

The Signal And The Noise Why So Many Predictions Fail But Some Dont

The volume examines from a comparative perspective the phenomenon of aesthetic disruption within the various arts in contemporary culture. It assumes that the political potential of contemporary art is not solely derived from presenting its audiences with openly political content, but rather from creating a space of perception and interaction using formal means: a space that makes hegemonic structures of action and communication observable, thus problematizing their self-evidence. The contributions conceptualize historical and contemporary politics of form in the media, which aim to be more than mere shock strategies, which are concerned not just with the 'narcissistic' exhibition of art as art, but also with the creation of a new common horizon of experience. They combine the analysis of paradigmatic works, procedures and actions with reference to theoretical debates in the fields of literature, media and art of the twentieth and twenty-first centuries. The essay-collection shows how textual, visual, auditive or performative strategies disclose their own ways of functioning, intervene in automated processes of reception and thus work on stimulating a sense of political possibilities. The editors acknowledge support from the European Union's Seventh Framework Program (FP 7/ 2007–2013), ERC grant agreement no. 312454.

Today's successful cinematographer must be equal parts artist, technician, and business-person. The cinematographer needs to master the arts of lighting, composition, framing and other aesthetic considerations, as well as the technology of digital cameras, recorders, and workflows, and must know how to choose the right tools (within their budget) to get the job done. David Stump's *Digital Cinematography* focuses on the tools and technology of the trade, looking at how digital cameras work, the ramifications of choosing one camera versus another, and how those choices help creative cinematographers to tell a story. This book empowers the reader to correctly choose the appropriate camera and workflow for their project from today's incredibly varied options, as well as understand the ins and outs of implementing those options. Veteran ASC cinematographer David Stump has updated this edition with the latest technology for cameras, lenses, and recorders, as well as included a new section on future cinematographic trends. Ideal for advanced cinematography students as well as working professionals looking for a resource to stay on top of the latest trends, this book is a must read.

Data Science gets thrown around in the press like it's magic. Major retailers are predicting everything from when their customers are pregnant to when they want a new pair of Chuck Taylors. It's a brave new world where seemingly meaningless data can be transformed into valuable insight to drive smart business decisions. But how does one exactly do data science? Do you have to hire one of these priests of the dark arts, the "data scientist," to extract this gold from your data? Nope. Data science is little more than using straight-forward steps to process raw data into actionable insight. And in *DataSmart*, author and data scientist John Foreman will show you how that's done within the familiar environment of a spreadsheet. Why a spreadsheet? It's comfortable! You get to look at the data every step of the way, building confidence as you learn the tricks of the trade. Plus, spreadsheets are a vendor-neutral place to learn data science without the hype. But don't let the Excel sheets fool you. This is a book for those serious about learning the analytic techniques, the math and the magic, behind big data. Each chapter will cover a different technique in a spreadsheet so you can follow along: Mathematical optimization, including non-linear programming and genetic algorithms Clustering via k-means, spherical k-means, and graph modularity Data mining in graphs, such as outlier detection Supervised AI through logistic regression, ensemble models, and bag-of-words models Forecasting, seasonal adjustments, and prediction intervals through monte carlo simulation Moving from spreadsheets into the R programming language You get your hands dirty as you work alongside John through each technique. But never fear, the topics are readily applicable and the author laces humor throughout. You'll even learn what a dead squirrel has to do with optimization modeling, which you no doubt are dying to know.

"The fox knows many things, but the hedgehog knows one big thing." This ancient Greek aphorism, preserved in a fragment from the poet Archilochus, describes the central thesis of Isaiah Berlin's masterly essay on Leo Tolstoy and the philosophy of history, the subject of the epilogue to *War and Peace*. Although there have been many interpretations of the adage, Berlin uses it to mark a fundamental distinction between human beings who are fascinated by the infinite variety of things and those who relate everything to a central, all-embracing system. Applied to Tolstoy, the saying illuminates a paradox that helps explain his philosophy of history: Tolstoy was a fox, but believed in being a hedgehog. One of Berlin's most celebrated works, this extraordinary essay offers profound insights about Tolstoy, historical understanding, and human psychology. This new edition features a revised text that supplants all previous versions, English translations of the many passages in foreign languages, a new foreword in which Berlin biographer Michael Ignatieff explains the enduring appeal of Berlin's essay, and a new appendix that provides rich context, including excerpts from reviews and Berlin's letters, as well as a startling new interpretation of Archilochus's epigram.

