader field of computer science. August 6, 2009 Author, Jon Kleinberg, was recently cited in the New York Times for his statistical analysis research in the Internet age.

The Network Reshapes the Library

Complex Network Analysis in Python

How to Profit from Crowd Behavior in the Financial Markets

Navigating the Road to Net Zero

Dynamical Systems on Networks

Network Theory and Agent-Based Modeling in Economics and Finance

The Wisdom of Crowds

This book presents the latest findings on network theory and agent-based modeling of economic and financial phenomena. In this context, the economy is depicted as a complex system consisting of heterogeneous agents that interact through evolving networks; the aggregate behavior of the economy arises out of billions of small-scale interactions that take place via countless economic agents. The book focuses on analytical modeling, and on the econometric and statistical analysis of the properties emerging from microscopic interactions. In particular, it highlights the latest empirical and theoretical advances, helping readers understand economic and financial networks, as well as new work on modeling behavior using rich, agent-based frameworks.

Innovatively, the book combines observational and theoretical insights in the form of networks and agent-based models, both of which have proved to be extremely valuable in understanding non-linear and evolving complex systems. Given its scope, the book will capture the interest of graduate students and researchers from various disciplines (e.g. economics, computer science, physics, and applied mathematics) whose work involves the domain of complexity theory.

As drivers of climate action enter the fourth decade of what has become a multi-stage race, Net Zero has emerged as the dominant organizing principle. Hundreds of corporations and investors worldwide, together responsible for assets in the tens of trillions of dollars, are lining-up for the UN Race to Zero. This latest stage in the race to save civilization from heat, drought, fires, and floods, is defined by steering toward zeroing out greenhouse gas emissions by 2050. Settling Climate Accounts probes the practice of Net Zero finance. It elucidates both the state of play and a set of directions that help form judgements about whether Net Zero is going to carry climate action far enough. The book delves into technical analyses and activates the

reader's imagination with narrative accounts of climate action past, present, and future. *Settling Climate Accounts* is edited and authored by Stanford University faculty and researchers. The first part of the book investigates the rough edges of Net Zero in practice, exploring questions of hedging risk, Scope 3 emissions, greenwashing, and the business of asset management. The second half looks at states, markets, and transitions through the lenses of blended finance, offsets, debt, and securitization. The editors tease out possible solutions and raise further questions about the adequacy and reach of the Net Zero agenda. To effectively navigate the road ahead, the editors call out the need for accountability and ask: who is in charge of making Net Zero add up? *Settling Climate Accounts* offers context and foundation to ground the rapidly evolving practice of Net Zero finance. Targeted at seasoned practitioners, newly activated leaders, educators, and students of climate action the world over, this book embraces the complexity of climate action and, in so doing, proposes to animate and drive hope. Twenty-five new runways would eliminate most air travel delays in America; fifty patent owners are blocking a major drug company from creating a cancer cure; 90 percent of our broadcast spectrum sits idle while American cell phone service suffers. These problems have solutions that can jump-start innovation and help save our troubled economy. So, what's holding us back? Michael Heller, a leading authority on property, reveals that while private ownership creates wealth, too much ownership means that everyone loses. Startling and accessible, *The Gridlock Economy* offers insights on how we can overcome this preventable paradox.

A fascinating deep dive on innovation from the New York Times bestselling author of *How We Got To Now* and *Unexpected Life* The printing press, the pencil, the flush toilet, the battery--these are all great ideas. But where do they come from? What kind of environment breeds them? What sparks the flash of brilliance? How do we generate the breakthrough technologies that push forward our lives, our society, our culture? Steven Johnson's answers are revelatory as he identifies the seven key patterns behind genuine innovation, and traces them across time and disciplines. From Darwin and Freud to the halls of Google and Apple, Johnson investigates the innovation hubs throughout modern time and pulls out the approaches and commonalities that seem to appear at moments of originality.

Graph Databases

A Mathematical Exploration

A Course in Networks and Markets

Why So Many Predictions Fail--but Some Don't

Game-theoretic Models and Reasoning

Discrete Choice Methods with Simulation

The Wealth of Networks

The book is made up of a unique collection of contributions of leading scholars from different research areas to provide a systematic overview of the research on crowdsourcing, based on a clear definition of the concept, its difference for innovation, and its value for both private and public sector.

