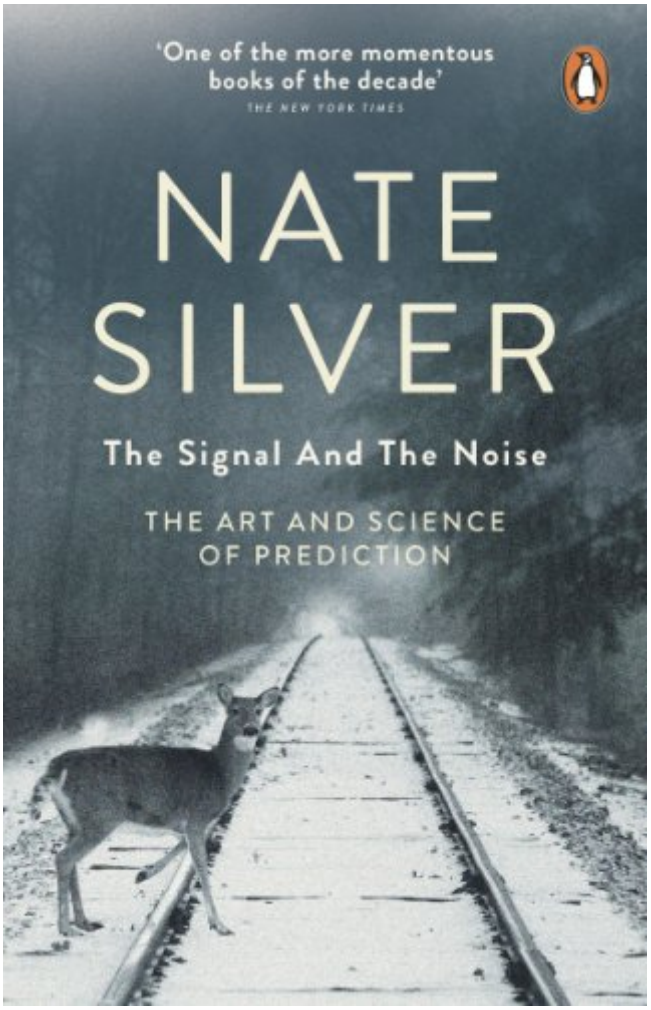
The Signal And The Noise: The Art And Science Of Prediction



Synopsis

Every time we choose a route to work, decide whether to go on a second date, or set aside money for a rainy day, we are making a prediction about the future. Yet from the global financial crisis to 9/11 to the Fukushima disaster, we often fail to foresee hugely significant events. In The Signal and the Noise, the New York Times' political forecaster and statistics guru Nate Silver explores the art of prediction, revealing how we can all build a better crystal ball. In his quest to distinguish the true signal from a universe of noisy data, Silver visits hundreds of expert forecasters, in fields ranging from the stock market to the poker table, from earthquakes to terrorism. What lies behind their success? And why do so many predictions still fail? By analysing the rare prescient forecasts, and applying a more quantitative lens to everyday life, Silver distils the essential lessons of prediction. We live in an increasingly data-driven world, but it is harder than ever to detect the true patterns amid the noise of information. In this dazzling insider's tour of the world of forecasting, Silver reveals how we can all develop better foresight in our everyday lives.

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Customer Reviews

This is the best general-readership book on applied statistics that I've read. Short review: if you're

interested in science, economics, or prediction: read it. It’s full of interesting cases, builds intuition, and is a readable example of Bayesian thinking.Longer review: I’m an applied business researcher and that means my job is to deliver quality forecasts: to make them, persuade people of them, and live by the results they bring. Silver’s new book offers a wealth of insight for many different audiences. It will help you to develop intuition for the kinds of predictions that are possible, that are not so possible, where they may go wrong, and how to avoid some common pitfalls.The core concept is this: prediction is a vital part of science, of business, of politics, of pretty much everything we do. But we’re not very good at it, and fall prey to cognitive biases and other systemic problems such as information overload that make things worse. However, we are simultaneously learning more about how such things occur and that knowledge can be used to make predictions better -- and to improve our models in science, politics, business, medicine, and so many other areas.The book presents real-world experience and critical reflection on what happens to research in social contexts. Data-driven models with inadequate theory can lead to terrible inferences. For example, on p. 162: "What happens in systems with noisy data and underdeveloped theory - like earthquake prediction and parts of economic and political science - is a two-step process. First, people start to mistake the noise for a signal. Second, this noise pollutes journals, blogs, and news accounts with false alarms, undermining good science and setting back our ability to understand how the system really works.

Excellent book!!! People looking for a "how to predict" silver bullet will (like some reviewers here) be disappointed, mainly because Silver is too honest to pretend that such a thing exists. The anecdotes and exposition are fantastic, and I wish we could make this book required reading for, say, everyone in the country.During election season, everyone with a newspaper column or TV show feels entitled to make (transparently partisan) predictions about the consequences of each candidate’s election to unemployment/crime/abortion/etc. This kind of pundit chatter, as Silver notes, tends to be insanely inaccurate. But there are also some amazing success stories in the prediction business. I list some chapter-by-chapter takeaways below (though there’s obviously a lot depth more to the book than I can fit into a list like this):1. People have puzzled over prediction and uncertainty for centuries.2. TV pundits make terrible predictions, no better than random guesses. They are rewarded for being entertaining, and not really penalized for being wrong.3. Statistics has revolutionized baseball. But computer geeks have not replaced talent scouts altogether. They’re working together in more interesting ways now.4. Weather prediction has gotten lots better over the last fifty years, due to highly sophisticated, large-scale supercomputer modeling.5. We have almost

no ability to predict earthquakes. But we know that some regions are more earthquake prone, and that in a given region an earthquake of magnitude n happens about ten times as often as an earthquake of magnitude (n+1).6. Economists are terrible at predicting quantities such as next year's GDP. Predictions are only very slightly correlated with reality.

This book was a disappointment for me, and I feel that the time I spent reading it has been mostly wasted. I will first, however, describe what I thought is *good* about the book. Everything in this book is very clear and understandable. As for the content, I think that the idea of Baysean thinking is interesting and sound. The idea is that, whenever making any hypothesis (e.g. a positive mammogram is indicative of breast cancer) into a prediction (for example, that a particular woman with a positive mammogram actually has cancer), one must not forget to estimate all the following three pieces of information:1. The general prevalence of breast cancer in population. (This is often called the "prior": how likely did you think it was that the woman had cancer before you saw the mammogram)2. The chance of getting a positive mammogram for a woman with cancer.3. The chance of getting a positive mammogram for a woman without cancer.People often tend to ignore items 1 and 3 on the list, leading to very erroneous conclusions. "Bayes rule" is simply a mathematical gadget to combine these three pieces of information and output the prediction (the chance that the particular woman with a positive mammogram has cancer). There is a very detailed explanation of this online (search Google for "yudkowsky on bayes rule"), no worse (if more technical) than the one in the book. If you'd like a less technical description, read chapter 8 of the book (but ignore the rest of it).----------Now for the *bad*. While the Baysean idea is valuable, its description would fit in a dozen of pages, and it is certainly insufficient by itself to make good predictions about the real world.

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