Additive and multiplicative noise in the information signal can significantly limit the potential of complex signal processing systems, especially when those systems use signals with complex phase structure. During the last few years this problem has been the focus of much research, and its solution could lead to profound improvements in applications of complex signals and coherent signal processing. *Signal Processing Noise* sets forth a generalized approach to signal processing in multiplicative and additive noise that represents a remarkable advance in signal processing and detection theory. This approach extends the boundaries of the noise immunity set by classical and modern signal processing theories, and systems constructed on this basis achieve better detection performance than that of systems currently in use. Featuring the results of the author's own research, the book is filled with examples and applications, and each chapter contains an analysis of recent observations obtained by computer modelling and experiments. Tables and illustrations clearly show the superiority of the generalized approach over both classical and modern approaches to signal processing noise. Addressing a fundamental problem in complex signal processing systems, this book offers not only theoretical development, but practical recommendations for raising noise immunity in a wide range of applications.

Random signals and noise are present in many engineering systems and networks. Signal processing techniques allow engineers to distinguish between useful signals in audio, video or communication equipment, and interference, which disturbs the desired signal. With a strong mathematical grounding, this text provides a clear introduction to the fundamentals of stochastic processes and their practical applications to random signals and noise. With worked examples, problems, and detailed appendices, *Introduction to Random Signals and Noise* gives the reader

the knowledge to design optimum systems for effectively coping with unwanted signals. Key features: Considers a wide range of signals and noise, including analogue, discrete-time and bandpass signals in both time and frequency domains. Analyses the basics of digital signal detection using matched filtering, signal space representation and correlation receiver. Examines optimal filtering methods and their consequences. Presents a detailed discussion of the topic of Poisson processes and shot noise. An excellent resource for professional engineers developing communication systems, semiconductor devices, and audio and video equipment, this book is also ideal for senior undergraduate and graduate students in Electronic and Electrical Engineering.

Modelling Spatial and Spatial-Temporal Data: A Bayesian Approach is aimed at statisticians and quantitative social, economic and public health students and researchers who work with spatial and spatial-temporal data. It assumes a grounding in statistical theory up to the standard linear regression model. The book compares both hierarchical and spatial econometric modelling, providing both a reference and a teaching text with exercises in each chapter. The book provides a fully Bayesian, self-contained, treatment of the underlying statistical theory, with chapters dedicated to substantive applications. The book includes WinBUGS code and R code and all datasets are available online. Part I covers fundamental issues arising when modelling spatial and spatial-temporal data. Part II focuses on modelling cross-sectional spatial data and begins by describing exploratory methods that help guide the modelling process. There are then two theoretical chapters on Bayesian models and a chapter of applications. Two chapters follow on spatial econometric modelling, one describing different models, the other substantive applications. Part III discusses modelling spatial-temporal data, first introducing models for time series data. Exploratory methods for detecting different types of space-time interaction are presented followed by two chapters on the theory of space-time separable (without space-time interaction) and inseparable (with space-time interaction) models. An applications chapter includes: the evaluation of a policy intervention; analysing the temporal dynamics of crime hotspots; chronic disease surveillance; and testing for evidence of spatial spillovers in the spread of an infectious disease. A final chapter suggests some future directions and challenges.

Challenges readers to reconsider the moral standing of plants.