*Blogs, networking sites, and other examples of the social web provide businesses with a largely untapped marketing channel for products and services. But how do you take advantage of them? With *The New Community Rules*, you'll understand how social web technologies work, and learn the most practical and effective ways to reach people who frequent these sites. Written by an expert in social media and viral marketing, this book cuts through the hype and jargon to give you intelligent advice and strategies for positioning your business on the social web, with case studies that show how other companies have used this approach. *The New Community Rules* will help you: Explore blogging and microblogging, and find out how to use applications such as Twitter to create brand awareness Learn the art of conversation marketing, and how social media thrives on honesty and transparency Manage and enhance your online reputation through the social web Tap into the increasingly influential video and podcasting market Discover which tactics work -- and which don't -- by learning about what other marketers have tried Many consumers today use the Web as a voice. *The New Community Rules* demonstrates how you can join the conversation, contribute to the community, and bring people to your product or service.*

Economic and societal systems continually evolve as the needs and demands of society change. With the development of new technologies, research, and discoveries, various opportunities emerge for venture development and developing economies.

Crowdfunding and Sustainable Urban Development in Emerging Economies provides innovative research on current issues in the rise of new platforms for digital activities, a collaborative economy, crowdsourcing, crowdfunding, and other activities that are shaping developing countries. Highlighting a range of pertinent topics, such as infrastructure finance, tertiary educational institutions, and urban sustainability, this book is an important resource for academicians, practitioners, researchers, and students. This book is intended for anyone interested in advanced network analysis. If you wish to master the skills of analyzing and presenting network graphs effectively, then this is the book for you. No coding experience is required to use this book, although some familiarity with the Gephi user interface will be helpful.

Where Good Ideas Come From

What Money Can't Buy

Social and Economic Networks

The Gridlock Economy

Algorithms and Models for Network Data and Link Analysis

Introduction to High Performance Computing for Scientists and Engineers

Machine, Platform, Crowd: Harnessing Our Digital Future

The new second edition of this forward-thinking text goes beyond the discussion of health disparities to highlight the importance of health equity. As the title suggests, *Health Equity, Diversity and Inclusion: Contexts, Controversies, and Solutions* helps the reader understand key social justice issues relevant to health disparities and/or health equity, taking the reader from the classroom to the real world to implement new solutions. The new Second Edition features:

- Two new chapters: one on the impact of urban education on urban health and another covering the elderly and health equity
- Updated and enhanced coverage on men's health, demographic data, the importance of cultural proficiency, maternal mortality and Black women, and much more.
- Current trends and movements, including the role of social media in the provision of health care information for improved health literacy; mass incarceration and criminal justice reform; and much more.

The architect's primary source for information on designing for egress, evacuation, and life safety, *Egress Design Solutions, Emergency Evacuation and Crowd Management Planning*, is written by proven experts on egress issues. Meacham and Tubbs are engineers with Arup, an international firm with a stellar reputation for quality design and engineering. Their book examines egress solutions in terms of both prescriptive and performance-based code issues. A portion of the book focuses on techniques for providing egress design solutions and for coordinating egress systems with other critical life safety systems. Another part reviews historic and recent tragic life-loss fire events. As such, this is easily the most comprehensive take on the subject, written especially for architects.

#1 NEW YORK TIMES BESTSELLER • "This book delivers completely new and refreshing ideas on how to create value in the world."—Mark Zuckerberg, CEO of Meta "Peter Thiel has built multiple breakthrough companies, and *Zero to One* shows how."—Elon Musk, CEO of SpaceX and Tesla The great secret of our time is that there are still uncharted frontiers to explore and new inventions to create. In *Zero to One*, legendary entrepreneur and investor Peter Thiel shows how we can find singular ways to create those new things. Thiel begins with the contrarian premise that we live in an age of technological stagnation, even if we're too distracted by shiny mobile devices to notice. Information technology has improved rapidly, but there is no reason why progress should be limited to computers or Silicon Valley. Progress can be achieved in any industry or area of business. It comes from the most important skill that every leader must master: learning to think for yourself. Doing what someone else already knows how to do takes the world from 1 to n, adding more of something familiar. But when you do something new, you go from 0 to 1. The next Bill Gates will not build an operating system. The next Larry Page or Sergey Brin won't make a search engine. Tomorrow's champions will not win by competing ruthlessly in today's marketplace. They will escape competition altogether, because their businesses will be unique. *Zero to One* presents at once an optimistic view of the future of progress in America and a new way of thinking about innovation: it starts by learning to ask the questions that lead you to find value in unexpected places.

