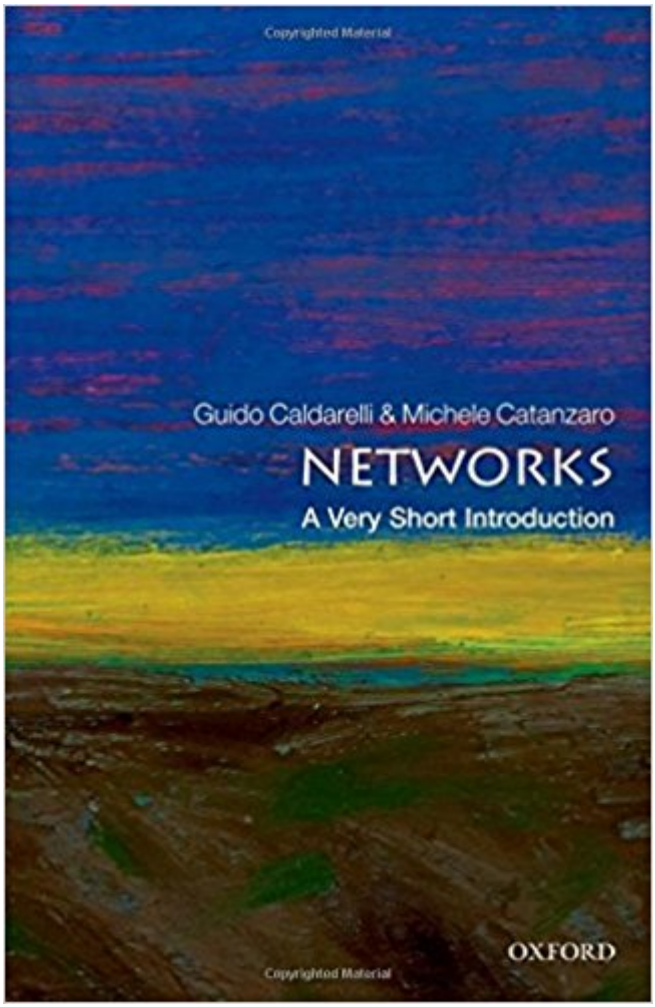
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Networks: A Very Short Introduction (Very Short Introductions)



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Synopsis

Networks are involved in many aspects of everyday life, from food webs in ecology and the spread of pandemics to social networking and public transportation. In fact, some of the most important and familiar natural systems and social phenomena are based on a networked structure. It is impossible to understand the spread of an epidemic, a computer virus, large-scale blackouts, or massive extinctions without taking into account the network structure that underlies all these phenomena. In this Very Short Introduction, Guido Caldarelli and Michele Catanzaro discuss the nature and variety of networks, using everyday examples from society, technology, nature, and history to illuminate the science of network theory. The authors describe the ubiquitous role of networks, reveal how networks self-organize, explain why the rich get richer, and discuss how networks can spontaneously collapse. They conclude by highlighting how the findings of complex network theory have very wide and important applications in genetics, ecology, communications, economics, and sociology.

Book Information

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Customer Reviews

Guido Caldarelli is Associate Professor in the Institute of Complex Networks of the National Research Council in Rome, Italy. He is an expert of scale-free networks and self-similar phenomena, especially of the applications of network theory to information technology and biology. Michele Catanzaro is a freelance science writer based in Barcelona, Spain.

The book walks you through the various networks, the Internet, food webs (they’re not chains as you would have told before), molecular networks, sexual partners and airline networks, among many. There are a bunch of tidbits of information throughout the book to keep you entertained but you won’t get lost in the myriads of networks quoted in the book as the author uses these fun facts about networks effectively to paint the overall road map of what network theory is and where it is headed.There are two things I particularly liked about the book. The first thing is that it provides us with an alternative way to understand familiar natural or social phenomena. Without network structures in mind, it is hard to understand why extinction of one species leads to extinction of other ostensibly unrelated species, or why African Americans are 1.3 times more likely to contract STI’s than white counterparts. It is important to recognize the part network plays if we are to take any policy interventions to prevent extinction or spread of viruses, or else we can waste tons of resources for nothing. We can’t see the forest for the trees.The second thing is that author direct us to the idea of centrality without getting too technical. The number of links is one way to measure how important (or central) the node is, but it is just one way to do so. There are a few other useful ways to gauge the centrality and the authors explain what these are and how these can explain the phenomena that cannot be explained by a simple degree. My favorite example in the book was Anchorage airport, whose links are not that many but important nonetheless on the other metric (I’ll stop right here because I don’t want to spoil the surprise for you). Once again, the book makes us realize that we need to acknowledge not just the number of links each node has but also *how* it is placed in the network to detect where the choke point is or to construct robust networks.A little drawback of the book is the lack of graphs. I was hoping to see more graphical representations. The author warns of the use of a graph to represent certain types of networks and I totally agree. But then there are occasions when a picture is worth a thousand words, and it is especially true when your subject is *graph* theory. For example, the explanation of transitivity could use a little graph, with just three nodes, which would have saved a lot of explanations. This is definitely not a deal breaker though.Overall, an entertaining and easy-to-read introductory book on network.

This is a good introduction to network analysis. It describes the relevant concepts, presents some bits of its historical development and provides numerous examples of networks in the natural and social worlds. It does not use any mathematical formulation, which is good for beginners without a strong technical background, but makes it difficult to precisely understand some concepts. The main drawback of the book is the lack of a "roadmap" in the beginning. Each chapter is packed with very intersting information, but it is hard to figure out a logical sequence in which the main themes of the

chapters are linked. As a result, at some point the reader may be lost in the details of a chapter without a clear understanding of how it relates to the whole survey. The book could greatly benefit from a "roadmap" in the introduction.

This is a wide and loose discussion about how networks can unveil hidden complexity in systems. The whole thing is illustrated meshing up networks such as social interactions and web links. No metric/concept is defined formally, though.

A good short introduction to the issue of networks. It really does cover the breadth of network types. Would love to have one focused on social networks, specifically.

This is by far the best introductory book on the subject that I could find. I read three other books written by experts in the field: "Linked" by Barabasi, "Connected" by Christakis and found both to be shallow; also "Understanding Social Networks" by Kadushin which is too dense. I highly recomend this book for its accessibility, clarity, substance and breadth of coverage.

Great thank you

Very useful. I think it is a great, simple introduction. I would specially recommend it to those interested in complex networks with a background in social sciences and humanities.

Usefull minibook.

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