Signal & Noise is the epic page-turning story of the laying of the trans-Atlantic cable, and the men and women who are caught in its monumental tide. It is also a novel about the collision of worlds seen and unseen: the present and the future; the living and the dead; the real and the imagined. On a wet London morning in 1857, American engineer Chester Ludlow arrives on the muddy banks of the Isle of Dogs to witness the launch of the largest steamship ever built, the Great Eastern. Also amidst the tumultuous throng is Jack Trace, a lonely bachelor and sketch artist hoping to make his name as an illustrator and journalist in the hurly burly of Fleet Street. Other witnesses include a drunken German by the name of Marx; the child who will christen the massive vessel by the wrong name; and Isambard Kingdom Brunel, the ship's apoplectic and dwarfish architect who will soon die in ignominy. As chief engineer for the Atlantic Cable Company, the charismatic Chester enters the orbit of business and showmanship embodied by J. Beaumont Spode, the bombastic Western beef magnate who will mastermind the funding of the project; Joachim Lindt, creator of the Phantasmagorium, an animated tableaux vivant; and his beautiful wife, the musician Katerina Lindt. Drawn by the demands and adventure of creating the first transoceanic telegraph, Chester leaves behind his fragile wife, Franny, at the family estate of Willing Mind in Maine. Abandoned and still mourning the accidental death of their four-year-old daughter, Franny finds solace in the company of Chester's troubled brother, Otis, who introduces her to the mysteries of the world of spiritualism just as séancing is becoming all the rage in the jittery times leading up to the Civil War. As Chester achieves renown as the glamorous engineer of the trans-Atlantic project, Franny, desperate to contact her dead child, becomes the preeminent spirit conjuror of a war-torn America.

The founder of FiveThirtyEight.com challenges myths about predictions in subjects ranging from the financial market and weather to sports and politics, profiling the world of prediction to explain how to distinguish true signals from hype.

Teaches the analytical skills necessary to glean value from the warehouses of accumulating data In this age of so-called Big Data, organizations are scrambling to implement new software and hardware to increase the amount of data they collect and store. However, in doing so they are unwittingly making it harder to find the needles of useful information in the rapidly growing mounds of hay. If you don't know how to differentiate signals from noise, adding more noise only makes things worse. When we rely on data for making decisions, how do we tell what qualifies as a signal and what is merely noise? In and of itself, data is neither. Assuming that data is accurate, it is merely a collection of facts. When a fact is true and useful, only then is it a signal. When it's not, it's noise. It's that simple. In "Signal," Stephen Few provides the straightforward, practical instruction in everyday signal detection that has been lacking until now. Using data visualization methods, he teaches how to apply statistics to gain a comprehensive understanding of one's data and adapts the techniques of Statistical Process Control in new ways to detect not just changes in the metrics but also changes in the patterns that characterize data.

Micro-Facts has proved to be a useful ready reference for practising food microbiologists and others concerned with ensuring the microbiological safety of foods. Micro-Facts 6th Edition is an invaluable tool for food microbiologists everywhere, as a source book of information relevant to the prevention of food-poisoning hazards worldwide.

"As is often noted, 'everyone talks about the weather, but no one does anything about it.' Not Bill Hooke! His thoughtful analysis of actions that we need to take to reduce the impacts of extreme weather is a must-read for everyone with an interest in the weather and climate." --Franklin W. Nutter, president, Reinsurance Association of America.

From the financial crisis to ecological disasters, we routinely fail to foresee hugely significant events, often at great cost to society. The rise of 'big data' has the potential to help us predict the future, yet much of it is misleading and useless. Nate Silver accurately predicted the results of every state in the 2012 US election, cementing his reputation as one of our most prophetic forecasters. Here he takes us on an enthralling insider's tour of the high-stakes world of prediction, showing how we can all learn to detect the true signals amid the noise of data. The International Bestseller An Economist and The Times Book of the Year 'The Galileo of number crunchers.' Independent 'A 34-year old Delphic Oracle.' Daily Beast 'Fascinating . . .' Bryan Appleyard, Sunday Times 'Outstanding . . . fun to read . . . I was hooked' Tim Harford, Financial Times 'Is there anything Nat Silver could tell us that we wouldn't believe?' Jonathan Freedland 'The inhabitants of Westminster are speed-reading The Signal and the Noise . . . Remarkable and rewarding.' Matthew D'Ancona, Sunday Telegraph 'An outlier if we've ever soon one' New York Observer A new kind of political superstar' Observer