This textbook is perfect for a math course for non-math majors, with the goal of encouraging effective analytical thinking and exposing students to elegant mathematical ideas. It includes many topics commonly found in sampler courses, like Platonic solids, Euler's formula, irrational numbers, countable sets, permutations, and a proof of the Pythagorean Theorem. All of these topics serve a single compelling goal: understanding the mathematical patterns underlying the symmetry that we observe in the physical world around us. The exposition is engaging, precise and rigorous. The theorems are visually motivated with intuitive proofs appropriate for the intended audience. Students from all majors will enjoy the many beautiful topics herein, and will come to better appreciate the powerful cumulative nature of mathematics as these topics are woven together into a single fascinating story about the ways in which objects can be symmetric.

Creating and Capturing Value Through Crowdsourcing

The Art of Contrarian Trading

Principles, Methods and Applications

Mastering Gephi Network Visualization

Egress Design Solutions

Algorithm Design

Recognize - Construct - Visualize - Analyze - Interpret

A graduate-level, mathematically rigorous introduction to strategic behavior in a networked world. This introductory graduate-level text uses tools from game theory and graph theory to examine the role of network structures and network effects in economic and information markets. The goal is for students to develop an intuitive and mathematically rigorous understanding of how strategic agents interact in a connected world. The text synthesizes some of the central results in the field while also simplifying their treatment to make them more accessible to nonexperts. Thus, students at the introductory level will gain an understanding of key ideas in the field that are usually only taught at the advanced graduate level. The book introduces basic concepts from game theory and graph theory as well as some fundamental algorithms for exploring graphs. These tools are then applied to analyze strategic interactions over social networks, to explore different types of markets and mechanisms for networks, and to study the role of beliefs and higher-level beliefs (beliefs about beliefs). Specific topics discussed include coordination and contagion on social networks, traffic networks, matchings and matching markets, exchange networks, auctions, voting, web search, models of belief and knowledge, and how beliefs affect auctions and markets. An appendix offers a "Primer on Probability." Mathematically rigorous, the text assumes a level of mathematical maturity (comfort with definitions and proofs) in the reader.

This book offers detailed surveys and systematic discussion of models, algorithms and applications for link mining, focusing on theory and technique, and related applications: text mining, social network analysis, collaborative filtering and bioinformatics.

"A clear and crisply written account of machine intelligence, big data and the sharing economy. But McAfee and Brynjolfsson also wisely acknowledge the limitations of their futurology and avoid over-simplification." —Financial Times In *The Second Machine Age*, Andrew McAfee and Erik Brynjolfsson predicted some of the far-reaching effects of digital technologies on our lives and businesses. Now they've written a guide to help readers make the most of our collective future. *Machine | Platform | Crowd* outlines the opportunities and challenges inherent in the science fiction technologies that have come to life in recent years, like self-driving cars and 3D printers, online platforms for renting outfits and scheduling workouts, or crowd-sourced medical research and financial instruments.

In this fascinating book, New Yorker business columnist James Surowiecki explores a deceptively simple idea: Large groups of people are smarter than an elite few, no matter how brilliant—better at solving problems, fostering innovation, coming to wise decisions, even predicting the future. With boundless erudition and in delightfully clear prose, Surowiecki ranges across fields as diverse as popular culture, psychology, ant biology, behavioral economics, artificial intelligence, military history, and politics to show how this simple idea offers important lessons for how we live our lives, select our leaders, run our companies, and think about our world.

Becoming a Knowledge-Sharing Organization

Health Equity, Diversity, and Inclusion: Context, Controversies, and Solutions

The New Community Rules

Lorcan Dempsey on Libraries, Services and Networks

Methods and Models

The Rise of Neoliberal Economic Policies in Britain, France, Germany, and the United States