Magic will break your heart. Mexico City, 1988: Meche is fifteen, awkward, and obsessed with music. Her world revolves around her two misfit friends, Sebastian and Daniela, and a stack of records. Then Meche discovers how to turn music into magic, and things takes a turn for the strange... Mexico City, 2009: Meche returns home for her estranged father's funeral. Her family are trouble enough, but when she runs into Sebastian, long-buried childhood memories resurface. What really happened back then – and is there any magic left?

Jack Potter puts computer cryptography to work for the highest bidder: sometimes for private corporations, sometimes for the government. Sometimes the work is legal; if not, Jack simply raises his price. But one day, Jack discovers something cloaked in the hiss of background radiation streaming past the Earth from deep space: a message from an alien civilization. One that's eager to do business with humanity

-- and its representative. Before he knows it, Jack has entered into a partnership that will open a Pandora's Box of potential profit and loss. The governments, the multinationals, and mysterious players more powerful still, all want a piece of the action -- and they're willing to kill, even wage war, to get it. Now Jack is entangled shifting web of deceit and intrigue in which no one, not even his closest friends, can be trusted. For Earth's cloak-and-dagger business practices are writ large in the heavens...and hostile takeovers are just as common across light years as they are across boardroom tables.

A guide to the most relevant issues in contemporary American politics provides nonpartisan coverage of a range of topics from the war in Iraq and climate change to the economy and renewable energy sources.

Concise, engaging, and highly intuitive—this accessible guide equips you with an understanding of all the basic principles of forecasting Making accurate predictions about the economy has always been difficult, as F. A. Hayek noted when accepting his Nobel Prize in economics, but today forecasters have to contend with increasing complexity and unpredictable feedback loops. In this accessible and engaging guide, David Hendry, Michael Clements, and Jennifer Castle provide a concise and highly intuitive overview of the process and problems of forecasting. They explain forecasting concepts including how to evaluate forecasts, how to respond to forecast failures, and the challenges of forecasting accurately in a rapidly changing world. Topics covered include: What is a forecast? How are forecasts judged? And how can forecast failure be avoided? Concepts are illustrated using real-world examples including financial crises, the uncertainty of Brexit, and the Federal Reserve's record on forecasting. This is an ideal introduction for university students studying forecasting, practitioners new to the field and for general readers interested in how economists forecast.

The book will help assist a reader in the development of techniques for analysis of biomedical signals and computer aided diagnoses with a pedagogical examination of basic and advanced topics accompanied by over 350 figures and illustrations. Wide range of filtering techniques presented to address various applications 800 mathematical expressions and equations Practical questions, problems and laboratory exercises Includes fractals and chaos theory with biomedical applications

Understanding the nature of random signals and noise is critically important for detecting signals and for reducing and minimizing the effects of noise in applications such as communications and control systems. Outlining a variety of techniques and explaining when and how to use them, *Random Signals and Noise: A Mathematical Introduction* focuses on applications and practical problem solving rather than probability theory. A Firm Foundation Before launching into the particulars of random signals and noise, the author outlines the elements of probability that are used throughout the book and includes an appendix on the relevant aspects of linear algebra. He offers a careful treatment of Lagrange multipliers and the Fourier transform, as well as the basics of stochastic processes, estimation, matched filtering, the Wiener-Khinchin theorem and its applications, the Schottky and Nyquist formulas, and physical sources of noise. Practical Tools for Modern Problems Along with these traditional topics, the book includes a chapter devoted to spread spectrum techniques. It also demonstrates the use of MATLAB® for solving complicated problems in a short amount of time while still building a sound knowledge of the underlying principles. A self-contained primer for solving real problems, *Random Signals and Noise* presents a complete set of tools and offers guidance on their effective application.

So much to read, so little time? This brief overview of *The Signal and the Noise* tells you what you need to know—before or after you read Nate Silver's book. Crafted and edited with care, Worth Books set the standard for quality and give you the tools you need to be a well-informed reader. This short summary and analysis of *The Signal and the Noise* by Nate Silver includes: Historical context Chapter-by-chapter summaries Important quotes Fascinating trivia Glossary of terms Supporting material to enhance your understanding of the original work About *The Signal and the Noise* by Nate Silver: Drawing on groundbreaking research, *The Signal and the Noise*, written by the founder and editor-in-chief of FiveThirtyEight.com, examines how data has been used in prediction and forecasting, and how to find the true signals—the points that indicate that something will happen—amidst noisy and distracting data. Addressing different fields of forecasting and predictions—from politics to earthquakes to poker—Silver explores the reasons why some things are easier to forecast, like the weather, while others are so difficult, such as terrorism. From one of the country's smartest thinkers. *The Signal and the Noise* provides vital insights into how to think about probability and predictions on the economy, climate change, sports, and other subjects that impact our lives. The summary and analysis in this ebook are intended to complement your reading experience and bring you closer to a great work of nonfiction.

WHAT ARE THE ODDS YOU'LL WIN THE LOTTERY? How long will your kids wait in line at Disney World? Who decides that “standardized tests” are fair? Why do highway engineers build slow-moving ramps? What does it mean, statistically, to be an “Average Joe”? NUMBERS RULE YOUR WORLD In the popular tradition of eye-opening bestsellers like *Freakonomics*, *The Tipping Point*, and *Super Crunchers*, this fascinating book from renowned statistician and blogger Kaiser Fung takes you inside the hidden world of facts and figures that affect you every day, in every way. These are the statistics that rule your life, your job, your commute, your vacation, your food, your health, your money, and your success. This is how engineers calculate your quality of living, how corporations determine your needs, and how politicians estimate your opinions. These are the numbers you never think about—even though they play a crucial role in every single aspect of your life. What you learn may surprise you, amuse you, or even enrage you. But there's one thing you won't be able to deny: *Numbers Rule Your World*... "An easy read with a big benefit." —Fareed Zakaria, CNN "For those who have anxiety about how organization data-mining is impacting their world, Kaiser Fung pulls back the curtain to reveal the good and the bad of predictive analytics." —Ian Ayres, Yale professor and author of *Super Crunchers: Why Thinking By Numbers is the New Way to Be Smart* "A book that engages us with stories that a journalist would write, the compelling stories behind the stories as illuminated by the numbers, and the dynamics that the numbers reveal." —John Sall, Executive Vice President, SAS Institute "Little did I suspect, when I picked up

Kaiser Fung's book, that I would become so entranced by it - an illuminating and accessible exploration of the power of statistical analysis for those of us who have no prior training in a field that he explores so ably." —Peter Clarke, author of Keynes: The Rise, Fall, and Return of the 20th Century's Most Influential Economist "A tremendous book. . . . If you want to understand how to use statistics, how to think with numbers and yet to do this without getting lost in equations, if you've been looking for the book to unlock the door to logical thinking about problems, well, you will be pleased to know that you are holding that book in your hands." —Daniel Finkelstein, Executive Editor, The Times of London "I thoroughly enjoyed this accessible book and enthusiastically recommend it to anyone looking to understand and appreciate the role of statistics and data analysis in solving problems and in creating a better world." —Michael Sherman, Texas A&M University, American Statistician