Link Mining: Models, Algorithms, and Applications

Construct, analyze, and visualize networks with networkx, a Python language module. Network analysis is a powerful tool you can apply to a multitude of datasets and situations. Discover how to work with all kinds of networks, including social, product, temporal, spatial, and semantic networks. Convert almost any real-world data into a complex network--such as recommendations on co-using cosmetic products, muddy hedge fund connections, and online friendships. Analyze and visualize the network, and make business decisions based on your analysis. If you're a curious Python programmer, a data scientist, or a CNA specialist interested in mechanizing mundane tasks, you'll increase your productivity exponentially. Complex network analysis used to be done by hand or with non-programmable network analysis tools, but not anymore! You can now automate and program these tasks in Python. Complex networks are collections of connected items, words, concepts, or people. By exploring their structure and individual elements, we can learn about their meaning, evolution, and resilience. Starting with simple networks, convert real-life and synthetic network graphs into networkx data structures. Look at more sophisticated networks and learn more powerful machinery to handle centrality calculation, blockmodeling, and clique and community detection. Get familiar with presentation-quality network visualization tools, both programmable and interactive--such as Gephi, a CNA explorer. Adapt the patterns from the case studies to your problems. Explore big networks with NetworKit, a high-performance networkx substitute. Each part in the book gives you an overview of a class of networks, includes a practical study of networkx functions and techniques, and concludes with case studies from various fields, including social networking, anthropology, marketing, and sports analytics. Combine your CNA and Python programming skills to become a better network analyst, a more accomplished data scientist, and a more versatile programmer. What You Need: You will need a Python 3.x installation with the following additional modules: Pandas (≥ 0.18), NumPy (≥ 1.10), matplotlib (≥ 1.5), networkx (≥ 1.11), python-louvain (≥ 0.5), NetworKit (≥ 3.6), and generalizesimilarity. We recommend using the Anaconda distribution that comes with all these modules, except for python-louvain, NetworKit, and generalizesimilarity, and works on all major modern operating systems.

Over the past decade there has been a growing public fascination with the complex connectedness of modern society. This connectedness is found in many incarnations: in the rapid growth of the Internet, in the ease with which global communication takes place, and in the ability of news and information as well as epidemics and financial crises to spread with surprising speed and intensity. These are phenomena that involve networks, incentives, and the aggregate behavior of groups of people; they are based on the links that connect us and the ways in which our decisions can have subtle consequences for others. This introductory undergraduate textbook takes an interdisciplinary look at economics, sociology, computing and information science, and applied mathematics to understand networks and behavior. It describes the emerging field of study that is growing at the interface of these areas, addressing fundamental questions about how the social, economic, and technological worlds are connected.

Network data are produced automatically by everyday interactions - social networks, power grids, and links between data sets are a few examples. Such data capture social and economic behavior in a form that can be analyzed using powerful computational tools. This book is a guide to both basic and advanced techniques and algorithms for extracting useful information from network data. The content is organized around 'tasks', grouping the algorithms needed to gather specific types of information and thus answer specific types of questions. Examples include similarity between nodes in

a network, prestige or centrality of individual nodes, and dense regions or communities in a network. Algorithms are derived in detail and summarized in pseudo-code. The book is intended primarily for computer scientists, engineers, statisticians and physicists, but it is also accessible to network scientists based in the social sciences.

MATLAB®/Octave code illustrating some of the algorithms will be available at: <http://www.cambridge.org/9781107125773>.

Describes how patterns of information, knowledge, and cultural production are changing. The author shows that the way information and knowledge are made available can either limit or enlarge the ways people create and express themselves. He describes the range of legal and policy choices that confront.

Context, Controversies, and Solutions

Statistical Analysis of Network Data

Crowdfunding and Sustainable Urban Development in Emerging Economies

Solutions for Sustainability

How Too Much Ownership Wrecks Markets, Stops Innovation, and Costs Lives

The Signal and the Noise

How the International Trade, Energy and Climate Change Regimes Can Help

Are all film stars linked to Kevin Bacon? Why do the stock markets rise and fall sharply on the strength of a vague rumour? How does gossip spread so quickly? Are we all related through six degrees of separation? There is a growing awareness of the complex networks that pervade modern society. We see them in the rapid growth of the Internet, the ease of global communication, the swift spread of news and information, and in the way epidemics and financial crises develop with startling speed and intensity. This introductory book on the new science of networks takes an interdisciplinary approach, using economics, sociology, computing, information science and applied mathematics to address fundamental questions about the links that connect us, and the ways that our decisions can have consequences for others.

Networks of relationships help determine the careers that people choose, the jobs they obtain, the products they buy, and how they vote. The many aspects of our lives that are governed by social networks make it critical to understand how they impact behavior, which network structures are likely to emerge in a society, and why we organize ourselves as we do. In Social and Economic Networks, Matthew Jackson offers a comprehensive introduction to social and economic networks, drawing on the latest findings in economics, sociology, computer science, physics, and mathematics. He provides empirical background on networks and the regularities that they exhibit, and discusses random graph-based models and strategic models of network formation. He helps readers to understand behavior in networked societies, with a detailed analysis of learning and diffusion in networks, decision making by individuals who are influenced by their social neighbors, game theory and markets on networks, and a host of related subjects. Jackson also describes the varied statistical and modeling techniques used to analyze social networks. Each chapter includes exercises to aid students in their analysis of how networks function. This book is an indispensable resource for students and researchers in economics, mathematics, physics, sociology, and business.

From one of the world's leading data scientists, a landmark tour of the new science of idea flow, offering revolutionary insights into the mysteries of collective intelligence and social influence If the Big Data revolution has a presiding genius, it is MIT's Alex "Sandy" Pentland. Over years of groundbreaking experiments, he has distilled remarkable discoveries significant enough to become the bedrock of a whole new scientific field: social physics. Humans have more in common with bees than we like to admit: We're social creatures first and foremost. Our most important habits of action—and most basic notions of common sense—are wired into us through our coordination in social groups. Social physics is about idea flow, the way human social networks spread ideas and transform those ideas into behaviors. Thanks to the millions of digital bread crumbs people leave behind via smartphones, GPS devices, and the Internet, the amount of new information we have about human activity is truly profound. Until now, sociologists have depended on limited data sets and surveys that tell us how people say they think and behave, rather than what they actually do. As a result, we've been stuck with the same stale social structures—classes, markets—and a focus on individual actors, data snapshots, and steady states. Pentland shows that, in fact, humans respond much more powerfully to social incentives that involve rewarding others and strengthening the ties that bind than incentives that involve only their own economic self-interest. Pentland and his teams have found that they can study patterns of information exchange in a social network without any knowledge of the actual content of the information and predict with stunning accuracy how productive and effective that network is, whether it's a business or an entire city. We can maximize a group's collective intelligence to improve performance and use social incentives to create new organizations and guide them through disruptive change in a way that maximizes the good. At every level of interaction, from small groups to large cities, social networks can be tuned to increase exploration and engagement, thus vastly improving idea flow. Social Physics will change the way we think about how we learn and how our social groups work—and can be made to work better, at every level of society. Pentland leads readers to the edge of the most important revolution in the study of social behavior in a generation, an entirely new way to look at life itself.

This volume offers a simple, systematic guide to creating a knowledge sharing practice in your organization. It shows how to build the enabling environment and develop the skills needed to capture and share knowledge gained from operational experiences to improve performance and scale-up successes. Its recommendations are grounded on the insights gained from the past seven years of collaboration between the World Bank and its clients around the world—ministries and national

agencies operating in various sectors—who are working to strengthen their operations through robust knowledge sharing. While informed by the academic literature on knowledge management and organizational learning, this handbook’s operational background and many real-world examples and tips provide a missing, practical foundation for public sector officials in developing countries and for development practitioners. However, though written with a public sector audience in mind, the overall concepts and approaches will also hold true for most organizations in the private sector and the developed world.

The Politics of Free Markets

Notes on Startups, or How to Build the Future

Biplots in Practice

Twenty Lectures on Algorithmic Game Theory

How Social Networks Can Make Us Smarter

Probability, Choice, and Reason

Networks, Crowds, and Markets

Computer science and economics have engaged in a lively interaction over the past fifteen years, resulting in the rise of algorithmic game theory. Many problems that are central to modern computer science, ranging from resource allocation to networks to online advertising, involve interactions between multiple self-interested parties. Economics and game theory provide a host of useful models and definitions to reason about such problems. The flow of ideas also travels in the other direction: concepts from computer science are increasingly important in economics. This book grew out of the author's Stanford course on algorithmic game theory, and aims to give students and other newcomers a quick and accessible introduction to some of the most important concepts in the field. The book also includes case studies on online advertising, wireless spectrum allocation, kidney exchange, and network management.

Discover how graph databases can help you manage and query highly connected data. With this practical book, you'll learn how to design and implement a graph database that brings the power of graphs to bear on a broad range of problems. Whether you want to speed up your response to user queries or build a database that can adapt as your business evolves, you'll learn how to apply the schema-free graph model to real-world problems. Learn how different organizations are using graph databases to outperform their competitors. With this book's data modeling, query, and code examples, you'll quickly implement your own solution. Model data with the Cypher query language and property graph model. Learn best practices and common pitfalls when modeling with graphs. Plan and implement a graph database solution in test-driven fashion. Explore real-world examples to learn how and why organizations use a graph database. Understand common patterns and complex graph database architecture. Use analytical techniques and algorithms to mine graph database information.