If you understand basic mathematics and know how to program with Python, you're ready to dive into signal processing. While most resources start with theory to teach this complex subject, this practical book introduces techniques by showing you how they're applied in the real world. In the first chapter alone, you'll be able to decompose a sound into its harmonics, modify the harmonics, and generate new sounds. Author Allen Downey explains techniques such as spectral decomposition, filtering, convolution, and the Fast Fourier Transform. This book also provides exercises and code examples to help you understand the material. You'll explore: Periodic signals and their spectrums Harmonic structure of simple waveforms Chirps and other sounds whose spectrum changes over time Noise signals and natural sources of noise The autocorrelation function for estimating pitch The discrete cosine transform (DCT) for compression The Fast Fourier Transform for spectral analysis Relating operations in time to filters in the frequency domain Linear time-invariant (LTI) system theory Amplitude modulation (AM) used in radio Other books in this series include Think Stats and Think Bayes, also by Allen Downey. Documents the 1952 Coast Guard mission to save the crews of two oil tankers that were torn in half by the force of one of New England's worst nor'easters.

What do Google, Snapchat, Tinder, Amazon, and Uber have in common, besides soaring market share? They're platforms - a new business model that has quietly become the only game in town, creating vast fortunes for its founders while dominating everyone's daily life. A platform, by definition, creates value by facilitating an exchange between two or more interdependent groups. So, rather than making things, they simply connect people. The Internet today is awash in platforms - Facebook is responsible for nearly 25 percent of total Web visits, and the Google platform crash in 2013 took about 40 percent of Internet traffic with it. Representing the ten most trafficked sites in the U.S., platforms are also prominent over the globe; in China, they hold the top eight spots in web traffic rankings. The advent of mobile computing and its ubiquitous connectivity have forever altered how we interact with each other, melding the digital and physical worlds and blurring distinctions between "offline" and "online." These platform giants are expanding their influence from the digital world to the whole economy. Yet, few people truly grasp the radical structural shifts of the last ten years. In Modern Monopolies, Alex Moazed and Nicholas L. Johnson tell the definitive story of what has changed, what it means for businesses today, and how managers, entrepreneurs, and business owners can adapt and thrive in this new era.

An indispensable guide for any recent graduate that provides simple, easy-to-follow rules for making smart personal finance choices during the first decade of one's career. • Demonstrates how simple choices, especially in the years after college, can guarantee (barring misfortunes such as catastrophic illness or drug addiction) a lifelong, healthy relationship with money • Illustrates how to apply the attitudes inherent in modesty, skepticism, and optimism to all financial decision-making, both upon graduating and in the future • Includes a math refresher for understanding the basic principles of interest rates, credit card debt, investment, and retirement savings • Demystifies without boring, simplifies without condescending to, and above all highlights the relevance and practical applications of financial planning during one's first ten years out of school NEW YORK TIMES BESTSELLER • NAMED ONE OF THE BEST BOOKS OF THE YEAR BY THE ECONOMIST "The most important book on decision making since Daniel Kahneman's Thinking, Fast and Slow."—Jason Zweig, The Wall Street Journal Everyone would benefit from seeing further into the future, whether buying stocks, crafting policy, launching a new product, or simply planning the week's meals. Unfortunately, people tend to be terrible forecasters. As Wharton professor Philip Tetlock showed in a landmark 2005 study, even experts' predictions are only slightly better than chance. However, an important and underreported conclusion of that study was that some experts do have real foresight, and Tetlock has spent the past decade trying to figure out why. What makes some people so good? And can this talent be taught? In Superforecasting, Tetlock and coauthor Dan Gardner offer a masterwork on prediction, drawing on decades of research and the results of a massive, government-funded forecasting tournament. The Good Judgment Project involves tens of thousands of ordinary people—including a Brooklyn filmmaker, a retired pipe installer, and a former ballroom dancer—who set out to forecast global events. Some of the volunteers have turned out to be astonishingly good. They've beaten other benchmarks, competitors, and prediction markets. They've even beaten the collective judgment of intelligence analysts with access to classified information. They are "superforecasters." In this groundbreaking and accessible book, Tetlock and Gardner show us how we can learn from this elite group. Weaving together stories of forecasting successes (the raid on Osama bin Laden's compound) and failures (the Bay of Pigs) and interviews with a range of high-level decision makers, from David Petraeus to Robert Rubin, they show that good forecasting doesn't require powerful computers or arcane methods. It involves gathering evidence from a variety of sources, thinking probabilistically, working in teams, keeping score, and being willing to admit error and change course. Superforecasting offers the first demonstrably effective way to improve our ability to predict the future—whether in business, finance, politics, international affairs, or daily life—and is destined to become a modern classic.