Should we pay children to read books or to get good grades? Should we allow corporations to pay for the right to pollute the atmosphere? Is it ethical to pay people to test risky new drugs or to donate their organs? What about hiring mercenaries to fight our wars? Auctioning admission to elite universities? Selling citizenship to immigrants willing to pay? In *What Money Can't Buy*, Michael J. Sandel takes on one of the biggest ethical questions of our time: Is there something wrong with a world where everything is for sale? If so, how can we prevent market values from reaching into spheres of life where they don't belong? Where are the moral limits of markets? In recent decades, market values have crowded out nonmarket norms in almost every sphere of life—medicine, education, government, law, art, sports, even family life and personal relations. Without quite realizing it, Sandel argues, we have drifted from having a market economy to being a market society. Is this where we want to be? In his *Times* bestseller *Justice*, Sandel showed himself to be a master at illuminating, with clarity and verve, the hard moral questions that confront in our everyday lives. Now, in *What Money Can't Buy*, he provokes an essential discussion that we, in our current age, need to have: What is the proper role of markets in a democratic society—and how can we protect the moral values that markets don't honor and that money can't buy?

This book describes the new generation of discrete choice methods, focusing on the many advances that are made possible by simulation. Researchers use these statistical methods to examine the choices that consumers, households, firms, and governments make. Each of the major models is covered: logit, generalized extreme value, or GEV (including nested and cross-nested), multinomial probit, and mixed logit, plus a variety of specifications that build on these basics. Simulation-assisted estimation procedures are investigated and compared, including maximum simulated likelihood, method of simulated moments, and method of simulated scores. Procedures for drawing from densities are described, including variance reduction techniques such as antithetic sampling and Halton draws. Recent advances in Bayesian procedures are explored, including the use of the Metropolis-Hastings algorithm and its variant Gibbs sampling. The second edition adds chapters on endogeneity and expectation-maximization (EM) algorithms. This other book incorporates all these fields, which have arisen in the past 25 years. The procedures are applicable in a wide range of fields, including energy, transportation, environmental studies, health, labor, and marketing.

The Moral Limits of Markets

Marketing on the Social Web

Zero to One

Reasoning About a Highly Connected World

A Handbook for Scaling Up Solutions through Knowledge Capturing and Sharing

In recent years there has been an explosion of network data – that is, measurements that are either of or from a system conceptualized as a network – from seemingly all corners of science. The combination of an increasingly pervasive interest in scientific analysis at a systems level and the ever-growing capabilities for high-throughput data collection in various fields has fueled this trend. Researchers from biology and bioinformatics to physics, from computer science to the information sciences, and from economics to sociology are more and more

engaged in the collection and statistical analysis of data from a network-centric perspective. Accordingly, the contributions to statistical methods and modeling in this area have come from a similarly broad spectrum of areas, often independently of each other. Many books already have been written addressing network data and network problems in specific individual disciplines. However, there is at present no single book that provides a modern treatment of a core body of knowledge for statistical analysis of network data that cuts across the various disciplines and is organized rather according to a statistical taxonomy of tasks and techniques. This book seeks to fill that gap and, as such, it aims to contribute to a growing trend in recent years to facilitate the exchange of knowledge across the pre-existing boundaries between those disciplines that play a role in what is coming to be called 'network science.

Much of our thinking is flawed because it is based on faulty intuition. By using the framework and tools of probability and statistics, we can overcome this to provide solutions to many real-world problems and paradoxes. We show how to do this, and find answers that are frequently very contrary to what we might expect. Along the way, we venture into diverse realms and thought experiments which challenge the way that we see the world. Features: An insightful and engaging discussion of some of the key ideas of probabilistic and statistical thinking Many classic and novel problems, paradoxes, and puzzles An exploration of some of the big questions involving the use of choice and reason in an uncertain world The application of probability, statistics, and Bayesian methods to a wide range of subjects, including economics, finance, law, and medicine Exercises, references, and links for those wishing to cross-reference or to probe further Solutions to exercises at the end of the book This book should serve as an invaluable and fascinating resource for university, college, and high school students who wish to extend their reading, as well as for teachers and lecturers who want to liven up their courses while retaining academic rigour. It will also appeal to anyone who wishes to develop skills with numbers or has an interest in the many statistical and other paradoxes that permeate our lives. Indeed, anyone studying the sciences, social sciences, or humanities on a formal or informal basis will enjoy and benefit from this book.

Written by high performance computing (HPC) experts, Introduction to High Performance Computing for Scientists and Engineers provides a solid introduction to current mainstream computer architecture, dominant parallel programming models, and useful optimization strategies for scientific HPC. From working in a scientific computing center, the author

Networks, Crowds, and Markets Reasoning About a Highly Connected World Cambridge University Press