"Brilliant, funny . . . the best math teacher you never had."—San Francisco Chronicle Once considered tedious, the field of statistics is rapidly evolving into a discipline Hal Varian,

chief economist at Google, has actually called “sexy.” From batting averages and political polls to game shows and medical research, the real-world application of statistics continues to grow by leaps and bounds. How can we catch schools that cheat on standardized tests? How does Netflix know which movies you’ll like? What is causing the rising incidence of autism? As best-selling author Charles Wheelan shows us in *Naked Statistics*, the right data and a few well-chosen statistical tools can help us answer these questions and more. For those who slept through Stats 101, this book is a lifesaver. Wheelan strips away the arcane and technical details and focuses on the underlying intuition that drives statistical analysis. He clarifies key concepts such as inference, correlation, and regression analysis, reveals how biased or careless parties can manipulate or misrepresent data, and shows us how brilliant and creative researchers are exploiting the valuable data from natural experiments to tackle thorny questions. And in Wheelan’s trademark style, there’s not a dull page in sight. You’ll encounter clever Schlitz Beer marketers leveraging basic probability, an International Sausage Festival illuminating the tenets of the central limit theorem, and a head-scratching choice from the famous game show *Let’s Make a Deal*—and you’ll come away with insights each time. With the wit, accessibility, and sheer fun that turned *Naked Economics* into a bestseller, Wheelan defies the odds yet again by bringing another essential, formerly unglamorous discipline to life.

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.

This textbook introduces methods of geoscientific data acquisition using MATLAB in combination with inexpensive data acquisition hardware such as sensors in smartphones, sensors that come with the LEGO MINDSTORMS set, webcams with stereo microphones, and affordable spectral and thermal cameras. The text includes 35 exercises in data acquisition, such as using a smartphone to acquire stereo images of rock specimens from which to calculate point clouds, using visible and near-infrared spectral cameras to classify the minerals in rocks, using thermal cameras to differentiate between different types of surface such as between soil and vegetation, localizing a sound source using travel time differences between pairs of microphones to localize a sound source, quantifying the total harmonic distortion and signal-to-noise ratio of acoustic and elastic signals, acquiring and streaming meteorological data using application programming interfaces, wireless networks, and internet of things platforms, determining the spatial resolution of ultrasonic and optical sensors, and detecting magnetic anomalies using a smartphone magnetometer mounted on a LEGO MINDSTORMS scanner. The book’s electronic supplementary material (available online through Springer Link) contains recipes that include all the MATLAB commands featured in the book, the example data, the LEGO construction plans, photos and videos of the measurement procedures.

Why do stock and housing markets sometimes experience amazing booms followed by massive busts and why is this happening more and more frequently? In order to answer these questions, William Quinn and John D. Turner take us on a riveting ride through the history of financial bubbles, visiting, among other places, Paris and London in 1720, Latin America in the 1820s, Melbourne in the 1880s, New York in the 1920s, Tokyo in the 1980s, Silicon Valley in the 1990s and Shanghai in the 2000s. As they do so, they help us understand why bubbles happen, and why some have catastrophic economic, social and political consequences whilst others have actually benefited society. They reveal that bubbles start when investors and speculators react to new technology or political initiatives, showing that our ability to predict future bubbles will ultimately come down to being able to predict these sparks.

DIVExamines the role of media technologies in shaping urban Africa through an ethnographic study of popular culture in northern Nigeria./div

This account of the Pearl Harbor attack denies that the lack of preparation resulted from military negligence or a political plot

Signal Processing for Neuroscientists introduces analysis techniques primarily aimed at neuroscientists and biomedical engineering students with a reasonable but modest background in

mathematics, physics, and computer programming. The focus of this text is on what can be considered the 'golden trio' in the signal processing field: averaging, Fourier analysis, and filtering. Techniques such as convolution, correlation, coherence, and wavelet analysis are considered in the context of time and frequency domain analysis. The whole spectrum of signal analysis is covered, ranging from data acquisition to data processing; and from the mathematical background of the analysis to the practical application of processing algorithms. Overall, the approach to the mathematics is informal with a focus on basic understanding of the methods and their interrelationships rather than detailed proofs or derivations. One of the principle goals is to provide the reader with the background required to understand the principles of commercially available analyses software, and to allow him/her to construct his/her own analysis tools in an environment such as MATLAB®. Multiple color illustrations are integrated in the text Includes an introduction to biomedical signals, noise characteristics, and recording techniques Basics and background for more advanced topics can be found in extensive notes and appendices A Companion Website hosts the MATLAB scripts and several data files:

<http://www.elsevierdirect.com/companion.jsp?ISBN=9780123708670>

GKSS SCHOOL OF ENVIRONMENTAL RESEARCH The National Research Laboratory GKSS (member of the Hermann von Helmholtz-Association of German Reserach Centres) located in Geesthacht, near Hamburg, is engaged in environmental research. The main interest of the research center focuses on regional climatology and climate dynamics, interdecadal variations in the state of the Baltic and North Sea and related estuaries, and the flow of heavy metals, nutrients, and other materials in river catchments to the coastal zones. This research aims at developing an understanding of changes in the environment, both as a result of internal (natural) dynamics and as a result of anthropogenic interference. In an effort to disseminate the results of these research activities, as well as to initiate a broad discussion among senior scientists in the field, and younger colleagues from all areas of the globe, the Institutes of Hydrophysics and Atmospheric Physics at GKSS have instituted the GKSS School of Environmental Research. Applied environmental research has always contained an element of awareness of the societal implications and boundary conditions associated with environmental concerns. Consequently, the School of Environmental Research adheres to the philosophy that all discussion regarding environmental change should incorporate a social component. This necessity has been well acknowledged and is apparent by the incorporation of social scientists into the series of lectures. Senior scientists from Europe and North America were invited to give lectures to "students" from all parts of the globe.

Italy is a country of free political institutions, yet it has become a nation of servile courtesans, with Silvio Berlusconi as their prince. This is the controversial argument that Italian political philosopher and noted Machiavelli biographer Maurizio Viroli puts forward in *The Liberty of Servants*. Drawing upon the classical republican conception of liberty, Viroli shows that a people can be unfree even though they are not oppressed. This condition of unfreedom arises as a consequence of being subject to the arbitrary or enormous power of men like Berlusconi, who presides over Italy with his control of government and the media, immense wealth, and infamous lack of self-restraint. Challenging our most cherished notions about liberty, Viroli argues that even if a power like Berlusconi's has been established in the most legitimate manner and people are not denied their basic rights, the mere existence of such power makes those subject to it unfree. Most Italians, following the lead of their elites, lack the minimal moral qualities of free people, such as respect for the Constitution, the willingness to obey laws, and the readiness to discharge civic duties. As Viroli demonstrates, they exhibit instead the characteristics of servility, including flattery, blind devotion to powerful men, an inclination to lie, obsession with appearances, imitation, buffoonery, acquiescence, and docility. Accompanying these traits is a marked arrogance that is apparent among not only politicians but also ordinary citizens.

This "bible" of a whole generation of communications engineers was originally published in 1958. The focus is on the statistical theory underlying the study of signals and noises in communications systems, emphasizing techniques as well as results. End of chapter problems are provided. Sponsored by: IEEE Communications Society.

A film director is dying of cancer. His greatest film would have told the story of a European village as the last hour of 999 AD approached—bringing Armageddon. Now that story will never be told. But he's still working it out in his head, making a film that no one will ever see.

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